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Journal

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front: J M W Turner (1844) 'Rain, Steam, and Speed – the Great Western Railway' (National Gallery) (see pp.10-20)

back: William Dawson (1847) three details from the Newton Abbot sheet of 'South Devon Atmospheric Railway from the working plans and sections with sketches on either side of the line. Part I: From Exeter to Totnes' (Institution of Civil Engineers Archives) (see pp.40-43)

Trent & Mersey Canal Early Notices and Posters

Peter Brown

Late 18th and early 19th century canal ephemera has rarely survived, so when the Railway & Canal Historical Society heard that someone wished to dispose of some Trent & Mersey Canal notices which had been inherited, the Managing Committee decided to buy them in order that they could become available to anyone interested in canal history. The purchase was negotiated, financed from the RCHS's Legacies Fund, and after the notices were imaged, they were donated to the Canal & River Trust's Waterways Archive at Ellesmere Port.

In total there are 115 notices, of which nine are duplicates, glued on hand-numbered pages bound in a cloth cover. They range in size from 7½x6 inches up to 22x17½ inches. This must have been an official compilation because the last page contains a printed index. Its purpose is a mystery, as most of the notices were out of date by the time they were brought together. Nor is it known how they came into the possession of Jack Taylor, a British Waterways employee at Middlewich who retired in the early 1970s.

With three exceptions — one from each of 1776, 1777 and 1818 — the period covered is from 1785 to 1813. They are not mounted in the book in date order, though the earliest tend to be first.

The Trent & Mersey Canal, England's first trunk canal, opened in stages between 1772 and 1777. Some boats were operated on behalf of the canal company under the trading name of Hugh Henshall & Co., whereas others were operated by independent firms. This canal system was therefore an important pioneer in canal management.

The branch to Froghall (now generally known as the Caldon Canal) opened in 1778, together with the company's 'railway' line from the limestone quarries at Caldon Low. The railway was rebuilt and partly realigned in the mid-1780s, and totally altered again in 1804.

The title 'Trent & Mersey Navigation' was used in only one notice,¹ as was the title 'Grand Trunk Canal';² most notices were headed 'Navigation from the Trent to the Mersey'. The Clerk to the canal company was Thomas Sparrow, Town Clerk of Newcastle-under-Lyme and Josiah Wedgwood's solicitor; most of the notices appeared under his name. Others, concerned

with day-to-day matters, were under the name of William Robinson at the Navigation Office, Stone, the company's Principal Agent (equivalent to General Manager).

The notices give an impression of the canal company's management practices and worries, in a way which tends not to emerge from a study of minute books. Indeed, as the Trent & Mersey's minutes have not survived, the collection has extra historic value.

Rates and charges

Nine of the notices stated the charges for transport, warehousing, portorage, cramage and weighing. One of these dealt with earthenware in crates and hogsheads going to Gainsborough (for transshipment onto boats bound to London) and to Liverpool, which were charged by volume and not by weight.³

The practical problems of allowing 21 or 22 hundredweights (cwt) to the ton are evident from a large conversion chart for weights up to 25 tons. This showed that, for example, 20 tons actual loaded weight became 19 tons, 3 quarters and 24²/₇ pounds at the reduced weight of 21cwt to the ton; and that the charge was then based on 19 tons, 1 cwt.⁴ Weights were not standardised nationally until the Weights & Measures Act 1824, but local usage persisted for many years thereafter.

Instructions to employees

Nine of the documents were standard forms of letters for the use of staff at wharves and warehouses. Of greater interest are the instructions to these staff about how to do their jobs.

Detailed instructions for warehouse-keepers were issued in 1805. Certain consignments needed special attention: soft cheese should not be accepted; loose grain had to be turned at least once a week; and slings and canhooks should be used with particular care, especially when hoisting wines, spirits, groceries and other valuable goods. Perhaps surprisingly, no preference was to be given to Hugh Henshall & Co. when forwarding goods — items received where no carrier was specified were to be delivered to 'the first carrier of known responsibility'.⁵

Wharfingers and toll-collectors had wider responsibilities than just their wharf and warehouse. They were also expected to have a supervisory role over the boatmen, checking that the company's boats passing the wharf had their cargoes properly stowed and covered, and that the holds of boats were free of water. They were to 'strictly attend to the conduct of boatmen, ... carefully avoid associating with such boatmen, that a proper subordination may be at all times supported'. Wharfingers and toll-collectors had to check that the goods carried by other boats agreed with their way-bill and to take action if there was any suspicion of deception.

They were also exhorted to use their utmost endeavours to discover and apprehend not only the stealers of goods but also the receivers of stolen goods, 'in due form of law' examining dwelling houses and other places where stolen goods were suspected of being concealed.⁶

In 1800 the committee observed that the instructions were often being ignored, so it was decided to remind employees that they must pay strict attention to their duties; if someone was found negligent they would be suspended for the first offence and dismissed for the second. A new instruction required wharfingers to check the time each boat had taken in coming from the previous wharf, and if this appeared to be longer than necessary to ascertain the cause and make a note on the way-bill.⁷

The canal committee considered that some alehouse-keepers were allowing boatmen and other employees 'to remain tippling in their houses at unseasonable times and longer than is necessary for refreshment'. The principal worry was that cargoes were being left unattended, though no doubt drunkenness was also a factor. The company's surveyors and agents were instructed to monitor this, and if necessary the Principal Agent or the committee would commence proceedings against the alehouse-keeper for breaching his licence.⁸

One poster, headed 'Caution to Boatmen', gave the public confession of David Bosworth to riotous and abusive behaviour whilst intoxicated, resulting in preventing boats getting through a lock at Stone for several hours. He promised to observe the regulations in future, and was 'humbly thankful' for the legal proceedings being suspended.⁹

Another concern was Sunday observance. An early poster commanded that all employees and other people using the canal must not break the Sabbath,

quoting an Act passed in the reign of Charles II: 'No person shall use, employ, or travel on the Lord's Day, with any boat ... on pain of forfeiting five shillings'. A later poster referred only to use of a boat 'during divine service on the Lord's Day'.¹⁰

The Humane Society in London sold the company six sets of apparatus to help people 'apparently dead by drowning, suffocation, etc'; these were located at the wharves at Shardlow, Rugeley, Stone, Etruria, Cheddleton and Middlewich. Detailed instructions were issued, including 'The smoke of Tobacco should early be thrown up the Fundament [anus] by a common pipe or fumigator'.¹¹

Boats and boating

The provisions of the Acts and bye-laws setting out the rules to protect the assets of the company, including avoiding the waste of water, were much as might be expected. However, there was an explicit requirement to shut all gates and lower all paddles after passing through locks. In dry seasons, locks

Caution To BOATMEN.

WHEREAS, I, DAVID BOSWORTH, working as Hand to THOMAS TOMPSON, Master of a Boat in the employ of Mr. JONATHAN HIGGINSON, when in a State of Intoxication at STONE, on WEDNESDAY the 6th Day of OCTOBER instant, did behave in a most riotous and abusive manner, which caused an Assemblage of Persons, whereby peace and good order was greatly disturbed, and a total obstruction to the passage of Boats thro' the Lock of the Navigation, was occasioned for several hours.

And whereas the Officers of the Company had very properly ordered a PROSECUTION against me for these Offences, but upon my earnest intreaty, and being myself fully sensible of my Fault, and being resolved to conduct myself orderly in future, and to observe the Laws made for regulating Boatmen, the proceedings at Law have been suspended, for which I am humbly thankful.

*Signed by the said DAVID BOSWORTH,
this 14th day of October, 1813, in
my presence,*

G. ALLEN.

The Mark of
✕
DAVID BOSWORTH.

Smith, Printer, Newcastle.

must not be emptied if there was a boat coming the other way within 300 yards.

Locks were closed at night, the hours being defined in 1801 as from 9pm to 4am from March to October and from 6pm to 6am from November to February. The same notice stipulated the hours of entry into Harecastle Tunnel: northbound between 4am and 5am, noon and 1pm, and 8pm and 9pm; southbound between 8am and 9am, and 4pm and 5pm. These times applied all year round. Boats had to make their passage within three hours of entering.¹²

In 1806 the rules for Harecastle Tunnel were changed to allow 24-hour working. Northbound, entry was at 6am, noon, 6pm and midnight, or within a quarter of an hour thereafter; southbound, entry was at 3am, 9am, 3pm and 9pm, or within a quarter of an hour thereafter. Preston Brook Tunnel also had 24-hour working, with set periods for entering.¹³

In 1805 a bye-law was passed to the effect that 'indulgence' (reduction) in tonnage charges for light loading would apply only to boats 70ft long and 6ft 11in wide, the reason being that some traders in limestone and coal used boats built to smaller dimensions, which wasted water when passing through locks. As these were explicitly not fly-boats, it is unclear what advantage could be derived from having boats carrying only 80% of the load of a full size boat.¹⁴

Special instructions were given for the company's boats during icy weather. Clean straw was to be placed over the load, and the tarpaulins on top were to be well secured. Boats must be pumped out at least twice a day. The nightly stop must be at an official wharf; before leaving in the morning, the boatman must be reasonably sure that he can reach another wharf. If he was held up for more than two days at a wharf, he must write to the Principal Agent, stating where he loaded, where he was, and where he was going to.¹⁵

Masters (steerers) of the company's boats were responsible for the care of the goods on the boat and would be charged the cost of any loss or damage; they were required to give securities for this. They were also explicitly forbidden from supplying coal to lock-keepers, labourers and other canal staff. The committee recommended that other firms transporting coals should not allow their boaters to deliver coal to their wives or other persons without written permission. Masters of boats would be held liable for any trespasses committed by them or their crew. Owners of boats were liable for any damage caused

to locks and bridges, either wantonly or through carelessness.¹⁶

Landowners were naturally concerned about their property being violated, so the Acts specified that nobody could have a fishing net or gun on board. A bye-law was passed in 1789 prohibiting boatmen from trespassing on land adjacent to the canal or cutting corn or hay; indeed, it was forbidden to have a scythe on board unless it was truly part of the cargo. Following problems of boatmen's dogs injuring livestock, a bye-law was made preventing dogs running loose on the towpath or adjacent land; dogs were not banned, but they should be kept chained.¹⁷

The laws and bye-laws were enforced through a series of fines. Because of the concern that 'great injuries' were being done to locks and bridges by boatmen, a reward of one guinea (£1.1s) was given to anyone providing information which led to a conviction. Boatmen employed by the company would be dismissed and their name put on a list, so ensuring they were never again employed.¹⁸

For added security, company boats were required to stop overnight only at certain wharves.¹⁹ This requirement was strengthened by being included in an Act in 1809, which stated the reason as being:

That great Injuries, (both public and private) had been occasioned by boats stopping and lying at obscure and improper places on this Canal, thereby affording Facilities to evil disposed Persons to plunder and rob the Cargoes, and to the Persons having the care of such Boats to trespass on the Lands and Grounds adjoining.

The company authorised 17 stopping places on the main line plus Runcorn; these were roughly equally spaced plus some extra in the Potteries, the greatest distance between any two being nine miles between Wincham (near Northwich) and Preston (north of Preston Brook Tunnel). Three stopping places were specified on the Caldon Branch, including both Stockton Brook and Park Lane, which are less than two miles apart, but neither Froghall nor Leek — surprising omissions. Two stopping places on the Uttoxeter Branch were named: Rochester and Uttoxeter.²⁰

In the same year, because of allegations of damage and delay to earthenware being taken to Liverpool, greater controls were introduced, the boats being required to stay overnight at specific places, depending when they went through Harecastle Tunnel. The summer timetable, for example, was:

- Harecastle 6am, first night at Middlewich, second at Runcorn;
- Harecastle noon, first night at Wheelock, second at Runcorn; or
- Harecastle 6pm, first night Red Bull, second Middlewich, third Runcorn.

Proper accommodation for boatmen and horses was provided at these overnight stops. A night-watchman was employed, whose duties included checking the cargo and ensuring a prompt start was made in the morning.²¹

In 1800, 'from a desire to promote sobriety and diligence', the company introduced an incentive scheme for its boatmen, whereby gratuities would be paid to the five boatmen who had in the year travelled the greatest number of miles and delivered their cargoes in the best condition. The top award was five guineas (£5.5s).²²

The railway from Froghall to Caldon Low

The company's railway had its own specific by-laws. Those issued in 1785 limited the loading of waggons to 4 tons, and included a requirement that waggons going down the railway must not go faster than a horse could walk. People were not permitted to travel on waggons.

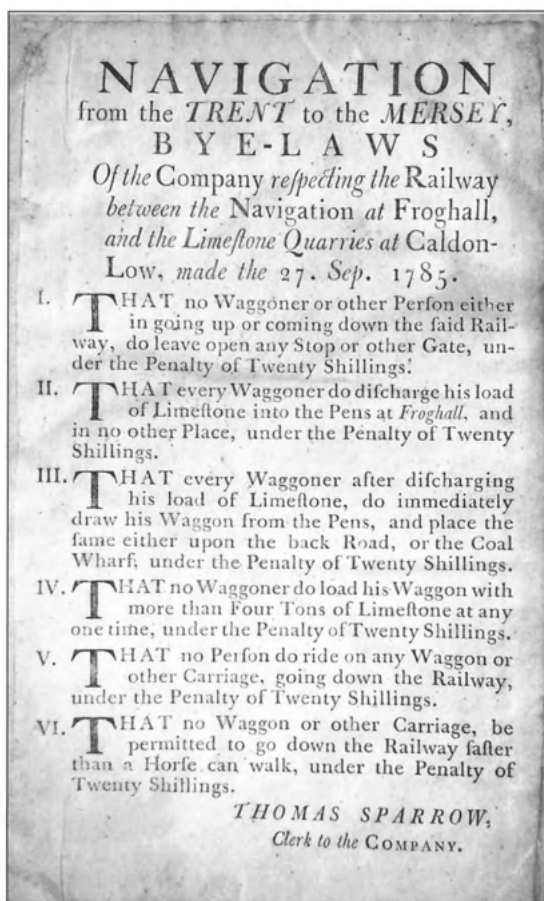
The times when the waggons could travel were specified. The winter timings for going down to Froghall wharf were before 10am and between 1pm and 3pm; the down summer timings were before 8am, between 11am and 1pm, and between 3.30pm and 5.30pm. Outside these times was reserved for waggons being taken up to Caldon Low.²³

Crime and crime prevention

The canal was vulnerable to wilful damage. A particularly serious incident occurred on the evening of Sunday 5 October 1806, when someone threw large stones into Sandon, Weston and Hoo Mill Locks, preventing the upper gates from being opened. The bridge at Hoo Mill was damaged at the same time.²⁴

Another continuing concern was theft. Reducing the opportunities for pilfering was a major reason given for taking action against unauthorised people using or loitering on the towpath. (A second reason was that it prejudiced the tolls on the adjacent turnpike roads)²⁵

Harecastle Tunnel, both when waiting and when passing through, was considered particularly vulnerable. Specifically, boat masters were banned from accepting offers of assistance through the tunnel.²⁶



Rewards, typically five guineas (£5.5s) or ten guineas (£10.10s) were offered for information leading to a conviction.²⁷ Sometimes the offer of a reward included a provision that if an accomplice gave the information, he would receive the same award and his pardon.

Examples of robberies for which specific rewards for information were offered were:

- Red Bull warehouse: 88½ yards of light Holland cloth, 44½ yards of check, 44 yards of calico, and 4 dozen blue calico handkerchiefs;
- Red Bull, from a boat: a bag containing six bushels of malt;

Robbery.

WHEREAS on MONDAY NIGHT the 9th, or early on TUESDAY MORNING the 10th instant, the WAREHOUSE at WINCHAM WHARF, near NORTHWICH, in the County of Chester, was entered into by some Person or Persons unknown, and the following Articles stolen thereout:

*Four Chests of Tea ;
One Chest containing the under-mentioned Silver Articles, viz.
Two Coffee-Pots,
Five Chamber Candlesticks with Glass Shades,
Four Pair of Snuffers,
Three Chamber Candlesticks,
Six Egg Cups,
Four Gravy Spoons,
One Soup Ladle,
Twenty-Three Tea Spoons,
And Six Pair of Steel Snuffers.*

Whoever will give such Information as may lead to a Discovery of the Offender or Offenders, shall, on Conviction, receive a Reward of

50 Guineas;

and if more than one Person was concerned in the said Robbery, and any of them will discover his Accomplice or Accomplices, he shall, on Conviction, receive the like Reward, and every legal means used to obtain a Pardon.

NAVIGATION OFFICE,
STONE, April 10th, 1810.

Wm. ROBINSON,

Solicitor, Northwich.

- Etruria wharf or warehouse: a truss marked 'Mr Sampson Wright, Hanley' containing mercery goods — 'durants, calimancoes, shalloons, blackbores, lastings, mixture camblets, etc';
- Shardlow warehouse: two bags of shot, one keg of paint, and one box with unknown contents;
- Stone, from a boat: two bags, each containing six bushels of malt;
- Wincham warehouse: box containing clothes, books and instruments, another box containing 'Spanish juice', and a bag containing tea;
- Booth Lane boatyard, Middlewich, from a boat: 25 yards superfine woollen cord, 168 yards calimanco and a quantity of scotch thread;
- Rugeley wharf counting house: about 40 shillings worth of copper coin, four pairs of shoes and two pairs of boots; and
- Wincham warehouse: silverware — so valuable that a 50 guinea (£52.10s) reward was offered.²⁸

In this last case it became known that Samuel Lightfoot had committed the robbery, but he absconded — and a £10 reward was offered for causing his capture.²⁹

Just like transport networks today, the company was vulnerable to theft of iron, wood and other material, the Caldon Low railway being a particular target. Not only was a reward offered for information, but also blacksmiths and others who bought old iron were warned to be 'very cautious from whom and what they buy'.³⁰

If any employee found iron, tools or goods hidden near the canal, they were instructed to take them to the nearest company warehouse, so that the wharfinger could attempt to return them to their lawful owner. Rewards would be given.³¹

One notice was a caution against the 'wicked trade' of unlawfully dealing in salt. From the wording, it is clear that this was aimed at boatmen plying a sideline, rather than boat owners.³²

Publicity was given to the sentences of people convicted of stealing from boats or warehouses, in the hope of deterring others. In 1790, such cases were:

- William Lant: twelve months imprisonment for stealing wrought and cast iron implements out of a boat;
- Thomas Dean: transportation for fourteen years for receiving those iron implements, knowing them to be stolen;

10 Pounds REWARD.

SAMUEL LIGHTFOOT, of LOSTOCK, in the County of CHESTER, *Labourer*, stands charged with a FELONY at WINCHAM WHARF, in the said County, and in consequence thereof he has absconded.

Whoever will apprehend or cause the said *Samuel Lightfoot* to be apprehended and brought to Justice, shall receive the above

Reward,

from Mr. ROBINSON, NAVIGATION OFFICE, STONE, Staffordshire.

SAMUEL LIGHTFOOT is about the Middle Size, very dark Complexion, black Hair, and had on a Snuff coloured Coat.

STONE, April 28th, 1810.

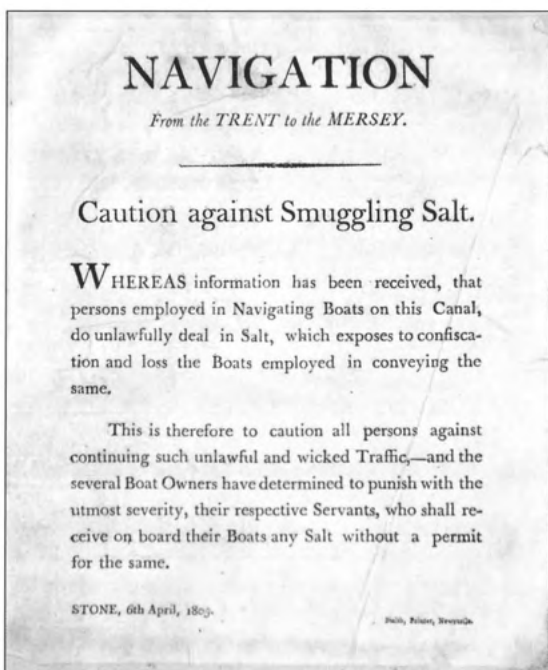
Wm. ROBINSON,

- Edward Ward and John Fenton: transportation for seven years for stealing tallow;
- James Stapleton: transportation for seven years for stealing salt; and
- William Riley: transportation for fourteen years for receiving the salt, knowing it to be stolen.

Dean and Riley were both of Alrewas — obviously then a hot-bed of crime.³³

- Daniel Taylor: salt from Mr Caulton's boat;
- John Shorthose: tow from Shardlow warehouse; and
- R A Wilkinson: wearing apparel from Mr Bache's boat.

Taylor was imprisoned for one month and Jones for six months; the others were transported for seven years.³⁵



In an effort to combat theft, the company led in the formation of the Stone Boat Association for Apprehending and Prosecuting Felons. Fourteen firms of carriers participated, including Thomas & James Pickford & Co. and Worthington & Gilbert. A reward of five guineas (£5.5s) was paid for information about thefts from wharves, warehouses or boats, with a further reward of twenty guineas (£21) for information about receivers of stolen goods.³⁴

A notice announced the successful prosecutions in the year to June 1803:

- Thomas Robinson and Thomas Jones: velveteen etc from Messrs Pickford's boat;
- William Heath, junior: muslin and calico wrappers from Messrs Pickford's boat;
- Benjamin Thompson and Richard Gibbert: calico from Messrs Pickford's boat;

Public relations

In the year the canal fully opened, Hugh Henshall & Co. published a notice giving comparative cost of using the firm's boats compared with land carriage. For example, the price per ton between Birmingham and Manchester was £1.10s by boat and £4 by road. Another notice promoted the conveyance of yarn from Hull to Manchester; this would take no more than a fortnight, and an inspector would be employed at Manchester specifically to check the packages on arrival.³⁶

Henshall & Co. announced that 'at great expense' they had provided decked boats with locks and keys so that wines, spirits and other particularly valuable goods could be conveyed in safety.³⁷

One poster announced the decision of Stafford Assizes which confirmed the right of the canal company to take water coming out of a coal mine at Little Fenton (about where Stoke-on-Trent railway station is now). The Court also ruled that Thomas Broade, the land-owner, had to repair the trench and aqueduct which he had destroyed. The poster emphasised that wilful destruction of canal property could incur a penalty of transportation for seven years.³⁸

Another announced the result of a meeting at the 'Roe-buck' in Newcastle on 18 May 1796 to consider making branch canals to Burslem, Hanley, Shelton and Lane End, and stated that Mr Henshall was to carry out surveys. An Act the following year authorised the branches but only that towards Burslem was built, the others being largely replaced by railways.³⁹

A few posters gave the reasons why the company was opposing various proposals for canals. Typically, these stated that the 'established rights' of the company would be 'violated and invaded' — and that such 'wild speculation' would make uncertain the returns to people who had previously taken the risk of investing in canals, or, as one poster put it, 'that property which the Legislature has entrusted to their care'. One assertion was particularly dubious:

The word MONOPOLY is industriously founded thro' the Country tho' the opprobrious Term is as inapplicable as it is malevolent, these Canals being as free and open to the Public as a common Turnpike-road.

Access to the canals was open to all, but the accusation of monopoly concerned the tolls, not the access.⁴⁰

Another recurring objection concerned water supplies. This was even a factor in opposing a proposal for a canal from Marple on the Peak Forest Canal which would lock down into the summit level of the Caldon Canal. The notice pointed out that although boats would bring water into the Caldon Canal, they would then use that water to descend further. A more understandable reason was that the Trent & Mersey Canal wished to build a reservoir at Rudyard, in the valley through which the proposed new canal would pass. The lengthy notice about why this canal should be opposed stated that the Peak Forest Canal 'like many other new Speculations is, from want of sufficient Foresight and Caution, not in the most prosperous state'.⁴¹

One notice was in reaction to 'several anonymous publications having been circulated in the Pottery to prejudice the public mind against the Company'. The accusations, it said, were false, invidious and malevolent. Many items were charged at lower rates than the law allowed. Their warehouses yielded little or no profit. They had entered the 'troublesome business' of being a carrier only to encourage trade; and if they had obtained a large share of the traffic, it was because they were cheaper than other carriers.⁴²

The company demonstrated its social conscience in October 1800, when it decided that imported corn could travel toll-free for the next two months, in order to 'relieve the distresses of the Poor, and the labouring part of the Community'.⁴³

The following month the company reacted to 'false and injurious' rumours that large quantities of corn had been sent out of the country by canal, stating that in the past five months 157,480 bushels of foreign wheat had been imported through Liverpool alone. A further rumour that large quantities of corn had been thrown into the canal and destroyed was dismissed as being 'too incredible and absurd to need any serious notice'.⁴⁴

Unanswered questions

These notices tell us a lot, but also invite questions.

Why did canal companies tolerate multiple definitions of a ton, which made for complex calculations and must have caused misunderstandings, rather than giving a concession by reducing the charge per ton? How did canal companies calculate their charges in a way which reconciled profit, competitiveness, fairness and obeying the law? Why is there only one poster which invites customers to send their goods by the company's own carrier, Hugh Henshall & Co. — or is it merely because such posters have not survived?

To what extent did employees actually follow the detailed instructions? One gets the impression, as time went on, that local management became lax, leading the committee to reinforce their previous instructions — but is this a fair assessment?

The regulations required steerers to give securities for their conduct. Was this practicable? Or were any financial penalties imposed actually made by deduction from wages?

Did the incentive scheme for boatmen introduced in 1800 continue? Did other contemporary canal companies have similar schemes?

Associations for apprehending and prosecuting felons were quite common in the early nineteenth century, before the establishment of the county police forces and in a time when prosecutions were generally brought by individuals, not the state. Even a small town such as Market Drayton had three, though they tended to degenerate into dining clubs.⁴⁵ How long did the Stone Association last? Was it unique as an association of canal carriers?

And how valid was the argument that a major and risky financial investment sanctioned by Act of Parliament implied an expectation that Parliament should subsequently protect that investment from competition? This attitude was certainly a factor in the sanctioning of tolls at Autherley Junction and Middlewich in the Birmingham & Liverpool Junction's 1826 Act and the Ellesmere & Chester Canal's 1827 Act. Did it persist into the railway era?

Notes and References

The document reference shows the page number of the bound book of notices, together in most cases with a letter to identify it uniquely.

1. 31, undated
2. 25B, February 1798
3. 8B, 8 June 1789
4. 1B, undated

5. 47B, 26 June 1805
6. 11A, 1 January 1789; 20, 15 February 1786
7. 28B, 28 May 1800
8. 59A, 26 June 1810
9. 63B, 14 October 1813
10. 3A, 26 September 1787; 23A, 27 March 1798
11. 17B, 1 January 1791; 60, 1 February 1809
12. 29A, 29 September 1801
13. 53, 30 December 1806
14. 50A, 24 September 1805
15. 7B, 20 December 1786
16. 14A, 1 December 1790; 3B, 1 July 1777; 51A, 9 April 1806; 58B, 5 May 1810; 66A, 1 December 1812
17. 2, 29 September 1787; 19B, 29 September 1789; 47A, 9 April 1806
18. 6A, 28 December 1786; 6B, 15 February 1786
19. 20, 15 February 1786
20. 68, 28 April 1818
21. 55, February 1809
22. 28B, 28 May 1800
23. 23, 27 September 1785. For the complex early history of the Caldon Low Railway see Peter Lead, (second edition, 1990) *The Caldon Canal and Tramroads*, pp.67-76
24. 56B, 10 October 1806
25. 4A, 29 September 1788; 49, 10 July 1800
26. 23B, 29 September 1796; 33A, 26 September 1797
27. 20, 15 February 1786
28. 21B, November 1792; 25A, 18 December 1797; 25B, February 1798; 28A, 29 January 1799; 32B, 28 January 1800; 37A, 16 June 1807; 54, 31 March 1813; 57A, 11 April 1810; 57B, 2 June 1810; 63A, 28 May 1813
29. 56A, 28 April 1810
30. 24B, 2 June 1795; 38A, 7 June 1803; 38B, 27 September 1803; 37A, 16 June 1807
31. 45A, 10 October 1804
32. 43B, 6 April 1803
33. 12C, 30 August 1790
34. 45B, June 1804

35. 41, 15 September 1803
36. 3B, 1 July 1777; 4B, undated
37. 13A, 16 October 1804; 14A, 1 December 1790
38. 10, 19 August 1789
39. 27A, 18 May 1796; Jean Lindsay (1979) *The Trent & Mersey Canal*, p.71
40. 17A, 24 September 1792; 26A, 14 September 1793; 26B, 7 January 1794; 27B, November 1794
41. 30A, 2 May 1796
42. 30B, 19 May 1796
43. 36B, 23 October 1800
44. 37B, 23 November 1800
45. Peter Brown (2013) 'Crime and justice', in *Market Drayton in 1851*, p.65

TABLE 1st.				TABLE 2nd.			
REDUCED.				REDUCED.			
Gross Weight T. C.	Net Weight T. C. grs. lb.	Car. Weight T. C. grs.	Amount L. s. d.	Gross Weight T. C.	Net Weight T. C. grs. lb.	Car. Weight T. C. grs.	Amount L. s. d.
0 5	0 4	0 10	0 4 8	0 5	0 4	0 10	0 4 8
0 10	0 9	0 20	0 9 6	0 10	0 9	0 20	0 9 6
1 0	0 18	0 30	1 5 2	1 0	0 18	0 30	1 5 2
1 10	1 7	0 40	1 14 8	1 10	1 7	0 40	1 14 8
2 0	1 16	1 10	2 3 2	2 0	1 16	1 10	2 3 2
2 10	2 5	2 20	2 11 8	2 10	2 5	2 20	2 11 8
3 0	2 14	3 10	3 2 8	3 0	2 14	3 10	3 2 8
3 10	3 3	4 0	3 11 2	3 10	3 3	4 0	3 11 2
4 0	3 12	5 0	4 10 8	4 0	3 12	5 0	4 10 8
4 10	4 1	6 0	5 0 4	4 10	4 1	6 0	5 0 4
5 0	5 0	7 0	5 9 0	5 0	5 0	7 0	5 9 0
5 10	5 9	8 0	5 18 4	5 10	5 9	8 0	5 18 4
6 0	6 0	9 0	6 7 0	6 0	6 0	9 0	6 7 0
6 10	6 9	10 0	6 16 4	6 10	6 9	10 0	6 16 4
7 0	7 0	11 0	7 5 0	7 0	7 0	11 0	7 5 0
7 10	7 9	12 0	7 14 4	7 10	7 9	12 0	7 14 4
8 0	8 0	13 0	8 3 0	8 0	8 0	13 0	8 3 0
8 10	8 9	14 0	8 12 4	8 10	8 9	14 0	8 12 4
9 0	9 0	15 0	9 1 0	9 0	9 0	15 0	9 1 0
9 10	9 9	16 0	9 10 4	9 10	9 9	16 0	9 10 4
10 0	10 0	17 0	10 0 0	10 0	10 0	17 0	10 0 0
10 10	10 9	18 0	10 9 4	10 10	10 9	18 0	10 9 4
11 0	11 0	19 0	11 0 0	11 0	11 0	19 0	11 0 0
11 10	11 9	20 0	11 9 4	11 10	11 9	20 0	11 9 4
12 0	12 0	21 0	12 0 0	12 0	12 0	21 0	12 0 0
12 10	12 9	22 0	12 9 4	12 10	12 9	22 0	12 9 4
13 0	13 0	23 0	13 0 0	13 0	13 0	23 0	13 0 0
13 10	13 9	24 0	13 9 4	13 10	13 9	24 0	13 9 4
14 0	14 0	25 0	14 0 0	14 0	14 0	25 0	14 0 0
14 10	14 9	26 0	14 9 4	14 10	14 9	26 0	14 9 4
15 0	15 0	27 0	15 0 0	15 0	15 0	27 0	15 0 0
15 10	15 9	28 0	15 9 4	15 10	15 9	28 0	15 9 4
16 0	16 0	29 0	16 0 0	16 0	16 0	29 0	16 0 0
16 10	16 9	30 0	16 9 4	16 10	16 9	30 0	16 9 4
17 0	17 0	31 0	17 0 0	17 0	17 0	31 0	17 0 0
17 10	17 9	32 0	17 9 4	17 10	17 9	32 0	17 9 4
18 0	18 0	33 0	18 0 0	18 0	18 0	33 0	18 0 0
18 10	18 9	34 0	18 9 4	18 10	18 9	34 0	18 9 4
19 0	19 0	35 0	19 0 0	19 0	19 0	35 0	19 0 0
19 10	19 9	36 0	19 9 4	19 10	19 9	36 0	19 9 4
20 0	20 0	37 0	20 0 0	20 0	20 0	37 0	20 0 0
20 10	20 9	38 0	20 9 4	20 10	20 9	38 0	20 9 4
21 0	21 0	39 0	21 0 0	21 0	21 0	39 0	21 0 0
21 10	21 9	40 0	21 9 4	21 10	21 9	40 0	21 9 4
22 0	22 0	41 0	22 0 0	22 0	22 0	41 0	22 0 0
22 10	22 9	42 0	22 9 4	22 10	22 9	42 0	22 9 4
23 0	23 0	43 0	23 0 0	23 0	23 0	43 0	23 0 0
23 10	23 9	44 0	23 9 4	23 10	23 9	44 0	23 9 4
24 0	24 0	45 0	24 0 0	24 0	24 0	45 0	24 0 0
24 10	24 9	46 0	24 9 4	24 10	24 9	46 0	24 9 4
25 0	25 0	47 0	25 0 0	25 0	25 0	47 0	25 0 0
25 10	25 9	48 0	25 9 4	25 10	25 9	48 0	25 9 4
26 0	26 0	49 0	26 0 0	26 0	26 0	49 0	26 0 0
26 10	26 9	50 0	26 9 4	26 10	26 9	50 0	26 9 4
27 0	27 0	51 0	27 0 0	27 0	27 0	51 0	27 0 0
27 10	27 9	52 0	27 9 4	27 10	27 9	52 0	27 9 4
28 0	28 0	53 0	28 0 0	28 0	28 0	53 0	28 0 0
28 10	28 9	54 0	28 9 4	28 10	28 9	54 0	28 9 4
29 0	29 0	55 0	29 0 0	29 0	29 0	55 0	29 0 0
29 10	29 9	56 0	29 9 4	29 10	29 9	56 0	29 9 4
30 0	30 0	57 0	30 0 0	30 0	30 0	57 0	30 0 0
30 10	30 9	58 0	30 9 4	30 10	30 9	58 0	30 9 4
31 0	31 0	59 0	31 0 0	31 0	31 0	59 0	31 0 0
31 10	31 9	60 0	31 9 4	31 10	31 9	60 0	31 9 4
32 0	32 0	61 0	32 0 0	32 0	32 0	61 0	32 0 0
32 10	32 9	62 0	32 9 4	32 10	32 9	62 0	32 9 4
33 0	33 0	63 0	33 0 0	33 0	33 0	63 0	33 0 0
33 10	33 9	64 0	33 9 4	33 10	33 9	64 0	33 9 4
34 0	34 0	65 0	34 0 0	34 0	34 0	65 0	34 0 0
34 10	34 9	66 0	34 9 4	34 10	34 9	66 0	34 9 4
35 0	35 0	67 0	35 0 0	35 0	35 0	67 0	35 0 0
35 10	35 9	68 0	35 9 4	35 10	35 9	68 0	35 9 4
36 0	36 0	69 0	36 0 0	36 0	36 0	69 0	36 0 0
36 10	36 9	70 0	36 9 4	36 10	36 9	70 0	36 9 4
37 0	37 0	71 0	37 0 0	37 0	37 0	71 0	37 0 0
37 10	37 9	72 0	37 9 4	37 10	37 9	72 0	37 9 4
38 0	38 0	73 0	38 0 0	38 0	38 0	73 0	38 0 0
38 10	38 9	74 0	38 9 4	38 10	38 9	74 0	38 9 4
39 0	39 0	75 0	39 0 0	39 0	39 0	75 0	39 0 0
39 10	39 9	76 0	39 9 4	39 10	39 9	76 0	39 9 4
40 0	40 0	77 0	40 0 0	40 0	40 0	77 0	40 0 0
40 10	40 9	78 0	40 9 4	40 10	40 9	78 0	40 9 4
41 0	41 0	79 0	41 0 0	41 0	41 0	79 0	41 0 0
41 10	41 9	80 0	41 9 4	41 10	41 9	80 0	41 9 4
42 0	42 0	81 0	42 0 0	42 0	42 0	81 0	42 0 0
42 10	42 9	82 0	42 9 4	42 10	42 9	82 0	42 9 4
43 0	43 0	83 0	43 0 0	43 0	43 0	83 0	43 0 0
43 10	43 9	84 0	43 9 4	43 10	43 9	84 0	43 9 4
44 0	44 0	85 0	44 0 0	44 0	44 0	85 0	44 0 0
44 10	44 9	86 0	44 9 4	44 10	44 9	86 0	44 9 4
45 0	45 0	87 0	45 0 0	45 0	45 0	87 0	45 0 0
45 10	45 9	88 0	45 9 4	45 10	45 9	88 0	45 9 4
46 0	46 0	89 0	46 0 0	46 0	46 0	89 0	46 0 0
46 10	46 9	90 0	46 9 4	46 10	46 9	90 0	46 9 4
47 0	47 0	91 0	47 0 0	47 0	47 0	91 0	47 0 0
47 10	47 9	92 0	47 9 4	47 10	47 9	92 0	47 9 4
48 0	48 0	93 0	48 0 0	48 0	48 0	93 0	48 0 0
48 10	48 9	94 0	48 9 4	48 10	48 9	94 0	48 9 4
49 0	49 0	95 0	49 0 0	49 0	49 0	95 0	49 0 0
49 10	49 9	96 0	49 9 4	49 10	49 9	96 0	49 9 4
50 0	50 0	97 0	50 0 0	50 0	50 0	97 0	50 0 0
50 10	50 9	98 0	50 9 4	50 10	50 9	98 0	50 9 4
51 0	51 0	99 0	51 0 0	51 0	51 0	99 0	51 0 0
51 10	51 9	100 0	51 9 4	51 10	51 9	100 0	51 9 4
52 0	52 0	101 0	52 0 0	52 0	52 0	101 0	52 0 0
52 10	52 9	102 0	52 9 4	52 10	52 9	102 0	52 9 4
53 0	53 0	103 0	53 0 0	53 0	53 0	103 0	53 0 0
53 10	53 9	104 0	53 9 4	53 10	53 9	104 0	53 9 4
54 0	54 0	105 0	54 0 0	54 0	54 0	105 0	54 0 0
54 10	54 9	106 0	54 9 4	54 10	54 9	106 0	54 9 4
55 0	55 0	107 0	55 0 0	55 0	55 0	107 0	55 0 0
55 10	55 9	108 0	55 9 4	55 10	55 9	108 0	55 9 4
56 0	56 0	109 0	56 0 0	56 0	56 0	109 0	56 0 0
56 10	56 9	110 0	56 9 4	56 10	56 9	110 0	56 9 4
57 0	57 0	111 0	57 0 0	57 0	57 0	111 0	57 0 0
57 10	57 9	112 0	57 9 4	57 10	57 9	112 0	57 9 4
58 0	58 0	113 0	58 0 0	58 0	58 0	113 0	58 0 0
58 10	58 9	114 0	58 9 4	58 10	58 9	114 0	58 9 4
59 0	59 0	115 0	59 0 0	59 0	59 0	115 0	59 0 0
59 10	59 9	116 0	59 9 4	59 10	59 9	116 0	59 9 4
60 0	60 0	117 0	60 0 0	60 0	60 0	117 0	60 0 0
60 10	60 9	118 0	60 9 4	60 10	60 9	118 0	60 9 4
61 0	61 0	119 0	61 0 0	61 0	61 0	119 0	61 0 0
61 10	61 9	120 0	61 9 4	61 10	61 9	120 0	61 9 4
62 0	62 0	121 0	62 0 0	62 0	62 0	121 0	62 0 0
62 10	62 9	122 0	62 9 4	62 10	62 9	122 0	62 9 4
63 0	63 0	123 0	63 0 0	63 0	63 0	123 0	63 0 0
63 10	63 9	124 0	63 9 4	63 10	63 9	124 0	63 9 4
64 0	64 0	125 0	64 0 0	64 0	64 0	125 0	64 0 0
64 10	64 9	126 0	64 9 4	64 10	64 9	126 0	64

Travelling Steam: Pascoe Grenfell and the Great Western Railway

Penny Watts-Russell

Pascoe Grenfell (1761-1838) — copper magnate, politician, financial guru — is not now remembered for any obvious connection with the railways. Yet glancing mentions by biographers of Richard Trevithick given to a meeting between the two Cornishmen in 1802 by which Grenfell was made privy to the inventor's forthcoming patent — that 'for improving the construction of steam engines and the application thereof for driving carriages on rails' — tantalisingly provide evidence for Grenfell's very early introduction to the principles of steam locomotion. Regrettably, he does not bequeath to posterity his own version of the event and we are none the wiser as to whether it had for him the significance of a seminal moment on his path to embracing the concept of the steam-powered railroad. However, Grenfell's active support for the London Northern Railroad Company in the mid 1820s as director and vice chairman, offers confirmation of his conversion to the expediency of a national railway network, even if it is admitted that his participation in the venture may have owed something to the speculative railway fever unleashed in years of 1824-25. With ambitions ahead of its time, the LNRC fizzled out in 1830, and its demise put an end to Grenfell's only foray into railway promotion. By the time the Great Western Railway (between Bristol and London) set out its stall, Pascoe Grenfell (now in his 70s) had passed on the baton to his sons, whose enthusiasm for the railways was evident from the 1830s onwards by their presence on numerous railway boards. The GWR prospectus published in August 1833 shows his youngest son, Riversdale, among the roll call of its directors.¹

In its bid to attract the investor, the GWR prospectus claimed with some justification (the Liverpool & Manchester Railway had proved a great success) that 'The general advantage of railways is no longer to be considered a speculative theory'. For practical reasons this was the attraction no doubt to the mercantile men who subscribed, the largest single occupation among GWR proprietors being that of 'merchant'; two of Grenfell's sons — though not the man himself — were among them. Indeed its forecast of the commercial benefits to trade and

manufactures in the vicinity of the line, of the improved conveyance of goods in the west of England and South Wales was sufficient incentive for the Grenfells to sign up: the family copper smelting concern was located in Swansea.

In anticipation of landowner reaction, and the charge that the railway was an assault upon private interests, the prospectus was placatory: 'They [the railways] have invariably conferred an additional value upon the property contiguous to them.' As one over whose land the railway hoped to lay tracks, Grenfell fell into this category, even as certain of his own property was subject to compulsory purchase if Parliamentary assent were given to the railway. For the GWR's projected line was to pass not only within a field or two of his Buckinghamshire residence, Taplow House, with its landscaped gardens and views of the Thames and Windsor Castle, and through his Berkshire estate on the opposite bank of the Thames (the county boundary) at Maidenhead. While unashamedly a man of commerce, Pascoe Grenfell, typically of upwardly mobile men, had ploughed back his profits into property, in his case in the neighbourhood of his country home, which he had acquired in 1794. Across the river the Berkshire manors of Ives and Shoppenhangars in Bray came into his hands in 1800 and 1801 respectively, and the manor of Bray itself, divided from Taplow by the Thames, in 1818.²

Lord Sefton, the father-in-law of Grenfell's son Charles, had previously provided a classic example of landowner hostility to the threat that the new mode of locomotion was perceived to pose, in his vociferous opposition to the Liverpool & Manchester Railway on grounds of its proximity to his estate. In their animosity he and the Earl of Derby had in no uncertain terms in 1824 warned George Stephenson and his surveyors off their land, bemoaning that 'the sanctity of their domains would be invaded and the privacy of their residences destroyed'. In the knowledge of this experience, the GWR's chief engineer, Isambard Kingdom Brunel, appointed in March 1833, sought from the outset to minimise damage to 'ornamental property' by avoiding it when negotiating with landowners along the line and his



*An 'ornamental property' in the vicinity of the railway:
Pascoe Grenfell's Taplow House*

approach provoked in the already predisposed Grenfell, at least, no known resentment. In any event by now the Midas touch of the railways had become apparent: 'after nearly a twelve-month's experience', in July 1831 the Earl of Elgin drily observed to John Wilson Croker, '... the value of land between Liverpool and Manchester, in the direction of the railway, is already excessively enhanced'. Altruistic in his motives or not, Grenfell had this longer-term compensation to look forward to.³

By now the railways had become a younger man's game. Riversdale Grenfell was 26 years old, Brunel's junior by a year, when he was co-opted in August 1833 on to the Great Western Railway's 'General Board of Management and ... [became] a Member of the London Committee', one of the City merchants contingent (to complement a Bristol board), as the eleventh of 12 London directors. Brunel was unimpressed by the inexperience of the committee strung together in London. On first acquaintance, he noted in his diary, 'rather an old women's set, a regular jobbing committee. Must hope for somebody to give them a little life and sense'. On 30 August — the same day that Riversdale 'consented to become a director' — Brunel jotted down a further indictment of those with whom in tandem he was charged to complete the task. 'Grenfell,' he decided, 'must be humoured.' At a guess, the young man may initially have raised issues suggested by his father, by proxy

keeping Grenfell in the information loop on the progression of the 116-mile line — the greatest then under consideration, though lesser in its extent than the failed London Northern Railroad. Yet how much humouring Riversdale would require we are never to learn for he receives no further mention in Brunel's diary, and from the minutes of the Great Western Railway's London board meetings it is apparent that young Grenfell's presence was intermittent. We are unable to resort to his own account of proceedings as he left no record of his participation in them. It is possible he was invited to join the board at the suggestion of his brother-in-law, George Carr Glyn, whose bank, Glyn, Hallifax, Mills & Co, had already been signed up as London bankers to the railway company but Glyn was represented by Charles Wheler Mills, who had connections with the bank, and

was the fellow director of the GWR whom Brunel dubbed 'the leader of the working men'.⁴

Charles Saunders, an experienced businessman engaged by the London Committee as their Secretary, minded board business and, for railway historians, has proved an invaluable documenter of company affairs through company minutes and correspondence. On 7 September 1833, a resolution was passed 'that this Committee do recommend that Mr Brunel be instructed to commence without delay the Parliamentary survey in such a manner as may insure the completion by 30 November ...' This was the deadline engraved on every railway projector's forehead (as Grenfell himself knew well) as the date for submissions to the Private Bill Office (and to local authorities in each affected county): the submission of both the plan and sections of the line (made up to a scale of no less than 3 inches to the mile) and the Book of Reference relating to the railway, which itemised the owner or reputed owner, the lessee, the occupier and description of every property through which the line was to pass. (Of the total 2,359 units listed, 169 were ascribed to the County of Berkshire.) But if the rush were on, completing the task was less of a tall order than it might first appear, Brunel having expeditiously undertaken a rigorous four-month preliminary survey earlier in the year. A further formal resolution on 18 October reduced the burden, directing the engineer to discontinue his survey

between Reading and Bath and to confine himself to the survey of the two extremities of the proposed line, London to Reading, Bristol to Bath. (A circular dismissal notice to surveyors dated 1 September, headed 'Discontinuance of survey between Bath & Reading', suggests that the directors somewhat earlier had realised the difficulty of raising the required pledged capital within the timescale and had at this date already set their sights on an initial lesser undertaking.) From his own previous experience, Pascoe Grenfell may have understood the necessity for some such compromise.⁵

The serving of notices on all those listed in the Book of Reference followed Saunders's 'completing and dispatching the various documents to the Clerks of the Peace', with the consequence that on 9 December a meeting was convened at the Bear Inn at Reading for all interested parties. It was attended by up to 40 Berkshire landowners and occupiers of land, including William Payne, Secretary to the Commissioners of the River Thames Navigation, a body 'loud in their denunciation of a scheme which would take away their trade and nullify all that they had endeavoured to do'. One of those intent on opposing 'the projected western railroad', so the *Reading Mercury* informed its readers, he produced the Book of Reference with its 'names of the proprietors of land between Maidenhead and Reading, with the fields regularly numbered over which it was intended the railroad should pass'. Payne claimed that the landowners had not given their assent to the Bill, contrary to the Great Western Railway's assertion 'that a great portion of them were favourable to their plan'. When 'the names of the proprietors were then called out ...', the local newspaper reported, 'all and each of those present denied that they had given consent, and many declared that their neighbours were equally opposed to the measure, and it did not appear that a single individual on the line was favourable to the speculator'. Pascoe Grenfell's presence at the meeting was not in evidence. The largest landowner of all the Berkshire men was Robert Palmer of Holme Park, MP for Reading, whose extensive estate commanding fine views of the Thames encircled the projected railway to the north and south, while the GWR would pass within three-quarters of a mile of his mansion. Informing those present that the 'line would destroy some of his best farms and divide his estate in seven different places', Palmer was prepared to concede that 'if the projectors made a case for public utility (which he did not anticipate) then private feelings

must yield to the public good'. At the conclusion of the meeting those landowners present resolved that the railway would be 'injurious to their interest, repugnant to their feelings, and that no case of public utility had been made out to justify such an uncalled for encroachment on the rights of private property'. The battle was on to stop scheme.⁶

On a second front the London directors, tasked with signing up investors, were, Saunders believed on 26 October 1833, 'making some advance with subscriptions among their private friends', and he hoped 'soon to have a list from each given simultaneously with about 100 new shares'. In this first call for shares, Riversdale responded early, the first ten shares allocated him bearing the sequence of numbers 142 to 151; later he bought a further 15 numbered 22,609–22,623. At £100 a share, his holding worth £2,500 was more than the £2,000 in shares expected of a director. His elder brother, Pascoe St Leger Grenfell — briefly banker to the London Northern Railroad and already a director in the London & Birmingham Railway — was persuaded to purchase ten shares, 3218 to 3227. Such large investment allows the speculation that their pledges were backed by their father's money. Late in the day George Carr Glyn put down for 65 shares which numbered 21,116 to 21,180. At the time of the bill's passage into law in 1835, 1,443 proprietors held 22,911 shares.⁷

The Great Western Railway's Sealed Register of Proprietors, which itemised the number of shares accounted for by the directors and other subscribers, was submitted to the Private Bill Office on 20 February 1834, together with the petition for leave to introduce a Bill. A list of the attitudes of landowners and occupiers categorised as 'assent', 'dissent' or 'neuter' in respect of their application was appended, according to rules intended to safe-guard the protection of private property that subjected each route to individual public scrutiny. (The list submitted did not survive the fire that destroyed the Houses of Parliament later that year, but that of early 1835 shows the landowners of Berkshire to number a large proportion of dissents) Several days before the second reading in the Commons on 10 March — the stage at which the Bill was brought before the House — Riversdale Grenfell accompanied Charles Saunders and several other directors to a second public meeting in Reading, this time held in the Town Hall, 'for the purpose of giving every requisite information'; in May he was one of a deputation 'to wait on the City Members [of Parliament] with a requisition signed

by their constituents for the purpose of securing their support for the Bill in the House of Commons'. On the Bill's third reading on 23 July (after a marathon 57-day Committee stage, during which witnesses were heard for and against) it passed up to the Lords with a majority of 28, but was defeated by 47 to 30 on the second reading in the Lords on July 25. Riversdale was one of those deputed the same day 'to wait on Lord Wharnccliffe to express the best thanks of the directors for his invaluable services in the House of Peers and for his kindness in having undertaken charge of the Bill there'. In the Commons, opposition petitioner Sir Robert Palmer had scoffed on 22 July 'that this was not a "great-western railway"', condemning it for its incompleteness, or as others put it, as 'a head and a tail of a concern 72 miles apart which could never be joined by a body'. He reminded the House that 'The original prospectus stated that the line of road would extend from London to Bristol, whereas it was now proposed to carry it from London to Reading and from Bath to Bristol only, leaving no sort of communication between Reading and Bath'. There was, he said, no guarantee that any 'security was afforded to those who embarked their capital in the project that it would ever be completed', expressing the concern felt in both Houses of Parliament over the 'divided route' which was a major contributing factor in the 1834 Bill's downfall.⁸

In September 1834 the GWR committee resolution to re-submit their application for the next session had Charles Saunders re-applying himself to the protracted legislative process and the 'sad, harassing work that I have encountered in calling upon and pressing perfect strangers to contribute' subscriptions to a level that would support the building of the complete railway. On the progress of winning over of opposing landowners, that other on-going task, Brunel would report in June 1835 to a Lords Committee, 'In Berkshire, the assents are 21 miles 54½ chains, the neuters 8 miles 30½ chains, special answers 4 miles 20½ chains, the dissents are 11 miles 41 chains.' Roughly one mile belonged to Pascoe Grenfell, who gave his unequivocal assent. The Bill received Royal Assent on 31 August, the Act stipulating the building of a railway the entire route from London to Bristol via Bath.⁹

From Pascoe Grenfell's viewpoint two years had passed without any visible signs of a railway on his doorstep. Within days of the Act, however, the GWR's energetic engineer was making the leap from the theoretical to the practical; on 3 September, reacting to instructions to proceed with the line, he

enthused 'We shall have our flags flying over the Brent valley tomorrow.' In fact, in respect of Brent, Brunel's optimism was tempered by realities on the ground. Less than a fortnight later in a report keeping the directors abreast of progress, he confirmed that, having between Bristol and Bath cut down and cleared woods, staked out and flagged a considerable portion of the line, 'between London and Reading we have not been able to proceed so rapidly in consequence of the great number of parties to be consulted, as although the Act gives full power to enter upon the land for the purpose of surveying out the line without notice, I considered that it would facilitate our future operations and conciliate the landowners if in this preliminary step we obtained their permission wherever it might be necessary to erect any flagstaff or to clear away any wood ...' The arrival of Brunel's surveyors' tall staves flying triangular flags marking out Grenfell land was not recorded.¹⁰

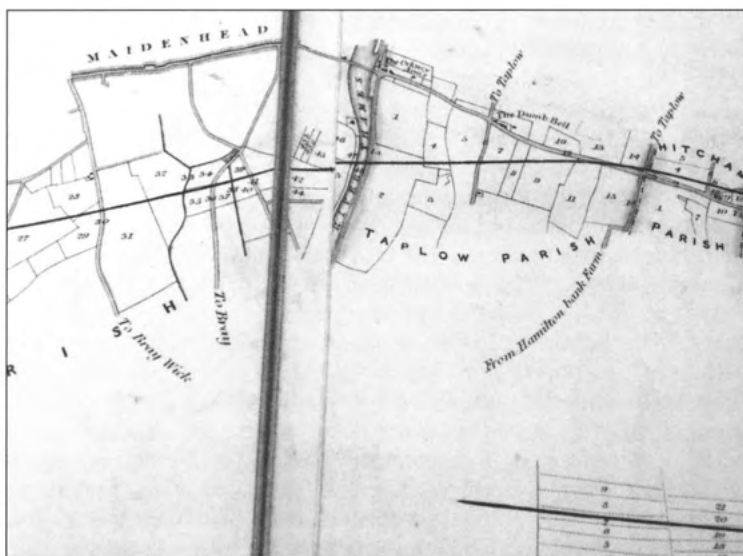
In fact, few details of the GWR's negotiations with Grenfell have emerged. While compulsory purchase of land was available to the company under law, Brunel was loath to use it, preferring to adopt a conciliatory approach to landowners. 'We canvassed many landowners together,' Brunel's friend St George Burke was to reminisce later to the engineer's son of his father's diplomacy during the campaign to win them over, 'and I had plenty of opportunities of judging his skill and caution in our discussions with them.' In his address to the Commons Committee in 1834 Brunel had stressed that in laying out the line he sought to restrict damage to a minimum. His strict instructions to surveyors stated that they

should ascertain the names of the owners and the occupiers of any land to be passed over and as early as possible obtain their sanction to the making of the survey. It will of course very often be impracticable to obtain this information until you have actually entered upon the land but if you make the application as early as you can I think you will not find any vexatious opposition thrown in your way. You will at all times afford every information to persons interested in the property likely to be affected by the railway and you will consult them as to the manner in which the line may be carried so as to be most advantageous to their property, explaining to them at the same time if necessary any circumstances which from the nature of a railway may render such a direction difficult or impracticable in order that as far as is consistent with the absolute requisites of a public work of this description the line ultimately selected may be adapted to existing interests. You will be particularly careful that all persons employed by you shall conduct themselves with propriety and civility

that no damage be done to hedges or fences and that they do not unnecessarily encroach upon gardens or enclosed ground or otherwise annoy the inhabitants.¹¹

Daniel Lousley and Edward Driver, two of the surveyors involved, were employed for their expertise as land valuers. A letter from Saunders on 24 March 1834 summoned Lousley to London to meet Brunel to discuss the undertaking 'to survey and value the properties required for the line of railway between Maidenhead and the town of Reading'. There was need for haste, as it was necessary to be undertaken and performed without delay in order to give evidence of the value of the land for the Committee of the House of Commons about 15 April. Lousley then walked the 13 miles from the bridge at Maidenhead to Reading, quantified by Brunel at 142 acres 1 rood 29 poles, and valued the total at £14,221 which, including compensation of every kind, he reckoned very high. A landowner of 1,200 acres in Berkshire himself, it was, he said, generally a poor agricultural country, but he seems to have been referring to his own patch, for the soil in the eastern part of the county, including Bray, was described as variously gravel, loam, flint and chalk and deemed 'generally good corn land' in Mavor's 1813 *General View of the Agriculture of Berkshire* (and a Grenfell estate map of 1846 displays much arable). Lousley was paid three guineas a day plus expenses.¹²

Supplied with Brunel's plan of the route with its designated 190 acres, it had taken Edward Driver — 'employed by the directors to value the land from the river at Maidenhead to the junction with the London & Birmingham Railway'¹³ — four days in 1834 and a further four days in 1835 to complete his section. His total valuation was £39,446 (£22,341 for land and £17,105 for compensation), which he considered the highest estimate he had ever made. To reach this figure he had not valued each individual's property separately by the acre, but divided each district into quarters of a mile. In the aftermath of the 1835 Bill's passage through both Houses of Parliament, entire responsibility for the GWR company purchases of 'about the first 60 miles' of land from London had been conferred on Driver,



Detail of a 'Plan of a Railway from London to Reading and from Bath to Bristol ... to be called the Great Western Railway' (Bristol Record Office)

who in evidence presented to a Lords Committee on Compensation in 1845 retrospectively elaborated on his Great Western Railway valuations, explaining that properties between London and Maidenhead averaged out at £209 per acre (almost double the land value intended to ease the passage of the Bill through the Lords), a figure based on the cost of land £117, severance £77 and where the property was tenanted, tenant's interest of £15. He had borne in mind the extent of the opposition and had 'wanted to pay the full fair price for everything'. For the valuation of land the 30 miles beyond Maidenhead, Driver could not be so specific, admitting he had not taken as many pains over his calculations, as 'it was so much trouble'. For his 12 Berkshire acres in the parish of Bray (registered in the Book of Reference as arable, plantation, cottage garden, wood, barn and yard, and meadow), Pascoe Grenfell received £2,020, his award thus averaging £168 per acre. His was one of a total of 174 claims settled by Driver: 'totalling £84,240, the highest claim was by Robert Palmer for £8,645 and the second highest by John Leveson Gower for £4,521; the lowest were John Winch for £3 and Mr Hawkins for £1.' Pascoe Grenfell's valuation came with the acknowledgement that Grenfell would face 'trouble satisfying his tenant Messrs Louch.' William and Thomas Louch were lessees of six of Grenfell's plots, shared ownership of one with him

and owned three themselves. The anticipated difficulties were not elaborated on, but Grenfell was 'anxious to avoid the expense of having to appeal to a jury', and Driver 'advised him and his solicitor, Mr Naylor, that Messrs Louch would probably press for a verdict on compensation for their loss by this means [by jury] in the absence of a satisfactory offer from him'.¹⁴

Coincidentally, Grenfell's purchase of the Manor of Bray 17 years previously had provided him with an earlier encounter with Driver, at the time employed 'in valuing property for the Crown under Acts of Parliament'. In 1818 the opportunistic Grenfell had spotted the manors of Bray and Cookham, both Crown properties, advertised for sale and, acknowledging himself to be 'the greatest landowner in the parish of Bray ... [with] two farms in the adjoining parish of Cookham', he had promptly communicated his interest to the then First Commissioner of His Majesty's Woods, Forests and Land Revenues, William Huskisson. 'When I had some conversation with you respecting the sale of these manors a year or two ago,' he reminded the man now best remembered as the first train casualty, 'you gave me reason to expect that they might be offered to me, at such a price as the Crown may consider to be their value — and if this can be arranged before the day fixed for their sale it would be very gratifying to me.' The possession of them, he said, 'would certainly be more valuable to me than any other inhabitant or proprietors of land in this neighbourhood'.

Huskisson had speedily obliged him in respect of Bray, for within days, 'upon my coming to town', Grenfell had 'found a letter ... with an *official* offer of the Manor of Bray at the price of £4,000'. However, 'ignorant as I am of the *pecuniary* value of the property,' he had asked for 'some statement of the annual income receivable out of this manor'. His suggestion that the value of the manor might best be determined by negotiation between the Crown surveyor (Driver) and one named by himself was not acceded to and, prevaricating at the thought of so large a sum when unable to 'discover any source of pecuniary income (after paying expenses of collection etc) that will give anything like £50 per annum', he had ventured that the Crown surveyor's 'valuation might be founded upon some error', arguing 'that more than three fourths of the sum at which Mr Driver has valued this property is 'sporting' value'. No mention is made of total acreage. Despite Grenfell's attempt at hard bargaining, the purchase proceeded without further haggling. In the

particulars, singled out for specification by Grenfell were '1½ acres of land occupied as a garden adjoining to the Court House', also 'waters and eyots', interpreted by Grenfell as 'some right of fishery'. According to *A topographical survey of the Great Road from London to Bath* of 1792, the riverside inns either side of the Maidenhead Bridge were the resort of parties 'for the amusement of fishing and other recreations'. Grenfell had found questionable such activities as productive of income (in Charles I's time the fishery, with islands and eyots, was worth a yearly rent of 33s 4d) and the opportunity to recoup some of his outlay hardly more than 15 years later was arguably a godsend. (In July 1839 a *Sporting Review* article, entitled 'Thames fishing', noted that at Maidenhead, a resort made popular with London anglers by the Great Western Railway, 'the angler will find good sport in September and October, in pike and perch fishing'; conceivably, therefore, the railway increased this source of income.) When Edward Driver came to call in 1835, Grenfell's negotiating skills were made redundant: the surveyor himself claimed that there had been no 'case which I have settled in which I have not conscientiously believed that I paid more than the value and damage'. Automatically generous in his pay outs on behalf of the GWR, Driver had given Grenfell little reason to feel hard done by. Indeed, the paying over the odds to landowners by railway companies to forestall opposition had become endemic in a system weighted to protect the property interests affected by proposed railways, and Grenfell was a beneficiary.¹⁵

Aside from the GWR's ample settlements, that Brunel should overrun his budget forecasts of 1834 and 1835 was made inevitable by the GWR's adoption of broad gauge in October 1835, which necessitated the acquisition of twelve acres of land per mile of track rather than the original estimate of eight acres. Brunel had given warning to the directors a fortnight after the Act passed into law that he was contemplating 'an increased width between the rails ... for the purpose of using broader carriages and larger wheels'. A resolution, passed by the Committee on 29 October 1835 at the Great Western Railway Company's first general meeting at the City of London Tavern, authorised 'that the embankments, bridges and other works ... be constructed of such dimensions as to admit of rails being laid to the extreme width proposed by Mr Brunel, viz 7 feet.' He had pointed out to the directors that 'Their determination on this point will of course influence to a certain extent though not very materially the

width of ground to be marked out and purchased.' The entire width required was 30 feet: 7 feet twice for gauge of both up and down lines, a width of 6 feet between them, and spaces of 5 feet on either side. Commentators remarked that 'the increased amount of the earthwork required ... was stated to be as seven to five'. At the company's AGM in August 1838 the total cost of the railway's 22½ miles from Paddington to Maidenhead was reported to be almost £45,000 per mile; slightly less was the 13-mile stretch Maidenhead to Reading at £42,000 per mile. Brunel's gauge proved, as a longer term consequence, an expensive impediment to a national railway network.¹⁶

The map that accompanied the 1835 Book of Reference shows Pascoe Grenfell's cluster of properties touched by the proposed railway on the Maidenhead side of the Thames; its route straddled his land where it passed over both Maidenhead to Bray roads and the Shoppenhangars Road beyond. Of the 169 units of property in Berkshire itemised by the GWR, 21 were assigned to Grenfell, and as many as 53 to Robert Palmer. Where the railway line is shown on the map to cross the Thames, however, was not where it actually ended up: for a proposal made by Brunel for a deviation from the old plan of 8 October 1835 had been implemented, such that the railway would cross the river about 120 yards higher up than originally planned, yet would 'pass through only two fields of landowners not in our present Book of Reference'. A Grenfell estate map of 1846 clearly shows the completed railway cutting a swathe through Grenfell land, shown as arable and meadows, on a line closer to Maidenhead than the previously indicated and, eight years after the arrival of the railway, their fields are shown contiguous with the railway line along a mile stretch separated from it by the railway's raised embankment.¹⁷

In agreeing purchase terms the Grenfell Estate imposed certain conditions on the GWR:

Just how greatly this change of route to the original

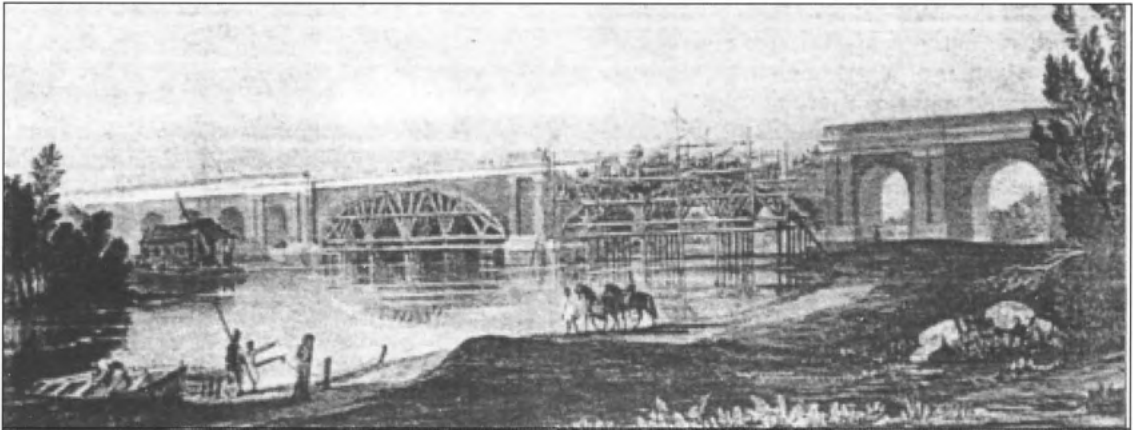
surface of the adjoining pieces lately excavated and the ground to be sloped from the hedges or boundaries. The company to excavate to and pay for the ditch on the east side (the fence being the boundary of the adjoining field) and the ground to be sloped from the ditch so as not to endanger the fence. The sides to be sloped from the top downwards, commencing at such distance of 20 feet and strong and sufficient posts and rails to be put by the said company along the said top nearest slope for a security.

This episode acts a reminder of the fact that the engineer was obliged to factor into his planning the requirement for materials for embankments; these, with cuttings and tunnels, were part of his repertoire for achieving acceptable gradients and minimizing deviation. Railway engineers, freed to a greater degree from the constraints of physical geography with the increased power of the new generation of steam locomotives, were now inclined to cut, embank and tunnel when once (as in the case of the London Northern Railroad) the railway companies had chosen routes that had steered clear of the greater obstacles.¹⁸

In the years before his death an interested Pascoe Grenfell had the opportunity to follow the progress of the construction of the line, visibly as it materialised en route for Taplow, in the building of Brunel's bridge which would carry it over the river, and where work was underway the other side of it. For practical information he could also rely on the insider knowledge of his son relaying news from the boardroom. In an early report to the Board on 14 September 1835, Brunel anticipated 'the line from the junction of the Birmingham Railway to the turnpike

road near Maidenhead Bridge may certainly be opened, and in use within 22 months of the time of commencing work at the Brent, that is by August or September 1837'. By May 1836 some 13 miles of track were under construction, of which eight were the London end, and five the Bristol. 'The preparations for the contracts beyond Maidenhead are very forward,' Brunel insisted in his progress report that month, with 'reason to hope that the necessary drawings and specifications of the whole of the line to Reading will be completed by the end of June'; that same month the contractor was ready to get to work on Brunel's remarkable bridge.¹⁹

The Maidenhead railway bridge, described by John Francis in 1851 as 'monument to what an engineer of genius can do with shareholders' money' and today much lauded as a masterpiece of engineering, received at the time of its building in 1837-38, a hail of unfounded criticism, with doubts expressed as to its likely stability. 'This will be the only instance upon the entire river of a bridge being built without in the slightest degree altering, still less, injuring the navigation,' wrote Brunel back on 29 August 1836, in response to the barrage of ill-feeling he was subjected to by the Thames Commissioners, his most rigorous opposition. Their constraints had obliged Brunel to come up with a structure that would leave navigational channels clear for sailing barges and towpaths unobstructed, while he wished to align it as low as possible to maintain the perfection of the gradient of the line as it approached the river. The result was, daringly, the flattest and longest brick arch bridge ever built, constructed with two elliptical



*Maidenhead Railway Bridge under construction
(Railway Magazine)*

arches, each with a 128ft span and 24ft 6in rise, in their shallowness appearing to defy known laws of architecture.²⁰

If Brunel had managed to keep to his projected timetable Pascoe Grenfell might have seen an operational Great Western Railway in his lifetime. At a half-yearly general meeting held in February 1837 the directors, blaming delays on the weather, nevertheless announced their 'unabated confidence' in the railway's opening London to Maidenhead in October — a slippage of barely a month on Brunel's earlier schedule and a date that was still within their sights at the September general meeting. In October the *Reading Mercury* had heard the rumour that the opening would occur at the beginning of the next month. This was wishful thinking, as Grenfell through Riversdale would have known. His son's fellow director, George Henry Gibbs, following his exploration of the line as far as Maidenhead on 17 October, noted in his diary: 'Pleased with the rails, but alarmed at the continual subsidence of the embankment at Hanwell. Found some of the timbers rotten and the Maidenhead Bridge backward. The impression on my mind is that it will be impossible to open the line before the very end of December, if then.' The suggestion that the completion of the line was not imminent when December arrived is made clear in Gibbs's entry on the 28th of that month, in which he recorded: 'At the Railway Committee today it was stated that in three weeks from this time we should have an opportunity of trying the engines on 5 finished miles.'²¹

By the close of 1837 some progress on the other side of the river had been made: the two railway bridges over the roads linking Maidenhead to Bray were finished, and the embankment of some stretches of land requisitioned from Grenfell had happened. The *Railway Magazine*'s account of the Great Western Railway in December gave the state of play on Brunel's river bridge, its construction behindhand due to false starts and delays arising from contractual problems.

The abutments are all raised above the water line, the centerings of both arches nearly fixed, and several courses of brickwork laid on the western arch. The land arches on both sides are turned, and the brickwork generally is in a forward state. The plank walls are also carried up to receive the embankment, which already reaches it on the eastern side and in a few days will be quite finished.

The two-arched Thames bridge was in effect a section of a viaduct comprising a total of ten arches:

the two that spanned the river and further eight — four on either side — included in the land approaches to it and themselves a continuation of embankments on either side. The *Railway Magazine* reported that 'the progress of the works at this point [approaching Taplow] excites great interest among the passers-by', but though he undoubtedly must have seen the work in hand Grenfell's interest can only be guessed at as the landscape below his home was transformed by the railway embankment over Taplow Road.. Despite its name the Maidenhead terminus was sited on the east, Buckinghamshire side of the river at Taplow, comprising a wooden station building placed near the Bath Road on the embankment that extended a quarter of a mile to the railway bridge. Intended as temporary, it remained the station for both Maidenhead and Taplow until 1871.

On 9 January 1838, on a day out to West Drayton (where the GWR had taken delivery of its first two locomotives, *Premier* and *Vulcan* in November 1837), to his surprise Gibbs found that the two engines were about to be tried. He saw them derailed in the attempts to manoeuvre them out of the engine house, but once 'got on the main line ... they performed beautifully, and' Gibbs confided to his diary, 'we had a very interesting drive'. The experience was repeated on 13 January, all directors present this time benefitting from an excursion in one of the company's first class carriages.

It is at this point that the Great Western Railway's progress surely ceased to be of interest to Pascoe Grenfell, who on the day previous had made his will, retired to his bed in Belgrave Square, and died barely ten days later on 23 January. Understandably he may have been in Riversdale Grenfell's thoughts, when four months later on 31 May, Riversdale joined his fellow directors at Paddington to embark on an 'experimental trip ... [with a] large party of their friends' to the Maidenhead terminus, something less than a mile from the family home. The trial journeying time was 49 minutes, the train travelling at a speed of 28 miles an hour. The official public opening, four days later, of the Paddington to Maidenhead section of the line achieved 1,479 people carried that day and £226 taken. GWR fares, as advertised at this time, ranged between 6s 6d and 3s 6d, comparing favourably with coach fares which from Maidenhead to London were 8/- to 10/- inside, 4/- to 5/- outside.²²

Robert Bird of Taplow Hill, writing on the day of the GWR's official opening to his civil servant son in India (who would one day marry a Grenfell daughter),

GREAT WESTERN RAILWAY.—The public are informed that this RAILWAY will be OPENED for the CONVEYANCE of PASSENGERS only between London, West Drayton, Slough, and Maidenhead station; on Monday, the 4th June. The following will be the times for the departure of trains each way, from London and from Maidenhead, (excepting on Sundays,) until further notice :—

Trains each way.
8 o'clock morning; 4 o'clock afternoon.
9 o'clock ditto 5 o'clock ditto
10 o'clock ditto 6 o'clock ditto
12 o'clock noon 7 o'clock ditto

Trains on Sundays each way.
7 o'clock morning; 5 o'clock afternoon.
8 o'clock ditto 6 o'clock ditto
9 o'clock ditto 7 o'clock ditto

Each train will take up or set down passengers at West Drayton and Slough.

Fares of Passengers.

	First Class.		Second Class.	
	Posting Carriage.	Passenger Coach.	Coach.	Open Carriage.
	s. d.	s. d.	s. d.	s. d.
Paddington Station { to West Drayton	4 0	3 6	2 0	1 6
{ to Slough.....	5 6	4 6	3 0	2 6
{ to Maidenhead..	6 6	5 6	4 0	3 6

Notice is also given that on and after Monday, the 11th June, carriages and horses will be conveyed on the railway, and passengers and parcels booked for conveyance by coaches in connexion with the Railway Company to the west of England, including Stroud, Cheltenham, and Gloucester, as well as to Oxford, Newbury, Reading, Henley, Marlow, Windsor, Uxbridge, and other contiguous places. By order of the Directors,

CHARLES A. SAUNDERS, } Secs.
THOMAS OSLER, }

Great Western Railway timetable, showing inaugural services between Paddington and 'Maidenhead' (The Times, 2 June 1838)

marvelled that he could 'now go to town and back in three hours', adding in a postscript a couple of days later the news of an unexpected visit from a grandson, who 'came in the railroad' from Paddington. The benefits of the railway to Taplow's residents were immediate: the month following its opening Georgiana Grenfell intimating that she had 'found the railroad really *too* convenient in bringing down many' from London to stay. Head of the Taplow House household since her father's death earlier in the year, with three unmarried younger sisters in her care, she informed a correspondent whose visit she wished to postpone that while individually all were welcome, she had found her visitors very exacting. 'It is such an easy distance that brothers, cousins and intimate friends are perpetually arriving,' she said. Timetables show that there were eight trains a day each way, Paddington to Maidenhead. 'No sooner had the first train arrived in Maidenhead than some 10,000 people a week,' it has been stated, 'were travelling between the capital city and the small country town', which had a population of 950 in 1821, increasing to 3,315

in 1841. Significantly, Brunel, whose vision for his railway was as mover of passengers, believed 'that the number of passengers likely to travel between London and Reading and particularly between London and Maidenhead will not only be greater than upon any other portion of the line but greater than upon any line of equal extent in England ...' Pascoe Grenfell, himself a frequent traveller between Taplow and London for more than 40 years, missed by a whisker the novelty of commuting by rail.²³

The chronicler of the construction of the Great Western Railway, the artist and engraver J C Bourne, described its route where it crossed Grenfell-owned land. 'After passing the river the railway remains for some distance upon a high chalk embankment, crossing the various roads between Bray and Maidenhead upon a series of very lofty bridges ...' Opened on 1 July 1839, the second section of the railway line, Maidenhead railway bridge to Twyford, had been completed without complication and at a gradient of a mere 1 in 1320 (by

comparison the London & Birmingham had a ruling grade of 1 in 330). Brunel had anticipated the use of 14,000 tons of iron rails along the stretch. Pascoe Grenfell saw none of this; all the latter negotiations had been with the devisees of his estate.²⁴

In *Rain, Steam and Speed: The Great Western Railway*, Turner's submission to the Royal Academy in 1844, a 'travelling engine' is depicted thundering across Brunel's Maidenhead Bridge westwards, Taplow hidden by the spray somewhere behind it. An iconic image of the great Railway Age, it symbolises both the march of the technological progress inaugurated by Richard Trevithick and the dynamism of the changing order that the railways would bring: of these Pascoe Grenfell had seen in his lifetime just the smallest of beginnings. Trevithick himself had died in April 1833, buried in a pauper's grave just as the GWR, the greatest of railways, was in the early stages of its planning and would eventually link the capital with both men's native county, Cornwall.

References

1. P Watts-Russell (November 2010) 'Travelling Steam: Pascoe Grenfell and Trevithick's patent', *Cornish Banner*, No.142; (March 2011) 'Travelling Steam: Pascoe Grenfell MP and the London Northern Railroad', *J. Railway & Canal Historical Society*, No.210; J H Russell (1978) *Great Western Miscellany*, Vol. 1, p.1
2. A Gren (2003) *The Foundations of Brunel's Great Western Railway*, p.102; Berkshire Record Office, D/EG, Grenfell Papers, catalogue entry
3. W T Jackman (1962) *The Development of Transport in Modern England*, p.522; Gren, p.51; B Pool (ed) (1967) *The Croker Papers*, p.143, Elgin to Croker, 15 July 1831
4. A Vaughan (1993) *Isambard Kingdom Brunel – Engineering Knight-Errant*, p.49; The National Archives (TNA), RAIL 250/1, Board Minutes, 30 August 1833; Bristol University, DM1306, 1K Brunel Diary, 30 August 1833
5. A Vaughan (2006) *Brunel – An Engineering Biography*, pp.32-33; Bristol Record Office, 12167.27, Great Western Book of Reference, 1835; TNA, RAIL 250/1, board minutes, 18 October 1833
6. TNA, RAIL 253/106, Charles Saunders's Letterbooks; Gren, p.94; Jackman, p.560; *Reading Mercury*, 16 December 1833; *Berkshire Chronicle*, 14 December 1833; *Berkshire Post Office Directory*, 1854; Vaughan (2006), p.35
7. TNA, RAIL 253/106, Charles Saunders's letterbooks; TNA RAIL 251/1, sealed register of the Proprietors of the Great Western Railway, 1835; Gren, p.99
8. D Clifford (2006) *Isambard Kingdom Brunel: The Construction of the Great Western Railway*, p.39; TNA, RAIL 250/1, board minutes, 1 March, 8 May, 26 July 1834; Gren, pp.40, 48-54, 90; *Hansard*, 22 July 1834
9. E T MacDermot (1964) *A History of the Great Western Railway 1833-1863*, Vol.1, p.21, Saunders to Ward, 1 February 1835; Clifford, p.40
10. Clifford, p.117; TNA, RAIL 250/82, Brunel's report to the board, 14 September 1835
11. I Brunel [jnr] (1971) *The Life of Isambard Kingdom Brunel, Civil Engineer*, p.77; Bristol University, DM1306 111.2, Instructions to Surveyors, 1834
12. Clifford, p.36; S C Brees (1839) *Railway Practice – A Collection of Working Plans and Practical Details of Construction in Public Works*, p.146
13. David Hodgkins (March 2010) 'The GWR Comes to London – Why Paddington?', *J. Railway & Canal Historical Society*, no.207, pp.40-50
14. Brees, pp.145-146; H Barty-King (1975) *Scratch a Surveyor...*, pp.100-103, 104, 114-120; Gren, p.93
15. TNA, CRES 2/17, Crown Estates Sale to Pascoe Grenfell of Bray Manor; C Kerry (1861) *The History and Antiquities of the Hundred of Bray*, p.18; Gren, p.93; R J Irving (March 1984) 'The Capitalisation of Britain's Railways', *J. Transport History*, Vol.5, No.1, p.14
16. Gren, p.13; TNA, RAIL 250/82, Brunel's report to the board, 14 September 1835; *The Times*, Great Western Railway Centenary Number, 31 August 1935, p.7; G A Sekon (1895) *A History of the Great Western Railway*, p.15; *Sharpe's London Magazine*, 1847, p.38; *The Times*, 22 August 1838
17. Bristol Record Office, 1035, Plan of a railway London to Reading, Bristol to Bath; TNA, RAIL 250/82, Brunel's report to the board, 8 October 1835; Berkshire Record Office, D/EG/P1, Plan of an estate belonging to Charles Pascoe Grenfell Esq. Parishes of Bray and Cookham, Berkshire, reduced from the Tithe Commutation Survey, 1846
18. J Simmons (ed) (1971) *The Birth of the Great Western Railway – extracts from the diary and correspondence of George Henry Gibbs*, 56; TNA, RAIL 252/189, Agreement between ... devisees of Pascoe Grenfell and GWR for additional earth for excavation; T Coleman (1965) *The Railway Navvies*, p.44; B Fullerton (1975) *The Development of British Transport Networks*, pp.17, 19
19. TNA, RAIL 250/82, Brunel's report to the board, 14 September 1835; A Vaughan (1993), p.74; MacDermot, p.40; TNA, RAIL 250/82, Brunel's report to the board on the progress of work at the London end, 26 May 1836
20. J A Francis (1851) *A History of the English Railway – its Social Relations and Revelations, 1820-1845*, Vol.1, p.222; Vaughan, 1993, pp.76, 77
21. *Reading Mercury*, 25 February, 14 October 1837; Simmons, pp.25, 26
22. Simmons, pp.25, 27, 28, 38; *Reading Mercury*, 2 June 1838
23. Bristol Record Office, 13460/15-16, MSS letters Robert Bird of Taplow to his son Robert M Bird, of East India Co., Allahabad, Bengal; Durham University Library, GRE/G4/21/8, Papers of Miss Elizabeth Mary Copley, Georgiana Grenfell to Elizabeth Copley, 12 July 1838; B Crew (2006) *The History of Maidenhead*, pp.39, 91; TNA, RAIL 250/82, Brunel's report to the board, 14 September 1835
24. *Bourne's Great Western Railway – a Reproduction of the History and Description of the GWR* (1969), p.37; Simmons, p.56; TNA, RAIL 250/82, Brunel's report to the board, 10 April 1839; Fullerton, p.19

Transport Modes and Conversions: a general essay

Joseph Boughey

2013 marks the 40th anniversary of the opening of the Wirral Way, known as the Wirral Country Park. Formerly the Hooton to West Kirby railway line, this was last used as a railway (for freight) in 1962, but most of the route now forms a linear country park, only the second of its kind designated under the Countryside Act 1968.¹ The history of this conversion is complex. Following an unsuccessful attempt by enthusiasts to acquire and run the railway, lifting of the line had taken place in 1964, but, following pressure, Cheshire County Council had formulated the idea of the Wirral Way in 1967. Even before the formal Act was passed, it was being referred to as a country park and sanction sought to acquire the site, for which British Rail were seeking disposal.² By the time of transfer in 1969, short sections, notably the sites of Neston and Heswall Stations, were built upon, a section of cutting filled in and a further section used for a road that connected two rural sites of the University of Liverpool. In consequence, by the time the clearance works had been carried out and the route adapted for pedestrian use, the path was not continuous. Subsequent acquisitions, at Neston and across the university site, have made the route almost continuous, while the Hadlow Road station buildings and signal box have been restored.³ In use as a pedestrian footpath throughout, there is now a separate bridleway along long sections, and partial use for bicycles. It is unclear how much of these uses are solely for leisure use, but the terminal northern section in West Kirby certainly seems to be used as a highway for pedestrians and cyclists accessing the centre of West Kirby from Ashton Park and the Caldys area.

One view is that the after-use of railways or other transport modes is of no consequence. Once the railway use ended, its history ended; and indeed, the purposes for which the line was constructed and maintained were also of limited interest. In one sense this is correct, and details of any after uses can be assigned to the curious.⁴ However, new uses raise the question of conversion to other purposes — sometimes another form of transport, or why another form of transport was not adopted. These questions also raise the general subject of conversion from one

transport mode to another. This article aims to raise issues that cross boundaries between most of the RCHS's special interest groups, that a wider and deeper treatise might handle. It develops the example of canals in some detail, but it should be stressed that empirical examples here are merely those that the author has come across, with a strong bias towards North-West England and North Wales.

Transport 'conversion' may call to mind the conversion from broad gauge to standard gauge lines, or from horse or cable-hauled lines (mostly narrow gauge) to locomotive operation, as with the Ffestiniog. The conversion of horse tramways to electric street tramways (leaving the solitary survivor of the horse-drawn tram in the Isle of Man) may also be evoked. Another form of conversion is perhaps that in function, from commercial passenger and/or freight to leisure use, as with many preserved railways, and most of the smaller canals. Many forms of conversion, however, involve major changes to track, to structures and the modification of routes. To return to the example of the Wirral Way, this has not meant the restoration of all bridges, has left all but one platform and one preserved station (at Hadlow Road) destroyed, has involved two new pedestrian bridges, temporary diversion routes (when first opened) and permanent diversions, onto roadways, past the sites of stations that had been redeveloped. Vegetation and path management have made it difficult to envisage the appearance of the railway when it was in operation.

The earliest examples of conversion were, perhaps, the evolution of paved highways from (in places) former paths linking place to place. A rare example of a specially-built path, which was later converted into a roadway, is to be found around the Great Orme next to Llandudno. Here, by 1858 the precipitous Custs Path was constructed to provide a leisure walkway by 1858; much of this was then largely cleared away by 1878 to provide the tolled Marine Drive for horse-drawn vehicles and later motor cars and coaches.⁵ With one exception, near the western end of Marine Drive, the Drive took up much of the line of Custs Path, presumably because the Path took a route that afforded the best views of the headland, perhaps

because it offered partial engineering works that could be adapted, and because any demand for a separate toll path would be minimal.⁶ Much more recent examples come from the era of pedestrianisation, with roads removed for pedestrian and cycling purposes. No substantial examples come to mind, bar the former roads on either side of Penmaenmawr, by-passed in the 1930s by new tunnels and viaducts, with the earlier roads converted to cycleways and footpaths. In some cases, a process of de-pedestrianisation has taken place, such as Bold Street, the first street in Liverpool to be pedestrianised (in 1969), which was later reinstated as a street with controlled vehicular access. The influences over conversion — commercial ones in the case of Bold Street, and safety-oriented in the North Wales case — could be usefully examined, along with the extent of conversion.

Locomotive railways were sometimes created in conjunction with, but more often to supersede, tramroads. Tramroads were sometimes acquired and converted to locomotive railways, with the earlier route and structures being used, at least in places. The engineering feasibility of conversion — the enlargement of corridors, the by-passing or easing of steep curves and inclined planes, the re-use or enlargement of tunnels and viaducts — could be usefully studied. The commercial influence of costs and competition might also be determined — for instance, how much would be saved by the reuse of the earlier line and structures, in property acquisition costs, site clearance and new construction? Similarly, if a new line was to be constructed only partly using the earlier line, would it save the costs of avoiding the optimum route (if the tramroad was to survive) or the costs of accommodating the earlier route? Similar questions arise for most types of conversion.

Further questions about conversions from tramroad to locomotive arise when these did *not* take place. It may be that the tramroad was adequate for the traffics involved, or that these might be short-lived, as with lines that served a quarry or mine that would be worked out in the medium term. Even if traffics could be substantial, the costs of adaptation might prove excessive.

Canal conversions and railways

Perhaps the best-known conversions of those are from canals to railways. Contrary to what is often asserted, the acquisition of canal companies was often forced on newly formed and existing railway

companies. Sometimes it was the best bargain that canal owners could make, given the prospect of financial losses once competing railways were developed. Where closure and physical conversion took place, this followed the acquisition of the canal interests, but the precise motives varied. The earliest conversion, of the Croydon Canal from 1836, used parts of the canal route, although a short section survives in Anerley; some sections were used for the dumping of spoil rather than directly converted.⁷ Much was similar of the last conversion, the Somersetshire Coal Canal, disused from 1898, and sold to the Great Western Railway Company and converted from 1904. Here a footbridge was adapted for re-use, along with a short tunnel at Combe Hay, but other sections were left, including the Dunkerton Aqueduct and the long lock flight at Combe Hay. A rather circuitous railway had been constructed by 1907, and presumably rail engineering requirements meant that the whole line was not re-used; it would be interesting to know what savings were involved in construction costs, and whether these were critical in making the railway line viable.⁸

The methods by which adaptation was achieved would also repay study. This is true of the long Strood tunnel on the Thames & Medway Canal, now a railway tunnel, along which for one year, the railway took up the towpath, with locomotives and boats sharing the same tunnel. Here the saving in tunnelling costs must have been considerable. Much earlier, the line of the Birmingham & Liverpool Junction Canal, completed in 1835, was made deliberately straight in case it was required for a railway; surviving plans show that the whole line could have been converted to a railway, bar the embanked sections near Nantwich, which had themselves been designed to divert the original planned line so as to avoid Dorfold Hall. The whole of the Shropshire Union system was acquired so that most could be converted to railways, although short sections would have been retained as canals in order to feed the new line. Railway politics prevented the conversion of most of this, although the associated Shropshire Canal was partly used for the line of a new railway. Similarly, the Manchester, Bolton & Bury Canal was acquired for conversion, but retained while the railway partly paralleled the canal route. An example of railway construction that left a navigation open, if inhibited by a poorer line, was that along the Don Valley, in which sections of the Don Navigation were taken up by the railway while navigation was diverted onto an inferior line. The costs and

practicalities involved would be worthy of detailed study.

One late railway conversion involved the Glasgow Paisley & Ardrossan Canal, most of whose line was used to construct a railway between 1882 and 1885. This included the use of the Blackhall Aqueduct (now Viaduct), which appears to be the oldest such structure in use in a British railway. For a period, however, part the railway was closed and its line used for a footpath, until it was restored for use in 1990, with a further section being converted to a cycle track.

In Ireland, the Ballinasloe branch of the Grand Canal was closed in 1961, and shortly afterwards Bord na Mona used its line, including bridges and one extant lock, to lay a narrow gauge turf railway.⁹

Railway conversions to other uses mainly involve land transport, but this has been proposed in order to restore navigation. The Herefordshire & Gloucestershire Canal may be restored using parts of the railway that took up its line in Ledbury, Newent and elsewhere, while early restoration plans for a new Dearne & Dove Canal envisaged the conversion of the parallel railway line, which closed in 1988.

Conversion from waterways to roads?

There were minor examples of conversions of canal to roads before the motor era. For instance, the upper part of the Rolle (Torrington) Canal was converted to a toll road around 1875, but this proved unsuccessful. Part of the Donnington Wood Canal was converted into a private carriage drive to Lilleshall Hall in the 1880s; unusually, bridges that were retained over this tub-boat canal are still extant.

The rise of motorised road transport greatly affected waterways traffic in the British Isles, and created the demand for larger and new roads. Proposals for a major new system, as opposed to individual improvements, sometimes included the view that canals could be abandoned and their tracks used for roads. As early as 1919, citing the Kennet & Avon Canal, the view was put forward that 'Long lengths of canal can be obtained, lock stock and barrel, for a comparatively trifling expenditure'.¹⁰ The Grand Union main line, from London to Birmingham, is roughly followed by the A5 and A41, and now by the M1 and M6; this was seen as a major target for conversion, with an unusual advocate being John Miller, the last chairman of the Grand Union Canal Company, which had modernised the line in the 1930s with state assistance. This general idea, which

preceded but paralleled that of the Railway Conversion League, is worthy of detailed consideration.

A glance at a map of lowland England suggests that canal routes could have been usefully converted, but there were many factors against this. As it would be absurd to consider converting river routes like the Severn, Trent or Weaver (and the Manchester Ship Canal), this would leave routes like the Grand Union system (including the line to Derbyshire), the Oxford and Coventry Canals, the cross-Pennine routes, the two routes west of the West Midlands, and the two routes from the West Midlands to the Mersey. These routes could, potentially, have been converted to long-distance roads.

What would have militated against this? To begin with, there would need to have been a general closure of waterways, including compensation to those affected; after disruption, some of those who were served by waterside facilities could have been served by the replacement roads. To these transport customers would be added interests that relied on water supplies from waterways; for many canals after nationalisation, the revenues from these would generally exceed toll revenue. In a more diffuse sense, many waterways provided drainage functions, so that replacement roads would need to incorporate provisions for complex water supply and drainage replacements. Even if there had been no opposition to mass closures of canals on the grounds of amenity or transport, there would be major delays while alternative water supplies and drainage were arranged. Had 'conversion' been sought along similar lines to that advocated by the Railway Conversion League — rapid closure of working lines and their immediate conversion to roadways — this would not have been possible.

Even a simple infilling of most canal beds would not yield much more than a country lane, as structures like embankments and cuttings, as well as the whole route, would need to be widened. No tunnel or existing aqueduct could be re-used. Very few bridges would be of large enough dimensions to fit motor lorries, so that either wholesale removal and the creation of large numbers of junctions 'on the flat' would be necessary, or the renewal of bridges to span a separated highway, with junctions formed to access existing major highways. Gradients might well not prove a problem, except at steep points like the two five-lock staircases at Foxton, but on a route like that from London to the Midlands, two long tunnels would need to be by-passed or re-bored.

Other problems would lie with the routes involved. As most railway engineers had found, the circuitous nature of waterways, like the Leicester summit or (even worse) the Oxford Canal summit, would mean that only short sections that coincided with a reasonably straight route could be re-used. While parts of the Shropshire Union line to Llangollen did parallel the Holyhead Road, the circuitous route east to Whitchurch and Hurleston, disused by the late 1930s, did not take up a significant route for a road.¹¹ Finally, by the 1930s many urban canals were lined by industrial and residential property that would have to be destroyed if the canal line was to be enlarged to major highway dimensions; as with earlier proposals to enlarge the West Midlands waterways, decried by Edwin Pratt, this would present a physical near-impossibility.¹² By the time waterways traffic use had declined, there was much support for leisure use and indeed for the retention of historic structures. To build new highways over new routes, avoiding sensitive areas and existing rights, would usually prove easier than to enjoy the benefits of land availability and (in some places) a suitable corridor with some existing engineering structures that could be re-used.

This does not mean that there would not have been cost savings, as well as more convenient routes, had it been possible simply to close artificial canals in Britain and their sites made available at the start of the era of major road-building. For instance, the M65 in East Lancashire could have been constructed more cheaply, and perhaps with marginal gains in landscape terms, had there been no need to accommodate the Leeds & Liverpool Canal with bridges and aqueducts. The M6 in North Lancashire was inhibited by the Lancaster Canal, much of which was retained for boating and industrial water supply. The section north of Tewitfield was closed to reduce the cost of bridging by the M6 and side-roads, but had it been drained, the site of the Tewitfield Locks, that parallel the M6, could have been used for the motorway. Bridging costs could have been generally saved, while those sections of the M6 and M5 in the West Midlands that now cross the canals below on stilts might have been placed over their sites on embankments. In places, this might have meant the preservation of amenities or historic buildings that were destroyed to accommodate the finalised positions of those motorways. However, very little of this would have involved the direct conversion of routes.

Some short sections of canal were converted to

motorways, where their routes were especially appropriate. The 'Monkland motorway' section of the M8 took over the site of part of the Monkland Canal in Scotland in the 1970s. This was in an area of much urban dereliction, where the clearance of the whole corridor could be effected without much loss of valuable property or amenities. In this case, the construction removed the source of much perceived danger from the existing canal, running through a socially-deprived area. While the Forth & Clyde was still open (if lightly trafficked), the town planner Patrick Abercrombie suggested in the 1940s that its closure in Glasgow would facilitate new highway construction.

Ireland provides other examples of conversion, in both North and South. The North saw a general closure of waterways from 1949 to 1958, and one section of the M1 took up the site of much of the Lagan Canal summit, in a rural setting. The South very nearly experienced wholesale closure (this was recommended by the Beddy Report of 1957) and the development of major new highways took place there much later than that in the UK. Much of the rural routes of the Royal and Grand Canals might have formed candidates for the sites of new motorways radiating from Dublin, while the Circular line of the former within Dublin was indeed programmed for conversion to an inner ring road, although this was prevented in 1969 through campaigning by the Inland Waterways Association of Ireland. One of the Grand Canal branches now offers the odd experience of being able to drive along the site of a canal converted to a road (albeit with overbridges and one lock wall left off-route). This is part of the Mountmellick Branch, closed in 1961 and converted to an L road (the equivalent of a UK B road). Its route was in the best position for a new road bypassing the south of Portarlinton.¹³

The narrowness of valleys in South Wales meant that any obsolete land would prove useful for new highways. In what was perhaps the first instance in the motor age, the disused Aberdare Canal was acquired for road reconstruction in the 1920s, and much of its line, although not structures, was re-used. The line of the Monmouthshire Canal's Crumlin Branch west of Cwmcarn was largely used for a new road, with slopes now marking the sites of lock flights. Much of the Swansea Canal north of Ynysmeudwy was similarly used, partly for a new road on a new alignment, with the remains of lock walls flanking one section. A similar fate for the Neath Canal was avoided, but the A470 rebuilding used much of the

line of the Glamorganshire Canal, with the aqueduct at Abercynon, previously accommodating both canal and road, now carrying a road only. In mid-Wales, the line of the Montgomeryshire Canal through Welshpool had been allocated for a major road since 1947, and it was partly opposition to this road proposal that began the process of restoration in 1969. Ironically, the Welshpool by-pass was built in the 1990s by moving the railway line to the east, so that the Welshpool Station building now fronts the A483 road.

Other transport conversions

Various further forms of conversion could be usefully studied. To continue with waterways, many have been used for walking or cycling routes. Those around Greater Manchester include various examples, one of which, the Linear Water Park of 1970, which involved the shallowing of a long section of the Rochdale Canal, has been reconverted to a navigable canal. The Ashton Canal's Stockport and Hollinwood branches include sections converted to walkways after closure in the 1960s. The northern part of the Stockport retained bridges, while that on the northern Hollinwood, in Daisy Nook Country Park, includes walking and bridleway sections alongside a watered canal and others through a drained and infilled length. Elsewhere, regeneration initiatives have improved towpaths, including the restoration of those along the Bridgewater Canal into Trafford Park, which had previously been inaccessible. In most cases, walkways have been enhanced for recreational purposes, but some urban routes provide a serious mode of transport.

The major form of rail conversion has been that to modern highways as well as walking routes. The former may be placed into two categories. Railway routes and structures have sometimes proved useful for new sections of road. The Southport coastal road, replacing the Cheshire Lines railway from Southport to near Woodvale, which closed in 1952, provides one example, while the closure of former MGWR lines in Norfolk from 1959 led to the construction of several new roads on their alignments. The reuse of structures such as bridges has been possible on occasion, and even of tunnels. An example of the latter is the conversion of the Caernarvon Tunnel of the LNWR line between Caernarvon and Afon Wen; this closed in 1964, but was converted to a one-way highway under the centre of Caernarvon in 1995.

Later closures involved the reuse of significant

parts of routes, but not structures, through sensitive landscapes. The severe visual impact of the new A66 between Keswick and Cockermouth, constructed in the 1970s, was reduced by the use of the former railway, which closed in 1966, along Bassenthwaite Lake and on towards Cockermouth. In such cases, the railway was well-positioned for any obvious route, and indeed, routes in which railways followed gaps between hills and mountains (and lakes in this case) tend to form the only available corridor.

There are many examples of piecemeal re-use of railways for roads, especially after the major closures of the 1960s, and similar comments to those above about waterways would apply; the closure of railways obviated the need for some highway engineering works, and facilitated construction in places. However, this was generally a by-product of rail closures that were seen as essential in any event. The Railway Conversion League, formed in 1955, adopted a different approach. This advocated that the whole railway system, or at least regions, should be closed in one step, so that trackbeds should be converted for road use immediately, using existing ballast if possible.¹⁴ This has similarities to the notion that the Midlands canal system could be closed at a single stroke, and many similar objections arose. Unlike the waterways conversion arguments, much would hinge on the use of terminals and stations, and suggestions as to how coaches would replace railway train operations. One problem was that many lines did not follow routes that corresponded to major traffic flows, with possible exceptions like the Great Central line.¹⁵ Most objections, however, lay with the value of the existing railway system and its potential, and with engineering objections to what would be narrow highways. There has been one deeply hostile study of the RCL, but more detailed studies of its history, claims and methods would be of interest.¹⁶

One feature of the major closure of routes from the 1960s is the failure to retain the integrity of routes. Conversions to guided busways have been mooted, as with the former Cheshire Lines railways to Chester Northgate, which has not proceeded (although the line is used for cycling and walking, including a new bridge over the A550). The busway that serves Cambridge also includes a cycleway on the section to St Ives. Railway closures for the purpose of conversions to trams are more familiar, with Greater Manchester as a pioneer in the re-use of suburban railways and the extension of lines into the centres of Manchester and Oldham.

Railway routes have been used for other purposes, as with the laying of an oil supply pipeline along part of the Mold-Denbigh line, closed in 1962. Retaining surviving bridges, the pipeline opened in 1974, but would close in 1990.¹⁷

It would be instructive to study the process whereby lines have been converted for walking, cycling and bridleways, and how schemes were rejected. Thus, at the same time as the Wirral Way was mooted, Cheshire County Council proposed to convert the Tattenhall-Whitchurch line, disused after 1963, but this did not proceed due to perceived low demand. Although this did not pass through popular rambling country, a long section of this route could have been used as a cycleway to bypass the A41, which is still a major trunk road that has few pavements and no cycle lanes.

Some Conclusions

This brief survey indicates some lines for future research. The conversion of existing, functioning, lines for new purposes, such as from tramroad to locomotive, or canal to railway, raises questions about route selection, engineering and finance. Studies could consider, perhaps speculatively, whether the optimum route was served by making use of parts of an earlier route, or whether the use of the earlier route was not ideal. If a short-term gain was available in reduced engineering costs, would that be offset by a long-term loss in reduced working viability? The practicalities involved, in creating a new mode that would accommodate the old mode, or a new mode that would make use of the old one, could be usefully studied. There would be variations here between the use of the route as a corridor, and the direct reuse or adaptation of engineering structures. The financial implications could be considered — did the reuse of an earlier route make the new route viable, or would it have been built in any event?

The second category concerns the use of older modes that had already been abandoned. In the Wirral Way example, parts of the continuous route had already been destroyed by 1967. Had the demand for long-distance cycleways and footpaths been anticipated from the early 1960s, it is likely that far more closed rail routes would have been safeguarded whole. Misgivings were expressed as early as 1970.¹⁸ Again, studies of the details of conversion, of the decision-making process, of the costs and practicalities involved in adaptation, would be helpful. The retention of landscape elements and

historic structures may have been partly accomplished through conversion to footpath or cycleway, but this could be assessed both as a spur to conversion and the extent to which this was successful. Even in the case of railway or canal conversion to roads, there may have been a reduced consequence for landscapes already affected by the presence of a disused railway or canal. The Monkland Canal in Scotland, for instance, was seen as a source of public danger and squalor, so its replacement by a motorway was considered an improvement. One final question concerns the use of the replacement mode for transport as opposed to leisure walking, cycling or horse-riding. Sustrans certainly sees sustainable transport as part of its role, but its actual extent would need to be measured.

In all cases a detailed history of the treatment of the earlier mode, and the decisions and constraints involved, could be traced and provided. Careful speculation would, in many instances, be needed to consider whether alternatives would have been possible, and indeed, whether schemes that did not proceed might have been successful. The politics of new modes would also need to be considered — when there was opposition, how was it dealt with, and was the scheme of conversion modified?

I hope that this outline essay has established the scope for new studies.

Notes and references

1. Websites for the Wirral Country Park suggest that it was the first, but there are other claims, such as Elvaston Castle in Derbyshire, which opened in 1970.
2. *Manchester Guardian*, 3 June 1968.
3. See, generally, Merseyside Railway History Group, *The Hooton to West Kirby Branch Line and the Wirral Way*, Metropolitan Borough of Wirral, Birkenhead, 1982.
4. The curious can be served by the Bygone Lines Yahoo Group (founded by the late Ralph Rawlinson, longstanding Society member) or the much earlier David & Charles series on *Lost Railways*.
5. Ivor Wynne Jones, *Llandudno: Queen of Welsh Resorts*, 2nd edition, Landmark Publishing, Ashbourne, 2002.
6. Pedestrian tolls were abolished in 1910, but motor vehicles are still charged, over what is a private leisure road in public ownership.
7. See <http://www.londoncanals.co.uk/croydon/croy01.html> accessed 21 March 2013.
8. Kenneth R Clew, *The Somersetshire Coal Canal and Railways*, David & Charles, Newton Abbot, 1970.

9. Ruth Delany, *The Grand Canal of Ireland*, David & Charles, Newton Abbot, 1973
10. *The Engineer*, 19 December 1919, p 608
11. By contrast, the line leading off this, to Newtown, did parallel the A483 mid-Wales highway for long distances, including Welshpool as noted below. Closure was mooted as early as 1930 in order to improve highway crossings impeded by hump-backed bridges. At least four bridges had been removed by 1949, and much of the canal south of Welshpool could have been used to enlarge or divert the existing highway.
12. Edwin A Pratt, *British Canals: Is Their Resuscitation Practicable?*, John Murray, London, 1906
13. Ruth Delany, *The Grand Canal of Ireland*, David & Charles, Newton Abbot, 1973
14. Brigadier T I Lloyd, *Twilight of the Railways – What roads they'll make!*, Forster Groom & Co, London, 1958. The Railway Conversion League (later Railway Conversion Campaign) would merit a detailed study and careful evaluation; a helpful bibliography is held in <http://www.transport-watch.co.uk/topic-7-archive-railway-conversion-league-1958-1994>, accessed 21 March 2013
15. Over this, the RCL sought the preservation of the trackbed for later conversion to a road, but local authorities were sceptical about its value. *The Times*, 31 December 1962
16. E A Gibbins, *Railway Conversion: The Impractical Dream*, Leisure Products, Alsager, 2006.
17. See <http://www.amlwchhistory.co.uk/shell.html>, accessed 21 March 2013
18. J H Appleton, *Disused Railways in the Countryside of England and Wales*, Countryside Commission, 1970

James Walker and Engineering the Birmingham Canal Navigations Ray Shill

James Walker (1781-1862) built up a reputation as civil engineer notably for dock and harbour work, but also was consulted on railway and waterways matters.¹ Born in Falkirk on 14 September 1781, he spent much of his engineering career based in London. He succeeded Thomas Telford (1767-1834) as president of the Institution of Civil Engineers from 1834 to 1845 and had offices at Great George Street, Westminster. Between 1837 and 1858 he was associated with some significant improvements to the Birmingham Canal Navigations (BCN).

Telford had been responsible for the creation of the BCN New Main Line that bypassed the summit level at Smethwick on the original line. He had also proposed a London & Birmingham Canal in 1826 that united the Stratford and Warwick & Birmingham Canals with the Oxford Canal near Braunston, with further improvements suggested until 1830. This scheme failed to materialise, but the Oxford was materially shortened between Longford and Napton in 1829-34, which improved the transit of goods between Coventry and Braunston.

James Walker replaced Telford in dealing with canal engineering issues.² His first assignment involved an issue of completing Telford's improvement to the BCN.

The Telford New Main Line

William Fowler and Dugdale Houghton were surveyors to the Birmingham Canal Navigations when Thomas Telford died in 1834, and were in some regards entrusted with continuing his work (along with the BCN engineer). This involved the completion of the New Main Line and the Gower Branch that united the New and Old Main Lines and involved the building of a staircase pair of locks, which was made necessary through the limited space between the Old Main Line and the Oldbury-Dudley Turnpike.

Whilst the major work of building the New Main Line was across the Ladywood Valley, through Smethwick Deep Cutting and as far as the Albion where the initial part of the Gower Branch was made, the finishing of the route to Coseley was left for some

two years after the death of Telford, before work recommenced. It was his plan and his design that was carried on by contractors to complete the project. If the Smethwick Deep Cutting is considered an engineering achievement with the iron and stone aqueducts and the tall single span Galton Bridge, no less an accolade should be given to the remainder, where the lengthy Sheepwash Embankment was required to span the low lying ground there, which was also accompanied by the making of brick aqueducts over footpaths, the River Tame, a turnpike and a road. The route was continued through to Tipton where three locks raised the waterway 20ft from the Birmingham Level to the Wolverhampton Level.

The slow progress in making Coseley Tunnel having delayed the opening of the improved New Main Line, James Walker was asked to report on progress. His report of 20 June 1837 found that mining had damaged the strata and consequently delayed the work. In particular a construction shaft had given way and had to be repaired before work continued. Walker noted no blame should be directed towards the contractor, Thomas Townshend or to Harker, the superintendent of the works.³ With contractors working in three shifts of eight hours each, it was anticipated that the job would be done in three months.

Although a section of the original canal was retained north of that spot, it was widened as far as Bloomfield where the unfinished link through to Deepfield was finally also widened. With the making of Coseley Tunnel the task started in 1794 was finally finished, which ensured a straight route for vessels between Bloomfield and Coseley. This work was completed in 1838 and a year later plans were underway to unite the Wyrley & Essington Canal with the Birmingham Canal.

Changes and improvements to the BCN did not end with those engineered by Telford, but carried on as the canal company rose to meet new challenges handed out through industrial development and railway competition. The South Staffordshire iron industry grew exponentially once a new method of puddling had been developed, which effectively simplified the process and encouraged the building of new ironworks in the region. Their products frequently were despatched by canal, but one major outlet to London was handicapped by the canal bottleneck that was Farmer's Bridge Locks in Birmingham. Canal company proprietors looked for ways to alleviate this problem. After several

suggestions had failed to materialise a scheme was proposed to build a canal along the Tame Valley from the Birmingham & Fazeley Canal at Salford to join up with the Danks Branch off the Walsall Canal at the 408ft (o.d.) level.

This plan was first intended as a contour waterway with locks placed at convenient spots to enable the route to rise up to the level of the mines and land at Wednesbury. It was a scheme first proposed with making of the Birmingham & Fazeley Canal, and occasionally cropped up from time to time when new trade routes were contemplated. That first scheme (1781-82) suggested a waterway from the Coventry Canal at Fazeley through to the working coal mines located south west of Wednesbury and was itself, perhaps, a refinement of the Lichfield & Walsall Canal scheme of 1770-71. The route was to follow the west bank of the Tame to reach these prized mines. A later proposal of 1810 suggested a canal from the Danks Branch to Salford Bridge, but this proposal was opposed by both the Worcester & Birmingham and the Warwick & Birmingham Canal companies. The Birmingham Canal Navigations committee then also decided that as the trade would come from unproved mines it was best not to proceed with this project. It was not until the 1830s that a serious plan was formulated, and that after a survey had been made of the traffic along Farmers Bridge. A bypass canal was suggested, whose route as surveyed was essentially a single-towpath contour-canal that steadily climbed up the river valley to meet the Danks Branch near Goldshill. There would be traffic both night and day with the locks lit by gas lamps for the times operation was in darkness.

James Walker considered this proposal a backwards step in view of Telford's recently constructed New Main Line. He suggested an alternative direct canal that had all the locks located along a ¾-mile length on the eastern section at Perry Barr. The Tame Valley Canal incorporated many improvements in engineering design and perhaps deserves more recognition of its engineering features than have been previously considered.

Darlaston Aqueduct

The Walsall Canal crossed the route of the Grand Junction Railway at Darlaston. The railway company were required to build an aqueduct to carry the canal over the railway and the canal company insisted on an iron aqueduct. Work to build this new structure was conducted during 1836 and 1837. BCN appointed



*Aqueduct over the Grand Junction Railway
(Railway & Canal Historical Society)*

an engineer, Mr Roger, to follow progress and inspect the completed structure.⁴ He complained to the committee that this aqueduct leaked. The railway contractors made some 'ineffectual' improvement, but then forced the canal company to open the aqueduct. Annoyed by the treatment of their servant the committee instructed their solicitor to write to the GJR clerk with the message that they were liable for any compensation. They also appointed James Walker to inspect the aqueduct, produce a report and this report was forwarded to the GJR to adopt.⁵

Walsall Extension

A branch canal to Birchills from the Walsall Canal had been suggested during 1811 when John Rennie assisted the BCN with various projects, but this was not built. The first constructed link between the Wyrley & Essington Canal and the Walsall Canal was a rope-worked tramway built for the Earl of Bradford that conveyed minerals including limestone.

Walsall businessmen pursued improved canal links and promoted an independent canal scheme to link the two canals by a short canal with locks, to Samuel Frost and Peter Potter's survey,⁶ which was promoted as the Walsall Junction Canal. Following the merger of the Birmingham and Wyrley Canals in 1840 the work went ahead, with BCN engineers building a canal very similar to the route of the Junction Canal. This canal was opened in 1841 and formed the first (of three) junction canals between these two waterways.

The task of engineering the route fell to James Walker and his team, with a young J R McClean (1813-1873) on site to superintend these works.⁷ It was a route that followed a similar route to Potter's plan and yet there were certain challenges with making the locks and bridges. At first there was no provision made for back pumping although this facility was provided later.

Constructing this waterway became the responsibility of Thomas Townshend. It was a short canal built without a separate Act as existing parliamentary powers enabled the building of branches. Eight

locks were required and various bridges. With bridges here and elsewhere a relatively new technique of building bridges with brick parapets and ironwork to support the road required the supply of foundry-cast girders. This type of bridge construction may have been pioneered by the Horseley Iron Company and Pelsall Works Bridge (1824) across the Wyrley & Essington at Pelsall appears to have been an early example.

Tame Valley Canal (1839-1844)

Reasons for making the canal

An extensive mining and ironworking area then existed in the region of the Danks Branch, which existed prior to the making of the canal to Broadwaters. The Tame provided power for a group of ironworks where iron was worked up by the finery and chafery system. In this area (and elsewhere) John Wood experimented with improving the iron working process. The legacy of these processes passed to William Gilbert Wood and other ironmasters such as John Rhead. William James had mines in this area and then came the Bagnalls, who had been associated with James in various ventures. With James' bankruptcy, John Bagnall & Sons carried on mining here and started ironworking. Goldshill and Goldsgreen became an essential part of their industrial empire and by the time the Tame Valley Canal came to be planned, the works here was being developed into an important iron making complex by the sons of John Bagnall.¹³ Thomas Bagnall, one of the

siblings, also helped to establish an important canal carrying business with James Fellows. Canal carrying firms such as James Fellows and Joseph Whitehouse became part of a new order of carriers that specialised in the movement of specific types of goods by water and iron was one of these loads that new waterways such as the Tame Valley would ease transit by water.

Changing the route

In persuading the Birmingham Canal Navigations Company committee to adopt the line that was built, instead of the original parliamentary route, James Walker produced a working waterway that was a benefit to the industries of both Birmingham & the Black Country. His report of 7 October 1839 included the following statement (referring to Telford):

To the Birmingham Canal Company who have proved by their late specialist works upon their old canal how well they are aware that the true way of supporting the character as well as the revenue of canals in the time of railway competition, is by giving the best accommodation to the trade of which the country is capable, it cannot be required to prove that in making a new canal this great principal should be kept in view. They are also aware that to begin by doing the work in a second or third rate way, as by taking a curved and therefore a longer lie in order to save the first expense of a straight one, leaves them open to reproaches and complaints and to claims for alterations by new cuts and otherwise, which after the sides of the canal become occupied by wharfs, docks, manufactories and other erections can be executed (if at all) only at great expense.

It sometimes happens also that by a consideration of the expenses contingent upon a work done in a cheap way, the saving is only apparent and that the bold measure of doing it well at first produces effects in the future working that would make it true economy to adopt it.⁸

The present subject illustrates this observation.

Walker weighed up the comparative costs of construction, the lockfuls of water required and traffic movements and produced a list of ideas for improvement, which included four major suggestions:

1. reduction of the parliamentary line from 9.5 miles to 8.2 miles, through the replacement of the contour route by extensive embankments, cuttings and aqueducts
2. changes in the location of locks to a $\frac{3}{4}$ -mile long section, the rest being two level pounds (the upper of 5 miles and lower of $2\frac{1}{4}$ miles respectively)
3. the use of one engine to pump water instead of three

4. in view of the narrow constricted channel that comprised the Danks Branch, the canal would be extended from the Danks Branch to meet the Walsall Canal near Toll End Furnaces

In addition to the 'main line' there was to be a 4-mile-long Bescot Hall Branch from near Bustleholme on the Tame Valley route to join the Walsall Canal near the Pleck.

A principal work was the embankment across the Tame Valley, which was to be maintained for about a mile at a height of 40ft and for which the spoil to make it was to come from excavation of cuttings on either side. Walker was keen to compare the task of excavation to that already done on the London & Birmingham Railway, in order to justify such a project could be achieved. He made an estimate for the necessary additional costs (on his original estimates) to be £50,000 for the Tame Valley (Danks Branch–Salford Bridge) and another £5,000 for the extension to the Walsall Canal. The route to achieving this goal was however complicated and Walker himself revised the scheme twice. (see Figure 1, page 31)

His first change was presented to the board in November 1839.⁹ Concerned about the length of the Tame Valley embankment, Walker decided that the Tame could be crossed higher upriver in a straight line to Delves Green, saving about half the embanking on this part and meaning that a smaller valley would be spanned between the Delves and Newton.

Such alterations created a possible canal cross roads at the Delves. The route straight on from Newton led to Bescot Hall on the proposed branch. A left hand turn brought the main Tame Valley towards Bustleholme, whilst a right hand turn was a new proposed route to join up with the Daw End Canal near Longwood. An alternative route from Longwood direct towards Newton was also considered.

Merger arrangements between the Birmingham Canal Navigations and the Wyrley & Essington Canal Company commenced in 1839, and although it was not until 1840 parliament ratified the arrangement, schemes for additional links were proposed and surveyed in 1839. James Walker noted that his route was similar to one that Thomas Telford had proposed in 1826 across the Tame Valley to Delves Green and then onto Daw End.

Another, perhaps more imaginative proposal was the link from the Tame Valley near Bustleholme through Hobbs Hole, Darlaston Green, Portobello, Wolverhampton to join up with the locks to Aldersley

Junction providing a new and improved route to the Staffordshire & Worcestershire Canal, the Birmingham & Liverpool Junction Canal and the port of Liverpool.

Walker's next report dated 21 November 1839¹⁰ dealt with the relative costs of alterations, additional expenditure and savings and led the committee to agree to the deposition of new plans with the Clerk of Peace for application to Parliament. These were: Tame Valley deviation ; extension to the Walsall Level (Danks Branch-Toll End); Daw End Branch; and Daw End Branch (alternative line).

Once these proposals became general knowledge, two of the principal land owners affected by the change, Mr Gough and Mr Birch, advised the BCN committee that they were strongly opposed to the scheme and refused to give their consent for the waterway crossing their land. The BCN committee now faced greatly increased expenses to proceed with Walker's line. They decided to adopt the original parliamentary line of 1838, the extension to Toll End, and make such improvements as could be effected under the company's existing powers and also those powers for deviating from the line with the consent of the land owners.¹¹

Walker's scheme might appear to have faced cancellation, but a hectic period of discussion with the land owners led to another dated 30 January 1840.¹² In his words 'he displayed an obstinacy in favour of his own scheme'. A compromise route was settled on where the canal line was altered to satisfy both Gough and Birch. It was this final plan that submitted as an amendment to the Act, and deposited with the Clerk of Peace in March 1840. Essentially there were two major diversions to the Tame Valley Canal. His 1839 canal took the line south of the initial contour route that went from Salford Bridge to Witton, passed Perry Barr to the north but then swung around to the Tame crossing the Tame to the south of Bustleholme Mill and then the Grand Junction Railway. Walker's first plan was to divert south of Witton and pass also to the south of the crossroads at Perry Barr with the all the thirteen locks on this section with the route passing through Tower Hill following a course to the North of the initial parliamentary line. This route would have involved a diversion of the Tame near Holford Mill and also a close pass of the mill at Perry Barr. The 1840 alteration meant the use of the original contour route towards Witton, which required two locks and then finally

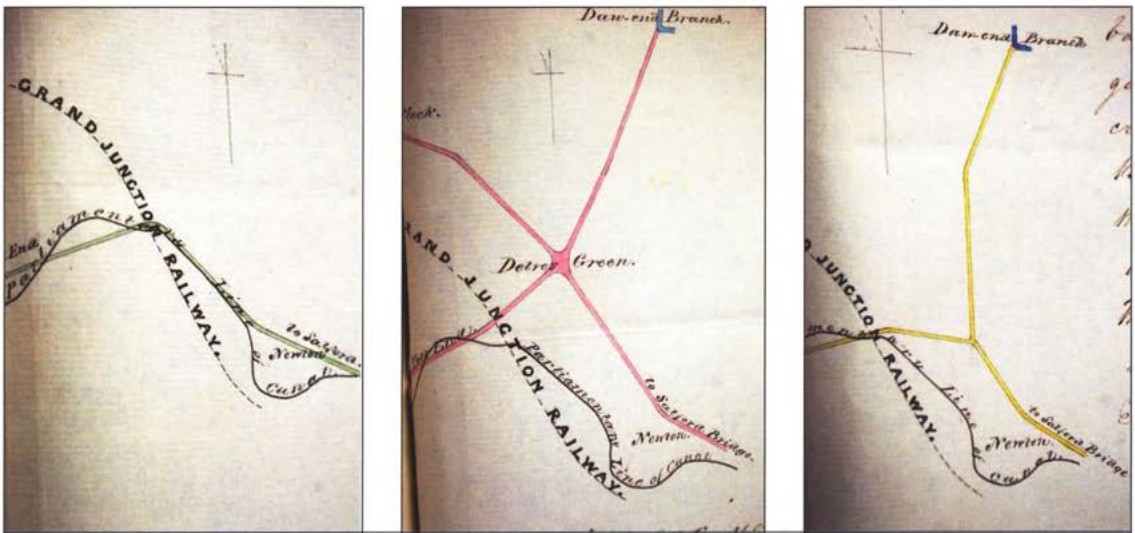


Figure 1. The left-hand plan may be taken as an early contemplated version prior to considering a junction for the Rushall Canal. The middle and right-hand plans take the Rushall line junction into account, and whilst both routes had merit the chosen option was the right-hand plan.

The route to Delves Green was initially featured in the November 1839 application for altering the route, but this was changed for the second time in March 1840 when another revision was submitted to amend the route.



Figure 2: Tame Valley Canal as originally proposed, 1838
(Staffordshire Record Office, D3186)



Figure 3: Tame Valley Canal proposal as amended, 1840. James Walker's route (in pink) was a major work and provided better accommodation for traders than the Parliamentary line (in black). Also shown is the proposed line from Darlaston Green to Hobbs Hole, which was not built (TNA, RAIL 810/100)



Figure 4: Tame Valley Canal as built
(Staffordshire Record Office, D3186)

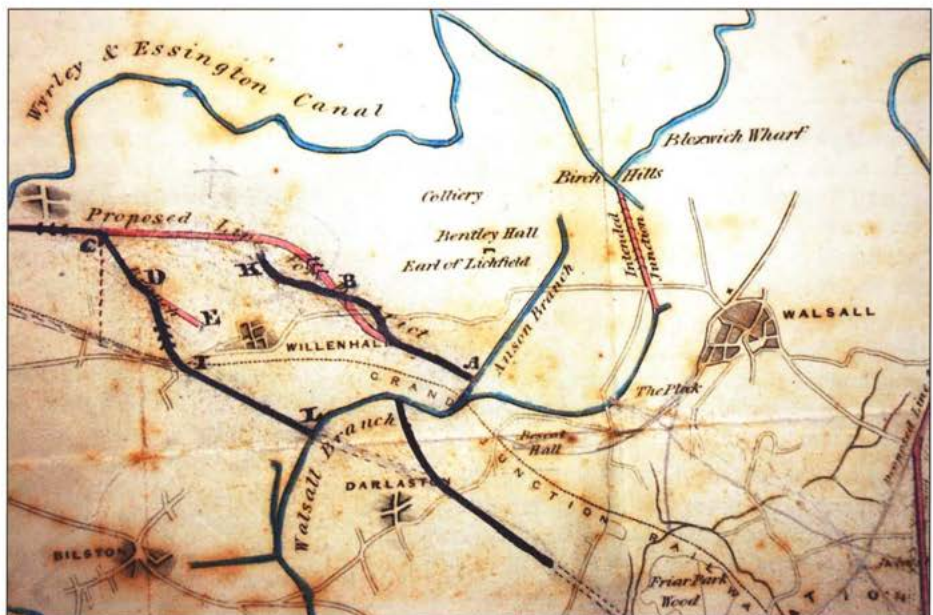


Figure 5: routes from Bentley to Wednesfield, 1839.
The Parliamentary line of 1839 (in pink) is shown
together with Walker's alternative proposals (L-C) and (A-K)
(TNA RAIL 810/100)

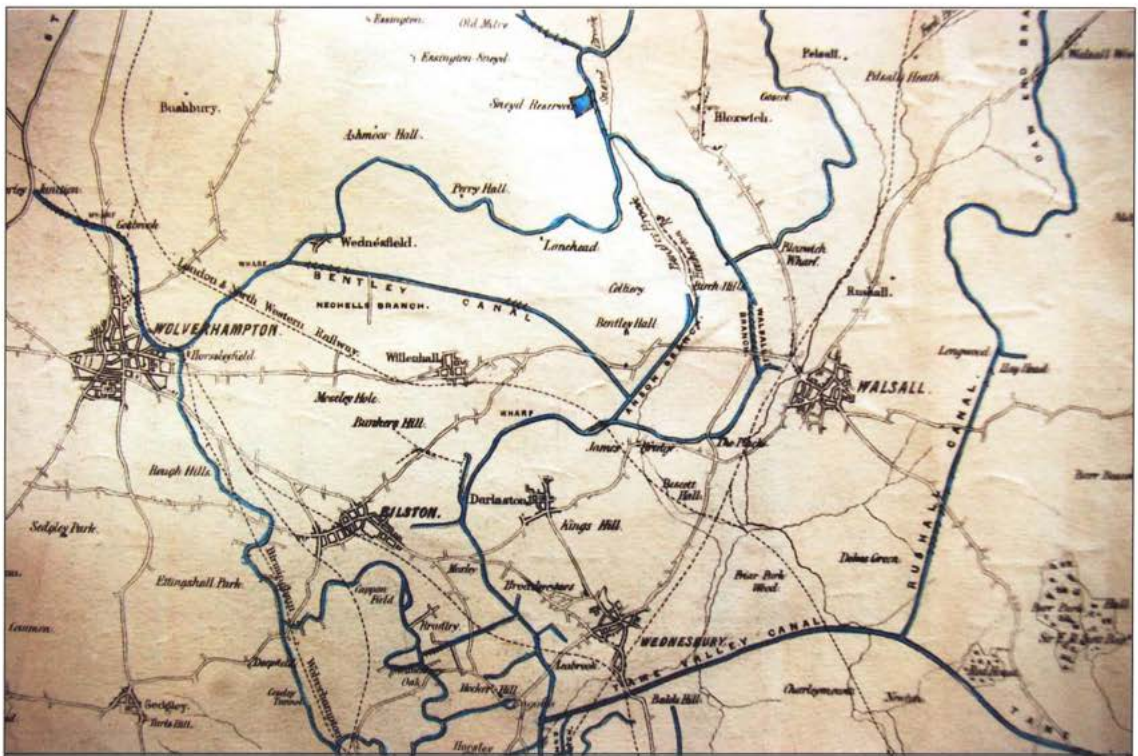


Figure 6: Bentley Canal as built, and opened 1843
(Staffordshire Record Office, D3186)

following a straight route climbing up through eleven locks to a summit level east of the Birmingham & Walsall Turnpike. The second alteration was, as previously mentioned, also a straight cut, from Newton to pass to the north of Bustleholme Mill. (see Figures 2 and 3, page 32)

There were certain engineering challenges but the use of the horse-drawn contractor's railways to move spoil, and the careful choice of iron, brick and stone to build the waterway drew on contemporary railway and canal building skills.

The original scheme for three pumping engines to back pump water from the level at Salford Bridge back to the Walsall Level was replaced by one near Deykins Avenue.

Toll End Extension Canal

The canal from the Danks Branch to the Walsall Canal near Toll End Furnace basin was considered as an addition to the canal from Danks Branch to Salford Bridge. Essentially it was a straight waterway with a double towpath built across the River Tame

flood plain on an embankment. Both the Toll End Extension and the Danks Branch–Salford Bridge Canal became known popularly as the Tame Valley Canal.

Construction

Toll End–Hateley Heath

The contract for the Tame Valley was let in two sections, with the first from the Walsall Canal to Hateley Heath awarded to Thomas Townshend, a contractor with experience going back to the Lancaster Canal in 1794 who had conducted various contracts for the Birmingham Canal. He is recorded as working on Telford's deep cuttings and embankments from Ladywood–Smethwick (1825-30), the Ansons Branch (1830) and Coseley Tunnel (1836-38). He also undertook various railway work, such as making the Grand Junction Railway from James Bridge to Vauxhall (1835-37), but was subject to insolvency proceedings over a lengthy period. When Townshend was awarded the Tame Valley contract he was also working on the Walsall Extension Canal

with Walker, Burges & Co. as engineers. Townshend's contract was completed by January 1843 and general traffic appear to have worked towards Hateley Heath after opening.¹⁴

Hateley Heath–Salford Bridge

The remainder of the Tame Valley contract was advertised in December 1840. The BCN committee accepted the tender from William Radford at £170,206 8s 8d¹⁵, but he subsequently contacted the committee about his sureties, in effect withdrawing from the contract.¹⁶ He was replaced by Tredwell, Jackson, Bean & Gerard who offered to complete Tame Valley Canal in three years for £184,094.¹⁷ The contract was signed on 13 February; work started on 15 February at Newton, near Friars Park and at Tower Hill, and there were 120 men at work there on 17 February. Arrangements had also been made with the Horseley Company to do the principal part of the ironwork.¹⁸

With contractors installed on the works, the first task after fencing the route was to begin excavation at the three cuttings, for spoil from these would be used to form the embankments. Making the culverts and laying the foundations for the aqueducts and bridges were also an early priority. By June 1841 they had 800 men on the line and 100 horses.¹⁹

The principal construction was conducted between 1841 and 1843, with these contractors finishing off the task over the winter of 1843/4. Walker named the date, Thursday 30 March, to open the canal.²⁰

Engineering Features

General features

The canal was made with a double towpath, i.e. one towing path on either side, from Toll End to near the end at Gravelly Hill. The towing path, or 'track path', walls were made of stone and rubble; some stone, for coping purposes, was intended to be obtained from Tower Hill Quarry. The track path wall was modified in Newton Road Cutting to allow water to drain into the canal.



Iron aqueduct, Tame Bridge. This was the last aqueduct to be started on the Tame Valley Canal by the contractors Tredwell & Jackson. It crossed the parish road from West Bromwich to Walsall

Engineering this waterway involved negotiations with various other engineers and surveyors for transport routes that crossed the route. There were the turnpikes, parish roads, the Grand Junction Railway and industrial tramways. Provision was also made for accommodation bridges, streams and brooks

Specific features

There were several features of the canal. In Tredwell, Jackson & Bean's contract they included: 1- Hawthorn Brook Culvert; 2- deep cutting at Witton; 3- the locks, thirteen in total, each with a lift of 8ft 1½ inches. Two of these were placed near Deykins Avenue and the remainder in two main groups of five and six respectively at Perry Barr. Work on the locks started first with 12 and 13; 4- deep cuttings at Tower Hill; 5- deep cuttings at Newton Road; 6- deep cuttings at Friar's Park and Crankhall Lane; 7- embankment, Hamstead to Newton Road; 8- embankment across Tame Valley; 9- Piercy Aqueduct over the old Walsall Road (iron and stone); 10- aqueduct at Spouthouse Lane (stone); 11- aqueduct over Tame (brick); 12- aqueduct over Grand Junction Railway (brick and stone); 13- aqueduct over West Bromwich–Walsall Road.

In Thomas Townshend's contract there were: 1- aqueduct at Hateley Heath; 2- deep cutting at Wednesbury Holloway; 3- Goldshill Bridge (iron); 4- Goldshill Aqueduct over River Tame (brick); 5- aqueduct over Bagnall's Railway; 6- junction turnover bridges with the Walsall Canal

Goldshill Stop

The BCN erected a stop to check and gauge boats near Goldshill and east of the junction with the Danks Branch. The making of the South Staffordshire Railway from Walsall to Dudley crossed near the site of the original stop and a new stop was erected by the contractors for the South Staffordshire Railway line to Dudley during 1849.²¹

Pumping Engine Establishment at Deykins Avenue

The task of providing a back pumping scheme for recirculating water from the Erdington Level to the Walsall Level was decided during 1850 when tenders for erecting three steam engines with boilers, engine houses and other 'appendages' were received: Jas Watt (no.1) £3000, (no.2) £2400, (no.3) £1460, and Davies & Co. (no.1) £2300, (no.2), £1750 (no.3) £1120.²² The tender of Davies & Co. was accepted subject to their producing proper plans and specification, to be agreed by the company's agents and approved by Robert Stephenson or any other engineer appointed by the company, and subject to execution of a proper agreement.

The engines and engine house were erected during 1851 and they entered service on Friday 19 September. Bringing these engines into use also had an effect on the engine establishment at Ocker Hill, which pumped water from the Ocker Hill Tunnel Branch back into the Wolverhampton Level. It was reported that the quantity of water pumped in five days was 575 locks or about 115 locks per day, but the extra water being pumped into the Walsall level and the trade at the various locks into that level having increased considerably, the Ocker Hill engines were no longer able to lower the level. It was suggested that no time should be lost in having another engine placed at Ocker Hill equal to 200 locks per day.²³

Bentley Canal

There was an extensive mineral property comprising coal and ironstone. Mines at Willenhall were served by colliery tramroads that ran to furnaces which belonged to the Chillington Iron Co. The Grand Junction Railway, opened in 1837, neatly bisected the mineral property. The prospect of linking the Walsall Canal to mines at Willenhall as well as forming another junction canal to the Wyrley & Essington Canal led to the application to Parliament for a canal from the Ansons Branch which passed to east, north east and north of Willenhall, involving first a rise of

three locks to an intermediate level and then five more to reach the Wyrley & Essington at New Cross. From this intermediate level a branch to Willenhall was also proposed. The name of this waterway was given as the Bentley & Wednesfield Canal when the BCN solicitors, Ingleby & Wragge (Birmingham) and Corser Rutter & Corser, Wolverhampton, deposited the parliamentary plan with the Clerks of the Peace in 1839.²⁴

Walker & Burges were engineers for this line with William Fowler, surveyor. Eight locks were decided as sufficient to raise the canal to the Wednesfield Level, the same number as was required for the Walsall Extension Canal. In the deposited plan the route passed beside the east side of Thomas Hinck's colliery. However, the needs of Edward and George Benjamin Thorneycroft, iron masters and mine owners of Willenhall, came to influence how the canal was made. Having been asked by the BCN to investigate how the canal could best serve Thorneycroft's needs, Walker considered an alternative plan. In a report²⁵ where he discussed the 'probability of expediency of Bentley lines', he noted that the object was to accommodate mines north of the railway and at the same time form a junction between Wyrley & Essington and Walsall level. The Parliamentary line commenced at Ansons Branch and was at the Walsall Level for about a mile (to B) before being then locked up three locks and carried a mile and half (to C) then by five locks of equal distance. A branch (C to D) formed a canal branch to Willenhall (see Figure 5 on page 33). His now proposed and adopted line also commenced at the Ansons Branch and followed nearly the Parliamentary line up to B, but instead of locking up before reaching the coal districts continues on the same level into Mr Thorneycroft's works (K) where it terminated. A separate canal was now envisaged that began at the Upper Wyrley Canal, locked down to C and passed long part to the Willenhall branch to D, but from D it passed under GJR to (I) and joined the Walsall level at (L). To assist the choice the comparative advantages of the alternatives were discussed:

Parliamentary line

1. Boats from every part of the mineral district passing to either the Walsall or Wyrley levels are encumbered with locks and take water even if not going out of the Walsall Level
2. The trade from the centre of the district D is three miles and three quarters distant from L on the Walsall Level

3. General trade four miles and three quarters from L on Walsall to the Wyrley Level
4. Trade must pass through Ansons Branch, a narrow canal contracted at one place to eight feet in width *proposed line*
1. A most important mineral district (including Thorneycroft's Works) and also the district south of the railway (between L& I) (neglected by the other line) will be opened up on Walsall Level
2. Trade between same points only a mile and a half
3. General trade two miles and three quarters between same points
4. Trade passes at once into Walsall Canal
5. One mile of the important communication to 10th lock will be formed
6. The length of canal to be formed was only 7 chains more for the proposed than for the Parliamentary line.

It was also observed that in case of any insurmountable difficulty to the revised proposal the parliamentary line might be re-adopted, as shown by the dotted line to fall into the portion contracted for next to Anson Branch to wit A-B-K.

The BCN went ahead with advertising the contract A-B-K in December 1840. The contract for building this part of the Bentley Canal was awarded to John Woodward for £11,300,²⁶ later revised to £18,350 for 1½ miles plus four locks. Woodward began his contract on 30 January 1841 and was expected to complete it during December 1842.

Edward Thorneycroft's subsequent request to have a link to the Wyrley Canal led to the route reverting back to one similar to the parliamentary line, except that it passed his mines and needed four locks instead of three to reach the intermediate level.

Once the route had been finally settled the remaining part (1¾ miles and six locks) was let to Matthew Frost & John Bate for £19,208. They entered into this contract from 30 July 1841, to finish within a year and a half. Unfortunately possession of land was not being obtained and the works did not begin until 1 October 1841.

Rushall Canal

The cost of making the Rushall line was investigated by Walker. After discussing the chosen route with the committee and taking Mr Houghton's estimate of purchases and compensations as correct, the total cost was put as £50,000.²⁷

Work on this project was delayed to allow purchase of land and farmers to gather their crops. Tenders for the work of building nine locks and the straight-line waterway were let in 1845 to the contractors Frost & Bate.²⁸ Their tender for £30,500 was accepted, with the provision of completing these works in 15 months.

Their contract completion date appears to have been delayed and by the end of 1847 there was still an issue regarding the state of the canal.²⁹ The letter from Frost & Bate requesting payment of £1000 on account of balance due to them for execution of Rushall Canal was delayed after the Birmingham Canal Navigations committee decided 'that Frost & Bate be informed that in consequence of leaky state of canal this committee cannot consent any sum be paid till canal has been put in a secure state'.

Further projected Birmingham Canal Extensions

A new round of canal extensions were proposed during 1853³⁰

1. Pelsall branch with extension to Cannock Chase and Norton
2. Wyrley Bank extension
3. Gads Green Tunnel
4. Lord Hays shortening
5. Sandwell Park branch
6. Lodge Farm to Nine Locks
7. extension from Titford Canal
8. extension from Halesowen towards Offmoor Woods and Lutley
9. branch from Fighting Cocks at Sedgley to Lord Ward's Canal

Some of the above became practical propositions, with James Walker involved in the route engineering.

Proposed Dudley Canal links: Netherton Tunnel

The engineering partnership had become Walker, Burges & Cooper when the Netherton Tunnel (Gads Green Tunnel) was planned. It involved the making of a new line of canal from the New Main Line at Dudley Port through Netherton Tunnel to Windmill End, another straight-line canal from there to link up with the original route again, a third diversion and the cutting out of Brewin's Tunnel, a fourth shortening, the 'Two Locks Line' and a fifth improvement at Delph Locks where seven of the nine locks were bypassed by a new line of six locks. These

new locks were in a straight line complete with side pounds and weirs and were numbered 2-7. The original locks 1 & 9 were retained and lock 9 became 8 through this improvement. Both of the original locks required reconstruction, whilst the old Dadford locks were abandoned. The tunnel and branch were planned as a wide waterway with a double towpath. Principal engineering features included an aqueduct over a tramway serving Groveland Colliery (J Bagnall & Sons), an aqueduct to carry the Old Main Line over the new Netherton Branch Canal, and the tunnel (which was also to have gas lighting).

Cannock Extension and Wyrley Canals

James Walker was engineer and J Hancock surveyor for a route from Pelsall towards Brereton where coal mines were in work. In addition to canals, company-owned tramways were suggested. These plans were submitted as the Birmingham Canal Navigations (Additional Canals and Tramways, and further Powers and Amendment of Acts) Act. Eighteen plans and sections of branch canals and tramways³¹ were produced for:

1. The canals from Wednesfield Canal to Hednesford and Brereton and proposed branch railways to communicate therewith.
2. A canal from Lord Hay's branch of the Wednesfield canal to near Wyrley Bank. The notice for these works, published in the *London Gazette*, is given in Appendix 1.

In making this plan Walker actually produced a scheme that would have considerable benefit to the canal company and users of coal, when the extensive coalfield around Hednesford and Great Wyrley was developed.

Of the two tramways proposed, one to Norton Springs was not built as a canal feeder tramway, although the route was laid out. Once Coppice Colliery was sunk at Norton Canes, the LNWR arranged to make the Five Ways Branch along the route. The second tramway from Hednesford to Littleworth was made as a standard gauge line (the only BCN railway to be made to that gauge). It linked up with other mineral railways of the same gauge, but was initially horse worked. Later this tramway was improved for locomotive working and had colliery locomotives working along it to Hednesford Basin.

Walker's plan to complete the canal to Brereton was never made, as a rival railway scheme, the Derbyshire, Staffordshire & Worcestershire Junction Railway was established during 1852³² and made plans to build a railway from Rugeley to Cannock as part of their original lengthy line through South Staffordshire and East Worcestershire.

Conclusion

James Walker made some important contributions to late BCN improvement. His involvement with planning the Netherton Tunnel has been discussed in various published texts, yet he made many more contributions than the route through the hill from Dudley Port to Windmill End. The Tame Valley is certainly an underestimated gem of industrial engineering and without James Walker's dogged determination this canal would never have been built in this form.

Notes and references

1. For information on Walker's other work, see Denis Smith (1997) 'James Walker (1781-1862), civil engineer', *Trans. Newcomen Society*, vol.69/1, pp.23-55
2. Though (Sir) William Cubitt had taken over the Birmingham & Liverpool Junction Canal from Telford
3. TNA, RAIL 810/13, committee minutes, 30 June 1837
4. TNA, RAIL 810/13, committee minutes, 26 February 1836
5. TNA, RAIL 810/1, committee minutes, 30 June 1837
6. Staffordshire Record Office Q/Rum 109, map dated November 1838
7. *Walsall Free Press*, 19 July 1873: J R Mc Lean's obituary. He was President of the Institution of Civil Engineers in 1864-65
8. TNA, RAIL 810/14, committee minutes, 8 October 1839
9. TNA, RAIL 810/14, committee minutes, 8 November 1839
10. TNA, RAIL 810/14, committee minutes, 22 November 1839
11. TNA, RAIL 810/14, committee minutes, 21 January 1839
12. TNA, RAIL 810/14, committee minutes, 31 January 1840
13. Ray Shill, *South Staffordshire Ironmasters*, History Press, 2008

14. TNA, RAIL 810/100, report, 27 January 1843
15. TNA, RAIL 810/14, committee minutes, 8 January 1841
16. TNA, RAIL 810/14, committee minutes, 29 January 1841
17. TNA, RAIL 810/14, committee minutes, 5 February 1841
18. TNA, RAIL 810/100, report, 2 February 1841
19. TNA, RAIL 810/100, report, 24 June 1841
20. TNA, RAIL 810/100, report, 27 January 1843
21. TNA, RAIL 810/15, committee minutes, 8 June 1849
22. TNA, RAIL 810/16, committee minutes, 29 November 1850
23. TNA, RAIL 810/16, committee minutes, 26 September 1851
24. Staffordshire Record Office, Q/Rum 128, Wednesfield & Bentley Junction Canal and Willenhall Branch and book of reference, 29 November 1839
25. TNA, RAIL 810/100, report, 26 February 1841
26. TNA, RAIL 810/14, committee minutes, 8 January 1841
27. TNA, RAIL 810/100, report, 27 May 1842
28. TNA, RAIL 810/15, 3 June 1845
29. TNA, RAIL 810/15, 31 December 1847
30. TNA, RAIL 810/1, 6/7 February 1853
31. Staffordshire Record Office, Q/Rum 253, 30 November 1853
32. TNA, RAIL 153/1

Appendix 1

In making the application to Parliament the following notice was published in the London Gazette

NOTICE is hereby given, that application is intended to be made to Parliament, in the ensuing session, for leave to bring in a Bill to confer further powers upon the Company of Proprietors of the Birmingham Canal Navigations, and to enable that Company to construct and maintain the works and effect the purposes following, or some of them; that is to say:

A canal from the Wednesfield Canal, near Pelsall Common, by Norton, Cannock, and Hednesford, to a point at or near to Brereton, commencing by a

junction with the Wednesfield Canal, near Pelsall Ironworks, in the township of Pelsall and parish of Wolverhampton, in the county of Stafford, and terminating in or near a field belonging to the Right Honourable Earl Talbot, situate near Chetwynd Coppice, in the township of Brereton, in the parish of Rugeley, in the said county of Stafford. An extension canal from a branch canal belonging to the said Company, called Lords Hayes Branch, being part of the said Wednesfield Canal, to or near to a place called Wyrley Bank, commencing by a junction with the same branch canal, in the foreign of Walsall, in the parish of Walsall, in the said county of Stafford, at a point near New Town, in the parish of Bushbury, in the said county of Stafford, and terminating at or near Wyrley Bank aforesaid, in the same county, and to take water for the use of the said intended canals from the Wednesfield Canal, and from any springs or streams on or near to the course of the said intended canals or either of them. A tramway or railway, commencing by a junction with the said first-mentioned intended canal, in or near to a field called Red Lion, in the parish of Norton Canes, otherwise Norton-under-Cannock, and terminating at or near a point called Norton Springs, on Cannock Chase, in the parish of Cannock, all in the said county of Stafford. A tramway or railway commencing by a junction with the said first-mentioned canal, in or near to a field called Allport's Piece, in the township of Hednesford, in the parish of Cannock, and terminating near a place called Littleworth, in the township of Hednesford aforesaid, all in the said county of Stafford; and which said intended canals, tramways, or railways, and other works, will be made or pass from, in, through, or into the several parishes, townships, and extra-parochial and other places following, or some of them; that is to say: Norton Canes, otherwise Norton-under-Cannock, Rugeley, Bushbury, Cannock, Wolverhampton, Walsall, Walsall borough, Walsall foreign, Bloxwich, Pelsall, otherwise Pelshall, Wyrley, Little Wyrley, Brownhills, Great Wyrley, Leacroft, Hednesford, Brereton, and Essington, all in the said county of Stafford.

Dated this 31st day of October, 1853

Inglely, Wragge, and Inglely, Solicitors, Birmingham

Newton Abbot – a memoir

David St John Thomas

The first guidebook I owned described Newton Abbot as a market and railway town. The Great Western employed an astonishing 1,950 people, nearly all men and heads of families, mostly living in Newton Abbot itself. And as in much of Britain, the children of railwaymen were expected to do better at school than other children.

Newton Abbot thrived in railway importance because of decisions by Brunel: to make the gradients on the Plymouth line steeper than they need have been so as to 'gather' climbing into planes where his atmospheric system could be boosted with a larger pipe, (in the event atmospheric trains only reached Newton Abbot for a few troubled months before the system was abandoned) and by taking the mainline over the foothills of Dartmoor to serve Torbay by a branch. Newton Abbot became a junction in 1848 though the branch at first only went as far as what is now Torre. Kingswear was not reached until 1864 when Dartmouth's station without trains was opened and the railway ran its own ferry.

It soon became sense to attach or detach the Torbay section of trains, lightening the load for the steep gradients faced by Plymouth-bound trains in steam days. Throughout most normal days, for generations, attaching and detaching the Torbay coaches was a routine which helped make Newton Abbot a train spotter's delight. Today's more powerful diesels now run as complete trains for the Plymouth or the Torbay line. The branch was extended in sections to Kingswear with its ferry to Dartmouth's station without trains.

For generations of passengers in peace and war, Newton Abbot also often meant changing trains, not always with convenient connections. Most up trains were greeted with the announcement 'Over the bridge to the Plymouth [or Torbay] line'.

Brunel's initial three separate stations all with overall roofs was an operating nightmare. He was an extraordinary man of vision — the 'poet engineer' but had many shortcomings — especially in station design, such as the initial Reading with one long platform (a bit Cambridge-like.)

In 1927 the three separate stations — no more than short covered 'sheds' — were replaced by a major nine-platform station. Each side of the two long island

platforms was divided into two, while platform nine was a more rudimentary affair outside the main station for the Moretonhampstead branch. Though shortened and reduced to three, that is today's platforms and their wooden buildings. Newton Abbot was so delighted with the new station that the numerous clocks were paid for by public subscription. The official lunch on opening day, Monday 11 April 1927, was a sumptuous six-course affair with formal toasts including those to the prosperity of the town and to the Great Western Railway.

Newton Abbot indeed had a love affair with the railway. The locomotive works carried out major overhauls, the carriage and wagon works employed hundreds, while the marshalling yard (as far west as full-length 54-wagon goods trains could go) and the goods station were ever busy.

For generations Newton Abbot was also a place where trains tended to linger as the Torbay coaches were attached and detached. To help with this, halfway down the outer faces of the two long island platforms, there were scissors crossovers connecting with the through track beyond. This led to a great variety of permutations.

For example, after division, the two down trains could leave simultaneously and even race each other to Aller Junction. The Torbay coaches of an up train might stop at the up platform before the scissors crossover, used by the main train to overtake it. A shunting engine would then propel the Torbay coaches to join the main train.

Being at the junction of the Torbay line and just short of the gradients on the mainline gave Newton Abbot an important role in locomotive matters. Some broad-gauge locomotives were actually built here. The only remaining broad-gauge engine, 0-4-0 *Tiny*, was for many years on show on the up platform, while there was a weather vein featuring a broad-gauge engine. I paid to borrow it to take a template. It was never again displayed and mysteriously disappeared, as did a map of Dartmoor with raised contours after I had mentioned it in an article. The full-sized locomotive template is at Newton Abbot Town Council's small railway museum while a half-size version is a weather vein on my Scottish garage roof overlooking sundry other railway artefacts.

Later Newton Abbot Works could handle all but the most major servicing, even for Kings, a few of which were based here together with other express and tank engines. When I lived in Newton Abbot, my part-time gardener had had a spell in the Works before becoming a driver. He recalled being asked to step forward by the Great Western's famous locomotive man, Churchward, who publicly thanked him for reporting that torrential rain had created a stream undermining the Torbay down relief line. Thanking staff for special services is one of the ways in which the Great Western turned itself into a legend in its own time. Nationalisation damaged staff morale far more than on less personable lines.

With trains continually being joined and divided, much shunting and locomotives being steamed or dropping their fires, Newton Abbot station frequently became a destination in itself for interested people, not yet called 'enthusiasts'.

Early in the war, I spent a happy day there, though next day the station was attacked by the Germans. A piece of shell damage is still visible. That was the end of visits for the duration, though there were plenty more after 1945 — one including a ride down the length of the platform on the famous *King George V*, with the bell on its buffer beam. The inspector station said: 'You're interested, son? Driver let him get up while you pull forward.' Bliss.

But a total of 1,950 railwaymen? The number included drivers, firemen and guards based at Newton Abbot, engine cleaners and those employed in the locomotive works, which later became the carriage and wagon repair shop, staff of four signalboxes, a large goods station, marshalling yard and refreshment rooms on up and down platforms. Initially even the locomotive department covering the whole of the Great Western in the west occupied the middle floor of the main station building. When everything was concentrated at Plymouth, it became an early David & Charles office and, as we expanded, we took over the top floor, which had been built as a tea room but didn't last long. Still belonging to the catering department, it was for some later years for overnight accommodation for the staff of a whole train of restaurant cars which ran down from Paddington on summer Friday evenings. Each car returned on a separate train next day. Older readers may remember how on summer Saturdays most long-distance trains had restaurant cars but, to serve the maximum number of holidaymakers, the lunch was a short two-course affair: cold meat and salad and set pudding, often plums and custard.

There were daily, weekly and seasonal rhythms. On weekdays, even at Teignmouth in school days, morning timekeeping was kept by The Hooter which echoed down the Teign estuary several times each weekday morning. In the days that few had watches, it was sounded for the benefit of workers at the railway works but rendered a valuable social service over many square miles, though in fringe areas audibility naturally depended on the wind direction.

Summer was obviously busier than the rest of the year, with many local people as well as visitors using Runabout tickets allowing unlimited travel in an area shown on a map printed on them.

Bringing in the visitors on Saturdays was obviously big business. Pre-war Paddington and the whole Great Western ethos were geared toward it. It was indeed profitable (though the core GWR profit came from transporting South Wales coal, both within Britain and massively for export). After 1945, there seemed unlimited rolling stock for ever-increasing summer Saturday specials. Among other things, they used the stock then kept for ambitious excursion programmes, including educational ones. The excursion manager was once an important post in district offices.

While the railways did everything in their power to accommodate the post-war holiday boom, in the end it turned out to be anti-social. Only when most people turned to driving their own cars did being bottled up in the horrendous Saturday traffic jams persuade a significant number to stagger holiday dates and journey times.

You could feel the atmosphere of expectation as you passed the station and loco works on a summer Friday evening. While it lasted, the railways' battle to accommodate all who wanted to travel at peak weekends made great news for the Sunday and Monday regional papers. As railway and holiday correspondents, my reports, often featuring as the front-page lead, described each summer Saturday's performance almost as though it was a sporting event, which indeed it seemed. They were well read by West Country people. Monday reports benefited from BR telling me on Sunday how many passengers had arrived by what route at different holiday destinations. Great was the excitement at Paignton when its figures beat neighbouring Torquay's.

Over 30,000 from at least as far away as Bristol went down the Torbay line, while over 6,000 took the challenging branch to Newquay. Many trains down both lines left their starting points the previous

evening. They disgorged their crowds in the small hours, impromptu singing breaking out while people waited for the first cafés to open. Boarding houses wouldn't welcome them for hours to come.

For its size Newquay was the most popular resort and often a queue of those seeking somewhere to stay formed outside the information bureau well before it opened at 8.00am. Visitors often had to be directed inland, the villages of the china clay area suddenly becoming popular resorts.

On the busiest Saturdays many arrived without anywhere to stay. Until Monday villages inland of Torbay were toured by those begging for lodging and paid even to sit in a chair overnight. Once the pressure was so great at Newquay that its information bureau put out an appeal for anyone with a bed to spare anywhere in Cornwall to get in touch. Some visitors were sent all the way back to Saltash, others to St Just-in-Penwith in the far west.

All these trains of course passed through Newton Abbot, where five or six thousand passengers would sometimes be in trains or on the platforms. A second engine had to be provided for most going to Plymouth and Cornwall, while Torbay trains were mainly given a fresh engine, for many years going down the branch tender first since a turntable at Paignton was only provided as traffic declined.

A hut was provided at the west end of the down platform for enginemmen waiting their turn to take a train, mainly down the branch. When overnight trains were late (and often the whole programme was a couple of hours adrift) several dozen drivers and firemen might be waiting. Late running resulted in massive overtime giving hundreds of families a financial boost.

There were naturally pinch points. Going west the first was Wellington Bank where trains usually took six minutes to clear the section. Trains tended to become bunched and late. Further west, a particular problem was the time it took to dispose of trains at Paignton's down platform. That sometimes led to queuing, often so far back that trains for Plymouth and Cornwall were delayed in the Newton Abbot area or as far back to Dawlish Warren or even Exeter St Thomas.

On summer Saturdays the story was always the same. 'We ran well to Taunton but then our trouble began.'

The quadrupled track ran from the convergence of the Paddington via Westbury and the Bristol and north routes through Taunton to Norton Fitzwarren,

where it finally ran out and where trains were often held up, sometimes blocking those for Barnstaple/Ilfracombe and Minehead, delay hurting timekeeping on the branches with their long single-line sections.

Efforts to keep the single down track clear included providing a bus to prevent Teign Valley trains having to reach the mainline, and there were long gaps in trains serving many intermediate stations, only Dawlish and Teignmouth (the destination of many travellers) having anything like a normal service. Not merely were there long gaps in stopping trains, but these were fitted into the appropriate slots in the programme even when everything was late. This inevitably hurt the small stations between Brent and Plympton where passengers might wait hours even for a short journey. Brent was where the Kingsbridge coaches usually running in the Perranporth-Paddington express were attached, the shunt occupying valuable mainline capacity.

They were the days when there were so many summer Saturday trains that locomotives displayed an identification number at the front of their boiler. Once at the London end of Exeter St David's, a driver cautiously taking the middle through line and, seeing me with a copy of the Working Timetable, shouted: 'Aren't I supposed to stop here?' A quick glance at the timetable confirmed it. 'I'll pull forward if you could run to Control to allow me to back in.'

With so many trains of extra length, there were bound to be problems, another on the same day being that a long portion with restaurant car of *The Atlantic Coast Express* from Padstow stopped a few inches short of clearing the points into the Southern's up platform. Southern and Western trains for London travelled through the station in opposite directions.

The Southern's needed banking up the steep gradient to Central Station, a feature of Exeter St David's I miss to this day being the long whistling codes between main engine and banker before they noisily pulled and pushed their train. The tank engines used for banking had particularly shrill whistles. (For those interested in how things used to be, see *Summer Saturdays in the West*.)

With so many branch lines and their junction stations closed, today's railway is quite different, and naturally much less interesting. The HSTs in fixed formation make little fuss of the gradients, but we have lost the magic sound of double-headed steam trains climbing them, taking at least ten minutes and sometimes as much as twenty to climb Hemerdon Bank going east out of Plymouth.

The Royal Albert Bridge at Saltash with double-headed 15-coach trains cautiously plodding their way across, Taunton which was a schoolboy's dream on summer Saturdays, the Dawlish Sea Wall where travellers could often spot the train ahead and that following, and where once you could see into the carriages to see how busy they were: there were many places it was worth setting up a lineside picnic. On the Sea Wall, you cannot but breathe history. Teignmouth council laid down the sensible condition that trains could only run on a ledge under the red cliffs if a public walkway was provided. From this and Sprey Point, an artificial projection of land halfway along, one cannot but be aware of the fact that once broad-gauge atmospheric trains passed this way, as have many generations of holidaymakers, sailors reporting to Plymouth and Devonport in war and peace, and the West Country's business leaders going to London for the day or longer. One thinks of all the locomotives that have come this way, the thousands of tons of Cornish broccoli, and the once profitable carriage of milk, and the Motorail, mail and newspaper trains of past times. And of the rough seas and cliff falls that have delayed the traffic on countless occasions and of the pre-war plans to build an inland relief route. Countless adults and children first saw the sea from a train here, and regular travellers never tire of noting the state of the tide and roughness or calmness of the sea. It is a special joy to see the sun rise out of it in the morning or it being lit up by the moon on a clear night.

But for sheer interest, Newton Abbot itself took some beating, with an abundance of trains and many changing locomotives or dropping or picking up a pilot needed for the gradients over the Dartmoor foothills.

Railway and market town: no more. The 1,950 railway staff of my younger days, have dwindled down to a few dozen. The station itself has lost its up main platform and the through line along which the *Cornish Riviera* used to thunder. Instead of the old nine platforms today there are just three.

I recorded many radio and television pieces on the platform in the days before railways charged a 'facility fee'. In later years, one recording was totally ruined when a group of officials waddled in front of the camera to ask if I'd paid the facility fee. The BBC had, but the shot of a terminating train was totally ruined.

To admit cheating! Reporting the closure of the Teign Valley for the BBC, I forgot to turn the recording

machine on. Disaster. Explaining the predicament, I persuaded the station announcer to repeat the details of the last-ever train, which I belatedly recorded. Some passengers on the station were naturally bewildered.

But then all kinds of things happened at Newton Abbot. When our office was on the station we used to provide coffee for the ticket collector. One alas died on his way home. (nothing to do with the coffee.) Even after the abolition of mainline steam we enjoyed transfers between the two Dart Valley lines then under the same management until senior officials heard about it and said that future movements had to be by road. And in semaphore days from my office in the station I could gauge exactly when to move to meet a down train.

Newton Abbot is still where people change for the Torbay line, but today's station lacks the charisma of what the townspeople were so delighted with when they donated the clocks. However, the town has not totally turned its back on the railway that helped make it important. In addition to the Town Hall's contributing, appropriately the County Library's busy Railway Studies collection is here. It is a major research collection, popular with authors. It has done far better than I hoped when I suggested it to the County Librarian. It is backed by its Friends of which I am president. Many are volunteers who staff the collection especially on Saturdays, when it is popular with researchers. There is also a programme of talks and films.

It tickles me that many railway historians now travel by train to Newton Abbot to do their research. But it is especially noticeable that many fewer local people travel by train to work, only a fraction of the number of people who left the station in the early morning now doing so. Once several staff came by train to David & Charles by all three routes, but constant changes to timings when BR insisted it was only interested in long-distance traffic put a stop to that. In that unhappy period there was once a three-hour gap between trains from Newton Abbot to Plymouth. Damage caused by such episodes is seldom recovered.

But I still regularly visit Newton Abbot by train. And as a chapter in my *Railway Season* is titled, going to London was '*A Country Journey Like No Other*'.

John Herbert Boyes (1914–2013)

John Boyes was one of our oldest members in both senses. He joined the R&CHS shortly after its formation in 1954 and was secretary of the London Group in the early days. He died on 6 May 2013 at the age of 98. The Society was represented by six members at his funeral at the North Chingford Methodist Church, where he was a lay preacher.

He was born in Guildford and brought up in Coventry, where he attended Bablake School and Coventry Technical College. He was then employed in the Coventry Public Health Department, a job that included inspection of canal boats at Hawkesbury Stop. He saw war service in the RAMC but, when discharged on medical grounds, he was appointed in 1942 as one of HM Inspectors of Factories. This took him to Salford, where his district included the Manchester Docks, part of the Ship Canal and the Bridgewater Canal, and to Tyneside, which again included the docks. He was awarded the Queen's Silver Jubilee Medal in 1977 before retiring in 1979.

John inherited an interest in railways from his father, who had been apprenticed at the Hunslet Engine Company at Leeds. His daily walk to school through the Coventry Canal wharf, which was then busy with commercial traffic, was also an early influence. However, his interests were much wider, embracing the whole field of the history of technology. At the end of a personal profile that Joseph Boughey asked him to write for the Waterways History Research Group in 1999 he wrote

In conclusion, if there is one thing my research has taught me, it is that, even in transport history, none of history can be studied in complete isolation. There must be a multi-disciplinary approach, otherwise blinkered vision provides a distorted image of the subject.

Perhaps this should be incorporated in a vision statement for the R&CHS.

Not surprisingly he became a leading member of the Newcomen Society, serving as bulletin editor and a member of council from 1977 to 1994. He was a frequent lecturer on industrial history and archaeology, which led to him being elected at different times as president of the Essex Congress of History & Archaeology, the Lee & Stort Rivers Society (before it became a branch of the IWA), and the Great London Industrial Archaeology Society. He was also for several years a committee member of the SPAB Wind & Watermill Society. He was honoured with the award of the first Rolt Memorial Fellowship at Bath University, undertaking research on the Lee and Stort Navigations.

He wrote extensively on a variety of subjects, including for the Society's Road Transport Group. But he will be remembered by R&CHS members chiefly for his important contributions to canal history, including: *Canals of Eastern England* (with Ronald Russell; David & Charles, 1977); 'Inland waterways', in *An encyclopaedia of the history of technology* (Routledge, 1990); 'The River Lea and the Lee Navigation: ten centuries of engineering and engineers' in *Engineers and engineering: papers of the Rolt Fellows* (Bath University, 1996); and articles on canal engineers in the *Biographical dictionary of the history of technology* (Routledge, 1996). Of his contributions to the Society's *Journal*, his article on 'The penumbra of the Regents Canal explosion' in the March 1977 issue is of particular interest, illustrating how important topics in transport history can be illuminated from unexpected sources.

For those who knew him, it will perhaps be his personal attributes that are remembered most of all. As one member has written, 'John Boyes was the sweetest, nicest man ever'. GAB

Correspondence

Great Western Railway Excursions in the 1930s, correspondence

(RCHS Journal, November 2012, 50)

My analysis of the April 1957 *Bradshaw's Guide* produces such a significantly different tabulation of daytime trains between Sheffield and Southampton via the erstwhile Great Central route that I wish to offer the attached correction. The service wasn't good (and definitely wasn't frequent), but the single through journey — the daily York to Bournemouth with restaurant car (the 12:02 from Sheffield) — wasn't *quite* as slow as Mr Goddard seems to show. I have appended an equivalent tabulation for 1910, for comparison.

Further, Mr Goddard is surely mistaken in ascribing to 1957 the usual jibe about BR deliberately worsening services to as an 'excuse'

for closure: at that date, the modernisation plan was in full swing so matters were not yet downbeat. I do recall (early in my career) being seconded in spring 1960 to assist in some rudimentary traffic survey work on board the (by then) Newcastle to Bournemouth through train: *that* would have been the beginnings of assessing the viability of such rambling cross-country workings.

A key change (aside from the switch from steam to diesel and all that *that* implies in the way of speeding up operations) which has revolutionised today's services is the departure from the system of the myriad relatively slow and relatively short freight trains — yielding paths for regular interval (but smaller) passenger trains — the 'Sprinterisation' of the network.

Richard Maund

Sheffield to Southampton, midweek

		April 1957				April 1910							
Sheffield V	dep	9:31	12:02	—	17:03	7:08	9:36	11:21	12:50	13:46	15:27		
Nottingham V	dep	10:39	13:06	13:15	18:16	8:23	10:30	12:27	13:43	14:40	16:53		
Woodford Halse	arr	<u>12:01</u>	—	<u>15:23</u>	<u>19:40</u>	<u>10:00</u>	<u>11:42</u>	—	—	<u>16:04</u>	—		
	dep	12:30	—	16:45	20:12	10:25	11:45	—	—	16:15	—		
Banbury G	arr	<u>12:48</u>	14:45	<u>17:08</u>	<u>20:33</u>	<u>10:45</u>	11:58	13:56	<u>15:08</u>	<u>16:35</u>	<u>18:27</u>		
	dep	13:46	14:52	17:19	21:11	11:30	12:00	13:57	15:30	17:15	18:45		
Oxford G	arr	14:18	15:29	17:49	21:42	12:02	<u>12:29</u>	14:30	<u>15:59</u>	17:44	19:17		
Reading	arr	14:59	16:14	<u>18:42</u>	<u>22:32</u>	12:54	13:30	15:21	<u>16:59</u>	<u>18:23</u>	<u>19:57</u>		
Basingstoke	arr	15:25	16:38	<u>19:30</u>	<u>23:31</u>	—	14:20	15:52	<u>17:55</u>	<u>19:20</u>	<u>21:00</u>		
Southampton	arr	16:12	17:37	20:39	0:53	—	15:37	16:50	<u>19:21</u>	<u>20:32</u>	<u>22:19</u>		

Underline denotes change of train

Not on Beeching's List

(RCHS Journal, March 2013, 3–6)

Allan Brackenbury's 'Review of the Beeching Era' (RCHS Journal, March 2013, pp.7-20) provided a wider-ranging view of the Beeching Report than my own contribution to the same edition (pp.3-6) but does cover some of the same ground. His list of 'Closures of services and stations not included in the initial Reshaping plan, but added later' is not directly comparable with my table of 'Passenger service withdrawals not recommended in the Beeching Report' (a heading omitted from the

published paper). However, his use of different source materials has enabled me to identify from his list some omissions from my table.

The original table was based on the maps in the report, and the addendum below shows those lines which should have been included, but were not. The former Midland line from Yate to Bristol is the most obvious one that I failed to identify, and I also missed the Renfrew Wharf branch. The rest of these omissions escaped my notice because the lines concerned were not marked on map 9 in the Beeching Report.

Tim Edmonds

Line or service	Date w/d	Notes
Northam-Southampton Terminus	05/09/1966	Not marked on map 9. Excluded from Waterloo-Bournemouth electrification
Gobowen-Oswestry	07/11/1966	Not marked on map 9.
Paisley (Arkleston Jct)—Renfrew Wharf	05/06/1967	Part marked on map 9, part obscured by the Glasgow 'block'.
Haymarket West Jct—Corstorphine	01/01/1968	Not marked on map 9.
Penarth—Cadoxton	06/05/1968	Entire Cogan—Penarth—Cadoxton line not marked on map 9.
Yate—Mangotsfield—Bristol	26/12/1969	Included in network for development in Beeching 2. Scheduled for closure 03/01/1970 but closed early following a landslip at Staple Hill. Services diverted over GW route via Filton.

Note: some minor amendments to Allan Brackenbury's article 'A Review of the Beeching Era' (no.216 – March 2013, pp.7-20) will appear in the November 2013 issue

Butterley Tunnel Wide Hole

(*RCHS Journal*, March 2012, 2–7)

At the end of my article about the unique unloading wharf in Butterley Tunnel on the Cromford Canal, I was pessimistic about the likelihood of English Heritage listing it owing to lack of access. The Friends of the Cromford Canal were therefore delighted to learn in February 2013 that English Heritage had after all, and without having accessed the inside of the tunnel, designated a length of 700ft (210m) directly beneath the former Butterley Works site, near Ripley in Derbyshire, as a Scheduled Ancient Monument. This includes the unique 'Wide Hole' where boats were loaded and unloaded by vertical hoists directly into the works above.

This system dates back to the construction of the canal in around 1790, when a 180ft length of tunnel was built double width so that two 70ft narrow boats could be pulled to one side at the underground wharf and not stop other traffic through the tunnel. Such a system does not exist anywhere else in the world.

Limestone was brought from the quarries at Crich to Bullbridge by the 'Butterley Gangway' — one of the first railways — and loaded into 6ft-square 'boxes' in the boats. At Butterley these boxes were hoisted 100ft up the shafts to the

works and placed on wagons to be hauled to the blast furnaces where iron ore was smelted. This was one of the earliest uses of containerisation, so common in transport today.

The remains of the 19th century blast furnaces above the tunnel are also included in the designation, the full details of which can be found at <http://goo.gl/jlomo>. Sadly the remaining part of the Butterley works site that has not already been developed for housing has lain derelict and half demolished for well over a year, and there are no signs of any further redevelopment — or preservation of the other, Grade 2 listed, features — taking place.

Hugh Potter

NOTICE.

EXTRACT FROM THE RULES, BYELAWS AND ORDERS MADE
BY THE CROMFORD CANAL COMPANY: 30TH MAY 1804

NO BOAT SHALL ENTER BUTTERLEY TUNNEL AT THE EAST END EXCEPT BETWEEN THE HOURS OF FIVE AND SIX IN THE MORNING, ONE AND TWO IN THE AFTERNOON AND NINE AND TEN AT NIGHT AND NO BOAT SHALL ENTER THE WEST END THEREOF, EXCEPT BETWEEN THE HOURS OF ONE AND TWO IN THE MORNING, NINE AND TEN IN THE FORENOON AND FIVE AND SIX AT NIGHT, AND EVERY BOAT SHALL MAKE ITS PASSAGE THROUGH THE SAME WITH ALL POSSIBLE DESPATCH AND ON NO ACCOUNT EXCEED THREE HOURS AFTER SUCH ENTRY. AND IF ANY PERSON OR PERSONS HAVING THE CARE OF ANY BOAT, SHALL OFFEND IN ANY OF THE PARTICULARS AFORESAID, HE OR THEY SHALL FORFEIT FOR EVERY SUCH OFFENCE FORTY SHILLINGS AND SHALL ALSO TURN BACK ON MEETING ANOTHER BOAT IN THE SAID TUNNEL.



Reviews

The Bodmin & Wadebridge Railway 1834–1983 — Michael Messenger

192pp, 280x210mm, 252 illustrations, 30 maps, hardback, Twelveheads Press, PO Box 59, Chacewater, Truro TR4 8ZJ, 2012, ISBN 978 0 906294 76 5, £39

Surprisingly, perhaps, Michael Messenger's study is the first comprehensive history of the Bodmin & Wadebridge, and will undoubtedly become the definitive account.

Opened in 1834, the railway's primary objective was to carry sand (for soil improvement) inland. This continued into the late 19th century, although always at the mercy of the ups and downs of local agriculture. Financial difficulties plagued the company from its earliest days: by the 1850s traffic was at such a low ebb that trains only ran two or three days a week, although customers were allowed to work their own horse-drawn traffic on other days. Some minerals (copper, tin and iron) were carried from the 1840s but in small quantities; from the 1850s granite and china clay started to figure and the fortunes of the company to improve.

The LSWR take-over in 1846 made little difference for many years, a local Board of Directors remaining in control until 1861, and even thereafter the B&W was left largely to its own devices under Hayes Kyd, Superintendent from 1861 to 1888. (An entertaining chapter based on his correspondence recounts day to day operations in this period.)

Throughout this time the railway remained physically isolated from the outside world, although the author recounts in detail abortive schemes to connect it to the east via both Delabole and Wenford

Bridge in the 1860s. Bodmin itself remained off the rail network, in spite of several proposals to connect it to Bodmin Road (including a broad-gauge rack railway in 1867!) until 1888, when the GWR's branch to the town was opened and passenger services to Wadebridge reintroduced over a largely-rebuilt B&W; even then, as the Cornish main line remained broad gauge until 1892, through traffic to and from 'up country' was impossible.

The author explodes some of the myths which have inevitably attached themselves to the line, but what remains is still a fascinating story based on extensive research in the company's own widely-scattered records, the local press and the census, and set firmly in the local economic and social context. A notable feature is the attention paid to the personalities involved, who are listed in one of four appendices (others give a chronology, locomotives used on the line, and 'Q's' 1893 account of the 'Cuckoo Valley Railway'). The book concentrates on the 19th century, when the B&W was still very much a local concern, but carries the story down to closure in 1983.

The text is impeccably-referenced, a full bibliography and index are provided, and the book is beautifully produced, as one would expect from Twelveheads Press.

TONY KIRBY

The Coniston Railway — Michael Andrews & Geoff Holme

64pp, A4, 28 maps & diagrams, 64 photographs, 2 timetables, paperback, Cumbrian Railway Association, 50 Tattershall, Toothill, Swindon SN5 8BX, 2012, ISBN 978 0 9570387 0 7, £9 (plus p&p £1.50)

Every page between its colourful covers is a joy in this history of a branch line which formed part of a circular tour by rail, road and water, the Furness Railway once having two boats on Coniston Water. Built more for copper ore (which declined sharply on opening), the main traffic was carrying tourists, but BR in 1958 withdrew passenger services from the neat terminus with overall roof. Freight continued for a further three years, your reviewer travelling in the guard's van while conducting the Lake District Transport Enquiry in 1960.

Once there had been a triangular junction at the remote mainline estuary-side station of Foxfield. Remarkably that station still survives though even more remarkable is that it was considered worth building the branch to Coniston, one of the smallest places ever served by its own branch line.

First published in 2005, this second edition incorporates minor changes and corrections, including more detail on the lifting of the branch. It is a well-researched and written book splendidly illustrated, conjuring up a different era.

DAVID ST JOHN THOMAS

The Llanelly Railway and Dock Company: the Heart of Wales pioneer — Michael Denman
184pp, 280x220mm, 65 photos and 19 figures including maps and tables, hardback, The Wider View, 'Dystlegh', Rod Lane, Ilton, Ilminster TA19 9ET, <dusty@widerview.co.uk>, 2012, ISBN 978 0 9535848 9 5, £22.50 (plus £4 p&p)

Coal Mining in the Llanelli Area, Volume 2: 1830–1871 — M V Symons

310pp, 245x167mm, 43 plates and 23 maps, paperback, Carmarthenshire County Council Libraries & Heritage Section, Vaughan Street, Llanelli SA15 3AS, 2012, ISBN 978 0 906821 80 0, £15 (plus £5.60 p&p)

The coastal coalfield of the Llanelli area has a very old history and was approaching its most active when the LR&DCo's first Act of 1828 authorised a 2½ mile horse-drawn railway and a new dock to ship steam coal (not anthracite that the author would have us believe) from the London-based Llangennech Coal Company's new deep colliery at Bryn. In 1835 under the management of the Biddulph family of Ledbury, Herefordshire, the railway company then built a separate ambitious 20 mile line to rural Llandeilo passing through the anthracite coalfield and serving the limestone quarries around Llandybie, with a branch to Brynamman. In 1858 it leased the newly-built Vale of Towry Railway and so extended its inland penetration to Llandovery. Then in the 1860s further lines were built from Llandeilo to Carmarthen and from Pontardulais to Penclawdd and Swansea, where there were better coal-shipping facilities at the South Dock than at Llanelly.

There are several dramas to be related here. Michael Denman does his best to present the reader with considerable detail of the railway's practical operating difficulties and relationships with its neighbours. The final chapters describe the machinations that ultimately led to the Swansea line being sold to the L&NWR in 1873 while the rump of the Llanelly Railway remained to be absorbed by the GWR in 1889 (incidentally to provide that company with its first South Wales dock).

Fifty pages of annotated appendices include a chronology, summaries of accidents, details of named company employees from the company minutes, lists of employees who transferred to the GWR, private sidings, half-year accounts and statistics, passenger returns and the list of shareholders in 1889. This useful material must all represent a huge amount of primary research yet the book includes not one source reference and no bibliography. Michael Denham has plugged a gap in South Wales' railway history but the total omission of sources is regrettable.

In 1979 Llanelli Borough Council published volume one of Malcolm Symons' *Coal Mining in the Llanelli Area*. This indispensable scholarly work covered the period from the 16th century to 1829 and was remarkable for its maps and its coverage of the many short canals and tramroads that served these early collieries with the several shipping places. Now, 34 years later, volume two takes the story up to 1871. The format is similar to the first volume except that transport and shipping are not given so much prominence. Nevertheless, in six pages Symons more ably describes John Biddulph's role in the break up of the Llangennech Coal Company from the LR&DCo than does Denman. It would appear that John Biddulph's divisive temper was a factor throughout the history of the Llanelly Railway almost until his death, still in the Chairman's post, in 1881.

STEPHEN ROWSON

A Towpath Walk in Oxford: the Canal and River Thames between Wolvercote and the City
— Mark J Davies & Catherine Robinson

x+102pp, A5, 25 illustrations, 3 maps, Oxford Towpath Press, c/o Mark J Davies, 'Bill the Lizard', 12 Hythe Bridge Arm, Oxford Canal, Oxford OX1 2TA, <www.oxfordwaterwalks.co.uk>, 2nd edition, 2012, ISBN 978 0 9535593 4 3, £6 (plus £1 p&p)

The previous versions of this book have proved very popular locally, and this new edition provides an opportunity to commend it to a wider audience. Based around a circular walk down the final stretch of the Oxford Canal and up the Thames, it is especially strong on aspects of the canal's carrying history, with good use made of oral history, including the memories of boatwoman Rose Skinner, whose recent

death prompted production of this new edition. It is an excellent example of how to integrate waterway and more general local history (additions in the present edition mainly focus on the latter) and has appeal to audiences from both constituencies. Attractively produced and complete with updated bibliography and index, it is also extremely good value for money.

MATTHEW SEARLE

***A History of the Port Talbot Railway & Docks Company and the South Wales Mineral Railway Company, Volume 1: 1853–1907* — Robin G Simmonds**

vi+258pp, 275x215mm, 205 photographs, 27 maps, 19 diagrams, 10 tables, 1 figure, hardback, Lightmoor Press, Unit 144B, Lydney Trading Estate, Harbour Road, Lydney GL15 5EJ, 2012, ISBN 978 1 899889 66 2, £25

Neither the Port Talbot Railway nor the South Wales Mineral Railway has previously been the subject of a full length monograph. Published information on these two small companies has so far been confined to a couple of rather unsatisfactory pamphlets, articles in the enthusiast press and brief accounts in more general works. This lack has now been made good in a very ample manner by Robin Simmonds in his thoroughly researched and highly detailed book.

The PTR had only a brief independent existence. Its Act of incorporation was in 1894 and it was effectively absorbed by the GWR from 1907, although its history originates in the formation of a new dock at what then became Port Talbot in 1834. It is from this point that the present work commences. A lengthy opening chapter examines the many earlier railway schemes within the area of western Glamorgan which were eventually served by the PTR. Simple but effective maps make it easier to follow the complicated proposals and counter-proposals but even so, a reader not fully familiar with the district will probably find access to a large-scale OS map necessary to follow each scheme in detail. Subsequent chapters describe the history of the dock and the formation of the railway under the close

attention of the formidable Miss Emily Talbot who saw in it a means of encouraging the exploitation of the mineral resources of her extensive estate. The author gives detailed accounts of the process which led to the incorporation of the company and of the construction of its railways. These are followed by a history of the SWMR, an isolated, antiquated and chronically insolvent company which was controlled for most of its existence by the several successive companies which worked the coal at Glynccorwg, its inland terminus. It was eventually acquired by trustees on behalf of the GWR in 1907 and worked as part of the PTR. The two final chapters, which occupy about a third of the entire length, examine the locomotives and rolling stock of the two companies.

The quality of production cannot be faulted. The author has assembled a superb collection of illustrations, all of great historical interest, which have been reproduced to a very high standard. There are a great many maps and sources have been meticulously detailed throughout. There is no index or bibliography but the summary of the contents of volume 2 shows that these will be included in that volume.

PAUL REYNOLDS

***Railway Workshops* — Tim Bryan**

56pp, A5, 25 colour illustrations, 54 b&w photographs, Shire Publications, Midland House, West Way, Botley, Oxford OX2 0PH, 2012, ISBN 978 0 74781 201 2, £6.99

The latest in Shire's admirably concise series on railway topics explores railway workshops, cramming an astonishing amount into scarcely fifty pages, aided by the varied photographs. It deals not only with the railway companies' works but also with 'independent' firms: the very first, established by the Stephenson in Newcastle in 1823, and later ones including Vulcan, Beyer Peacock (notable for its elegant-looking locomotives), Hunslet, Dubs, North British, and Brush. For much of their existence, the independents relied on industrial and overseas orders, from India, Africa and South America, though they also built for British main line companies. As recently as 1948, 60,000 were employed in railway workshops, 47,000 by BR.

The complexities of building and, equally important, maintaining, locomotives are discussed.

The chapter on carriages, wagons and infrastructure — subjects often skated over — reveals fascinating detail on carriage 'delousing', textile accessories and motor vehicles (goods drays, lorries, buses, even fire engines). 'Infrastructure' comments on health, education, police, and sport and cultural facilities for workers. A section on railway towns differentiates between new settlements, like Crewe and, initially, Swindon, and those others which were added to pre-existing urban settlements; new housing was partly built by companies, partly by speculative builders. The author casts his net widely, visiting most railway workshops, even relatively small ones like Inverurie.

The book includes a list of places to visit, an index, a (short) bibliography and a list of workshops operating in 1925. Strongly recommended.

PHILIP L SCOWCROFT

***The Scottish Shale Oil Industry and Mineral Railways* — Harry Knox**

239pp, A4, 238 photographs, 8 diagrams, 31 tables, 17 maps and plans, hardback, Black Dwarf Lightmoor, 120 Farmers Close, Witney OX28 1NR, 2013, ISBN 1 89988973 0, £25 (plus £5 p&p)

Largely neglected by historians, the Scottish Shale Oil industry was founded in 1851, meeting the needs of an expanding textile industry which hitherto had relied on biological products such as neat's-foot oil and sperm whale products for lubrication. The discovery that pyrolysis of the abundant oil-bearing shale found below West Lothian could produce mineral oils for lubrication, paraffin oil for lamps, wax for candles and, later, petroleum spirit, ammonium sulphate fertilizer and a wide range of by-products, lead to the naissance of an extensive mining and refining industry, immeasurably important to the British economy. Production ended in 1962; only the massive pinkish heaps (bings) of waste from the retorts remain *in memoriam*.

Part one begins with reviews of the geography and geology of the area before detailing the shale fields and the history of the industry primarily established by James 'Paraffin' Young. Descriptions of mining techniques, accidents, health and safety are followed by details of individual pits, ore processing and refining and the establishments of the major oil producers. Social history is considered too, with emphasis on pay and conditions, housing, education and leisure.

Part two outlines the contribution of railways to the industry, both on the surface and underground. The 2½ mile, narrow-gauge Winchburgh Tramway has its own chapter; haulage was by electric locomotives collecting current from an overhead line. The Caledonian and North British Railways also merit chapters; both had many branches serving the pits and refineries. An overhead cableway, employing German technology, transferred ore from New Farm Mine, across terrain hostile to a railway, to the Oakbank Oil works. Three appendices give details of locomotives used by individual oil companies, a list of all known oil companies and a glossary of mining terms.

The book is produced to the publishers' usual high standard, profusely illustrated with well-captioned period photographs throughout and with large scale OS maps, some spread over two pages, which enable the reader unfamiliar with the area to follow the narrative easily. If you are interested in Scottish industrial history, then this all-inclusive book is unlikely to be bettered.

As an aside, a visit to the Museum of Scottish Shale Oil at Almond Valley near Livingston is recommended: website <www.scottishshale.co.uk>.

JOHN HOWAT

***Images of 150 Years of the Metropolitan Railway* — Clive Foxell**

128pp, 263x163mm, 254 illustrations (1 in colour), paperback, History Press, The Mill, Brimscombe Port, Stroud GL5 2QG, 2012, ISBN 978 0 7524 7009 2, £12.99

Dr Clive Foxell CBE FRENG has provided a workman-like illustrated review of the railway which provided the foundation for London's Underground system to coincide with its 150th Anniversary.

A two-page Introduction succinctly outlines the development of the railway, providing details of key players in its planning, development and construction, and changes in operational ownership. The book then moves forward in a logical, mainly chronological, fashion, identifying many important aspects of the railway's history. Perhaps understandably, in view of his previous publication, there appears to be an over-emphasis on Chesham Branch operations.

The undeniably more attractive images of steam operations have also possibly been chosen at the expense of those of electric surface stock, which for

many years has been the principal passenger mover. It is good to see that operational staff feature, but track construction, signalling and stations are not extensively covered. The selected pictures are clearly and informatively captioned, displaying the writer's expert knowledge of his subject. A few of the images are poorly reproduced.

There is neither an index nor bibliography, both of which could be useful to persons wishing to research the subject more widely.

Overall the book provides good value for money, with much useful information. It will, hopefully, attract interest from a broader readership, particularly in the hinterland that emerged from the imaginative promotion and development of the, now crowded, suburbs that the Metropolitan Line serves.

BRIAN A L JONES & ANGELA R JONES

***The Longmoor Military Railway: a new history, Volume 1, 1903–1939* — Colonel David Ronald & Mike Christensen OBE**

328pp, 280x220mm, approximately 450 b&w photographs, 70 maps and diagrams, hardback, Lightmoor Press, 144b Lydney Industrial Estate, Harbour Road, Lydney GL15 4EJ, 2012, ISBN 978 1 899889 69 3, £25

Known as the Woolmer Instructional Military Railway for virtually the whole of the duration of this volume, the military training railway built around Longmoor camp was, for nearly 70 years, pivotal to training soldiers in the wide range of skills necessary to running a railway in war zones.

After an introduction to military railways operated in the 19th century, this book charts the stumbling origins of the railway with its core standard gauge route from the specially built L&SWR branch line to Bordon to 'a swamp' at Longmoor. The belated recognition of the importance of railways during WW1 led to a great expansion of activities, with training for overseas service and maintenance of Britain's several temporary military railways. The subsequent decline, rebirth and extension to Liss in the 1930s takes the story to mobilisation for WW2. The personnel and strong public relations of this period are particularly well covered. Over time the

area evolved from a soldiers' tented camp, then huts, many shifted around intact by the use of a railway, to a fully developed, permanent military community.

The volume is comprehensively illustrated with excellent captions to the publisher's customary high standard. The text, constituting perhaps one third of the book, is broken up in places by interesting photo sequences, but remains clear and readable. There was one niggle: constant references to chapters in the yet unpublished Volume 2. The difficulties in researching a poorly documented and constantly changing railway are made plain, for the military necessarily treated the line as something of a full-sized train set.

One of the joint authors is Longmoor trained, and this work supplants his earlier work (with a different joint author) published in 1974. When the second volume is published, the two together will certainly be the definitive work on this unique railway.

BRIAN JANES

***Millom: a Cumbrian iron town and its railways* — Alan Atkinson**

112pp, 29 maps, 81 b&w and 22 colour illustrations, 14 drawings and diagrams, paperback, Cumbrian Railways Association, 50 Tattershall, Toothill, Swindon SN5 8BX, 2012, ISBN 978 0 9570387 1 4, £14 (plus £1.50 p&p)

Until 1856 Millom was simply the name of a large coastal parish comprising scattered hamlets in south west Cumbria. Then, with the discovery of haematite iron ore at Hodbarrow that turned out to be the largest and richest find in Britain, it was transformed, first by mining, followed in 1867 by a large ironworks. An entirely new town was built, partly on estuarial land reclaimed after the building of a railway embankment, although it was not until the formation of a Local Board of Health in 1875 that the name Millom was officially adopted. As a single-industry town Millom prospered until the depression of the 1920s and '30s. A revival in World War II lasted until 1968 when, despite pioneering the new spray-process of steel making, the works was forced to close when the government of the day refused to provide the capital needed for development. Dismantling was amazingly rapid.

This handsome, very professionally produced book first covers the pre-industrial period, followed

by the development of the Whitehaven & Furness Junction Railway along the coast, including early proposals to take the west coast main line that way instead of over Shap, and schemes to build a viaduct across the Duddon estuary in place of today's roundabout route through Foxfield. Further chapters recount the history of the mines and ironworks, the building of the 'New Town', and the eventual effect of losing its sole industry, before resuming the history of the railway through Furness Railway, LMS and British Railways ownership to the present day.

There is considerable detail about locomotives, train services, signalling and structures. Appendices are a 1935 LMS strip map from Foxfield to Eskmeals, and an account of saving an ironworks locomotive for preservation. There is an index, and the bibliography and acknowledgements indicate the author's extensive research. It is a pity that the text is cluttered by so many passages in parentheses. The clear, coloured maps and diagrams are a delight.

GORDON BIDDLE

***Railways before George Stephenson: a study of the waggonways in the great northern coalfield 1605–1830* — Les Turnbull**

172pp, A4, 37 illus, 85 maps mostly in colour, paperback, Chapman Research Publishing, 18 Paradise Square, Oxford OX1 1TW, in conjunction with North of England Institute of Mining and Mechanical Engineers, 2012, ISBN 978 0 9561248 1 4, £17.50

Tyneside has been called the cradle of railways, and a detailed study down to 1830, fuller and more up-to-date than my *Early Wooden Railways* (1970) and much wider in coverage than Bennett, Clavering and Rounding's *A Fighting Trade* (1990), is entirely welcome. Turnbull offers an overview of the region's coal trade and the waggonways that served it, as well as valuable 'studies in depth' which unravel as much as possible of the complex histories of selected examples. There are many splendid reproductions in colour (sometimes garish) of contemporary maps, and nine specially-drawn maps, much the best to have appeared to date, of the whole 'system'. If one wants a detailed account of the Killingworth way, for example, or the waggonways of Blyth, this is the book to consult.

That said, however, there are serious drawbacks. There is no context. To the author, the north-east was the origin of everything of significance in early railway history, yet he makes no attempt to justify his claims by comparison with other regions. He

seems unaware, for instance, that by 1830 the railway map of South Wales was arguably more impressive than that of the north-east. His statement that the iron railway developed on Tyneside can hardly be sustained. Contrary to normal practice, he reserves the term 'plateway' for flat plates laid on top of wooden rails. While this has some local justification (although here such plates were never cast-iron as he thinks), to say that in 1808 the Wylam waggonway was relaid as a plateway is confusing. His date of 1597–8 for rails at Wollaton has long since been disproved.

For all its undoubtedly deep research, too, this is a frustrating book to use. It has no index as such, nor even a list of abbreviations. It is deplorably badly annotated, references to sources being so sporadic that information can rarely be checked or pursued. Its usefulness lies in the detail of individual waggonways rather than in its contribution to the regional, let alone the national, picture.

MICHAEL LEWIS

***Bristol's Stage Coaches* — Dorian Gerhold**

326pp, 228x153mm, 78 illustrations, 16 maps, paperback, Hobnob Press, P O Box 1838, East Knoyle, Salisbury SP3 6FA, 2012, ISBN 978 1 906978 15 0, £17.95

Bristol's first recorded stage coach service to London was in 1657, taking three days for the 120 mile journey. By the mid 1750s all the services took only two days. Average journey speeds increased from about 4mph to 7mph between then and 1780, then stayed reasonably constant until the 1820, when they started to increase again, reaching about 8½mph by the mid 1830s, enabling the journey to be achieved in 13 to 15 hours. The growth in the frequency of service also stagnated between 1780 and 1820.

Although Bristol's first regional coach was recorded in 1701, the network really started developing in the last third of the 18th century, and continued to grow steadily in the first third of the 19th century. By the end of the period, speeds equalled those of the London coaches.

The author doesn't only describe what happened; he explains why it happened, and compares the Bristol and national experiences. Thus we learn of

the inter-relation between road improvements as a result of turnpiking, lighter coaches with the development of metal springs, and the breeding of horses for speed as much as strength. Everything is grounded in the economics of coaching, particularly the optimum deployment of horses, the provender for which accounted for about half of all costs. This strongly influenced how the businesses were financed and managed.

Inevitably there is some duplication with the author's previous 'RCHS Book of the Year', *Carriers and Coachmasters: trade and travel before the turnpikes*, but the new book continues the story through the turnpike era to the coming of the railways. The text is clearly written with sources referenced, and there is an index. The book is excellent value for money, and is of much wider interest than its title might imply. It is an important addition to the history of passenger transport.

PETER BROWN

***The Foxton Inclined Plane: a history of the 'Thomas' canal barge lift* — David Carden**

180pp, 275x215mm, 154 photographs, 13 maps and 18 diagrams, hardback, Black Dwarf Lightmoor, Unit 144B, Lydney Trading Estate, Harbour Road, Lydney GL15 5EJ, 2012, ISBN 978 1 903599 20 4, £22.50

An engineering success but a commercial failure, the inclined plane at Foxton was built by the Grand Junction Canal Company to make its newly-acquired route from the East Midlands more competitive. It opened in July 1900, but ceased operation at the end of 1910. Its lead designer and advocate, Gordon Thomas, claimed that the cost of operation was one twentieth of an [old] penny per ton — but this was based on assuming full capacity for twelve hours a day, six days a week, implying 2,500,000 tons a year. The actual traffic passing through the incline that year (1906) was 36,300 tons.

After discussing the development of the canal route from the East Midlands to London, the book describes previous British inclined planes. The heart of the book is the development, design, operation and demise of the Foxton Inclined Plane, mainly based on the Grand Junction's records. A related issue was the decision to rebuild the narrow locks at Watford, rather than building broad locks or another inclined plane. It concludes with the partial restoration since

the 1970s, and the possibilities for the future.

The second subject of the book is Gordon Thomas himself: son of the Clerk to the GJCC and cousin of Barnabas Thomas, who with his partner at the engineering consultancy of Thomas & Taylor was co-patentee of the design of the inclined plane. Gordon Thomas's evidence to the 1906 Royal Commission is quoted — indeed, the Royal Commission's recommendation for 'The Cross', canals for boats of either 100 or 300 tons joining the four principal estuaries of England, was almost identical to his suggestion. Thomas's career ended in controversy, when he was accused but acquitted of using the GJCC's men and assets for private work.

The text is interesting; the photographs are superb. We are lucky that Thomas Millner, the Manager of the Northern District of the GJCC, was a keen and competent photographer, and the reproduction of his and the other photographs are first-rate. This is a worthy successor to the author's (and publisher's) *Anderton Boat Lift*. PETER BROWN

***William Dean: the greatest of them all* — Jeremy Clements**

228pp, 270x215mm, more than 270 illustrations, Noodle Books, PO Box 279, Corhampton, Southampton SO32 3ZX, 2012, ISBN 978 1 906419 92 9, £30

Dean was in charge of locomotives on the Great Western during the transition from the broad gauge, when the design for which was limited to that convertible to standard gauge. The introductory material makes it clear that the book began as an appreciation of the Dean Goods 0-6-0 and was extended to become a more general study of Dean and his locomotive designs. The Dean Goods were certainly excellent locomotives. The story of how the Ivatt Class 2 2-6-0 failed to perform as well as the Dean Goods is a long-standing legend which was succinctly related in John G Gibson's *Great Western Locomotive Design: a Critical Appreciation* (not listed in the bibliography); Clements's account is less clear.

Nevertheless, it is a very dubious claim that Dean was 'the greatest of them all' as there were several skeletons in his cupboard, most of which are unearthed by Clements. Too many designs were prone to derailment. On the other hand Dean was well aware of the need to study materials, and Clements in this respect does withstand scrutiny

against the superb *Early Railway Chemistry and its Legacy* by Russell and Hudson.

It is a pity that more space is not given to the Achilles class of 4-2-2 locomotives as these were capable of very fast running with light trains. Rather more attention is paid to the Duke class of 4-4-0, the boilers of which soldiered on into British Railways days with Bulldog frames.

Most of the photographs are beautifully reproduced, but there is insufficient linkage between text and illustrations. Ellis's *Twenty Locomotive Men* (1958) is a serious omission from the bibliography, and it is suspected that some published material on Dean's experimental designs had not been consulted. Some illustrations are of questionable relationship to the central theme: pictures of ambulance cars and Belgian freight locomotives, for instance. A book of this length demanded an index.

Jeremy Clements was co-author with Michael McMahon of the excellent history of locomotives of the Great Southern Railway (2008): sadly this work falls short of that standard. KEVIN JONES

***The History of the Cheddleton Hospital Railway 1895–1954* — R B Cornwell**

136pp, A4, 149 photographs, 3 maps, paperback, publisher by the author, 1 High Simpson Fold Cottage, Higher Wheelton, Chorley PR8 HW, 2013, no ISBN, £16.25 (inc p&p)

The title of the latest of Cornwell's forays into the forgotten world of asylum railways perhaps does the book an injustice, for although the railway associated with the hospital is comprehensively covered, there is so much more of interest in this volume, which follows those on the Calderstones and Whittingham Hospital Railways. The planning, construction, layout and facets of the daily business of the North Staffordshire Asylum, built on a sloping plateau overlooking the Churnet valley are detailed.

In 1895 the contractor laid a steeply-graded, steam-hauled railway to link the building site to Leek Brook Junction on the nearby North Staffordshire Railway's Churnet Valley Line. Eventually the asylum used the railway; carrying staff, patients, supplies and coal for the boilers. The capacity of the powerhouse, which produced steam and electricity for the hospital, was such that it was decided in the early 1900s to relay the track, smooth out the gradient changes and to electrify the railway. Thus it became a tramway upon which a tram-like locomotive, drawing current

via a trolley from an overhead wire, hauled a couple of open wagons or a passenger coach modified from a second-hand tram car. It functioned in this form until closure.

Individual chapters describe both steam and electric locomotives (other institutions used similar electric vehicles) and the rolling stock. There is an extensive photographic gazetteer of the extant remains of the asylum and its railway. Perhaps the most striking is the 135 feet high, sturdy but elegant, water tower which warrants a chapter of its own. Like much of the hospital it has been converted for residential use.

This is a well researched book that should appeal to not just to those captivated by minor railways but also to the aficionados of hospital history. The plethora of photographs has extended captions but despite digital enhancement, some, from the early days of the asylum, remain indistinct. Nonetheless this is an admirable sequel to the author's earlier books.

JOHN HOWAT

***The Victorian and Edwardian Tourist* — John Hannavy**

128 pp, A5, 70 b&w and 180 colour photographs, paperback, Shire Publications, Midland House, West Way, Botley, Oxford OX2 0PH, 2012, ISBN 978 0 74781 153 4, £9.99

Oddly, the title of this book is somewhat inaccurate, as tourists and their experiences varied widely. The focus is very strongly on the role of photography in tourism, reflecting the author's interest as a (now) retired professor of photography and photographic history. The author has avoided too much academic theorising about the role of photography in representing the world, including the world of tourism, but he does succeed in discussing relationships between tourism and photography. Many tourists did set out, not just to see new places, but to photograph them, and photography influenced their decisions as to where to visit.

The book comprises a set of connected essays, opening with an overview of tourism, followed by chapters on Thomas Cook, guidebooks, MacBraynes and the Lake District. The focus then moves abroad, to travel on Continental Europe, Italy and Egypt, before a concluding chapter on the practicalities, and implications of 'travelling with a camera'.

This is much more about travel and tourism than about transport, and members for whom transport is the sole focus may find less about railways than might be hoped. (The author has written elsewhere about railways.) This may reflect more the practical usefulness of railways to facilitate travel than their present interest as tourist attractions in their own right. The chapter that directly addresses a mode of transport is that about David MacBrayne's passenger steamer services around the coasts and islands of Western Scotland. This includes several views of the Crinan and Caledonian Canals, while steamers also feature in the chapter on the Lake District.

There is much about the practical problems of photography as well as the perspectives (literally) that it opened up, and perhaps closed down or limited. Illustrations, many of which are postcards, are excellently reproduced and placed. Overall, this makes for an entertaining and enjoyable read, and one that is often thought-provoking.

JOSEPH BOUGHEY

***Engines that Bend: narrow gauge articulated locomotives* — David Joy**

128pp, 280x220mm, approximately 44 b&w and 109 colour photographs, 6 diagrams, hardback, Atlantic Publishers, 83 Parkanaur Avenue, Southend-on-Sea SS1 3JA, 2012, ISBN 978 1 902827 23 0, £19.95

British locomotives stayed small by international standards, with our heavy engineering works, easy terrain, frequency of services and persistent traditional operating methods. As railways spread throughout the world other solutions were necessary in the face of difficult terrain, steep gradients and curves, often combined with long single line sections and associated infrequency of trains. The popularity of 'narrow' gauge from the 1870s brought to the fore the problem of building steam locomotives to cope with such conditions.

Robert Fairlie, a great publicist, promoted an articulated engine to advance his advocacy of narrow gauge, notably through the Festiniog Railway. However, the Swiss engineer Anatole Mallet built a semi-articulated design, originally to promote multi-cylinder compounding, which soon led the field. Both compounding and the narrow gauge failed to register effectively in Britain but became popular elsewhere. Mallets swept the non-British world in ever increasing sizes including, importantly, standard

gauge designs not covered by this work. Others produced variations on these themes, notably the French engineer Meyer, which were perfected by Kitson's of Leeds. For slow-speed applications there evolved machines like the geared Shay and driven radial axle designs, which never caught on in Britain. Finally, the Englishman Herbert Garratt's design came to dominate colonial Africa but had limited impact elsewhere.

This book is intended as a readable, rather than definitive, history of the principal articulated narrow gauge designs through selected locomotives. In this it succeeds with a smooth historical narrative and very brief pocket biographies of three of the engineers involved. A more rounded account of the operational need for such complex locomotives and reasons for their success or failure would have been welcome. Nevertheless the general reader will no doubt be content with the brief descriptions and illustrations of the machines covered, many of which are preserved, notably in North Wales.

BRIAN JANES

***Waverley Route: the life, death and rebirth of the Borders railway* — David Spaven**

288pp, 244x174mm, 72 photographs, 9 maps, hardback, Argyll Publishing, Glendaruel, Argyll PA22 3AE, 2012, ISBN 978 1 908931 00 9, £20 (also available in shortened form in paperback, ISBN 978 1 906134 99 0, £14.99)

One of the consequences of the 1963 Beeching report was the closure of the entire 98½ miles, including twenty-four fully staffed stations, of the Waverley Route from Carlisle to Edinburgh. Large tracts of the Borders, including the major centres of population, Galashiels and Hawick, were bereft of a rail connection. The planned closure was exceedingly unpopular and after six years of debate, the night of 5 January 1969 saw the passage of the final train blocked by mass protest and civil disobedience at Newcastleton.

This well-produced book examines the significance of the railway, how closure was permitted and why the line engendered so much support in the community. After a hiatus of 20 years through the 1970s–1980s, enthusiasm for the line was rekindled and has continued unabated, resulting in a scheme that should see at least the northern 31 miles reopen in 2014–2015 from Waverley to a new terminus at Tweedbank between Galashiels and Melrose.

This account of the line from 1963 to the present day is a history written from a business, political and social outlook. The author has been intimately acquainted with efforts to save the line as was his father before him. There are many photographs with extended captions of the line with closure impending and more recently as reopening approaches.

Additional content follows the index in the hardback collector's edition: an extra chapter briefly chronicles the first century following opening of the railway from 1842 onwards and there are some supplementary appendices. It may be this that appeals to RCHS members most, as the book is largely a modern social study rather than a detailed history of the Waverley Route *per se*. It should particularly find favour with those resident in the Scottish Borders but the story remains incomplete until trains run once more on the longest 'new' railway to be built in recent times.

JOHN HOWAT

***Holding the Line: how Britain's railways were saved* — Richard Faulkner & Chris Austin**

144pp, 290x210mm, 74 b&w illustrations, 6 maps, hardback, Oxford Publishing (an imprint of Ian Allan Publishing), Hersham KT12 4RG, 2012, ISBN 978 0 86093 647 3, £19.99

Railway closures have been a topic of public interest since the Beeching Report of 1963. This book's joint authors — one a former BR senior manager, the other a politician and adviser to the BR Board — give a dispassionate and well-balanced review of the varying reasons for closure, from the beginning to the present day. In the earlier years a number occurred when an existing line was bypassed. Later, of course, financial pressures grew and the book examines the steady decline in freight traffic, the railways' deteriorating fortunes following nationalisation, and the need for economies. The effects of the Beeching Report are, not surprisingly, considered at some length, although they do not dominate.

However, as the book's subtitle implies, not all closure proposals have been successful. The reasons for this, for example, public opposition, the provision for the 'social railway' in the Transport Act 1968, and the growing recognition of rail's environmental importance, are well described. The reasons for the failure of later governmental pressure for further closures are also considered.

The book's 20 chapters are broadly chronological. Appendices identify lines and stations listed for closure in the Beeching Report; those selected for grant aid in 1968; and transport ministers from 1945 to date. The book is appropriately illustrated and the index is adequate.

GRAHAM BIRD

***Mile by Mile on Britain's Railways* — Stuart N Pike & Reginald Piggott**

144pp, 222x142mm, hardback, Aurum Press, 7 Greenland Street, London NW1 0ND, 2011, ISBN 978 1 84513 612 3, £12.99

Recently this reviewer criticized in these pages a set of cased strip maps (*Railway Maps of Great Britain 1924*) for being difficult to use, opened as was necessary, in the environment for which they should be ideal — while travelling by train. In 1947 the First World War fighter ace, Stuart Pike, showed exactly what was required with this neat and still useful pocketbook. Clearly intended for the railway interested traveller, the detailed map strips locate water troughs, mail bag exchange points, and give frequent advice on timing, as well as more general information on local history, geography and leisure facilities.

The LNER set takes in no by-ways, covering just the line from London to Edinburgh. This is in contrast with the Southern Railway network, clearly Pike's home territory with the most detailed notes, where strips wind their way to Portsmouth, Swanage,

Weymouth, Seaton, Sidmouth, Exmouth, Plymouth and Ilfracombe. The LMSR coverage is of the routes to Liverpool, Leeds, Nottingham and Manchester, but it seems unlikely the author ever journeyed north of Bedford on the Midland main line, judging by the complete absence of lineside information from then on.

Stuart Pike never completed his project and we should be grateful to the present publishers for commissioning the Great Western strips especially for this edition. These strips relate to the routes to Bristol and Penzance. This set, with elegant drawings and wise choice of fonts, are an improvement on what was already good. Is it too much to hope that Reginald Piggott might be persuaded to compile modern day, or indeed 1924 versions?

WILLIAM FEATHERSTONE

***The Aldeburgh Branch* — Peter Paye**

320pp, A5, 170 illustrations, 10 maps, 42 diagrams & 12 timetables, paperback, Oakwood Press, PO Box 13, Usk NP15 1YS, 2012, ISBN 978 0 85361 723 5, £19.95

When the railway from Ipswich to Beccles was opened in 1859 one of its branches was to Leiston. The engineering works of Richard Garrett there provided most of the goods traffic for the branch even when extended to Aldeburgh in 1860. The station at Thorpeness opened in 1914. Today the

line survives as far as Sizewell Siding for nuclear flask traffic.

The layout follows the usual Oakwood format, the length of the book and the bibliography on the last page indicating the great amount of technical and local information brought together by Peter Paye.

Chapters on the locality and the construction of the line are followed by chapters about the history of traffic up to the present including the arrangements for the recently superseded RETB electronic control on the main and branch lines. The route description includes arrangements at the junction with the main line including the Saxmundham down platform, which, until the 1980s, was split by a level crossing. Oddly, the branch train never used the bay platform, which can still be discerned behind the up platform.

Garrett's works is described: the traffic, track layout and locomotives used, including the battery shunter

and the preserved *Sirapite*.

Final chapters describe the timetables and traffic arrangements for passenger and goods trains then the locomotives and passenger stock used on the line from the start, the latter including the 'non-rolling' stock at Thorpeness Station.

Many photographers including the late Dr I C Allen contributed illustrations. Wartime security explains the single illustration of an armoured train similar to that which operated here. Recent security concerns explain the lack of photographs of the Sizewell train in the privatisation era.

RICHARD TYSON

***The Portland Path: an early nineteenth century Nottinghamshire railway and the collieries it served* — Martin Taylor-Cockayne, Stuart Saint & Denis Hill**

66p, A4, 39 colour illustrations, 11 maps, paperback, Portland Path Project, 10 Laverick Road, Jacksdale, Nottinghamshire NG16 5LQ, 2012, ISBN 978 0 9572416 0 2, £4.95 plus £2 postage.

This short book is part of a series of initiatives aimed at promoting interest in historic remains in the Ashfield district of Nottinghamshire. Funded by the National Lottery, the project has included promoting a 'trail' along the tramway route near Selston including a colourful leaflet. The booklet is part of this project and any profits go back into the whole effort.

The Ashfield area is an example of how canals and railways or tramways evolved with close interdependency. Cromford is not far away to the west whilst the Mansfield and Pinxton Railway opened in 1819. The route that is the subject of this book then evolved to connect the Portland collieries, started in

the 1820s, to the canal at Jacksdale, providing an alternative to the Pinxton line.

This is a nicely produced publication, providing considerable interest in its coverage of a topic that is of local value but illustrative of national themes. A number of the pictures are specially commissioned for the project but there are also many good reproductions of original maps. The railways and their collieries illustrate the transient nature of extractive industries, especially in Nottinghamshire as the industry shifted to deeper mines further east; the line closed in 1894, and this is emphasised in the final pages which show archaeological work on the Jacksdale Basin in 2009.

ADRIAN GRAY

***The Kendal & Windermere Railway: Gateway to the Lakes* — Robert Western**

240pp, A5, 79 photographs, 12 maps, 16 timetables, paperback, Oakwood Press, PO Box 13, Usk NP15 1YS, 2012, ISBN 978 0 85361 721 1, £15.95

I anticipated this would be a little book about a little line where little happened. In fact it starts with the involvement of Kendal in determining the route of the West Coast Main Line (where a map of the larger area would have been useful), and it goes into great detail about the manoeuvres to set up the railway to Windermere. Every working detail, including serial timetable changes, are noted both before and after the inevitable takeover by the LNWR. The author concedes a less eventful history after the loss of independence, but workings and physical changes are all fully recorded. Later in the century the change of atmosphere, where big companies were now

predominant, led to the rejection by Parliament of a new line to Ambleside.

This book is a model of its kind, with a beginning and a middle (no end, because the line is still open), helpful subject headings and even notes to OS maps. There are pictures of stations, locomotives, rolling stock and tracks, details of excursions, and social commentary. If I was looking for an omission, it would be of details of running powers which would appear to have been exercised over the line. However, the coverage is so comprehensive that there seems no likelihood of the need for a second edition.

Good value on a relatively unpromising subject.

DAVID PEDLEY

***Derby Days: memories of a Midland railwayman* — John Weston**

208pp, 210x125mm, 115 photographs, paperback, Oakwood Press, PO Box 13, Usk NP15 1YS, 2012, ISBN 978 0 85361 724 2, £15.95

Many autobiographical accounts by railwaymen are just that: the story of their life on the railways. This is not a major criticism of such books, but it is one of the real strengths of the work under review that it is a true autobiography — from first memories at the age of three to his 2007 cab ride to celebrate the 70th anniversary of his start on the railway, the whole of this nonagenarian's life is described, fluently and lucidly.

There is, nevertheless, a strong core to the book, and a substantial theme, a moral philosophy, running through it. The core, the focus of 23 of the 31 short chapters, is the author's progressive railway education from Cleaner to Driver. The theme, present from first days as an agricultural labourer, is the perpetual conflict between management/owner and worker/unionist. A steadfast Christian, Mr Walker sees faults

on both sides, and, although an involved ASLEF member and advocate for many years, experienced no difficulty in becoming part of the management team in the latter part of his career.

There are few criticisms: the author perhaps rushes through his driving career rather too cursorily; there are many interesting and well produced illustrations but some lack specific connection to the author, and there seems little reason why the comment on the Midland Compounds has been relegated to the single appendix. These comments do not detract from an enjoyable and interesting book. Many other books have been devoted to Derby Works and its products but much less to the important depots at Derby and the men who worked there — a gap which this book will go some way to fill.

WILLIAM FEATHERSTONE

***Victorian Preston and the Whittingham Hospital Railway* — David Hindle**

128pp, 248x172mm, 141 b&w photographs, 4 maps & plans, softback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2012, ISBN 978 1 4456 1009 2, £15.99

This book was published to mark the 2012 Preston Guild festivities which are held every 20 years. It commences with a brief examination of the social, cultural and economic aspects of the city in the latter part of the 19th century, before moving on to the history of the Preston and Longridge Railway (P&LR) which became a joint line of the LNWR and L&YR. However, the majority of the book is taken up with the Whittingham Hospital Railway which joined the P&LR at Grimsargh.

Whittingham Hospital was one of a number of very large 'asylums' in this part of Lancashire, and accommodated over 3,000 patients at its peak as well as providing work for hundreds of staff. The railway,

which opened in 1889, was needed for the transport of coal and other supplies to the hospital in the days before the motor lorry as well as conveying staff and visitors. A notable feature of the line was that it was free of charge to all passengers. The shuttle service to Grimsargh continued until the line's closure in 1957 although the P&LR passenger service had ceased in 1930.

The author, who worked at the hospital for a time, has written a very readable and entertaining account of the line. The book is well illustrated and includes some reminiscences of people who remembered the line in operation. There is a short bibliography but no index.

RICHARD COULTHURST

***The GWR Bristol to Taunton Line* — Colin G Maggs**

192pp, 248x172mm, 220 illustrations, paperback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2013, ISBN 978 1 4456 0194 6, £18.99

The main line of the Bristol & Exeter Railway was opened to Bridgwater in 1841 and to Taunton the following year. Initially leased to the GWR, in 1849 it assumed full control of its own affairs. It amalgamated with the GWR in 1876.

After a brief introduction to the Bristol & Exeter's promotion and construction, the history of the line is described in detail, starting with the complex development of Temple Meads Station at Bristol, and then working south-west. Of particular interest are

the original branch to Weston-super-Mare with its horse-drawn passenger service, the abortive proposal for a branch to a harbour at Brean Down, the short Dunball Wharf Branch, the floods in the Somerset levels, and the successive rebuilding of Taunton station. The subjects of the following chapters include locomotives, sheds, train services, track and signalling, staff, and accidents and mishaps. A final chapter describes a daring mail

robbery in 1849.

Despite its title (and despite the cover picture of an LMS-designed locomotive at Yatton) this book concentrates on the 19th century, particularly on the Bristol & Exeter days. Indeed, a special strength is the number and range of Broad Gauge era photographs, including two of an accident in 1852. Regrettably, the quality of reproduction is not as good as some other publishers achieve.

PETER BROWN

***Pleasure Steamers* — Andrew Gladwell**

64pp, A5, 54 b&w, 24 colour photographs, paperback, Shire Publications, Midland House, West Way, Botley, Oxford OX2 0PH, 2013, ISBN 978 0 74781 205 0, £6.99

This short book describes the development of pleasure steamer services on estuaries, coastal seas and Scottish lochs. It does not cover English lakes, canals or inland rivers, bar the River Dart. There must be overlap with the history of commercial passenger services, but there is little about this, while there is less focus on the kinds and construction of the vessels themselves. Those limitations aside, this is a well-produced account of pleasure steamers. Coverage begins in the early 19th century on the Clyde, follows general development through the Edwardian heyday and then on to the period of decline after the 1950s, shown by the last major vessel launch in 1953. The transition to preservation, with

the very small number of surviving steamers like *Waverley* and *Balmoral* and their services, is usefully discussed.

As with other Shire publications, the text is succinct but does not directly cite sources, bar a bibliography. The illustrations are generally well-produced; these include tickets, posters, brochures and onboard views, which provide strong impressions of excursionist experience. Many photographs seem to be in monochrome that has been hand-coloured, which look somewhat glazed but convey the period; more recent views are less frequent. Overall, this provides an excellent summary of history — readable and concise.

JOSEPH BOUGHEY

***The TUBE: station to station on the London Underground* — Oliver Green**

120pp, 150x150 mm, 93 colour photographs, 7 maps, hardback, Shire Publications, Midland House, West Way, Botley, Oxford OX2 0PH, 2012, ISBN 978 0 74781 227 2, £6.99

This handsome and well illustrated little book is in two parts. The first is a succinct but comprehensive history of the lines which make up the London Underground: the Metropolitan and Metropolitan District's beginnings in the 1860s and the former's extensions into 'Metroland'; the City & South London's tube line, followed by six more by 1907; the bringing together of these disparate lines by London Transport in 1933; the extensions further into the suburbs, including taking over some main line suburban railways after World War II; and bringing the story right up to date with the Victoria, Jubilee and Docklands lines. A series of maps show the development of the system and of the current

Underground map. There are plenty of photographs of examples of the best of Victorian, inter-war and modern stations, as well as historic posters.

The second half of the book is a description of journeys on a seven selected lines of particular historic interest; there is a brief history and then a description of each line station by station, picking out the best architectural examples with suitable illustrations.

This book will appeal to anybody who wants a short and highly readable guide to the Underground network, whether they be railway historians, visitors or Londoners themselves. Highly recommended.

WARWICK BURTON

***The Steam Locomotive: an engineering history* — Ken Gibbs**

256pp, 248x172mm, 100 illustrations, paperback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2012, ISBN 978 1 4456 0918 1, £19.99

The author served an apprenticeship at Swindon Works and has been associated with locomotive preservation. It is stated that the material had been gathered from previously published material which appeared in magazines, but the sources are not cited.

The content is very varied. There is much useful information of a practical nature which includes the casting of cylinders and other locomotive components. There are sections on braking systems, on the Swindon stationary test plant, on manufacturing locomotive wheels, axleboxes, valve gears, frame types, pressure gauges, limiting factors, materials, and on safety valves, including the Ross pop type,

not much used at Swindon. Somewhat surprisingly, there is a brief pictorial survey of North American steam designs.

The trouble is that the compilation is utterly lacking in comprehensive/comprehensible navigation. There is no index and only a weak contents listing. Picture quality is variable between adequate and poor: some of the photographs of Swindon Works have a Dickensian quality which one suspects was not intended. There are some errors in the text, most seriously 'Crompton' rather than 'Crampton' in one place. Given some extra navigation it could have been a useful reference book.

KEVIN JONES

***Hassop 150* — Glynn Waite**

50pp, 298x210mm, 63 illustrations, 7 maps & plans, softback, Pynot Publishing, 56 Main Road, Holmesfield, Dronfield S18 7WT, 2012, ISBN 978 0 95627 067 2, £8.50

This book was published by the Rowsley Association to mark the 150th anniversary of the opening of Hassop station, situated on the Midland Railway main line through the Peak District, on 1 August 1862. Since the station closed to passengers under the blackout of wartime just 80 years later (the goods yard survived until 1964), few will know more than its being the site of a range of lineside topiary which also survived into the 1960s.

In this thorough and well researched book, aided by the many rare and interesting illustrations, the author shows that this remote and lonely outpost has much more to tell the reader. For nearly two

years it was a terminus station with four through trains to London in each direction. If that was the zenith of its life, the opening of the more convenient Grindleford station, on the Dore and Chinley line in 1894, marked the start of its decline. Detailed service and traffic information adds to this comprehensive treatment, but it is the exhaustive and informative listing of station and lineside staff which will prove a lasting research resource. The turnover and mobility of even the most junior 'machine youth' comes as a surprise. This is a useful and competitively priced contribution to railway history.

WILLIAM FEATHERSTONE

***Along Different Lines* — Geoff Body & Bill Parker**

144pp, 215x135mm, 34 photographs, 4 maps and plans, 3 facsimiles, paperback, History Press, The Mill, Brimscombe Port, Stroud GL5 2QG, 2012, ISBN 978 0 7524 8915 5, £9.99 (Kindle edition £6.71)

This book is a collection of 70 stories about the experiences of professional railwaymen. In addition to the book's two authors there are a further 27 contributors. The stories are an eclectic mix of reminiscences from the contributors' careers, and cover a wide range of subject matter from the 1940s on towards the present day. Each story is preceded by a brief summary of its content and so the book can easily be dipped into or read from cover to cover. The stories are well written and engage the reader but some could have been enhanced by the inclusion of dates to put them in context. Almost half the

stories are illustrated which adds further interest, particularly as the photos relate directly to the content and many were taken by the contributor.

There is a useful glossary of terms for those not familiar with railway terminology, but there is no index. The book is attractively produced though the font is rather small. This is not a difficulty if you use the Kindle digital edition of the book. Overall this book makes an interesting, nostalgic and enjoyable read and sheds some light on the realities of running a railway.

VERONICA EDMONDS

Wylam: 200 years of railway history — George Smith

128pp, 248x172mm, 62 illustrations, paperback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2012, ISBN 978 1 4456 1077 1, £12.99.

George Smith has contributed to both *Railway Archive* and *Backtrack*, and in the latter on a topic specific to the book under review: an article on the Hackworth Family Archive. There is a sad tendency for commentators on Timothy Hackworth to deride George Stephenson, but this is not so in this case where all the key players including Blakett, Hedley, Nicholas Wood, and Trevithick, so far as he is known to have contributed to development in Wylam, are treated evenly.

The book begins by describing the primitive coal industry and the development of timber tramways to convey the output down to the Tyne, and takes the

story as far as the origins of the Newcastle & Carlisle Railway which had originally been envisaged as a canal. An epilogue records the legacy.

The author is aware of the seminal Early Railways Conferences and the associated *Proceedings*, but does not cite the third and possibly most relevant one, namely the paper by John Liffen on the iconography of the Wylam waggonways. With this exception his bibliography is sound.

In summary this is a useful guide to Wylam, but suffers from the lack of a good map to indicate where remains may be seen. An index would have been helpful.

KEVIN JONES

Brunel in Gloucestershire — John Christopher

96pp, 236x166mm, 85 colour photographs, 39 b&w pictures, 5 maps, paperback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2012, ISBN 978 1 4456 0781 8, £14.99

Despite being on a relatively well trodden subject, this is a valuable new book, the first in a series which will focus on Brunel's works in individual counties, cities and regions. It describes Brunel's work in Gloucestershire in more detail than previous books.

Brunel is described as 'the most celebrated and famous engineer in the world' although it is now recognised that, though most of Brunel's designs were brilliantly innovative, his management of the construction process was fairly consistently bad. John Christopher's description of the battle of Mickleton Tunnel, to his credit, properly blames the

event on Brunel's violently militant approach to arguments with his contractors.

The illustrations are well chosen. Most of them are recent photographs but one third are drawings or photographs from the past. The detailed maps of particular areas are valuable. Proofreading is good, but the most famous station in Gloucestershire has become Aldstrop! Eccentrically, the book has neither a contents page nor an index, so there is no way of finding anything in particular.

The author's knowledge of the subject is wide and deep; the book is a good read.

MARTIN BARNES

British Steam: BR standard locomotives — Keith Langston

320pp, 245x170mm, 132 colour and 216 b&w illustrations, hardback, Wharncliffe Transport (an imprint of Pen & Sword Books), 47 Church Street, Barnsley S70 2AS, 2012, ISBN 978 1 84563 146 8, £25

Similar in format to the same author's *British Steam Past & Present* and *Patriots* — reviewed in the March and November 2012 *Journals* respectively — this volume looks at the 999 BR 'Standard' steam locomotives built between 1951 and 1960.

A section on Robert Riddles CBE, the architect of BR's standard steam locomotive policy, is followed by chapters on each of the twelve standard classes. These contain the essential facts and background, but the content is heavily weighted towards the three passenger classes. Each locomotive is given at least one illustration and a sometimes over-lengthy explanation of how its name was derived — we learn

that *Rudyard Kipling*, for example, was so called because his parents courted at Rudyard Lake in Staffordshire. By contrast, most of the nine freight and mixed-traffic classes are dealt with fairly briefly, although Riddles' WD Austerity types are also covered.

Production quality is generally acceptable but the chapter numbering is muddled. Photographs, mostly good, predominate over text; the BR-era shots are in black & white and the 'heritage' views in colour. The book offers a serviceable introduction to its subject, but contains little which has not appeared elsewhere. There is no index.

GRAHAM BIRD

***F W Webb 1836–1906: a bibliography* — John E Spink**

98pp, 280x220mm, approximately 39 b&w and 23 colour photographs, hardback, London & North Western Railway Society, Crow Tree House, South Terrace, Rothbury NE65 7QR, 2011, ISBN 978 0 954 6951 7 0, £15

Francis William Webb was a notable production engineer with a more mixed reputation as a locomotive and carriage designer. Highly appreciated for his drive for efficiency, there can be no doubt that Webb was influential in his time. However, his engineering and personal reputation suffered a rapid eclipse in the early 20th century. His crowning memorial must be the creation, with his immediate predecessor and teacher John Ramsbottom, of a Crewe Works of peerless size and efficiency, together with a progressive town to match.

This book is a publishing curiosity, a reprint of a bibliography thesis and essays produced by the author in 1965. Bibliographies are a useful research

tool but as the author comments on giving permission for a reprint '[it] must be very dated and may contain inaccuracies', for since 1965 there has been a vast outpouring of valid writing. The introductory essays have worn well but little has been done to plug this obvious information gap.

The literature of locomotive engineers often unduly concentrates on design and has become a genre littered with near hagiographies. This book is a worthy guide to nearly 100 years of literature to help any future biographer write a balanced assessment of Webb, a self-publicising and domineering, but accomplished, character.

BRIAN JANES

***Oakwood Press, the First 80 Years 1931–2011: a collector's guide* — Terence A Mullarkey**

120pp, A5, 4 photographs, numerous thumbnail images, Oakwood Press, PO Box 13, Usk NP15 1YS, 2012, ISBN 978 0 85361 719 8, £9.95 (p&p £2.95)

In March 1931 school friends Roger W Kidner and R Michael Robbins began publication of a quarterly magazine *Locomotion*. Over the next few years a series of booklets on minor railways followed under the Oakwood Press name, providing coverage of subjects on which little published information was available. After a break during the war, Kidner resumed book publication and produced a stream of distinctively concise and authoritative Oakwood titles, mainly on railway history but also covering other transport subjects, plus some on market research, and gramophone records. In 1984 Kidner sold the business to Jane Kennedy, who has continued in the same tradition and expanded into

the video market.

This book catalogues the output of Oakwood Press. Main chapters summarise the history of the company then list various categories of transport history books, with brief publication details, thumbnail cover images, and a complete alphabetical list. Appendices provide similar listings of other books, postcards, catalogues and pictorial bookmarks. Finally there is a list of ISBN codes and biographical details. There can be few railway historians who do not possess Oakwood titles. They will find much of interest here, but this book will be of most use to collectors, particularly of the early material.

TIM EDMONDS

Locomotive Railway Carriage and Wagon Review, Volume 4

90pp, 248x190mm, <www.RareBooksClub.com>, £14.50 (via Amazon Books)

This is available as a print-on-demand publication via Amazon. It is an extremely poor optical character recognition (OCR) version of the *Locomotive Magazine* Volume 4 for 1899 without any form of navigation, the index and page numbers being lost in the OCR process. To an extent this is ameliorated by the ability to download a pdf version of the original which includes not only the index, but also the page numbers and the illustrations and diagrams, which are an essential feature of this sort of publication. It

seems that the pdf files are owned by Google (as their mark is visible on every page).

Bibliographically, there is a danger that the printed copies may be cited. For example, an item on the steam locomotives built to operate service trains on the Central London Railway appears in the mangled hard copy on page 78, but in reality on page 173 of the *Locomotive Magazine* as published in 1899.

Several other volumes of this journal are available for purchase in this questionable format (but also

with the ability to obtain pdf versions) with the incorrect title, which was not adopted until Volume 22 in 1916. Surely, it would be more honest to make

printed copies of the pdf originals available rather than poor quality OCR derivatives.

KEVIN JONES

Short Reviews

***Building a LNWR Jumbo* — Bill Finch & others**

60pp, A4, extensively illustrated, paperback, London & North Western Railway Society, Crow Tree House, South Terrace, Rothbury NE65 7QR, 2012, ISBN 978 0 9570158 1 4, £10.50

This is a nicely presented book obviously aimed at model engineers. The introduction and general history set the scene for this interesting 19th century locomotive. The photographs of full sized Jumbos along with the description of the main design features and variations are useful in deciding which derivative to build. The clarity and amount of detail given in the sketches are excellent and will greatly assist in completing a nicely detailed model. The provision of photographic detail of both full sized and model locomotives is also very helpful, particularly those in colour. This book will be an excellent aid when used alongside a larger copy of the engineering drawings.

***Cambridge Main Line Through Time, Part 1: Cheshunt to Audley End* — Andy T Wallis**

96pp, 235x165 mm, 180 photographs, 1 map, paperback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2012, ISBN 978 1 4456 0767 2, £14.99

This book is a photographic record of the Cambridge main line with a series of photographs from Cheshunt in the south to Audley End in the North. Most pages have a sepia photo of the station or location at the top; these are usually from steam days and some from before the First World War, though some are from early BR days. Below is a parallel modern colour image of the same location from the same angle, which is interesting and informative. There are also one or two non-parallel pictures, for example, of an accident to an EMU at Bishops Cleeve. In addition, there is a useful and succinct history of the line.

***London & North Western Railway 30ft 1in six-wheeled carriages* — Philip A Millard**

64pp, 295x210mm, 70 b&w images, 4 colour photographs (cover), 36 plans & drawings, paperback, London & North Western Railway Society, Crow Tree House, South Terrace, Rothbury NE65 7QR, ISBN 978 0 9546951 6 3, £9.90

This admirable, scholarly, detailed monograph is a re-edited reprint of the Society's Premier Portfolio No 15 of 2008, complementing the author's previous book on L&NWR Non-Corridor Carriages. Those comprising the present work were omitted from that because of the enormous range of detail differences between the various sub-groups and use categories, though they all shared the same chassis. Totalling 1,598 in all, the D297 five-compartment 3rd class alone amounted to 827, the most numerous of all British railway carriages. Four examples are preserved — one (broad-gauge) in Ireland. The photographs are well reproduced and the extensive plans will delight modellers especially.

***The Waverley Route Through Time* — Roy G Perkins with Iain MacIntosh.**

96pp, 235x165mm, 173 photographs (many in colour), 1 map, paperback, Amberley Publishing, The Hill, Stroud GL5 4EP, 2012, ISBN 978 1 4456 0960 7, £14.99

This book has a short geographical and historical introduction, running north to south, followed by a parallel illustrated 'then and now' route description, which is up to date and includes restoration details. The two parts are not co-ordinated, and it is clearly intended to be read through as a book. There is therefore no contents list or index. The tiny map provided is inadequate. However, the coverage is good, and more than one point at a particular place may be illustrated, and at more than two dates. It should be popular with those interested in this area.

***Water from Wendover: the story of the Wendover Arm Canal* — Shelley Savage**

24pp, 150x210mm, 21 illustrations (31 colour), 4 maps, Tring & District Local History & Museum Society, The Market Place, Brook Street, Tring HP23 5ED, <www.tringlocalhistorymuseum.org.uk>, 2nd edition, 2013, ISBN 978 0 9549860 1 8, £4.95 (plus 50p p&p)

This second edition of a guidebook originally published by the Wendover Arm Trust in 2002, is fully updated to take account of recent historical research as well as restoration work on the waterway. It provides a clear picture of the arm's primary role as a feeder, and is a clear and attractive guide to encourage exploration of the towpath and its environs.

***London's Railway Heritage: architecture, engineering and industrial archaeology, Vol. 2: north east – GER Shenfield line, Fairlop Loop and Ongar line* — Peter Kay**

96pp, A4, 310 photographs, 17 drawings, 32 maps & plans, paperback, Author, 6c Park Road, Wivenhoe CO7 9NB, 2013, ISBN 978 1 899890 46 0, £13.95

As with the first volume, favourably reviewed here last year, this work will be appreciated by those who enjoy tracing historic railway infrastructure on the ground. Meticulously surveyed here are lines once operated by the Great Eastern in Greater London between the boundaries of the City and the present-day Essex boundary.

The following four books: 96pp, 236x166mm, about 120 photographs plus maps, timetables, tickets etc, hardback, Middleton Press, Easebourne Lane, Midhurst GU29 9AZ, £16.95 (post free)

Stafford to Chester featuring Crewe

— Vic Mitchell & Keith Smith

2012, ISBN 978 1 908174 34 5

About a third of this book covers various aspects of Crewe; Stafford and Chester take up another third. Elsewhere the eleven intermediate stations are described, most of them long-closed. As usual, large-scale maps are included with old and new photographs and signal box dates. 37 varied tickets are pictured (two of them duplicated), including some from 'Crewe (Cen)'. There are a few misprints and a mention of Malpas and Broxton which were on a different line. A station poster reveals that post-war excursion destinations from Chester included Parkgate.

Hawick to Galashiels: the Waverley Route including the Selkirk Branch

— Roger Darsley & Dennis Lovett

2012, ISBN 978 1 908174 36 9

This standard Middleton Press volume covers the central, undulating section from Hawick to Galashiels of about 20 miles plus the 5 mile branch to Selkirk. The photographs are the main feature but the captions are informative and avoid giving locomotive details to the exclusion of other interesting things which can be seen. Photographs concentrate on the stations and were taken over many years and are of variable quality on silk paper. A couple of action steam shots would have given inspiration.

Branch Lines around Swansea

— Vic Mitchell & Keith Smith

2013, ISBN 978 1 908174 38 3

The main lines to Swansea have been the subject of previous books by the Middleton Press so this volume records the branches and other lines in the area not already covered. Some of the passenger services featured were very short lived and two stations, Gwaun-Cae-Gurwen and Cwmgorse, were built but never opened for passengers. The sea front Swansea and Mumbles Railway that closed in 1960 gets several pages of photographs. The large scale plans and track diagrams are helpful in understanding this complex area but the reproductions in black and white of coloured Ordnance Survey maps are not very clear.

***Taunton to Minehead* — Vic Mitchell**

2013, ISBN 978 1 908174 39 0, £16.95

As part of the 'Great Railway Eras' series, with the subtitle '50 years of change', this book depicts the Minehead Branch from 1960 until closure in 1971, and from partial reopening in 1976 to the completion of the turning triangle near Norton Fitzwarren in 2012. Thus we see the 45xx and 51xx tanks which ran the line in the early 1960s (with the occasional D63xx) and the DMUs which started replacing them in 1962, as well as the West Somerset Railway's resident preserved locomotives and the wide variety of visiting locomotives. About half the photographs are by Tom Heavyside.

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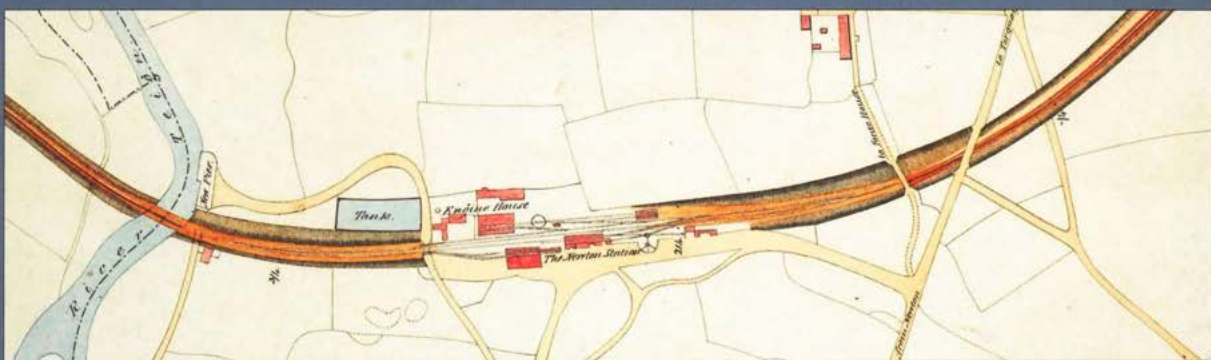
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From the Parish of King's Teignton to the Newton Station in Wolborough
View South of the Line.



Engine House

The Newton Station



Through the Newton Station to the River Teign.
View North of the Line.



New Quay

Newton Engine House and Station

Railway Bridge

River Teign