



Journal

of the

Railway and Canal Historical Society

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Editorial

Once again, we start a new volume of the Journal, although this issue is more of a new beginning than most. After much discussion and debate, the Journal is now appearing in a larger page size and it is hoped that you, the members and readers, will approve. The main aims of the Editor and the Management Committee have been to ensure greater legibility in printed articles and more flexibility in the sizes available to reproduce maps, diagrams and photographs. I hope you decide that we have been successful. As I pointed out in the November issue, the new journal will make no difference to the A4 size on which articles and letters are sent to the editor.

The Society's New President

BY STEPHEN BRAGG

Our new President, Stephen Bragg, has provided the following biographical note: I was born in Manchester, where my father was Professor of Physics, but my early interest in railways was kindled during family holidays beside the L&NW line at Pensarn in North Wales. Later, at school in Rugby, I cycled round with my telescope, making a complete signalling plan of all the lines within ten miles. I have been interested in junctions and layouts ever since.

I had always wanted to become an engineer. After taking an accelerated degree course at Cambridge, I was directed into the aero engine industry and in 1944 found myself at Rolls-Royce. A year before, RR had taken over from the Rover Co the production of the Whittle jet engine, still top secret, in a former weaving shed at Barnoldswick on the Yorkshire/Lancashire border. I suspect that few other Presidents have travelled to work on the Bar'lick Branch of the Midland, or been able to observe ice breakers on the Leeds & Liverpool Canal so close to their workplace.

After four years at RR I went for a year to study at the Massachusetts Institute of Technology in the USA. I managed a few trips on North American railroads at a time when steam haulage was still the norm: the highlight was undoubtedly a footplate trip on a CPR 2-10-4 oil-burner up through the spiral tunnels of Field Hill.

Returning to the UK, I spent two years with a steel company in Sheffield, before being recalled to Rolls-Royce at Derby to work on combustion problems in jet engines, and later on the rocket engines for the Blue Streak missile. Around 1960 noise was becoming a major problem in civil jets: we empanelled a group of academic experts to work with us on this topic and this gave me some experience of what is now described as 'technology transfer' between universities and industry.

Early in my second spell with RR I started attending the WEA course on Railway History given by Charles Clinker. His emphasis on accuracy accorded well with the RR tradition of perfection and his emphasis on primary sources guided our studies in the files of the *Derby Mercury*.

My increased involvement with academia in the sixties led in 1971 to my appointment as Vice-Chancellor of Brunel University, a former College of Advanced Technology, whose campus appropriately included a short section of cutting on the derelict Uxbridge Vine St branch of the GWR. When Charles Clinker wrote to me in despair of interesting another university in his collection, we persuaded him to leave it to Brunel. Our able

Librarian, Nick Childs, arranged such a splendid exhibition to celebrate this acquisition that another testator, David Garnett, was inspired to leave his fine collection of maps to the university as well.

I left Brunel after ten years in the 'hot seat' and returned to Cambridge taking a succession of jobs where my background knowledge of industry, academia and North America could be deployed. I finally retired from (half-time) employment last year.

During the two decades before Beeching I was developing my knowledge of railway geography by travelling as much of the railway system of Great Britain as time allowed. Since then I have walked, cycled or even driven along the formation of many closed lines. So there are now only a handful of station sites in England that I have not seen, though my record is less complete in Wales and Scotland. This has reinforced my interest in railway geography and maps, past and present, particularly in the North East.

I was thrilled to be elected President of the Society and, as I said at the recent AGM, will hope to enthuse and encourage all our members during my term of office.

The Role of Osborne Ward in the Incorporation of the Great Western Railway, 1835

BY A R GREN

To get a Bill through Parliament was a complicated business, and required professional assistance. The accounts of the Great Western Railway Company for 1834 make no mention of using solicitors, Parliamentary Counsel, or any specialist help. However, the first thing the Company did, within days of the defeat of the first Incorporation Bill in 1834, was to appoint a firm of Bristol Solicitors, Osborne Ward, to act for them. The firm's successors in Bristol, Osborne Clarke, still hold their predecessors' original accounts to the Company for acting for them, and kindly made them available to the present author. They cover almost every aspect of getting Parliamentary sanction, including negotiations with landowners and lobbying of Members of Parliament. Their accounts cover the preparation and deposit of the plans with the Clerks of the Peace, and visits to particular landowners. The ultimate result of their work was the success of the Bill in 1835.

The Board resolved that 'it appearing that the appointment of solicitors. . . would be an addition necessary, and that it would tend materially to save time and to facilitate the proceedings in the present state' to appoint Osborne Ward as the Company's solicitors. They came to take on the bulk of the responsibility for guiding the Bill through Parliament in 1835'. Despite the significance of their role in the Company's promotion, McDermott's justifiably classic history of the Great Western has no mention of their role at all². This paper illustrates how vital their role was.

Significantly, their account is for work done from 4 August 1834, several days after the 1834 Bill had been defeated in the Lords. This unique document illustrates how the Solicitors became actively involved in the promotion of the Bill which had, in 1834, been effected by the activities of particular Directors.

The accounts reveal the procedures gone through in the 1830s to secure the passage of a private Bill through Parliament, and are important not least because no similar account has been found for any other Railway Company. Osborne Ward were 'occupied in the details of the arrangements preparing to apply to Parliament for the whole Line'³.

They attended the weekly meetings of the Committee in Parliament, as well as public meetings at Bristol, Bath, Chippenham, Cirencester Cheltenham and Stroud. They negotiated 'with landowners for permission to make surveys', and undertook 'very many attendances on different parties in Bristol, on canvassing for shares and for the general affairs of the Company'.

They also charged for 'folding, addressing and arranging in districts many hundred letters, prospectuses, pamphlets, and other papers, in preparing and copying lists for canvasses for shares, in analysing the lists of ratepayers in the City, from the Books of the Collector of Rates, and ascertaining and affixing the addresses to the names of such ratepayers, and arranging them in alphabetical order'⁴.

Osborne Ward were also responsible for drawing the Directors into the promotion of the Company. Their account covered 'very many attendances on the Directors to solicit their personal attendance in London in the canvas of Members of both Houses'.

The firm were the most frequent recipients of correspondence from the Great Western: the Company's letterbook records Mr. Osborne as having been sent 26 letters in the second half of 1834 alone⁵.

The extent of the work involved in the promotion of the Bill is further shown by their account for 'general correspondence... which occupied the time exclusively of one Principal and one Clerk for 33 days'⁷.

Mr. Osborne and Mr. Ward undertook journeys with Directors to procure shares and support: their account mentions journeys to Bath, Castle Combe, Falmouth, Liskeard, Penzance, Plymouth, Redruth, Truro and Wells. Mr. Osborne billed for 'time spent in travelling for the purpose of explaining to the several landowners the mode in which the line was intended to pass'⁸. The Solicitors also prepared the Book of Reference, the list of all properties to be taken, the owners and occupiers—together with a brief description. This involved 'them in establishing the ownership and occupation of property along the Line of the proposed Railway, and in drawing and examining alphabetical and other lists for the use of the canvassers of the landowners'⁹.

Osborne Ward charged for 'attendance on the principal subscribers in Bristol, to secure their execution of the Deed in time to enable the Secretary to deposit the subscription list in the Private Bill Office, containing subscriptions to the amount of half the capital, as required by the Standing Orders, previous to the Bill being read a second time in the House of Commons'¹⁰.

Their account to the Company shows the scale of work involved in promoting the Bill: it included a bill for the time of six Clerks on 'correspondence and other attendances'. This had occupied no less than 654 days of work, and the Company was charged £1,030 ls. for this item alone.

They also negotiated with particular landowners. Their account included 'Robert Osborne's journey and attendance on Mr. Heywood, Lord Clarendon's steward, at Devizes, with a view to procure a withdrawal of their opposition by the offer of an immediate arrangement of the value and compensation to be paid for their land'¹¹. Lord Clarendon had 49 separate units of property in Wiltshire listed in the Book of Reference for the 1835 Act, more than any other individual. These included farms, plantations, cottages, gardens and a mill pond¹².

Although Osborne Ward's accounts do, therefore, record something of the style of

negotiations the Great Western had with major landowners and aristocrats, they contain no record of any dealings direct with Ministers. Some hint does survive of such negotiations for the Stockton & Darlington, however. The Solicitor of the Stockton & Darlington Railway, Francis Mewburn, wrote to the chief Promoter of that Railway, Edward Pease, that he 'had an interview with the Lord Chancellor. . . He is too sly an old fox to give his consent . . . He said he should not give his support. . . till he was perfectly acquainted with the [Line's] merits. . . and he stated a variety of objections which he admitted I had satisfactorily obviated'¹³.

Much humbler property owners than the Earl of Clarendon were also seen by Osborne Ward, evidence of how exhaustive their attention to the passage of the Bill was. For example, 'on 8 and 9 May, Mr. Osborne travelled to see Colonel Magan, 'a dissentient landowner who, after an explanation of the mode in which the Line affected his property, stated that he was not opposed to the measure, but had dissented under the impression that his property would be very considerably injured thereby'¹⁴. Similar problems with landowners had been encountered by the Promoters of the Stockton & Darlington: with only two notable exceptions, the landed gentry in the county [Durham] opposed the passing of the Act'¹⁵.

The Stockton & Darlington Railway was principally promoted by the Quaker Pease family, and its defeat, says Jeans, 'appears to have astonished the opponents of the Bill. One noble Lord is reported to have said, that "if the Quakers in these times, when nobody knows anything about railways, can raise up such a phalanx as they have on this occasion, I should recommend the county gentlemen to beware how they oppose them"'¹⁶.

Osborne Ward were also engaged in securing the evidence to place before the Committees in Parliament. In May, after the Bill had passed the Committee of the Commons, Mr. Osborne billed for 'journeys from Bristol to South Wales, Devonshire and London and attendances during these days in procuring evidence for the Committee of the Lords', which occupied him for 19 days'¹⁷. The Solicitors expressed their personal confidence in the prospects of the Company by buying shares in the Company. Mr. Osborne bought two £100 shares in the Company, Mr. Ward bought 61.

Their attention to detail took the promotion of the 1835 Bill onto a much more professional level than had been the case in 1834. Landowners were dealt with on an individual basis. The organisation of the appearance of witnesses before the Committee was made much less random than it had been.

Osborne Ward's Bill for 1835 came to £5,727. The 1996 equivalent is £314,985. They had played several roles of vital importance in the founding of the Great Western: the preparation of the Bill; the enactment of the processes involved in obtaining property needed along the Company's route; the setting out of that route; and lastly in amassing the Capital necessary for the Company to go before Parliament'¹⁸.

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1. Public Record Office, RAIL250\1
2. E.T. McDermott, History of the Great Western Railway, 1927
3. Osborne Ward account, p. 1

4. Osborne Ward Account
5. Osborne Ward Account, p. 9
6. Letterbook, Bristol Record Office, 12167 (1)
7. *ibid*, p. 2
8. *ibid*, pp. 3 – 4
9. *ibid*, p. 5
10. *ibid*, p. 8
11. Osborne Ward account, p. 11
12. Book of Reference, Bristol Record Office, 12167.27
13. History of the Stockton and Darlington Railway, J.S. Jeans, 1875, p. 30
14. Osborne Ward account p. 11
15. A History of the Stockton and Darlington Railway, J.S. Jeans, 1875 (reprinted 1975), p. 195
16. Jeans, *op. cit.*, p. 196
17. Osborne Ward account, p. 12
18. *ibid*

If You Don't Want To Lose It – Use It.

BY HARRY PARR

This aphorism applies to many things, not least our Research Index, as the writer knows from experience. In 1972, as the Information Officer of an engineering institution, he revived, built up and used an information retrieval system, but after he left the job it was abandoned, as no-one could be bothered to use it.

We have a fine Index to many thousands of primary sources and their locations which has been placed on microfiche; several large institutions have been so impressed by it that they have purchased their own copy.

We, the members, however, who can use the Index for the cost of two stamped envelopes, remain largely unimpressed, judging by the limited use that we make of it. This is not encouraging for those who work hard to service and enhance the Index and, not surprisingly, they sometimes wonder if their labour is worth while.

Not all members want to engage in research, but it is almost axiomatic that many do, because if one eliminates all the things the Society does not engage in, such as preservation, locomotive history, modelling, writing ripping yarns and so on, what remains is largely research into the facts of transport history, which can only be done properly by using original and/or contemporary sources and publishing the results. And that is quite enough, for it is a process which challenges and informs the mind, rewards the effort and is of use and value to one's fellow historians and many others.

Moreover, although it is not easy, it is by no means impossible, provided that the chosen

subject is within one's capacity. The subject does not have to be a major one, but can be a particular station or wharf, a small section of line, an incident, an individual – there are numerous possibilities, with thousands of examples, most of them either inadequately recorded or 'as yet untouched by human hands'.

The biggest single difficulty is identifying and locating the sources, and this can largely be overcome in two ways, by reading our member Peter Kay's *A Guide to Railway Research*, which will give the basic source classes and much besides, and by using the Research Index, which will usually lead to a wide variety of specific sources. The source list for your subject can be assembled and a research plan made, almost without leaving home. For the Public Record Office, Kew, our Index will usually give only a brief idea of the extent of material held, and a visit will be needed to obtain details of specific holdings. However, for many research purposes such a visit will be necessary anyway.

Some examples of references from the Index are given below. If you have a mind to being a research historian, why not make a start by seeing what Graham Wild has to offer from the Index? His address is 141 Allestree Lane, Allestree, DERBY, DE22 2PG, and he will appreciate a SAE 9" x 6" for his reply.

(Harry Paar is a Past President of the Society and former Research Officer)

This list is intended only to illustrate the potential of our Index, hence details of locations are not given except in cases where they are remote from the subject concerned. In those cases a brief location is given, to show that the Index can often draw attention to unexpected places as well as more obvious ones.

Aire & Calder Nav.Docs.re proposed ship canal in W.Riding, with plan of the Calder by Smeaton,1757.

Croydon & Epsom R.Vol. of misc.printed items,1844 (In Bristol).

Grantham C.Plan of proposed canal, 1792.

Gravesend & Rochester R.Account of its conversion from a canal.

(In 'The Men who built Railways'by Conder,1868)

G.W.R.Legal papers re Worc.,Bromyard & Leom.R.,w.Acts,1861 etc.

G.W.R. List of collieries served,w.maps S.Wales & Mon.1924.(Manch'r.

James,Wm. Two letters from,1790 (in Stratford-upon-Avon).

Lancaster & Preston R.Sale cat.of bdgs.& land formerly used as station in Lancaster,1852.

Lark Nav. Vol. of orig.papers,plans,accs.etc.1636-1841.

Newcastle & Carlisle R.Records,133 vols.etc.1805-1934 (in P.R.O.)

Colln. of docs., reports,photographs,etc.

N E.R. Time-tables, photos, maps, etc., used by Tomlinson in preparing his history published in 1914. (In P.R.O.) Oxford C. Map and section by Wood, 1829-'30 (in Windsor Castle).

Portland R. Plans showing part of Merchant's R. 1818 & 1848.

Severn Tunnel (Railway). Art. on construction, Proc. S. Wales Inst. of Engineers, 1912.

Thetford & Watton R.Rules & Regs.1876 (in London Bor.of Newham)

N.B. The Index gives five locations for major collections of Newcastle & Carlisle R.material, to which may be added another (in London) from Ottley's Bibliography (No.5599). This again indicates the great ability of the Index to chart a research project.

The Rail Transport of Racehorses: An Early Example

BY PHILLIP L. SCOWCROFT

In the Doncaster Chronicle of 23 September 1842 it was noted that a horse belonging to Lord Eglinton was run at Doncaster on Monday (i.e. the first day of the St. Leger meeting the previous week), then transferred to Leicester by the North Midland Railway and Midland Counties Railway and won a race at Leicester on Wednesday. Flushed with success, the horse was afterwards transported back to Doncaster to run there on the Thursday.

Not even in the present day, one suspects, would an owner or trainer race horse three times in four days at different racecourses, although it would of course be easily possible. This would hardly have been so before the days of railways and certainly not if the courses were more than a few miles apart.

Reference to the racing page of the previous week's *Chronicle* suggests that the hardworked horse was Blue Bonnet, which won the St Leger, actually on Tuesday (13 September), not Monday, and was second in the Park Hill Stakes, run at Doncaster not on Thursday but on Friday 16 September (the last day of the meeting). If my identification is correct one marvels at Blue Bonnet's stamina and concentration, for its travels, even by rail, were hardly inconsiderable and these would also include transport in some form by road (or possibly road and water) between Doncaster Racecourse and Swinton, then the railhead for Doncaster (nearly ten miles), and between the railway station and the Racecourse in Leicester, in each case in both directions.

The effect of Land-drainage works upon navigation on the River Idle.

BY PAT JONES

Part 1, Vespasian and Vermuyden to Victoria.

A previous paper by this writer showed that there is reason to believe the man-made lower reaches of the river Idle probably originated soon after 71 AD, as part of the 9th Legion's supply route between Lincoln and York.¹ In mediaeval times Bawtry became an important and prosperous inland port; in 1607 the first attempt of the Pilgrim Fathers to emigrate from nearby Scrooby to the New World began with a voyage down the Idle, up the Trent, and down to Fossdyke and Witham to Boston. The purpose of this paper is to show how conflict between navigation and drainage interests resulted in the decline of Bawtry, and eventually, the effective loss of the right of public navigation.

The man-made section of the river, which extends inland for $4\frac{3}{4}$ miles from the river Trent at West Stockwith, was known as the Bycarrsdike, and it had become the main outlet for the waters of the Idle long before the arrival of Vermuyden. As part of his land reclamation scheme, the river Idle north of the confluence was blocked off and diverted into a new channel, and a great barrier bank was raised along the north side of the Bycarrsdike. Vermuyden and his financiers were known collectively as the Participants, and so the barrier bank became known as the Participants Bank.

The Participants Bank had successfully protected the land to its north, which by means of the Heckdike and other drains could sluice its surface water directly into the Trent, but the first wet season after the work was finished revealed an unwelcome side-effect. The river drains some 300 square miles, and prior to the construction of the barrier bank, when both the Idle and the Trent were swollen by heavy rain, the Trent's tide flowing up the Bycarrsdike backed up the waters of the Idle, causing its banks to overflow and inundating the low-lying land to its north.

Land to the south of the river was somewhat higher. Preventing the river from flooding the land to its north caused its level to rise higher than previously, and inundate the land to its south. The owners of that land, who included the Earl of Kingston and the Archbishop of York, complained bitterly, and sought redress from the King. In order to resolve the matter a Court of Sewers for the Counties of Nottinghamshire, Lincolnshire, and Yorkshire was set up in 1629 by Royal Warrant.

Commissioners of Sewers were usually local landowners, enabled by the terms of their appointment to collectively exercise virtually unlimited authority within their sphere of responsibility. At their first session on 14 August they agreed that 'the ditches etc., cannot carry away conveniently all the water, unless some sluices in one or more frames be placed on the River called Bickersdike ...' Whereupon they issued a decree requiring John Liens, for the Participants, to erect a sluice just over half a mile upstream from West Stockwith, where an earthwork named Repentance Bank leads from the river towards Misterton. He was authorised to 'cut timber therefore on the common' and the structure which was built to keep out the Trent's tides became generally known as Misterton Sasse.

According to the early 18th century *CYCLOPAEDIA, an Universal Dictionary of Arts and Sciences*, the term sasse denotes 'a kind of weir with flood-gates commonly used in navigable rivers for the damming, and loosing the stream of water, as occasion requires, for the better passing of boats to, and from'. According to the Oxford English Dictionary the term was adopted from the Dutch 'sas' (of obscure origin) and simply means 'lock'. The examples of usage given suggest the term was brought to England by Vermuyden, and that 'soss' was a variant having similar (but not necessarily identical) meaning.

Annotation on a map of 1633 gives the dimensions of 'The Sasse at Stockwith' as being '60 foot long and 18 wyde'.² Clearly it was a pound lock, and presumably its length was only slightly greater than that of the craft which were using the river at that time. A 1639 map represented the 'Esase' as being a single-frame structure bridging the channel, apparently containing a guillotine gate, but the purpose of the map was to show how the Participants one third share of the reclaimed land was divided, not details of navigation works. Interestingly, the land south of the river which was the subject of complaint, is now shown divided among the Participants. Many early pound locks had guillotine gates which, like flash locks, but unlike mitre-gated locks, could readily release flood water. Unfortunately they had the great disadvantage of requiring sailing vessels to strike-down

their masts. Trade on the Idle increased considerably during the remainder of the 17th century, but the dimensional limitations imposed by Misterton Sasse restricted the size of vessels which could use the river. Their cargoes were usually trans-shipped to larger craft in the Trent at West Stockwith.

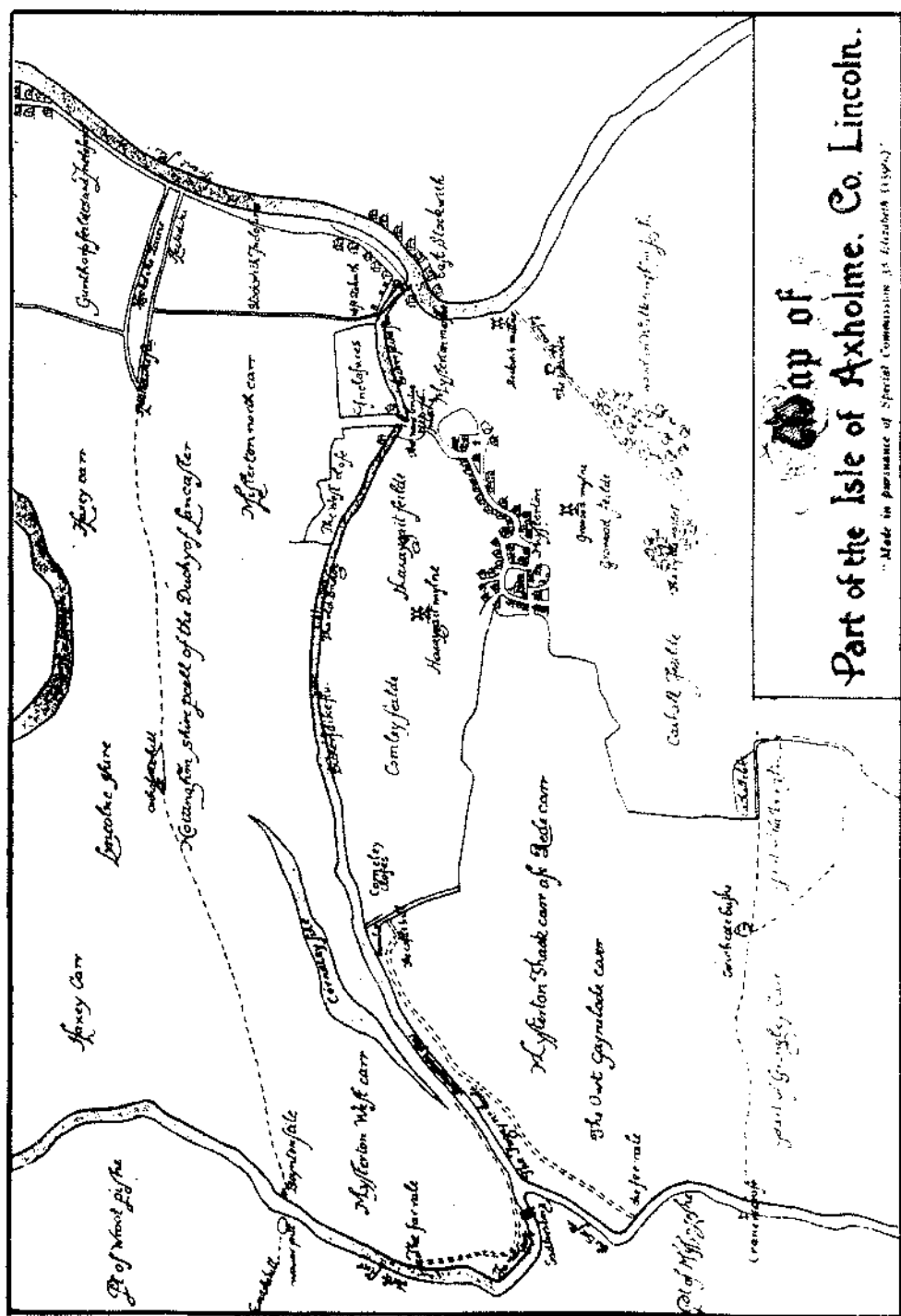
In February 1643 the native inhabitants of Axholme, taking advantage of the war between the forces of Charles I and Parliament, and ostensibly in support of the latter, banded together and destroyed the navigation and drainage works, thereby submerging the reclaimed land, now occupied by immigrants, whom they hated. The Court of Sewers meeting at Thorne on 18 May 1645 made an order for the necessary repairs:

Ordered and decreed at the Session of Sewers that the Sasse or Sluice at Misterton, which is totally pulled up by malicious people, be again re-edified, as also the sluices at Althorpe, upon the river Trent ... and that the banks from Stockwith to Owston Ferry, and from thence to Althorpe ... be all repaired ... by the respective owners.



The water which powered Bolham Mill was raised by a guillotine gate at the head of a brick built chamber, not unlike that of a pound lock but lacking provision for bottom gates, and said to have been about 14 feet wide. One side of the chamber and its floor were removed by the River Authority during the 1980's, and the river lowered and widened. One of the iron channels in which the gate was held also survives; the gate appears to have been at least 5 feet high. A typical undershot-wheel water-mill of the period required a head of 3 feet for satisfactory operation, but in order to provide a working reserve at times of low-water flow it was normal to raise the level by 2 or 3 feet more. A differential head of 5 to 6 feet appears to have been the maximum which could with reasonable safety be overcome by a flash-lock.

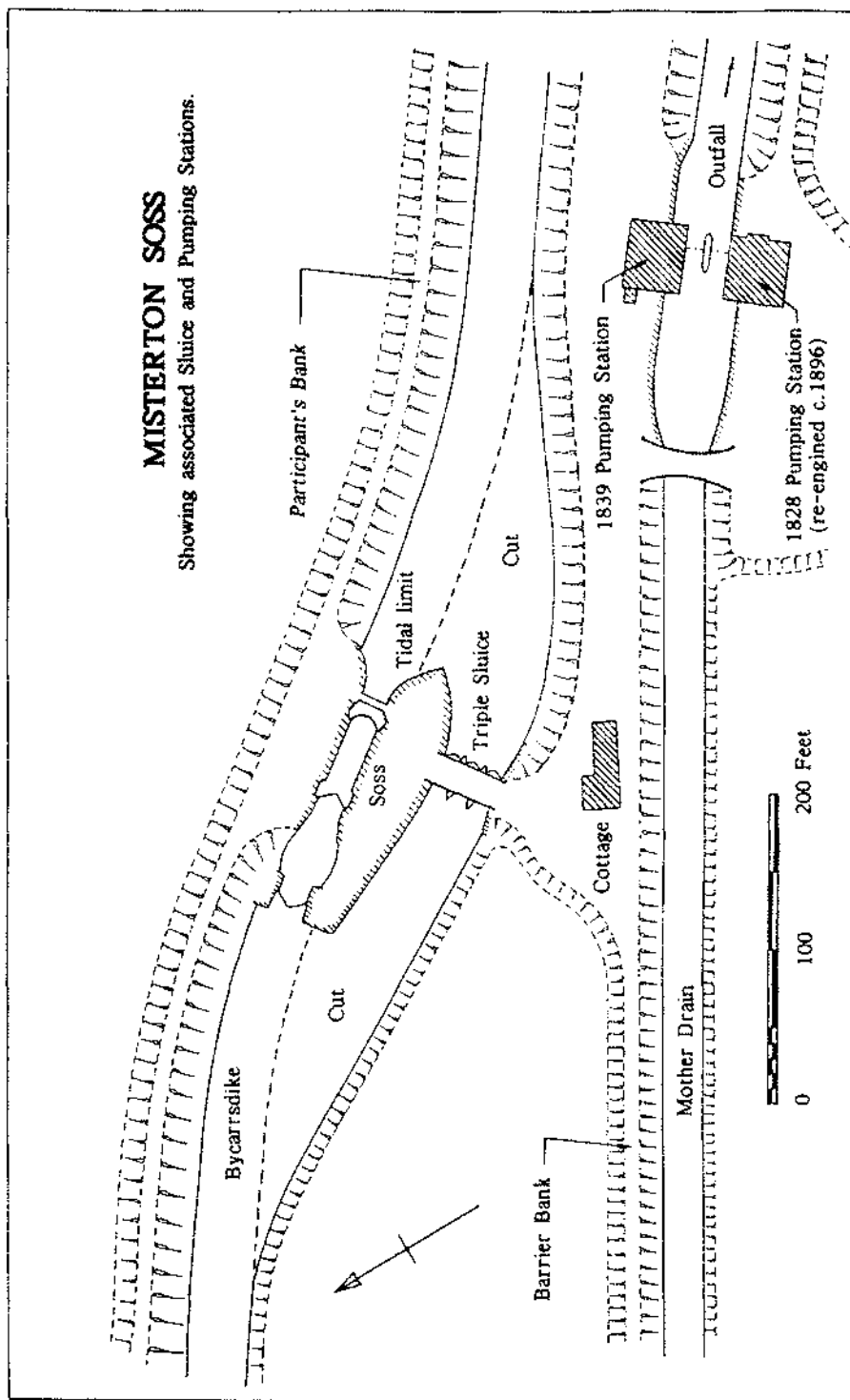
Misterton Sasse was in due course 're-edified', and despite the restriction it imposed, trade on the river continued to increase. The timber trade developed rapidly, to such an extent that in 1664 the wharf at Bawtry was said to be 'clogged' with it. The Idle was navigable for several miles farther upstream, and it seems likely that it was from these upper reaches that shipbuilding 'timber from Sherwood Forest was floated down the Idle



The map clearly shows that cutting the Bykersdike reversed the flow of the North Idle., by 1596 both it and the South Idle had become tributaries of the Bykerside.

MISTERTON SOSS

Showing associated Sluice and Pumping Stations.



Sketch based on Hadfield & Skempton 1979, figure 9.

and sent from Stockwith by Hoy to Woolwich or Deptford' in the years 1655-70. In 1672 the population of Bawtry was just over 220 in 55 households; by 1697 it was 'a prosperous river port and market town' with 13 brewers and 6 maltsters. In 1720 it had 14 inn and alehouse keepers, and a description of Bawtry and its river trade, at what was destined to be its peak, appeared in the second volume of Daniel Defoe's *Tour through England and Wales*, which was published in 1725:

There is a little market town at the very first entrance into the West Riding of Yorkshire call'd Bawtry, a town bless'd with two great conveniences which assist to its support, and make it a very well frequented place.

1. That it stands upon the great post highway, or road from London to Scotland; this makes it to be full of very good inns and houses of entertainment.

2. That the little but pleasant river Idle runs just by the side of it, which contrary to the import of its name, is a full and quick, though not rapid and unsafe stream, with a deep channel, which carries hoys, lighters, barges or flat-bottom'd vessels, out of its channel into the Trent, which comes within seven miles of it, to a place called Stockwith, where vessels of 200 tons burthen may come up to the town loaden as well as empty.

By this navigation, the town of Bawtry becomes the centre of all exportation of this part of the country, especially for heavy goods, which they bring down hither from all the adjacent counties, such as lead from the lead mines and smelting-houses in Derbyshire, wrought iron and edge-tools of all sorts from the forges of Sheffield and from the country call'd Hallamshire. Also millstones and grindstones in very great quantities are brought down and shipped off here, and so carr'd by sea to Hull, and to London, and even to Holland also. This makes Bawtry Wharf to be famous all over the south part of the West Riding of Yorkshire, for it is the place whither all their heavy goods are carried, to be embarked and shipped off.

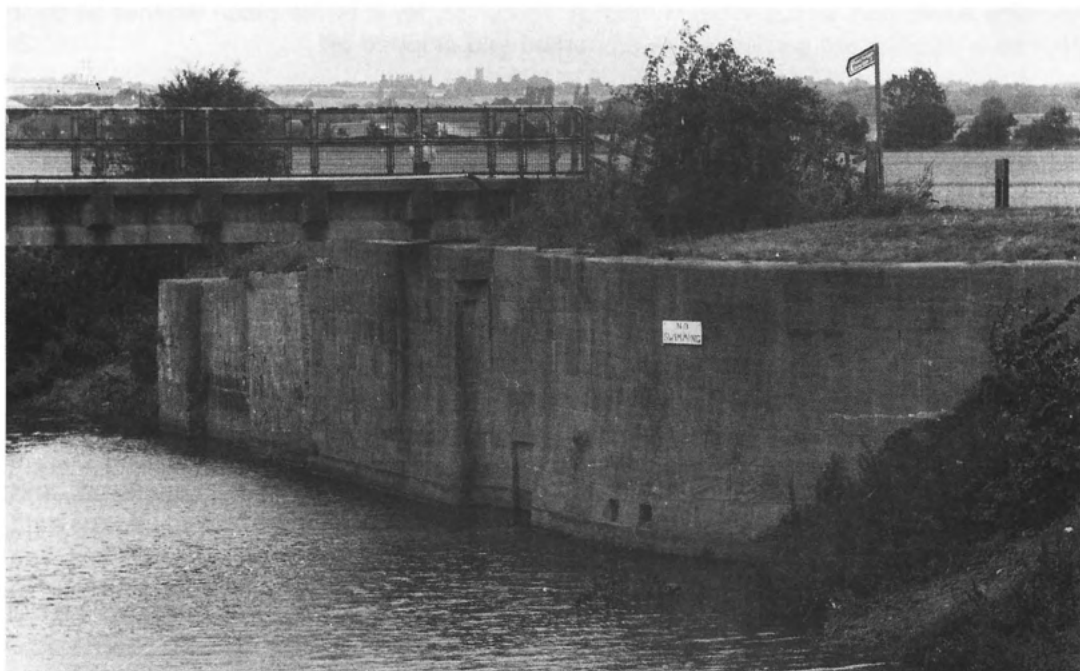
An attempt to make the river navigable to East Retford in the early 1720s known to have resulted in the construction of a flash-lock at Bolham Mill.³ In his description of the Trent and its tributaries Defoe refers to the Idle as a 'gentle navigable stream from Retford', and the records of the Court of Sewers imply that until some time prior to 14 April 1726 the river had indeed been navigable to East Retford. On that day the Court sat at Bawtry to consider:

Complaints by Edward Pickering, Wharfinger at East Retford, and John Hawksworth, Wharfinger at Bawtry, on behalf of themselves, and the Lead Merchants of London, York, Hull, Derbyshire, and other persons trading and transporting lead and other Goods and Merchandizes upon the rivers Idle and Bickersdike (being ancient and navigable rivers) by reason of several roots and trees, and Heaps of Stones being in ye said river Bykersdike, and also by the unnecessary keeping the Doors of the Stuices at Bickersdike soss shut, and thereby stopping the water from flowing out of the river of Trent up and into the said rivers of Bickersdike and Idle by the usual course of the tides as heretofore has been used, having of late been, and are now rendered unnavigable and unuseful to the very great loss and prejudice of the complainants, and to the great decay of trade ...

This Court, taking ye matter of the said complaint into serious consideration as being desirous with all its power to maintain and uphold navigation and trade in its



Misterton Soss. All that remains of The Triple Sluice; as a cart-width bridge however, it continues to give access to a footbridge crossing the river. (Suggesting perhaps, that craft moored in the soss chamber to unload goods and coal for the village, and later, the pumping station?)



Misterton Soss. All that remains of the chamber, viewed from downstream. The gate recess in the 1669 masonry (at the upstream end) lacks a hollow quoin; the gates are known to have hung on posts. The original footbridge cross the lock tail.

Luzture and Vigour, think it fit, and doth order that the Surveyor of this Court shall immediately on service of this Order well and sufficiently cleanse the said River of Bykersdike by taking thereout all Rootes of Trees, Stones, and other impediments therein anyways hindering navigation, this Court doth further order that the Sluice Keeper of Misterton Soss shall at all times convenient, and when there is no danger of flooding the country, set open the soss gates whereby the water may issue out of the Trent into the said Rivers, for the preservation and aid of navigation, as heretofore has been done.

Charles Hadfield in *The Canals of the East Midlands* states that '1724 was the year in which Bawtry's trade began to decline'. It would appear that some change in operating practice had taken effect around 1724, and the record of the Court of Sewers meeting at which the structure at Misterton was described as a 'soss' may provide a clue to what had happened. The original (1629-43) timber structure was a sasse, which is known to have been a pound lock, apparently with at least one guillotine gate; probably both gates were guillotines. Such a structure is capable of meeting either the requirements of navigation or drainage (but not always both at the same time) given good judgement and regular attention from its keeper. The river would normally be retained at a high level, a foot or two perhaps below the level made by most tides. Shipping could have been assisted upstream by raising both gates for those tides which rose higher, and lowering the gates at or soon after high water. When flooding was anticipated the river would have been run-down to the lowest possible level; both gates would have only been raised when the tidal river was lower. No illustration of the second structure (1645-1669) appears to have survived, but it is known to have been of timber construction, and in 1669 was said to be 'very ruinous'. Construction of its replacement, which had a masonry chamber on a timber floor, commenced that same year, and it is known to have been operational by February 1673.⁷⁵ The chamber's one remaining wall, together with written but later descriptions, enable an informed guess to be made as to how its gates were arranged. It almost certainly featured Trentward pointing mitred gates at the downstream end of the chamber, with a pair of mitred gates pointing upstream at the upstream end, boarded to the height required for navigation.

The date when the sasse at Misterton was rearranged as a soss is not recorded, but 1724 appears to fit the known facts. A soss seems to have been a navigable sluice; since this one lacked any means of retaining the river above it at a level suitable for navigation, the work must have been intended to benefit land-drainage interests. Smeaton described it in 1764 as a 'sluice furnished with two pair of doors, both pointing towards the Trent.'⁷⁶ Since it is known that the gates were hung on posts, and could be held open against the flow of the incoming tide, it seems likely that winches, not balance beams, were used to open them. The navigable depth would have been solely a function of the river's volume of flow; given a good flow the depth over the cills was 4 ft or more, but in drought conditions it would fall to the height of the cills, some 12-16 ins above low-water mark in the Trent. Inward bound traffic arriving with the tide would have to wait for the Idle's level to make up; in moderate-flow conditions delays would have been experienced, in low-flow conditions navigation probably ceased.

The difficulties experienced by the Idle's boatmen and traders resulted in opposition to proposals to improve the river Don being withdrawn, and the first of a series of Acts by which it was improved received the Royal Assent on 14 May 1726. Furthermore, the well-intentioned instructions by the Commissioners of Sewers to the sluice-keeper at Misterton had consequences they had not anticipated. Vermuyden, it will be

remembered, had excluded the waters of the North Idle and its tributary the Torne from the Bycarrsdike. The fluvial stream of the South Idle alone was unable to augment the weak ebb tide sufficiently to scour away the silt or warp carried in by the much stronger flood tide, and two years later the Court had to reverse its previous instructions:

Court of Sewers at Thorne, September 12th 1728:

Whereas by reason of setting open the Soss gates, the river called Bycarrsdike is much warped up to the prejudice of the Participants [and other] land owners adjoining. Now this Court doth order that in time to come the said gates shall only be sett open for the necessary passing and repassing of boats and keels, and at other times be kept shut

In 1767 it was said that business at Bawtry wharf had 'been gradually declining for a number of years', nevertheless, during that year the river carried 4,415 tons of goods, over a quarter of which was lead. With the completion of the Chesterfield Canal in 1777 almost all Bawtry's former trade was diverted away from the Idle.

A series of works intended to further improve the drainage of lands to the south of the Bycarrsdike (originally proposed by Smeaton in 1764) commenced in the late 1780's, and eventually resulted in both drainage and the river's navigability being greatly improved. A barrier bank was built along the south side of the Bycarrsdike, and the land drains and streams which had previously run into the river were intercepted by a new Mother Drain, some 5½ miles long, which discharged into the tidal river through a sluice immediately downstream of Misterton Soss. In 1796 the Mother Drain was extended 3 miles farther upstream, widened, deepened, its outfall sluice enlarged, and the barrier bank was raised. At the same time construction of the Triple Sluice, a three-arched masonry bridge across a new cut on the south side of the Soss, was begun. A pair of hooded gates pointing Trentwards between the piers on the downstream side of each 10 ft wide opening served to sluice away the Idle's excess water and keep out the Trent's tides.

The construction of upstream-pointing lock gates, (boarded to retain a depth of 4 ft 6 ins over the cills, in abutments 25 ft upstream from the chamber), and a new cottage for the sluice-keeper, commenced in 1799. The whole scheme was complete by May 1803.⁶ In high-flow conditions the river level could be run down at low tide by means of draw-doors between the cut-water piers on the upstream side of each arch of the triple sluice.

A modest resurgence of trade appears to have ensued; Holland quotes an 1804 book (based, presumably, on earlier research) which failed to mention river trade in connection with Bawtry. A book published in 1813 commented 'the trade at present carried on [the Idle] is inconsiderable to what it formerly was; for since the Chesterfield Canal was cut ... the trade and market has gradually declined'. At some uncertain time (but probably in 1824), the downstream half of the soss chamber was rebuilt, with curved gates and a masonry invert. It is known that while the soss was being repaired that year, navigation was permitted through the triple sluice;⁷ its dimensions suggest that most of the craft trading on the river Idle at that time were narrowboats from the Chesterfield Canal. In 1831 it was recorded that Bawtry supplied London, Hull, and other places with corn, oak timber, and stone, and received coal and groceries, carried on 'craft of from twelve to twenty-four tons burden'. In 1832 Christopher Embley's packet-boat went from Bawtry to Gainsborough every Monday morning, returning on Wednesday. By the end of the decade coal was being imported in increasing quantities for domestic use, for Bawtry Gas Works, (which was built beside the river in 1834), and for Misterton Pumping Stations.

Following a particularly bad flood in 1810, the Mother Drain had been extended to the Trent in 1816, thereby completely separating upland water from lowland drainage, but better drainage of the Carrs had caused the underlying peat to shrink, lowering surface levels, (between 1800 and 1828 Misterton Carr sank by 18 ins). In 1828 a steam pumping station, powered by a 40 hp Speedwell beam engine erected at Misterton by the Butterley Company, became the first to be built for land drainage outside the Fens. It raised the water in the Mother Drain by several feet, over a plank stanch, and was able to keep the outfall sluice gates open even when the Trent was in flood, but eventually proved to be insufficiently powerful. It was augmented by a second pumping station of increased capacity in 1839.

The Great Northern Railway's 'Loop Line' from Gainsborough, through Retford and Bawtry to Doncaster, opened on 4 September 1849. By that time Bawtry's prosperity virtually depended upon its coaching trade, which the railway quickly captured, together with the river's coal trade, bringing the coaching era and the town's prosperity to an end. By 1864 only one boatowner remained in Bawtry, but he earned his living mainly as a farmer.

Part 2:

The twentieth century

During the years 1856-58 the course of the river at Bawtry had been diverted away from the town wharf, to enable the timber railway viaduct to be reconstructed in brick. Part of the river's original course survived as a spur giving access to a new wharf, but by the turn of the century it was silted and disused. In both the 1904 and 1928 editions of Bradshaw's Guide de Salis described the river above Misson as un-navigable, with 'very little trade done' on the remainder. The River Idle Commissioners were still in being; in 1904 their clerk was J.D. Dimock of Messrs Mee & Co., Solicitors of Retford. In 1928 he had been succeeded by C. Barnby Smith of the same firm. The Hatfield Chase Company had also survived, with an office at Epworth in the charge of their 'Expenditor' (Treasurer); in 1904 the sluice-keeper was R. Threadgold and in 1928 J. Holmes. The sluice-keeper was also responsible for the pumping station, and paying the wages of the company's other local employees. Commercial traffic ceased c. 1930, but during the following decade use of the Humber's tributaries by pleasure craft increased greatly, although the extent to which the river Idle was cruised is not known.

The Land Drainage Act of 1930 (Ch. 44, RA. 1 August) repealed six previous land drainage acts, and nine old acts by which the activities of Commissioners of Sewers had been regulated (two of which dated from the reign of Henry VIII). It provided for the establishment of a Drainage Board for each of the country's 'Catchment areas constituted by or under the Act'. And where 'the main river or any part thereof is at the commencement of this Act vested in another drainage authority it shall by virtue of this Act, vest in the Catchment Board'. Under Section 61 of the Act however, nothing may be done to affect injuriously the undertakings of navigation authorities. A draft Order by the Minister of Agriculture and Fisheries, which would have revoked the provisions of the River Idle Navigation Act under Section 41 of the 1930 Act, was approved in 1938 by East Retford Borough Council.⁸ Also in 1938, in anticipation perhaps, the River Trent Catchment Board built the Trent/Idle Sluice with a single guillotine gate beside the road at West Stockwith. But in the event the revocation order was not confirmed.⁹ At that time

a great deal of petrol and petroleum products were carried by tanker barge on the river Trent; Britain was also engaged in re-armament. It is known that plans were drawn-up to supply a nearby RAF station with fuel from a tanker terminal at Misson, (which, in the event was not built).¹⁰ It seems likely, therefore, that defence considerations resulted in objections to the draft order.

The 1839 pumping station was powered by a beam-engine built by Booth and Company of Sheffield, which had proved to be capable of dealing with all but the worst conditions without the assistance of the earlier station, the machinery of which was, by the 1890's, in need of replacement. The 1828 station was completely re-equipped circa 1896 by Messrs Gwynne of Hammersmith. The arrival of the new boiler is still remembered in the village; it was drawn to the site behind a team of twenty-four horses, and finally positioned with the aid of a traction engine. The new plant was found to be capable of dealing with all conditions without assistance; the 1839 station was maintained for a time in reserve, but by 1941 it had not been used for many years.

Better drainage had continued to lower surface levels, and by 1941 the drains could no longer keep Misterton and Gringley Carrs dry. As a wartime means of increasing agricultural production, Misterton's 1828 station was superseded under a scheme by which part of the Mother Drain's flow was reversed, and pumped into the river by a diesel-engined station built on the lowest part of Gringley Carr.¹¹ Some short-term benefit resulted, but as was to be expected, the new station was quite unable to cope with high flow conditions, and during the floods of winter 1947 the c. 1896 machinery had to be brought back into service. Nevertheless, both Misterton's stations were subsequently gutted, and their gaunt shells simply abandoned.

The Trent River Board became the drainage authority in accordance with the provisions of the River Boards Act 1948. Some dredging was done; in Ripon Motor Boat Club's 1938/39 Yearbook the river had been described as navigable for 8 miles with 3 ft draught. In the 1953 Yearbook it was said to be 'in course of being dredged by the River Board, and is believed to have a depth of some 6 ft as far as Bawtry'. By the late 1950's the dredging had reached the Mattersey area, (and is thought to have been responsible for the collapse of the medieval three-arched bridge in a winter flood).¹² In 1960 the River Board had six employees at West Stockwith; during this period the river continued to be normally retained some 8 ft above OD by Misterton Soss. In the 1962 edition of *Inland Waterways of Great Britain* Teddy Edwards described the river as navigable to Bawtry for craft with a draught up to 2 ft 6 ins, and for 8 miles further by smaller craft.

Misterton Soss keeper's cottage had been sold in 1955; in 1963 the sluice was abandoned, the south wall and part of the soss chamber's floor were demolished and removed.¹³ Thereafter it became the practice to run down the river to the level of low water in the Trent; craft visiting the Idle were required to enter when the falling tide made a level on both sides of the Trent/Idle sluice-gate. Very few craft could reach Bawtry, and there were reports of obstructions on the river bed. (The masonry invert still extends about 12 feet from the chamber wall). It is difficult to attribute sound operational reasons to the actions of the River Authority; it may well have been desirable to be able to run down the Idle below the level to which it was retained by Misterton Soss when high-flow conditions were anticipated. But there seems to be no reason why the Trent/Idle Sluice could not have been modified and operated at other times so as to retain a level suitable for navigation. With the benefit of hindsight it seems likely that the River Authority had decided to make the river effectively un-navigable, so that at some time in the future it

could seek statutory authority to extinguish the ancient public rights of free navigation on the grounds that 'such rights are seldom exercised'.

The treated effluent from several sewage works, together with surface water from numerous field drains, is discharged into the river Idle; the nitrate and phosphate load is probably quite high, so that one of the side-effects of so greatly lowering the Idle's surface level had been rampant weed growth. Such few pleasure craft as ventured onto the river usually did so early in the season, while a moderately high volume of flow still maintained a reasonable depth of water, and before the channel was choked by the weed's summer growth. Floating weed was prevented from entering the Trent by means of weed-booms at Newington and Haxey Gate, which had to be moved before craft could pass.

The Water Resources Act of 1963 reconstituted River Boards as River Authorities, and during 1970 it became known that the Trent River Authority intended to seek the authority of Parliament to rid itself of the responsibility for navigation on the Idle, by means of a clause in a General Powers Bill. Opposition to the proposed abandonment was led by the Inland Waterways Association and Retford & Worksop Boat Club, with the support of Nottinghamshire County Council, East Retford District Council, Doncaster Rural District Council, and Nigel Spearing, MP. The strength of opposition was such that the Trent River Authority realised it was unlikely to get abandonment through Parliament, and so the draft clause did not extinguish the right of navigation, but sought instead to empower the TRA to construct such unspecified drainage works, and carry out such unspecified operations, as they may think necessary to prevent or minimise the risk of flooding 'notwithstanding that such works or operations may interfere with or obstruct the right of navigation'. It emerged that the TRA proposed to construct two fixed weed-screens between West Stockwith and Bawtry which would span the whole of the channel. In addition they proposed to build a pumping station at West Stockwith, beneath which the river would flow into the Trent in culverts, through which boats would be unable to pass. Implementation of the TRA's plans would have made it impossible for craft to proceed from one end of the river's navigable length to the other, or to gain access to it, effectively extinguishing the right of navigation without Parliament's authority so to do. The TRA's intentions were considered to be unacceptable, and were modified during the course of the negotiations with the IWA which followed. It was agreed that the proposed fixed weed-screens would not extend across the whole navigable width of the river, thereby permitting navigation on the river to continue. But since it was thought at that time that a pumping station at the mouth of the Idle would necessarily prevent the passage of craft to and from the Trent, it was agreed that the TRA would build a slipway for the use of craft which could be trailed, and in due course a slipway was built near Haxey Gate Bridge.

The Trent River Authority (General Powers) Act of 1971 empowered the TRA to construct sluice-gates and a pumping station near the mouth of the river, and to place weed-screens in the river downstream of Bawtry Bridge. But the Act's preamble made it clear that in exercising that power the Authority may do no more than 'cause some interference with or obstruction to the public right of navigation'.

In the event the TRA did not proceed with its plan for a pumping station at West Stockwith; on 2 December 1971 the Department of the Environment published a circular detailing Government proposals to replace the existing River Authorities with 'all purpose' Water Authorities. They were to inherit responsibility for navigation on all inland waterways, which 'are of growing value for recreation and amenity, a function which the

Government wishes to encourage'. And they were to 'be placed under an obligation when constructing major works to develop amenities and assist the provision of facilities ...'

In 1972 the Retford & Worksop Boat Club organised two 'cruises in company' on the Idle; in April, while there was still a good flow of 'fresh' in the river about 10 boats were able to reach Bawtry, where they stayed the night. In October 15 boats cruised to Misson before getting stuck on the shallows; most were stranded until the river made up on the next tide. At that time the Trent/Idle Sluice was still raised on each falling tide to water level, and closed at low tide. When boats were to be admitted the gate was raised sufficiently to allow passage, and then lowered to water level until it was closed again at low tide. Even in low-flow conditions it was not the practice to leave the gate closed while boats were on the river, hence the problems experienced on the October cruise. The R&WBC Spring Cruise became an annual event; in April 1975 19 boats took part, all but one of which reached Bawtry, while one shallow draught cruiser actually reached Mattersey.

The Water Act came into effect on 1 April 1974, and soon afterwards the Severn-Trent Water Authority began to consider the design of the proposed pumping station in detail. Since the R&WBC had regularly organised cruises on the Idle since 1972, that Club represented boating interests on behalf of the IWA. The original design had featured culverts through which boats would not be able to pass. It was now realised that a more energy-efficient solution would be to have a sluice-gate deal with the flow for upwards of 95% of the time, and to only pump under extreme flood conditions. The agreed solution was a second sluice-gate and a pumping station sited near Misterton Soss, and the retention of through navigation.

In 1981 the STWA built a pumping station, and a second sluice with a guillotine gate, three hundred yards upstream from the Trent/Idle Sluice, thereby recreating a greatly elongated version of the 17th century sasse. The undersides of both gates, when fully raised, are at the same height as the underside of Haxey Gate Bridge, and their sills are at the level of the riverbed. Therefore neither sluice imposed new restrictions on the draught or air-draught of craft which can use the river. The pumps or their associated gate operate automatically under the control of sensors to retain a surface level 6 feet above Ordnance Datum. Further dredging was undertaken, providing a minimum depth of 5 feet from Bawtry downstream. As a result weed growth was significantly reduced, and the Idle's potential for recreational navigation was restored.

In his 1986 cruising guide *Northeast Waterways*, Derek Bowskill wrote:

Local boat enthusiasts believe there is a serious possibility that they will be denied the navigation of the Idle in the future if they do not take steps to safeguard their rights. However, I spoke with employees of the Severn-Trent Water Authority at three different levels in the hierarchy and all of them went out of their way to assure me there was not, nor ever had been, any threat to the pleasure and leisure users of the Idle Navigation. Two of the men most closely concerned with the sluicing operations at West Stockwith, Mr Woodcock and Mr Walker, explained to me why it is not possible for boats to use the Idle without advance notification. 'We want to make sure the pumps are turned off at the appropriate times, otherwise in all probability boats would be swamped; we also want to make sure the gates are opened the correct amount, otherwise boats will not be able to get through'.

Few craft did, in fact, visit the river during the 1980's, apart from members of the R&WBC

on the occasion of their annual cruise to Bawtry, but among those which did so were Bernard Jessop's narrowboat *Bucaneer*, and a boat trailed by Pat Saunders from Guildford, both of which cruised on the river in 1987. Bernard Jessop had made enquiries in July of the STWA at Gainsborough regarding access to the river Idle, and was informed there was usually no problem, but 24 hours notice had to be given so that the weed could be cleared and the weed barriers moved at Haxey Gate. Unfortunately the inner sluice gate was being repainted at that time, and it could not be used until towards the end of September when the scaffolding would be removed. Arrangements were duly made, and on Friday 25 September *Bucaneer* entered the river from the Trent at 10.45am, but because of repairs the Trent/Idle sluice gate could not be raised on the flood tide level, and *Bucaneer* eventually passed into the non-tidal river on the ebb level at 1.40pm. *Bucaneer* cruised to Bawtry Bridge and remained on the river for a week, returning to West Stockwith by prior arrangement at 6pm on Friday 2 October. The inner sluice gate was already open; at 6.15pm the Trent/Idle sluice gate was raised on the ebb level, and at 6.30pm *Bucaneer* entered West Stockwith lock." Pat Saunders launched his boat down the slipway at Haxey Gate, and was able to cruise for some miles beyond Bawtry.

The Water Act of 1989 reconstituted the drainage authority yet again, and with the change of name came a change of policy. Early in 1990, the writer (as editor of Ripon Motor Boat Club's *Cruising Guide to the North East Waterways*) telephoned the National Rivers Authority's Nottingham based Recreation Officer for information, and was told that there is now no public right of navigation on the Idle, members of the R&WBC are allowed to cruise up the river once each year before the start of the coarse fishing season, the river was too narrow to permit both cruising and fishing, and that this arrangement had been made with the approval of the IWA (which is not the case). The Honorary Secretary of the R&WBC was unaware that an NRA official believed that only his club could cruise on the river. The practice of cruising on the river early in the season came about as a result of inadequate depth of water and excessive weed growth experienced later in the year. It is unlikely that owners of craft based some distance away could visit the Idle other than during their annual summer cruise; the river is no less wide than the nearby Chesterfield Canal, which is both regularly cruised and extensively fished.

The writer considered it was reasonable for the NRA to require intending visitors to make arrangements in advance, and not unreasonable to prefer such visits to be in organised parties. The R&WBC enjoys a well-deserved reputation for hospitality to visiting members of other clubs, who are welcome, by prior arrangement, to join their annual cruise. But it seemed unreasonable to the writer that they alone should have this facility, and in a letter to Mr Woodcock—the NRA's Senior Engineer Operations—the writer hoped it could be extended to other recognised boat clubs and organisations. In his reply dated 23 March 1990 he agreed to this suggestion.

On 23 July 1991 the writer received a letter from the NRA's Recreation Officer, setting out terms and conditions under which service was offered 'to boaters wishing to pass from the river Trent to the river Idle or vice-versa'. The single-passage fee for a single boat was to be £50 on weekdays, £75 on Saturdays, and £100 on Sundays. For each additional boat the additional charge would be £10 on weekdays, £15 on Saturdays, and £20 on Sundays.

Following the publication of the writer's article 'Soss on the Idle' *Waterways World*, August and September 1991, and a great deal of correspondence between interested

parties, on 29 November 1991 a meeting was held at the NRA's Nottingham offices. Present at that meeting were three NRA officers, and representatives from the IWA, the R&WBC, and the Trent Boating Association. A brief history of navigation on the river Idle, and the river improvement scheme was outlined by the NRA's Area Recreation and Conservation Officer, who was reported as saying: 'The main problem to navigators on the river prior to the scheme was insufficient water. The scheme had deepened the river, enabling navigation to take place, but there were still problems with low flows in recent dry summers'. No mention was made of the unnecessary (and probably unlawful) destruction of Misterton Soss by the NRA's predecessors, which had created that problem. It was also stated (incorrectly) that 'no single boat passages had taken place'.

Serious concern over the level of charges was expressed, as a result of which the following single-passage multi-boat fees were eventually agreed. Up to 10 boats on weekdays £50, on Saturdays £70, and on Sundays £90. Up to 20 boats £60 on weekdays, £85 on Saturdays, and £110 on Sundays. It is to be hoped boat owners will consider cruising in company on this pleasant little river affordable; it seems unlikely that the owners of craft cruising singly will.

If there is a lesson to be learned from the foregoing, it is, perhaps, this: Misterton Soss, and the navigation and drainage works to which it was central, evolved under the guidance of the great engineers Vermuyden, Smeaton, Jessop, and Rennie, with contributions from Grundy, Chapman, and others less well known. Together, the works served navigation and drainage interests well. The 1941 scheme re-combined upland and lowland drainage water, ignoring the lessons of history, and in so doing eventually failed, very expensively. Present-day engineers should never forget that it is easier to destroy the works of their predecessors, than to replace them with something better.

Acknowledgements:

The writer is grateful to Dr Michael Lewis and Professor A.W. Skempton for their encouragement, and assistance with information generously provide and also John Baylis and Bernard Jessop of the IWA, R.H. Wood of Misterton Soss Cottage, and R.R. South of Everton Internal Drainage Board, for their recollections of the recent past, and A.M. Rowland of the Law Commission for confirming that the river Idle Navigation Act of 1719 has not been repealed.

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11. Personal communication, R.R. South, engineer to Everton Internal Drainage Board.
12. Personal communication, John Baylis, Chairman, Inland Waterways Association (IWA) Navigation, Technical, and Amenity Committee.
13. Personal communication, R.H. Wood, occupier of Misterton Soss Cottage.
14. Personal communication, Bernard Jessop, IWA West Riding Branch.

Appendices:

1. An extract from *An Historical Account of the Navigable Rivers, Canals, and Railways of Great Britain*, by J. Priestley, 1831.

IDLE RIVER.

6 George 1. Cap. 30, Royal Assent 7th April 1720.

That part of the Idle River which we have to notice, and for rendering which navigable, an Act was passed as above, entitled, An Act for making the River Idle navigable from East Retford, in the County of Nottingham, to Bawtry Wharf, in the County of York, commences in the River Trent at West Stockwith, at a very short distance from the junction of the Chesterfield Canal with that river, and, pursuing a westerly direction for about ten miles, reaches the wharf in Bawtry by a circuitous course. There is nothing in this navigation worthy of much remark, save the sluice and locks at Misterton, half a mile from the Trent, which were constructed for the purpose of keeping the water of the Trent, in time of floods, out of the low lands through which the Idle passes. As an easy communication between the towns of East Retford and Bawtry, it may be considered an useful undertaking.

Note: notwithstanding the title of the Act, its text makes it clear that the jurisdiction of the 'Bailiffs and Aldermen of East Retford' extended from East Retford to Shire-Dike (Idle Stop). Priestley was in error when he implied the river was still navigable to East Retford in 1831.

2. Cutting from unnamed newspaper dated 16 January 1829 in records of Everton Internal Drainage Board.

The steam engine erected at Misterton Soss, in the county of Nottingham, commenced working on Wednesday the 7th inst. at 10 o'clock, in the presence of the commissioners

of the drainage, proprietors, and several hundreds of spectators.

The engine, which contains the power of 40 horses, with a water wheel of 27 feet in diameter, has been erected at the expense of the proprietors whose lands it will benefit, by the Butterly Company, for the purpose of more effectually draining and improving the carrs, containing upwards of 6000 acres of land, in the parishes of Everton, Gringley on the Hill, Misterton, and Walkeringham, upon which for the last three years, in consequence of imperfect drainage, most serious losses by floods have been sustained, and which in future the said engine is calculated to prevent, by throwing the water in great floods (and when the water in the Trent is above the level of the water in the carr drains) into a drain communicating with the river Trent, so as to form a complete and certain drainage for the said carrs at all times.

After the engine had worked for one hour, it was ascertained that the main drain running from the carrs had lowered 8 inches, and that the drain into which the water was thrown measuring from the stop-gates of the engine to the sluice doors adjoining the Trent (which were kept closed) about three quarters of a mile in length, and about 13 feet in breadth, had risen two feet.

The commissioners and proprietors present, after intimating their entire satisfaction with the engine, buildings, &c, and with the capability of the engine to perform the work for which it was intended, presented the workmen (about 60 in number) with a sum of money for regaling themselves, and expressed their thanks to Alfred Smith, Esq., the engineer employed on the occasion, and also the contractors of the work, for the manner in which it had been executed. Afterwards a respectable party, including the commissioners and several proprietors, sat down to a dinner at the Stag Inn, Gringley on the Hill, where after the cloth was drawn, "Success to the Speedwell steam-engine, and may she prove the means of a complete drainage to the carrs in all seasons" and other appropriate toasts were drunk. The bells rang merrily at intervals during the day, and mirth and good humour prevailed until a reasonable hour in the evening, when the company separated, highly delighted with the scene they had witnessed.

The interest which has been excited by the above work is more than ordinary, it being the first of such a nature erected in that part of the country; and it is contemplated that the spirited example which has been set by the proprietors of the above carrs, will be followed by other proprietors whose lands are similarly affected, as this mode of drainage is calculated to insure a safe and effectual means of keeping the land dry in wet seasons.

We understand that Lord Althorp has given directions to Mr Smith to erect a steam-engine at Wiseton, for the purpose of draining his lordship's meadows and low land there, and which is to be ready for work in the coming spring.

3. Extract from untitled article written in 1903, from records of Everton IDB.

On our way from the village of West Stockwith to that of Misterton, we pass a building in which lies the key of the whole prosperity of the drained lands. Were this building to be locked up and left alone even a short time the district would be back in its old swampy state, practically useless for the service of man in any form whatever. But the building we refer to is that erected by the Everton Drainage Commission, and there are engines within it that accomplish work for which residents over a wide reaching neighbourhood ought to be and no doubt are very grateful indeed.

It was as long ago as the year 1828—exactly three quarters of a century since—that a house was erected for the draining of the carrs, and one of the old type of beam engines was put in to do the work. Beam engines are good enough for a certain amount of work, but it was soon found that the one engine of the type available at that time of day was not powerful enough to do what was needed. Eleven years later, therefore, a second house was built, a similar engine being put down. This answered much better and no further change was necessary till about ten or eleven years ago when it was found requisite to put down a new pump at the first house, connecting it with the old engine. About three or four years later, however, it was found that new boilers were wanted and the Resident Engineer, (Mr R. Threadgold) advised the Commissioners to go in for a new plant in this house in order to save coal, connecting in with the new pump. The result was the handsome engine now to be seen working in the first house; the old beam engine in the other building now being seldom called into use, indeed we believe it was only called upon once or twice during the whole of last year, once being chiefly to “warm” the machinery, its work covering a period of 40 hours, though of course it is as ready as ever to work if called upon and constitutes a powerful reserve factor for the drainage, in which the residents of the district can have every confidence.

The new engine in the first house is one of the smoothest in running that we have ever seen at work, and it is very evident that Mr Threadgold is in love with it. The plant is by Messrs Gwynne, of Hammersmith, and has given every satisfaction right from the start. Not only does it do its work well, however, but there is a great gain in economy, from 11/2cwts to 2cwt of coal being saved every hour that the engine is in motion. Not only that—though burning about one hundredweight an hour instead of three is a big advantage – but the new engine lifts more water with every stroke of the pump, raising a volume equal to 130 tons per minute at the time of our visit. This, however is not her full capacity, as at the trial she raised 143½ tons per minute. The work is accomplished, as we have said, very smoothly, and standing close to the engine one feels no vibration at all. Mr Threadgold, who has been the resident engineer for thirty years, says it is the finest little engine he ever saw in his life, and does her work the cheapest.

Across the way in the other house, the rusted giant wheel of the old beam engine takes us at once into recollection of other days, but there is nothing pathetic about the venerable structure, for it is as ready for labour as could be wished, and it is a long way off superannuation. It is one of Booth and Co.’s (Sheffield) engines. It is interesting to note that the great iron wheel does not now touch the water—not at least when the water is running low—this being because the constant drainage operated upon the carrs from this point has had the inevitable effect of lowering the land, with the consequence that the water also, of course, runs considerably lower to-day than at the time the Commission started its career. The whole system of drainage is one that evokes admiration, and is decidedly well carried out.

4. Extracts from c. Iviii Trent River Authority (General Powers) Act 1971.

And whereas the stretch of the river Idle between Bawtry and the confluence of that river with the river Trent is subject to tidal influence and there are public rights of navigation but such rights are seldom exercised.

And whereas the said stretch has been designated as one of the main rivers for which the Authority as the drainage authority for the Trent area are responsible and in exercise of their powers as such authority, the Authority have constructed and will

in future construct works and take other measures for preventing or minimising the flooding of the adjacent land and it is expedient that the Authority should be authorised as in this Act provided to exercise those powers notwithstanding that they cause some interference with or obstruction to the public right of navigation:

10.— (1) In the exercise of their functions as the drainage authority of the river Idle as a main river the Authority shall have power, and shall be deemed always to have had power, in or on the banks of the river Idle—

- (a) to construct at or near the outfall of that river into the river, sluice gates and a pumping station to regulate or augment the flow of water from the river Idle into the river; and
- (b) to place screens and other apparatus in the section of the river Idle which lies between the downstream face of Bawtry Bridge and the confluence of that river with the river for the purpose of removing weeds and other similar obstructions to the flow of the water in the river Idle.

notwithstanding that the works so constructed or the apparatus so placed interfere with or obstruct rights of navigation.

5. Description of Gringley Carr pumping stations, from information kindly provided by Mr R.R. South, C. Eng., engineer to Everton Internal Drainage Board.

Before 1941 Gringley Carr was served by a steam pumping station at Misterton Soss which pumped directly into the River Trent. In 1941 a diesel driven pumping station was constructed to improve the drainage of the Carrs by lifting water from the lowest land into the river Idle. This pumping station originally contained two Ruston-Hornsby diesel engines driving Gwynnes 40 inch centrifugal pumps, each capable of discharging 115 tons of water per minute into the river. At a later stage two Lancashire Dynamo/Hawthorne Davey axial-flow pumps were also installed within the building; these electric pumps are driven by 37.5 bhp electric motors, have discharge pipes of 18 in diameter, and are each capable of discharging 27 tons of water per minute into the river.

The Severn-Trent Water Authority built their pumping station at West Stockwith to pump water from the river Idle into the Trent, when the Trent was too high for the river Idle to discharge by gravity. Before it was constructed the S-TWA restricted the discharge into the river Idle, because of its tide-lock situation with the Trent; once it was commissioned additional discharge into the river from the land was allowed. In 1979/80 the Everton IDB constructed a new electrically driven pumping station beside the old diesel station, containing two Allen Gwynnes 700mm diameter (28") pumps each driven by a 100 kw motor, and having an output of 62.75 tons per minute. The pumps were initially fixed 1.05m lower than the pumps in the adjoining diesel station, and can be lowered a further 0.6m (a total of approximately 5½ feet). They are automatically controlled and discharge water through the Barrier Bank by means of two paddle operated siphon-breaking valves.

The present day [1996] situation is that the new electric pumps are used for the majority of the time and the diesel pumps are only brought into use when exceptional conditions occur. Before 1941 the Carrs were mainly bog and flooded land; Gringley Carr Pumping Station lowered the water levels beyond anything Misterton Soss Pumping Station could achieve, the later electric pumping station further increased the drainage depth, so that it is now top class agricultural land.

From the RCHS Photographic Collection No.8



Print JGS287

This print is of an unidentified station possibly on the Southern Region. There appears to be a conductor rail beside the track in the foreground, but this does not run beyond the bridge to the junctions. The train in the background is piloted by 4-4-0 with an Atlantic behind. If you can identify the location or provide information about the view, please contact Stephen Duffell, Hillcroft, Ford, Shrewsbury, SY5 9LZ, or telephone 01743 851154 (weekends), or 01625 514828 (office hours).



(Reproduced on page 593 of July 1998 Journal)

PRINT RAC68/27A

The station architecture is North Eastern, and in this area of Yorkshire there was only one single track North Eastern route, that from Castleford to Garforth, to the east of Leeds. The station is identified as Kippax, one of two intermediate stations on this line. Thanks to Gordon Biddle and John Edgington for assistance in identification.

Notes on the Original Route of the Stockton and Darlington Railway

BY STEPHEN BRAGG

In writing up some notes on the Stockton and Darlington Railway, I discovered that there was some confusion over where the line actually started. I also found that the figures quoted for heights, lengths and gradients of Etherley and Brusselton Inclines were not consistent.

In the following notes the exact starting and ending points of the line are discussed, and estimates made of the lengths and inclinations of the Etherley and Brusselton Inclines.

Tomlinson¹ states that on 27 September 1825 the main line of the S&DR was ready for opening from Phoenix Pit, Old Etherley Colliery, to Cottage Row, Stockton. In trying to pinpoint exactly the extremities of the line one is hampered by the fact that the first edition of the large scale OS maps did not appear until 1857: by this time the track from West Auckland over the Etherley inclines had already been removed.

An earlier map, dated 1850, of the Great Northern Coal Fields by J W T Bell² shows Old Etherley Colliery a little to the north of the east-west road through Low Etherley, and Witton Park Colliery a little further north of that. Both are shown to the east of the railway, which is drawn in a rather approximate way, with large radius curves.

A better, larger-scale map (2¹/₂ in/mile) of the Durham Coal Field 1852, also by Bell³ shows an unnamed colliery just to the east of S&DR, now accurately positioned, at about NZ167293 in modern coordinates. The first edition OS 6in/mile map shows an air shaft at almost exactly the same position, and describes the area as Phoenix Row. These facts suggest that this was indeed the site of Phoenix Pit. Furthermore, in his account of the opening day, Tomlinson talks about waggons being led by from Phoenix Pit to the foot of Etherley Incline. It is estimated (see below) that this distance was about 6 chains, which seems reasonable.

Tomlinson⁴ mentions that the S&DR also served Witton Park Colliery, though on the previous page he asserts that the rails had not been laid thereto at the time of the opening of the main line. The 1st ed OS map shows Witton Park Old Colliery, William Pit, at map ref NZ166298. This is exactly at the end of the railway as shown on Bell's 1852 map. It appears from both maps that the line must have run to this point along the east side of the road running north from Phoenix Row. The colliery was on its west side.

The Durham County Archivist has kindly supplied the author with a photocopy of the relevant part of the deposited plan, drawn by George Overton and David Davies for the Stockton & Darlington Rly, on which its Act of 1821 was based⁵. A more direct route, but with the same western end point, is shown on the plan by George Stephenson, which was deposited in 1822 in preparation for the 1823 Act. On both plans the line is shown on the west side of the road running north from Phoenix Row, and then terminating one field north of Escomb Lane, the next field being the one containing part of Witton Park Colliery. So it is probable that the last few yards of railway were to be built on land owned by the colliery: either the road or the railway must have been realigned to bring the line to the other side of the road.

A farm track extends northward on the level, beyond the site of William Pit, to what might have been the remains of another spoil tip at NZ166304, after which the land falls

towards the River Wear. If the rails ever ran this far it would mean that the level section extended just under $\frac{3}{4}$ mile from the foot of Etherley Incline. This is rather less than the distance suggested by Holmes', who mentions "horse haulage for the first mile to Etherley Bank", but as will be shown later, Holmes' figures are not always reliable.

As far as the other end of the line is concerned, the OS is of little help. However, a town plan of Stockton, engraved by W Murphy and dated 1826, was included in John Wood's Town Atlas of Northumberland and Durham, which has recently been reprinted⁸. This shows Cottage Row on the left hand side of line (looking from Darlington) about 9ch beyond St John's Crossing (where passengers were booked): there are two coal staiths about 2ch beyond the Row, at map reference NZ447186. Holmes, incidentally, stated that the S&DR coal drops were opposite the Row, which tallies.

The Wood/Murphy plans shows that the line extended along the quayside a further $\frac{1}{4}$ mile, past Custom House Quay to Braithwait and Wilkinson wharves, ending at about map ref NZ447191. Only 2ch of this section was included in the NER official list of lines, the remainder being presumably classed as dockyard sidings. This gives the following table of distances:

From Whitton Park Colliery, William Pit To Etherley Old Colliery, Phoenix Pit	26 ch
To West Auckland level crossing (as measured from large scale OS maps)	+2m 0ch
To site of later Shildon Jn via Brusselton Inclines	+3m 35ch
To site of later Bowesfield Jn, via Middleton	+18m 65ch

(S&DR mp 23-17 from M'boro dockside to S&DR mp 4-36); later NER mileposting gives distance quoted)

To just beyond coal staiths	+53ch
Quayside lines	+20ch

This makes a total of 24m 73ch from Phoenix Pit to the staiths and a grand total of 25m 39ch. The former figure may be compared with the 25 miles quoted by Tomlinson. In the next section the elevations of the Etherley and Brusselton Inclines are looked at in detail.

Examination of the first edition OS 6in/mile maps suggests the following table of cumulative distances, in miles and chains:

Whitton Park Colliery, William Pit	zero
Etherley Old Colliery, Phoenix Pit	0-26
Etherley Engine House	1-02
West Auckland level crossing	2-26
Brusselton Engine	4-32
Shildon Jn	5-61

Tomlinson gives the height of the Etherley summit as 583 $\frac{1}{2}$ ft above low water on the Tees – presumably a little less above msl. On modern OS maps it is just within the 165m (574 ft) contour. One might take the rail level at the summit as 577ft. The altitude of Phoenix Row and the land to the north is just above the 145m (476ft) contour, say at 477ft. On p109 Tomlinson gives the length of the north incline as 1100yd and the gradient as 1 in 33. This is consistent with a rise of 100 ft from 477 to 577ft. The figures are also consistent with the intermediate contours, which required a substantial embankment in the initial stages of the incline and a cutting beyond the bridge under the Low Etherley road. Holmes stated that the rise was 176ft in 1110yd, which must be wrong.

Tomlinson gives no figure for the length of the south incline, but from the contours on modern OS maps it would appear to be about 1m 20ch – Holmes gives 2185yd. The spot height of the road at West Auckland level crossing is 109m (358ft), so one might take the foot of the incline as 360 ft. Tomlinson quotes the gradient as being 1 in 303/4 which, for a fall of 217ft would require a length of 2220yd or 1m 21ch. The lie of the land required embankments at each end of the incline and a cutting in the middle section. Holmes states that the fall was 312 ft which cannot be reconciled with the OS contours.

Tomlinson states that the peak at Brusselton was 513ft above low water mark on the Tees. The latest OS large scale maps show the areas as being above the 150m (493ft) contour, but below 155m (509ft). Allowing for some levelling at the top, it seems reasonable to take the rail height as 500ft. Tomlinson states that the length of the haulage rope on the west include was 1850yd (1m 4ch), but the contours on recent OS maps suggest that the incline was not more than about 1m 2ch long. The land flattens out in the Gaunless Valley at about 100m (329ft), but the trackbed may have been a little higher than this. The 1 c at West Auckland was about 1 mile away, at an altitude of 358ft, and a continuous gradient of 1 in 200 would only have produced a fall of 26ft. So it seems reasonable to take the height of the foot of the Brusselton west include as 338ft. Tomlinson quotes a gradient of 1 in 331/2 and this is consistent with a rise to 500-338=162ft in 1804yd (1m 2ch). Once again, the figures quoted by Holmes – 150ft rise in 1960yd – seem inaccurate. As on the Etherley south include, the intermediate contours require embankments at each end and a cutting in the central section.

The first ed OS map show the line fanning into sidings at about 35ch down from the summit on the eastern side and this must be the foot of the incline. Tomlinson states that the rope was 825yd (371/2ch) long, but this could have included a residual length left on the drum when the set of waggons had reached the foot. The altitude of the incline foot is not clear from the OS contours. The NER Gradient Handbook, though notoriously inconsistent and unreliable, suggests a decent at 1 in 145 from the incline foot about 430ft. This is a bit higher than would be suggested by the BM of 407ft at Masons' Arms Crossing, only 35ch away. So a likely altitude for the foot is 425ft. Tomlinson quotes a gradient of 1 in 30 1/2, which would correspond to a fall of 500-425=75ft in 35ch. This seems to follow the profile of the land quite closely. Holmes quotes a fall of 90ft in 880yd, which again seems not to be reliable.

Summarising, the following figures seem the most likely:

Etherley North Incline; from 477to 577 ft in 50ch (1 in 33)

Etherley South Incline; from 577 to 360ft in 101ch (1 in 30 3/4)

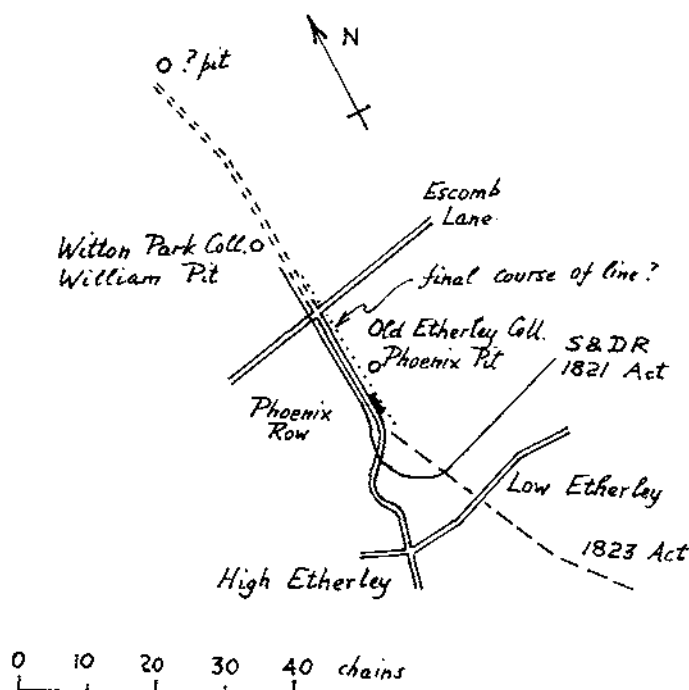
Brussleton West Incline; from 338 to 500 ft in 82ch (1 in 33 1/2)

Brussleton East Incline; from 500 to 425 ft in 35ch (1 in 30 1/2)

References

1. W. W. Tomlinson The North Eastern Railway Longmans 1914. p. 109
2. Access code: maps 36. 85. 1, in Cambridge University Library
3. Cambridge University Library access code: maps 36. 84. 3 sheet 5
4. Ibid p. 117
5. Durham County Record Office, ref Q/D/P 7

6. Durham County Record Office, ref Q/D/P 8
7. P.J. Holmes Stockton and Darlington Railway, 1825-1975. First Avenue Publishing Co. (1975) p.139, 140
8. John Wood Town Atlas of Northumberland and Durham, 1820-1830. Reprinted Smith Print Group, Gateshead, 1991



Western End of Stockton & Darlington Railway

The Development of Wagons used on the Peak Forest Railway 1796 to 1925.

BY BRIAN LAMB

The Peak Forest Railway was the 5 mile 65 chain (1,430 yard) railway extension to the Peak Forest Canal¹ that ran from Dukinfield to Bugsworth² in Derbyshire and as a railway from that place to Loads Knowle, later extended to Doveholes Dale.

The railway as laid down in 1796 was of 50½ inch gauge and ran from Bugsworth Canal Basin to Loads Knowle (gr:SK07.07777941). In January 1798 the railway was extended 396 yards to Hallsteads (gr:SK07.07847889) in order to obtain a better quality and a greater quantity of limestone³. The line was extended to further quarries along Doveholes Dale over the next twenty years.

The opening of the railway and upper canal from Loads Knowle to Marple Top, a distance of 11 miles 66 yards, was commemorated on Thursday 31 August 1796⁴, with the

despatch of six wagons of stone from the quarry to Bugsworth and thence by canal boat to Marple Top. Though the ceremonial first load of stone was on 31 August, the line would have been carrying wagons with plate rails, sleeper blocks and similar material for some months previous to this, possibly as early as February 1796.

The first and earliest mention of wagons for the railway was in October 1796, when it is 'directed to procure a sufficient Quantity of Waggons for conveying Limestone from the Quarries.' At the same meeting it was reported by Thomas Brown⁵, the manager of the canal and railway, that the cost of limestone per ton at Bugsworth was 20d, this cost included a 1½d for Oil and Repairs of Waggons. With the railway opened on 31 August and oiled and repair of wagons reported in October it would seem that some form of wagon with metal wheels on metal axles was in use prior to August. A year later in October 1799 Thomas Brown was allowed to use company wagons for carrying Coal from Bugsworth to the Lime Rocks⁶. It was also to be advertised that the ganging of stone from the Lime Rocks to Bugsworth in one, two or three divisions was to be let for twelve months. Wagons were obviously bringing stone to Bugsworth, but there was no mention of the wagons that were used to carry the stone.

The material being brought to Bugsworth was given, in March 1798, as Lime, Limestone, Lime Ashes, Refuse Stone and Paving Stone⁷ with Coal going up the quarries. By October 1800 records were being kept of the quantity of limestone passing down the railway every day and every week and the number of wagons employed, though no figures are given in the Company Proceedings.

In October 1800 the Committee decided that 200 extra wagons be ordered and Thomas Brown was to 'apply to several Iron Manufacturers to learn terms for making Iron Boxes for Waggons'. This is the first mention of 'iron boxes' being used and would indicate that the 2½ Ton quarry wagon was the standard wagon then in use. Benjamin Outram, is to supply the Cast-iron Wheels and Wrought-iron Axles for the Waggons and Thomas Brown to procure the woodwork for such Waggons'. To meet any contingency with the railway in future, a store room (gr:SK08.02498204) was ordered to be built in December 1800 to 'provide ready for use a quantity of Cast-iron Wheels, Wrought-iron Axles and all kinds of Implements and Materials used for the carriage of lime, limestone etc. etc'.⁸

It may be assumed that the original wagons in use had a wooden frame, with a straight through wrought-iron axle and cast-iron wheels with an 'iron box' carried on top of the wagon frame. The details of these wagons are not known and may only be assumed to be similar to the 2½ Ton quarry wagon(QT) at abandonment in 1925.

The 2½ Ton quarry wagon(QT) comprised a wooden frame 78¼ x 49 5/8" with three inner longitudinal supports. Across and below the frame were two 8" x 7¼" axle beams at 29¾" centres with, initially, wrought iron through axles. The axles were set into, and secured to, the base of the axle beams, with a ten-spoke, 19½ inch cast iron wheel secured at each end by washers and a 'lilly-pin'. There was no planking laid on top of the wagon frame but a metal box composed of four sheets of iron rivetted together with an end gate fastened to the open end comprised the body. The body was 72" x 46¾" x 16¾" high and was kept in place by two stout wooden wedges rammed into iron hoops between the wheel axles in the wagon frame. At each corner of the frame were four hoops to which were hooked the wagon chain to make up a 'gang' of wagons. These chains were also used to brake the wagons by 'skidding' the wheels⁹.

This is thought to be the form of the original quarry wagons(QT) used from 1796 to 1833,

and with only a modification to the axle assembly used up to 1925.

To allow the Committee members to make inspection trips along the railway, a quarry wagon was modified in the early years (1796 to 1817)¹⁰, by fitting a plank or planks across the box or body and secured. It was this wagon, so modified, that would have been used in May 1797, October and December 1817 for inspection trips that were recorded on these dates. With Thomas Brown¹¹, as manager of the canal and railway, 1794-1803, in charge of the design of wagons, as well as accompanying the Committee on their inspection trips, he would soon realise that something more comfortable was required. After 1811 he was a member of the Committee in his own right¹² and would hear, learn and experience the uncomfortable trips in a make-shift committee wagon. As an engineer he formed his own opinion of what was required and, by 1816 a purpose built Committee Wagon was ordered to be made.



Wagon "CW" Committee Wagon, post 1833 with springs. (The late Arthur Hulme Port Talbot) Dated 1906 location: Top o'th' Plane, Chapel-en-le-Frith. Looking towards the top of the incline, sited to the left of the hut at the upper left, with the Committee Wagon of the Peak Forest Canal Company, horse and driver, and showing the wheel springs as fitted after 1833 for smoother riding together with the Committee Wagon of the Peak Forest Canal Company, horse and driver, and showing the wheel springs as fitted after 1833 for smoother riding together with stub axles. This wagon was a rebuild of the original 1815 Committee Wagon of similar design but fitted with straight through wrought iron axles, which were the cause of so many complaints. The horse shafts can be detached to allow wagon to be turned for return trips.

Seating for six members of the Committee.

The initial purpose-built Committee Wagon was built on a standard 2 $\frac{1}{5}$ ton wagon frame with a high sided box structure firmly built up from the wagon frame. Two longitudinal

seats either side of the body with a footwell between and a door at either end provided the 'passenger comfort'. This enabled the wagon to be turned without being physically turned, one door, facing the horse being locked and the opposite door used for entry/exit. The Committee Wagon was be horse drawn with a driver, who would change the horse-shafts by uncoupling the shafts as required and either lead or drive the horse. It should be noted that the axle and wheel assembly were the same as fitted to the standard quarry wagon, with its associated rough riding.

In June 1833 the members of the Committee who made an inspection of the canal and railway comprised Thomas Ashton, Thomas Brown, Joshua Bruckshaw, Dr William Charles Henry MD, Gilbert and Joseph Winter, together with James Meadows jnr. the Principal Agent and John Wood the Company Engineer. It must have been both notable and trying, due to wheel and axle failures, as the Committee ordered that 'springs are to be put to the Waggon which the Committee use' no doubt after some members chose to walk rather than ride in the Committee Wagon.

The Committee Wagon was rebuilt after this and incorporated, after 1833, springs to each wheel with stub axles replacing the through axles. It is interesting to note that after 1833 the Committee make no further comments on their mode of transport.

In March 1833, James Meadows jnr, 'mentions that the Company's Waggons were getting worn out and that it would be necessary to have them gradually replaced'. John Wood was directed to prepare plan with any improvements than can be suggested. He duly put pencil to paper and drew up a 'New Waggon(HSL)¹⁹'. This wagon was to have stub-axles secured to axle beams below a shorter (70 inches) wagon frame with wheel centres at 36 inches, (previously 29 $\frac{3}{4}$ inches).

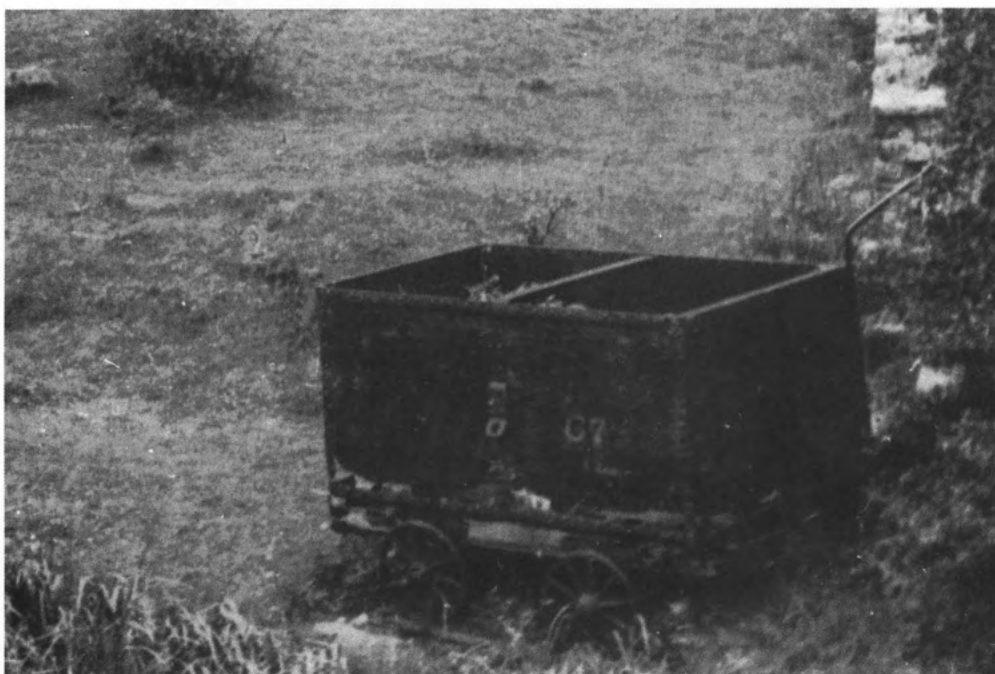
The body was bolted, with six side members secured by two bolts each, on each side, and two L form bolts that could be tightened to make the side members even more secure. The two outer side members were further supported by 14 inch bolts halfway up from the wagon frame. The wagon frame itself was modified with a 5" x 5" beam behind the dumb buffer beam with two 8" x $\frac{1}{2}$ " metal plates bolted between them. This was a stop plate to check the end swing gates at either end from swinging open and discharging the load whilst the wagon was in transit from the quarries. The dumb buffer now had only two, previously four, 4" metal bands wrapped round the beam with a 1" metal band at the extreme ends.

The body was planked inside and above the frame to make it weather proof with two support and strengthening bars or straps across the top of the body. The end gates were also now planked and secured at the corners with a modified link and pin locking system.

The height of the body was 31 inches as against 16 $\frac{3}{4}$ inches of the quarry wagon. The new wagons would have higher loadings with a smaller tare weight and the extended wheel centres would give a more balanced and smoother ride when loaded. A horse taking empty wagons back to the quarries would now be able to take more, and more easily on the up-hill haul.

From 1833 to closure in 1925, the Company (and the succeeding MSLR/GCR companies) would operate both the 'new' wagons(HSL) and the older quarry wagons(QT) in one gang. The older quarry wagons(QT) were gradually fitted with the new stub-axles when these wagons were brought in for repair or were scrapped and replaced. The company still stuck by its policy that when a wagon was scrapped, that wagon's number was reallocated to a new wagon (be it a quarry or new high sided wagon), or if none were

available, then allocating a new number in sequence to a new wagon. The company method of numbering wagons will be mentioned later.



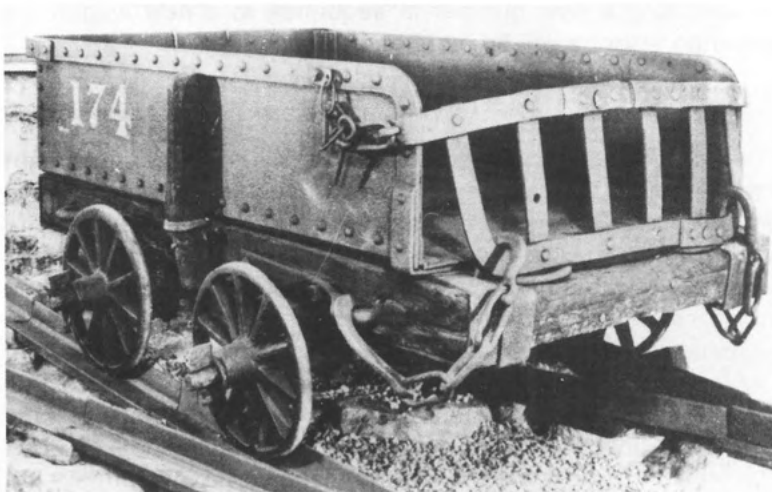
Wagon "HSW" High Sided Metal Coal Wagon

(Lamb-Murray collection)

Dated: c1950 Location: Stone Wharf by Chinley Road bridge. View of the High Sided Metal Coal Wagon as left "in situ" in 1928. This is the only "HSW" type wagon located and known and is only known in this location, no others have been identified in any other location between Bugsworth and Dove Holes. It is thought to have been a "one-off" due to the high wheel loading causing damage to track and sleeper stones.

One wagon that is not mentioned in the Proceedings, but which the company used, is the High Sided Metal Coal Wagon (HSW). Only one of these is definitely known to have existed; known because it languished by the Chinley Road bridge from 1927¹⁴ until it finally corroded and was vandalised in 1968, this wagon carried a low number, 6, 7 and was high sided with only one end door, locked with a bar or strap. This wagon was 72 inches long and 48 inches square at the end, the wagon frame was quarry wagon style with 29¹/₄ inch wheel centres and using the later stub axles. It was, in effect a heightened quarry wagon body but with a plate sheet front discharge door secured by a bar. It also had a single cross body strengthening bar or strap.

It is only shown on five of the photographs in the writers collection, but always in the same location by the Chinley Road bridge. The gross weight of this wagon would be about twice that of a quarry wagon ie. 6³/₄ tons with a tare weight of approximately 4¹/₂ tons. It is thought that it was not a success and only one was ever in use. The higher gross weight would, in time, cause the plate rails to jump and sleeper stones to crack, although no record of such failures by this wagon are reported and so it remains another unresolved mystery of how many were used.



Wagon "QT" Quarry Truck

(Ferodo Ltd. Chapel en le Frith)

Dated: 1930(?) Location: LNER Museum at York. A view of the basic 1796 to 1925 Quarry Truck that was in continuous use between these years, with only one major modification to the wheel axis. The straight through wrought iron axle as used from 1796 to 1833 when a split stub axle was gradually introduced as wagons were brought in for repair or scrapping and on any new wagons built after 1833. Wagon "174" was taken to York in September 1928 and placed on display there until redisplayed in the National Railway Museum at Leman Road, York in 1975. Note the low sides and end gate securing detail, the hook and chain serving both to attach wagons in a "gang" and to effect braking by "skidding" the rear wagons of a "Gang".



Wagon "HSL" High Sided Wooden Lime Wagon

(Lamb-Murray Collection)

Dated pre 1914 location: Junction of Chinley Road and Bugsworth New Road at crossing of the 1843 "Long Siding" leading to the Third Phase Kiln Bank.

Showing three quarter end view of a High Sided Wooden Lime Wagon of 1833 design. The sides are higher than the "QT" 1796 wagon, but now constructed of wood. Both ends are now open for unloading but with an improved link and pin locking arrangement. The end support bolts can be clearly seen half way up the two end wagon supports.

The number of wagons in the company inventory at abandonment is not recorded, nor is it recorded the number of wagons that were in use when the canal was leased to the SAMR/MSLR in 1846¹⁵. There would appear to be no logic applied to wagon numbering as quarry wagons(QT)/high sided lime wagons(HSL) follow on in numerical sequence in both the high and low number ranges. During 1928 and 1929 the majority of the wagons were scrapped, or burnt on site and the resultant metalwork sent for scrap. To the writer's knowledge only the following wagons survived, and only one of these in a complete condition. In 1929 only wagons 67 and 174 were in complete condition, the latter being sent to the LNER Museum at York¹⁶ and 67 left silently rusting by the Chinley Road bridge at Bugsworth. It was at this last location that it was seen by the writer in 1968, torn apart and without frame or wheels. An end swing gate of wagon number 86 was thrown into the basin at Bugsworth and lay there until rescued in 1977. What now remains are small artifacts that are listed as found and, in some cases, shortly after 'lost' or stolen. Shown on a photograph in the writers collection and taken at scrapping in September 1928, are 96 quarry wagons(QT) and 40 high sided lime (HSL) wagons. The following (numbered) wagons were in use and appear in photographs anytime between 1905 and 1928. they have been identified by wagon number and are listed below; all are quarry (QT) wagons except where stated – 1 to 4, 6(HSL), 9 to 16, 24 to 27, 29 to 32, 38, 40, 42 to 46, 48 to 52, 63, 64, 67(HSW), 86(HSL), 91, 95, 116, 127, 151, 174, 177, 198, 206 and 221, a total of 47 wagons identified by number out of 136. From the Marple Section Letter Book of 1903-1926, the following wagons are shown as working on the following dates – 9 March 1920. 24 and 45 with Rubble Stone, 18 May 1920. 29,32,42 and 52 with Blocking Stone, 23 April 1921. 1,2,14,16,46,48 and 52 with Blocking Stone, 3 May 1921. 4,9,12,13,26,27,31,44 and 49 with Blocking Stone, 4 May 1921. 10,15,25 and 29 with Blocking Stone, 1 June 1921. 3,11,25,30,32,43,44,48,50 and 51 with Blocking Stone. This accounts for 30 wagons during 1920 and 1921 working between the Crist Quarry and the Basin at this time, it is known that 'gangs' of stone were still being brought down from the quarries¹⁷; it must be admitted though, not in large quantities. A photograph taken at the Top o'th' Plane, Chapel-en-le-Frith in 1927 shows a high sided lime wagon (HSL) 142, another HSL wagon is shown at Bugsworth in 1928 number 6, other wagons at this time are 206 and 177.

Two main types appear to have been used since 1833, the 'QT' and the 'HSL', the former wood and metal bodied and the latter all-wood. Two other types were also used, but as a 'special use' wagon, the Committee Wagon from 1833, prior to this year an un-sprung wagon and after, a sprung version, the latter being a rebuild of the former. A singleton wagon, that is, only one having been identified was the High Sided Metal Coal Wagon (HSW), of which only photographic evidence remains and no documentary records.

To summarise the three wagons that were used in the stone traffic, details are listed below for comparison –

THE WAGONS COMPARED

	QUARRY WAGON (QT)	HIGHSIDED WAGON (HSW)	HIGH SIDED LIME (HSL)
Length	78 $\frac{1}{4}$ "	72"	70"
Width	49 $\frac{5}{8}$ "	48"	48"
Height	16 $\frac{3}{4}$ "	48"	31"
Wheel Centres	29 $\frac{1}{4}$ "	29 $\frac{1}{4}$ "	36"
Axles	Straight Thru'	Straight Thru'	Stub Axle
– later	Stub Axle	Stub Axle(?)	Stub Axle
Weight – Gross	4 Tons 8 cwt	6 Tons 12 cwt	6 Tons (?)
– Tare	2 Tons 4 cwt	6 Tons 12 cwt	4 Tons (?)

NOTE: It should be remembered that only the Quarry Wagon (QT) has been physically measured, in 1975 at the National Railway Museum at York, the other wagons have been scaled from photographs in the writers collection using known measurements around the wagon being scaled. The dimensions should therefore be treated as APPROXIMATE ONLY.

NOTES:

1. Act 34 George III cap 26 28th March 1794
2. The original Act had the canal terminating at Chapel Milton (gr:SK08.05508181) but terminated, in July 1795, at Bugsworth. This was due to the heavy lockage to reach Chapel Milton and the lack of water to supply the locks.
3. Limestone proved to be cheaper ie.19d as against 20d from Loads Knowle Quarry.
4. Derby Mercury, issue of 6th September 1796.
5. Thomas Brown was Outram's apprentice(?) and his Resident Engineer on the Peak Forest Canal, as well as being appointed Manager and Supervising Superintendent of the whole concern ie.in effect the Principal Agent (July 1794 to March 1805), and afterwards shareholder and consulting engineer.
6. Thomas Brown was also a coal master and lime master at Hyde, Disley and Bugsworth.
7. The Paving Stone came from Crist Quarry at Bugsworth (gr.SK08.02818212).
8. The storeroom continued upto abandonment in 1925 as a store and a workshop, together with the workshop at the Top o'th' Plane and Chapel Townend. This latter building is still in use today as a Corporation store, workshop and garage.
9. Braking, as we understand the term today, was unknown on the Peak Forest Railway. The "gangs" ran at a fast walking pace of up to 70 Tons rolling weight. Skidding of the rear wagons was the ONLY safe(?) method of slowing and stopping a "gang" once it was moving.
10. The company cleared its initial building and land purchase debts in March 1813. A

further 2/3 years would be required to build up a working capital before a Committee Wagon could be considered by the Committee.

11. see Note 5 and 6.
12. Eventually owning 63 shares by 1845.
13. This was the High Sided Wooden Lime Wagon (HSL).
14. The reason why it was left is not known, nor why it was never preserved.
15. The Peak Forest Canal Company was leased by the SAMR/MSLR to gain entry into Midland and LNWR territory.
16. Now on display in the National Railway Museum at York, but without its number "174".
17. The last recorded commercial load brought down from Dove Holes and boated out from Bugsworth was in September 1922 from S.Taylor Friths Quarries.

A Railwayman's Memorial

BY JANET CUTLER

When I retired from work, some three year or so ago, I was doing the inevitable clearing of the archaeological deposits that had accumulated in my filing cabinets over the years, and came across a file containing this memorial to George Thums. I have no idea when or how I acquired it, so if anyone reading this has any idea of its background, I would be interested to hear.

From the poem, I concluded that George, who died at the early age of 20 after a painful illness (consumption, perhaps) possibly came from Long Eaton to work at Sheffield, which was quite a long way to travel every day, even if he did go by train.

Apparently, when he was not working as a railway clerk, George played a musical instrument, though we are not told what it was, and sang in church. J. Passey, a signalman at Long Eaton Junction, had no doubt that he would continue his musical activities in heaven.

The poem tells quite a lot about George's tragically short life. It is a touching memorial to a dead friend and colleague. I only hope that the Amalgamated Society of Railway Servants benefited from Mr. Passey's efforts.

IN LOVING MEMORY OF
THE LATE
GEORGE THUMS;
OF LITTLE EATON,
Who fell asleep in Jesus, April 26th, 1887,
AGED TWENTY YEARS.
(Clerk on the Midland Railway, Sheffield.)

DEAR Friends, while sorrow fills your cup,
Allow a humble friend to drop
A line to you expressing grief,
If haply it may give relief.

Rejoice with those that do rejoice,
Was uttered by that heavenly voice,
And weep with those that weep,
Was His command we all should keep.

The village surely mourns your loss,
For you, it is a heavy cross;
And though we cannot move the grief,
We pray it may bring some relief.

Ye: if we fail we'll courage take;
We know of one who trod the lake,
And to the waves said peace be still,
And they obeyed His heavenly will.

And though earth's troubled billows roll,
And almost overwhelm your soul,
He'll help and guide you on your way,
Give strength according to your day.

Why that bright eye in death so soon
Should close, and lay within the tomb,
On earth 'tis not for us to know,
'Twas God that called he had to go.

And soon our time will come to die!
Yes, death will close our mortal eye;
But wake again, we surely shall
When Christ appears His own to call.

We then, if faithful all shall meet,
Who pardon sought at Jesu's feet,
And in His blood made free from sin,
In Heaven the Saviour's praises sing.

LITTLE EATON JUNCTION.

We hope to meet dear George again,
In Heaven above, to hear the strain
Of music sweet, and voices clear,
And gather round the Saviour dear.

He played on earth, why not in Heaven?
Where talents brighter there are given;
And sing again in hymns above,
In hallowed tune the Saviour's love.

Who washed us in His precious blood,
To bring lost sinners back to God;
We all ourselves for nought had sold,
And wandered from the Saviour's fold.

While here on earth 'twas His delight
To touch the ivory keys so white,
And from his instrument at will,
Sweet music brought with measured skill.

On earth no more for us he'll play;
I said before, in Heaven he may
Upon a harp of shining gold,
Play within the Saviour's fold.

When once upon the golden shore,
Fever and sickness come no more;
Nor tears to dim the aching eye,
Jeha'tants there will never die.

Now while we mourn dear George's loss,
Let us meekly bear the cross;
Never forget the endless gain,
Now he is free from racking pain.

These lines without consent I send,
And grief I feel while they are pen'd;
If anything amiss, I've done—
Please pardon one who loved your son.

J. PASSEY, SIGNALMAN.

Proceeds to be given to the Orphan Fund A. S. R. S.

PRICE ONE PENNY.

F. LITTLEWOOD & SON, PRINTERS, LITTLE EATON.

Correspondence

CHARLES HADFIELD

I am rather perturbed that no correction has appeared in the Journal (unless It will appear in the November Journal) regarding the obituary notices for Charles Hatfield in the March issue. His date of death in the March issue on pp 489, 490 and 491 should be 1996 and not 1986 in each case. JOHN H. BOYES

Apologies – editor

Deodands

In view of the interest being shown in the subject, I enclose another example of a deodand that I have come across.

At the inquest on Fanny Gosling, who had been killed by an express train on the down line at Abingdon Road Station (later renamed Culham) on the Oxford – Didcot line, when attempting to cross the railway behind the stopping train on the up line from which she had alighted, a deodand of one shilling was imposed, not on the whole engine, but on the buffer which struck her. The jury recommended that steps be taken to avoid similar accidents and the Coroner wrote to the Secretary of the GWR (C.A. Saunders) suggesting that a fence with a gate be erected at the end of the platform and that a man be stationed there whenever a train was in the station or expected on the line. Saunders undertook to see that it was done. ROBERT SEPHTON

Oxford Chronicle and Reading Gazette 20 November 1845.

BOOK REVIEWS

CHARLES HADFIELD, CANAL MAN & MORE, Joseph Boughey, 223pp, 61 photographs, 2 maps, boards, Sutton Publishing Limited (in association with The Inland Waterways Association), Phoenix Mill, Thrupp, Stroud, Gloucestershire GL5 2BU, 1998, ISBN 0-7509-1052-6, £20.

Charles Hadfield was a founder member and the first President of the R&CHS so this book will be of great interest to many members. It is really two books in one – the first, a carefully researched record of Charles's major contribution to canal history, whilst the second constitutes his autobiography.

In the first part we follow Charles's early involvement with canals that began when he lived alongside the Grand Western Canal where a chance meeting led him to being able to study its surviving records. His interest kindled, his first canal book – a joint venture with a colleague – was published in 1945, his wartime occupation and his separation from Alice Mary, whom he was later to marry, giving him time to undertake extensive research. He was a founder member of the IWA but was later expelled over a policy disagreement and devoted himself instead to laying the foundations of most of the canal history that exists today with the well-known "Canals of the British Isles" series and encouraging others to produce individual canal histories.

Charles later rejoined the IWA and helped form its Inland Shipping Group that advocated the modernisation of parts of the system to take larger commercial vessels. He served as a member of the British Waterways Board for three years and had a strong interest in

overseas waterways; one of his last books being about world canals.

The second edition, written by Charles himself, leads us through his early life in South Africa, his wartime work with the fire service, his career with the Central Office of Information, his venture into publishing through David & Charles and his life with Alice Mary. Between them, the two sections give a very personal and moving insight into the work and life of a remarkable man. ALAN FAULKNER

PORTRAIT OF THE ISLE OF WIGHT RAILWAYS, Handel Kardas, 112p, 240 x 175mm, 174 photographs, map, several different gradient profiles and plans, boards, Ian Allan Publishing, 1998, ISBN 0 7110 2574 6, £15.99.

The book presents a fairly detailed history in chapter 1 followed by chapters on the locomotives and rolling stock. The fourth chapter takes us along the various routes with details of tunnels, bridges and stations, with gradient profiles and station layouts. Great credit is given to the anonymous craftsmen – and that they certainly were – who maintained the outdated locomotives and coaches and kept them in good running order.

The reasons for the decline of the railway system and the retention of the Ryde – Shanklin section, using ancient (1924) London Underground trains which, by then, were the only available coaches that would fit within the island's restricted loading gauge, are explained in detail. Chapters 5 and 6 deal with the electric era and the preserved steam-operated section from Wotton to Smallbrook Junction and bring the story right up to date. The photos are excellent and the book is well produced and is a useful and up-to-date addition to the dozen or so books already published on the various aspects of the island's railways. JOHN MARSHALL

THE WYE VALLEY RAILWAY AND THE COLEFORD BRANCH, B.M. Handley and R. Dingwall, 160pp, illustrations, maps, drawings and tables, softback, 210 x 150mm, Oakwood Press, 1998. ISBN 0 85361 530 6, £10.95.

A first-class subject deserving a first-class history which this book does not supply, and the last page tells us why. The Acknowledgements must be the shortest on record – one name only. The Bibliography is almost as threadbare, without dates or publishers, 25 books, guides, pamphlets and essays. Only 12 titles are about railways and a mere 5 make more than marginal contributions. Ralph Waldo Trine's role is unclear. No company records or Inspector's reports appear.

The 171 illustrations are of good quality, well reproduced and, with the station descriptions, give a good picture of the railway. We are given a choice of three lengths for Tidenham tunnel and two for Black Morgan's viaduct. There are 7 pictures which are seriously mis-captioned.

Coming to basic history, we learn that plans to run on the west bank through Tintern were altered before the first Act (1866) so that the line ran east of the river, missing the village. In fact, this deviation was not planned until 1872. Far from being "in complete favour", the Duke of Beaufort was so incensed that his Tintern factories would be by-passed that he forced the WVR to agree to build a branch across the river, and insisted on this agreement appearing in the 1875 Act which authorised the new route.

William Hawes *et al* were not the first directors nor the original promoters. The formal

opening date is given as 28 October 1876 but both the Board minutes and the *Monmouthshire Beacon* give 19 Oct., the 28th being the date of the ILN reporting the event. Even the date of the public opening is worded ambiguously, "by Wednesday 1st November 1876" not being the same as "on Wednesday..."

The general map is inadequate, omitting the Wireworks and Coleford branches, Wyesham and other junctions, industrial sites and quarries which formed the terminus of the branch in recent years. The WVR did not enter Monmouth on its own track, the last mile having been built by another company 15 years before – an important fact successfully concealed until p.101. Two omissions are the authorised but unbuilt branch into Redbrook works and the new wharf at Chepstow which was built but proved a costly failure.

Many references to industrial history and associated locomotives are unreliable, e.g. paper making did not cease in Whitebrook in the early nineteenth century but went on into the 1880s. The Monmouth Tramroad appendix is misinformative. Tramroads did not exist in 1800 from the Forest of Dean to the River Severn because they were not built until some ten years later. It is very unlikely that at the Monmouth terminus "goods would be off-loaded and ferried across the River" when there was a good road bridge nearby. Finally, considering the potential of the WVR as part of a north-south route, a failure to read critically leaves the GWR able to use its own rails throughout "except for a short stretch of 10 miles between Hereford & Shrewsbury".

There is too much background, and the history lacks the authority and substance which original research could have provided. If readers try to take the book seriously, other than as a picture album, they may consider long passages on geography, Romans, Normans, Morgan the Pirate and 19 pages of Reminiscences some compensation for the lack of an index, source references or gradient profile. HARRY PAAR.

THE WEMYSS PRIVATE RAILWAY, A.W. Brochie, 272pp., 170 photographs, 7 diagrams, 2 timetables, 40 maps, boards, Oakwood Press, 1998, ISBN 0853615276, £22.95.

This book has an absolute wealth of maps, plans, photographs, to illustrate the history, social and industrial of this relatively minor coal line in Fife. The book is beautifully produced, and this and the amount of visual material is reflected in the price, which puts it out of the range of many local histories and will restrict its circulation. That said, this must be one of the most comprehensive histories ever of a colliery line. The wealth of maps and photographs illustrating the social history of coal mining and miners and their families make it particularly interesting.

All aspects of the line and its docks and mines are covered. In fact the history starts back in the 11thC, and covers many aspects of the history of the erstwhile Kingdom of Fife. The line was developed against the wishes of the North British Railway which had a monopoly in Fife. It eventually passed to the National Coal Board in 1947, closing in 1970. The history of the NBR 'main line' in the area, the Wemyss & Buckhaven Railway, is covered in a separate chapter. Particularly interesting is the coverage of the Wemyss Castle private station, particularly welcome are the photographs of the miners, and the 'Fifer's Prayer' at the start of the book. Oakwood are to be congratulated on publishing this most comprehensive history.

THE CIRENCESTER BRANCH, Nigel Bray, 128pp, 210 x 148mm, 69 photographs, 1 diagrams and maps, soft covers, The Oakwood Press, 1998. ISBN 0 85361 504 7, £8.95.

The GWR Cirencester branch began life as part of the Cheltenham & Great Western Union Railway and was opened in 1841. It was closed in the Beeching era, after being the subject of experiments with diesel railbuses in an attempt to provide a low cost passenger service.

The book described the struggle to build the line in the face of opposition from a local landowner, its days as a broad gauge line from Kemble Junction, and the arrival of competition in the shape of the Midland & South Western Junction Railway. Further chapters describe the line in the thirties, the war years and as part of the nationalised system. Details are given of the railbus operation, the gradual run-down leading to proposals for closure, and the arguments put forward to try to keep the line open, together with a route description. Appendices give details of a local railwayman of note, branch signalling, a visit by the royal train and some traffic figures.

The author is not a railway historian, and members might find some of his observations a little odd, but he has taken advice from specialists where necessary. The result is a good, readable, branch line history, with a local flavour and a selection of illustrations up to this publisher's usual standard. MICHAEL HALE.

AN INTRODUCTION TO PRESTON ITS HISTORY, RAILWAYS AND SIGNALLING, Richard Foster, 36pp, 296mm x 210mm, 28 photographs, 16 diagrams, softback, The London & North Western Railway Society, available from 15 Park Rd, Loughborough, Leicestershire LE11 2ED, 1998, ISBN 0 9515490 6 5, £5.95 post free.

Preston's Railways approached the town in pleasant geographical complexity – a number of small companies became components of two large ones: several lines were jointly owned. The title of the book states its aims: they are largely met.

The first chapter is a history of the town and its railway, good, but at times intense and with some error. "Preston continues to be an important and profitable port" – it closed in 1981. The second chapter covers the history and geography of Preston Station – the rest of the book – three chapters and nearly three quarters of the text – is about signalling, in general and then in detail about the London & North Western and Lancashire & Yorkshire Railways "from around 1880 to 1972" – almost all has changed since then.

We are taken round the signal boxes, told their function, have the various sidings, loops, widenings revealed. All is fully and well explained. The photographs are informative, the captions excellent, the diagrams full and clear.

The general history is a useful adjunct but, if that is all you require, there are fuller sources of it. The book is for those who want to know about signalling. Some knowledge of technical terms is required to follow it all. IAN MOSS.

BUILDING CASTLES OF THE AIR, *Schipol Amsterdam and the development of airport infrastructure in Europe, 1916-1996*, Mark Dierikx and Bram Bouwens, 342pp, 106 photographs, 14 maps, 28 tables, boards, Sdu Publishers, The Hague, Netherlands, 1997, ISDB 90 12 08559 4, available in English at Dfl 69.90 (inc VAT) from the publishers at PO Box 30446, 2500 GK The Hague, Netherlands.

This is the type of scholarly history that every major airport should enjoy. Civil aviation history has always focused on aircraft and airlines but rarely the airports. But this is not just simple airport history. The authors explore Schipol's story from when it was just local history, albeit with an international interface, until it became a major international business whose growth often seemed to threaten its own neighbourhood. At the same time, the authors skillfully encompass the growth of major airports in neighbouring countries as well as placing Schipol's history in the context of the extraordinary growth of air transport.

The authors have used wide sources. Military archives reveal that Schipol was never really planned but was the result of need in 1915 for a better site for a defence aerodrome near Amsterdam, although the War Minister's idea of a military aerodrome was a large field near a farm so that aircraft could be housed in farm buildings!

When civil aviation was admitted after the war, the authorities attempted to limit the number of movements in order to protect the limited ground organisation. This was vetoed by the Minister for Waterways and the City of Amsterdam was also very keen to see the airport develop and was prepared to assist financially.

The authors clearly understand international airline history, in particular that of Holland's national airline, KLM, which began operational life in 1920 with aircraft chartered from the Air Transport & Travel of London. JOHN KING

FERRY SERVICES OF THE LONDON, BRIGHTON & SOUTH COAST RAILWAY, S. Jordan, 112 pp, 96 photographs, 20 maps, 7 timetables, soft covers, Oakwood, 1998, ISBN 0 853615217, £8.95.

This book has an impressive wealth of visual material – not just photographs, but timetables, maps and especially contemporary publicity posters and cartoons. The cartoons deal a great deal with seasickness, and the publicity made a great deal of the attractions of England and France, all fascinating social comment.

The LB&SC ran a great variety of ferry services ranging from the prestigious cross-channel services to the joint services with the L&SWR to the Isle of Wight. The wealth of material presented is impressive, and the illustrations bring the whole subject to life, including as they do scenes of ports, passengers, and early engravings.

The maps are a particularly useful archive, and, all in all, the author and publisher are to be congratulated on enlivening this subject with this well produced book. WARWICK BURTON

BRITAIN'S RAILWAYS FROM THE AIR THEN & NOW, Aerofilms, 256pp, 250 b/w photographs, 4B maps, boards, Ian Allan, 1998, ISBN 0 7110 2595 9, £34.99.

This volume contains a selection of high-quality aerial photographs from Aerofilms in the

popular 'then-and-now' format. It comprises 125 pairs of pictures accompanied by brief text (for which no author is credited) and some also with an interpretive sketch map. The material is presented alphabetically by location except that Dundee is before the Contents page and omitted from it.

Aerofilms began aerial photography of the British landscape in 1919 and the earliest pictures in the book date from 1920. Altogether there are 20 pre-war photographs, but most of the 'then' views are from the 1950s to the early 1970s. The 'now' views were specially taken between 1996 and 1998, and much effort has been made to match the archive pictures in content and angle. There is a good mix of subject matter and, although over a quarter of the material is of south-east England, no region is neglected. The text attempts both to describe selected features in the pictures and to summarise the railway history. It cannot do justice to the latter in such limited space, which could have been better used by including more maps and descriptive material.

Although not cheap, the photographic content of this book represents good value. It contains a wealth of fascinating material and will provide hours of browsing. It will also serve as a useful source of reference, perhaps encouraging more use of the Aerofilms collection as a research resource. Sadly, it also shows vividly how much of our railways we have lost. TIM EDMONDS

THE HAWKHURST BRANCH LINE, Peter A. Harding, 32 pp, 40 photographs, + map and track plans, published by the author, "Mossgiel," Bagshot Road, Knaphill, Woking, Surrey, GU21 2SG, 1998. ISBN 0 9523458 3 8, £2.75 plus 25p postage.

Hawkhurst was the perfect country branch line – single track, steep gradients, wandering through woods and meadows, inconveniently-sited stations, and ancient engines and stock. It had a long gestation and an uneventful life, then it expired in 1961 still worked by steam.

This attractive book tells its story well. It is a new edition of a 1982 book, rewritten following further research, including a revised opening day (12 September 1892) for the Paddock Wood – Goudhurst section and with photographs taken on or around the opening day. This is a fine memorial to a well-loved railway. ALLAN BRACKENBURY

TRAMWAYS AND RAILWAYS OF JOHN KNOWLES (WOODEN BOX) LTD, Roy Etherington and Roger West, 104pp, 95 illustrations (9 in colour) and 12 maps (10 coloured), hard covers, Industrial Railway Society, Mr. S. Geeson, IRS Publications (IK), 1 Clifton Court, Oakham, Rutland LE15 0LT, 1997, ISBN 1 901556 02 6, £14 (p&p included).

The railways of extractive industries always tend to be ephemeral. They have to move as the source of the resource that is their reason for existence is worked due and as new supplies are identified. This seems especially true of railways associated with the manufacture of refractory products – bricks and pipes. The high quality sand and clay needed in this specialised industry is found in small pockets and seams, often in very rural environments. Records are few and limited and so it is greatly to the credit of the authors of this book, and their long research, that such a comprehensive story can be told of this small company and its railways. This was an interesting small system involving narrow and standard gauge lines, locomotive and rope worked, from mine and

quarry to factory and main line connection.

The story of John Knowles, the works, quarries and mines is given good coverage from the company's foundation in 1849, in rural South Derbyshire, to its demise in the 1960s. The reader's attention is drawn to items of more general industrial interest in the photographs and two pictures of the underground workings are especially evocative. On railway matters this must be the definitive work on this subject. Incidentally the "Wooden Box" of the company's title relates not to a product but is the actual name of the locality at which the works were situated. The maps are useful and exact. The photographs, especially the coloured ones, have reproduced to a high quality and have generally not been badly cropped.

If there is a general criticism it is that there has not been sufficient editorial control exerted over what is included in the book. Many facts are repeated in the short text and, whilst recognising that the total roll call of eight engines on both gauges limits the subject matter, can 16 photographs of Gwen and 18 of John Knowles No. 4 really be justified? Would a shorter, cheaper, softbound title have commended itself to a wider readership? WILLIAM FEATHERSTONE

SOURCE BOOK OF LITERATURE RELATING TO SCOTTISH TRAMWAYS, David Croft and Adam Gordon, 44p, soft covers, Adam Gordon, Priory Cottage, Chetwode, Nr. Buckingham MK18 4LB, 1998, ISBN 1874422206, (p&p 50p)

This is a bibliography of Scottish passenger tramways, – horse drawn, steam tram as well as electric. The booklet begins with a short historical introduction, followed by a brief chronology of Scottish Tramways.

The main bibliography then follows, with a section on General Works, followed with a town by town series of bibliographies, with each article or referee in date order. Preservation and rapid transit proposals have their own section, followed by a list in very brief form of other reference materials such as books, newspapers, timetables, etc, though these are so brief as to be of limited use except as pointers to their existence. There is also a list of Acts of Parliament. A very useful booklet for anybody wishing to delve into this aspect of Scottish Transport. WARWICK BURTON

AN ILLUSTRATED HISTORY OF SIGNALLING, Michael A. Vanns, 144pp, 297x222m, 223 illustrations, hardback, Ian Allan, 1997, ISBN 0 7110 2551 7, £24.99.

Ian Allan have cast off their '1960s album' image here with a very attractively-produced work with many interesting photographs reproduced to best 1990s quality.

The pursuit would probably consider that a work so titled should be a 'balanced' account of signalling history, but other recent works have already covered some aspects in detail and no real benefit would have accrued had the same content been replicated in full here. In particular Michael Vanns' own 'Signalling In The Age Of Steam' covered 'traditional' British mechanical practices at length. This volume is to be taken in conjunction with it. Hence there is an overemphasis here on major power resignalling schemes of the 1900s-1990s period.

A definitive 'History of Signalling' would be beyond normal commercial publication and, as Mr Vanns notes, a FNRM/IRSE/SRS project is in progress to produce something

nearer that. This title is, therefore, effectively an outline of signalling history – of British main-line railways – for the non-specialist; although the hard signalling specialist should also find it attractive. It is well written (and properly proof-read) and in many ways meets its target. The author is *au fait* with the research done by others in recent times and has a good understanding of most aspects. However, no one author can be fully expert on all aspects of signalling.

One chapter, on Single Line Working, is decidedly untrustworthy. There is no bibliography although this is the very type of work that must have one. PETER KAY

GREAT WESTERN BRANCH LINES: A PICTORIAL SURVEY, C.W. Judge. 80 pp., 210 x 150 mm. 136 b&w illus., pictorial cover, Oakwood Press. 1998, ISBN 0 85361 496 2, £6.95.

This 'Portrait Series' booklet differs from the familiar Oakwood offering: only half a page of introduction and then photographs, usually two per page, covering aspects of over sixty branch lines. All were taken before 1948, many pre-1920, but about fifty are undated. The majority of the pictures, from the Casserley, Lens and Mowat collections, are fairly familiar, but others, such as the harbour branch at Newquay, are of unusual interest. Most depict station scenes, but trains, railway staff and buses are included. The informative, though quite short, captions occasionally contain simplifications like 'steam railcars proved very useful', and are not always completely reliable, as two different dates are given for the demise of passenger services on the Golden Valley, line. There is an index of stations but no map.

Why yet another book on this topic? The author explains "Many GWR branch line photographs appear only in specialist books.... useful for the historian or modeller but means that good and interesting photographs are for the eyes of relatively few; hence this small inexpensive book", which may "bring back memories.... help the younger reader understand?" and assist the modeller with details. Your reviewer is not entirely convinced, but is content if sales help to support the production of further branch line histories. DENNIS HADLEY

THE VALE OF GLAMORGAN RAILWAY, Colin Chapman, 176pp, numerous photos, maps, diagrams, Linson covers, Oakwood Press, 1998, ISBN 0 85361 523 3, £11.95.

Few if any industries were so dependent on railways as Welsh coal. When Cardiff docks and the valley lines to them were choked to capacity, the Barry Railway and Docks were built to relieve the pressure. West of Barry came the subject of this book, a line that brought more coal from the hinterland behind Bridgend, which became some ten per cent of Barry's coal exports. Not built until near the end of the last century the line was late to serve the district through which it passed but Llantwit Major grew greatly once connected and the lime and cement industries together with RAF St Athan were also to benefit. Passenger services ceased under the Beeching Plan through road competition. Lively plans for reopening were dampened by privatisation reorganisation but Cardiff Airport at Rhoose may yet bring hope. Meanwhile freight is still carried and diverted passenger trains use the route when the main South Wales line is blocked.

The line had problems. Notable among them was the collapse of Porthkerry Viaduct which required the building of a diversionary line while it was rebuilt. This and all other features of this interesting railway have been thoroughly researched and described in this well produced book. JOHN DENTON.

ALL CHANGE AT CEFN JUNCTION, Neville Granville, 52pp, 211 x 150mm, card covers, maps and diagrams, 14 photos, no ISBN.

Obtainable from the author at 89A Cefn Road, Cefn Cribwr, Bridgend, CF32 0AW, £3.00 plus 50 p&p.

This book was produced to commemorate the centenary of Cefn Junction signal box, which was built in 1898 at the point where the GWR line from Tondur to Pyle was joined by the Port Talbot Railway Ogmore Valleys Extension. The box closed in 1983, and is now used by a local amenity group, Y Cefn Gwyrdd, as a meeting place and display centre. The book gives the industrial background of the area, as well as railway history and personal memories of former railwaymen, and is a good example of a local history publication. MICHAEL HALE

SEVERN VALLEY RAILWAY – A VIEW FROM THE PAST, Michael A.Vanns, 96pp, 240 x 175mm, 137 photographs, 8 maps, various notices, boards, Ian Allan Publishing, 1998, ISBN 0 7110 2599 1, £15.99

The most interesting feature of this book is the large number of historic photographs and the aerial views. There is even a photograph of the paddle-driven steam tug built at Shrewsbury in 1858 and used on the Severn during construction of the railway and another of the sidings below Billingsley Colliery.

Apart from a general map at the beginning, maps in the text are based on O.S. 1:2500 sheets of no specified date. The publisher's blurb with the review copy claims that the book is of use to modellers, but the maps have no scale and are reproduced against a grey background which detracts from their clarity. The map of Bewdley station on page 69 is earlier than 1900 when two long sidings were built.

The first two chapters deal briefly with the promotion, construction and opening of the SVR. We are then taken along the route from Shrewsbury to Hartlebury and Kidderminster with illustrations of the various stations and engineering features. The text combines with the captions to give historical information. The fourth and final section explains the reasons for the decline of traffic and ultimate closure. Not a great deal is said about the preservation of the 16 miles from Bridgnorth to Kidderminster from 1965 – that is available elsewhere – but the reader is left in no doubt about the enormous achievement of the volunteers. Photographs of the state of the railway in the mid 60s make one marvel at their courage and energy.

The danger of secondary research is exposed on page 58 where the length of the Eardington canal tunnel is given as 750yd, a mistake committed by the reviewer himself. The tunnel was about 600yd; 750yd was the approximate length of the canal. JOHN MARSHALL

MANIFOLD VALLEY RAILWAY AN ANTHOLOGY, Eric Leslie, 64pp. 37 line drawings, 3 document reproductions, soft covers, The Oakwood Press, 1998, ISBN 0 85361 519 5, £5.95.

The Leek & Manifold Valley Light Railway served a remote part of North Staffordshire on the edge of the Peak District. Built to the 2ft 6in gauge, this 8¼ mile line was closed in 1934 after a life of less than 30 years. The book is a collection of short items relating to

the railway and people who worked on it, people who used it, and the countryside in which it was set.

There are 31 written pieces, ranging in length from two sentences to four pages. All were originally contributed by members of the Manifold Valley Railway society to their newsletter and they comprise reminiscences, historical notes, and extracts from books and magazines. Occupying nearly half of the page space in the book are line drawings by the compiler, Eric Leslie. These are full of human interest, as well as railway detail, and make an excellent complement to the text.

This book is not a history, nor does it pretend to be. It is unashamedly nostalgic, but does contain material of interest to the historian – notably the memories of those who worked on or knew the railway. It is good value at a modest price. TIM EDMONDS

THE MINEHEAD BRANCH AND THE WEST SOMERSET RAILWAY, Colin G. Maggs, 128pp, numerous photos, maps diagrams, Linson covers, Oakwood Press, 1998, ISBN 0 85361 528 4, £8.95.

The West Somerset Railway opened in 1862 as a broad gauge line from near Taunton to Watchet, worked by the Bristol & Exeter Railway. It served a small port on the Bristol Channel that has remained surprisingly busy up to present times although the railway's goods service to it later gave away to road haulage. Even before its inevitable conversion to standard gauge in 1882, rival lines to the port were proposed, some of which suggested connection with the West Somerset Mineral Railway which brought ironstone from the Brendons to Watchet. Later schemes for extension were over ambitious, such as the idea of climbing Exmoor's edge beyond Porlock to reach Lynmouth, but eventually the line was extended to Minehead. Also once a port, rail-borne holiday traffic was by then the main objective and this reached its peak at Minehead in 1913 under typical treatment by the GWR which was then in charge.

Beeching tried to close the line but it took until the 1970s for this to come about. When it happened there was an immediate attempt to take over and keep it going. A company was registered and negotiations put in hand. This was no ordinary case of a preservation society 'playing trains' and even Somerset County Council were involved up to the hilt. The line reopened. At times it has problems but it is now extremely busy, serving both locals and holidaymakers and this well researched and produced book admirably tells the story. JOHN DENTON.

ON THE MOVE, CORAS IOMPAIR EIREANN 1945-1995, Michael O Riain, 470 pp, 113 photographs, 2 maps, 12 tables, boards, Gill & Macmillan, Dublin, 1995. ISBN 07171 2342 1, £30.

There have been a number of books on the history of different aspects of Irish transport but until recently there was nothing on CIE, which has managed much of Ireland's railways canals, buses, a chain of hotels and road freight since 1945, at first as a state-sponsored company and from 1950 as state-owned corporation. Michael O Riain's masterly work has changed that completely.

As in Great Britain, political interference in the structure and management of public transport had always been a fact of life in Ireland. In both countries the state-owned

railway enjoyed the enforced gift of conflicting objectives. The author has explained this and much more in detail in a dispassionate way but without losing the reader. He has also brought in the politics of Northern Ireland in that CIE's activities became international when it assumed responsibilities for the Dublin end of the Great Northern Railway of Ireland in 1958. In spite of politics and under-investment, CIE eliminated the use of horses and steam operation on its railways before British Rail.

It is good that Gill & Macmillan has published a book of this length, although being a commissioned history must have made the publisher's decision easier. It is difficult to find fault with the work, although one would have appreciated more about the leading players in CIE's history such as long-time General Manager Frank Lemass. Indeed, the author almost seems to be at pains to avoid controversy in his treatment of individuals. Even his justifiable criticism of Sir James Milnes's report to the Irish government in 1949 is muted. The choice of photographs is also good. JOHN KING

Short Reviews

FROM THE FOOTPLATE: EUROSTAR, Peter Waller, 111pp, approx, 80 black and white photographs, maps and track plans, soft covers, Ian Allan, 1998, ISBN 0 7110 2427 8, £12.99.

No history here but a very thorough account of the routes of the Eurostars from Waterloo to Paris and Brussels. All aspects of the working and the rolling stock covered. Good technical text and varied photographs. One to store away until it becomes history. Gradient diagram of the English end only, one showing the whole route would have been nice in order to show the difference between the English end, the tunnel sections and the new routes in France. No index. Most people will know that the carriages were built at Washwood Heath, not Washford Heath.

EUROPEAN RAILWAY ATLAS: DENMARK, GERMANY, AUSTRIA, SWITZERLAND, M. G. Ball, 101 pp, soft covers, Ian Allan, 1998, ISBN 0 7110 2550 9, £13.99.

The second edition of the atlas first published in 1993. Up dated with closures and openings since then. Full gazetteer. Many changes in Germany followed the removal of the iron curtain – defunct east/west links re-established and, after a short time, slaughter of rural byways in the former eastern sector following sudden growth in road traffic.

AMERICAN LOCOMOTIVES OF THE MIDLAND RAILWAY, David Hunt, 56pp, approx 50 black and white photographs, line drawings, soft covers, Wild Swan Publications Ltd., 1997, ISBN 1 8741 0341 0, £8.99.

This is Supplement No 1 to the 'Midland Record' series. It matches the high quality of text and illustration set by the parent series. The supplement deals with three types of locomotive – the Norris engines imported for the Lickey Incline (strictly Birmingham and Gloucester engines not Midland) and the Baldwin and Schenectady moguls imported beginning in 1899. The moguls had short lives but the account of their birth and life is fascinating. The detail and quality of the pictures are impressive. As little of the detail in the text has been published before, the accuracy cannot be questioned.

PRIVATE OWNERS ON THE CAMBRIAN, Mike Lloyd, 52pp, 36 photographs, 25 drawings, 3 maps, card covers, Welsh Railways Research Circle, 22 Pentre Poeth Road, Bassaleg, NP1 9LL, ISBN 0 9527 2671 8, £5.95 (p&p £1.00)

Although this book seems to be aimed at modellers, it contains much information of wider interest including a useful bibliography. The author first deals briefly with the regulatory role of the Railway Clearing House in respect of private owner wagons before turning to his main thesis of the local and "foreign" traders wagons to be seen on the Cambrian. The book is well illustrated with photographs, diagrams, maps and coloured reproductions of wagon labels. This is a subject where the research materials seem to very limited or lacking and Mike Lloyd has done well to produce this account from the resources available to him.

HADFIELD'S BRITISH CANALS, Eighth Edition fully revised by Joseph Boughey, 343 pp, approx 140 illus., 18 maps, soft covers, Sutton Publishing, 1998, ISBN 0 7509 1840 3, £12.99.

The Eighth Edition of this well known and well reputed book has been 'reprinted with corrections' and is now available in paperback.

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Other interesting material included the G A Hookham Collection of negatives of British Railways sold for £1265, a GWR cast iron towing path sign £621, a brass Doncaster No 2036 1948 works plate £632, a run of Great Central Railway Journal Vols. 1 to 6 and 8 to 13 £575 and a single vendor collection of Airey's and Railway Clearing House maps totalled over £3000.

Nameplates continue to sell well as seen in Dominion of New Zealand for £6820, Princess Eugenie £4510, Earl Bathurst £4730, Twineham Court £4950 and Excalibur £4510. The coat of arms Crewkerne in vitreous enamel from SR West Country Class No 34040 realised £4180 and the smokebox number plate 6018 from GWR King Henry VI £2640. Two oval cast brass plates from LMS Royal Scott Class Locomotives Lancashire Witch and Velocipede realised £2640 and £3300 respectively. Most recently GWR/BR Athelney Castle sold with associated paperwork for £7200. It had been purchased by the vendors father from BR in 1964.

We have also sold a fine collection of dining car and railway hotels silver-plate for £10,360, an important collection of locomotive works plates that totalled £18,386, the private antiquarian railway library of Norman Kerr of Carmel for £33,000 and the railway contents of Wolferton Station Museum, the former royal station for Sandringham for £70,000.

The Poster sales include many travel posters of the 1920's and 1930's published by the Big Four Railways, London Underground, Shipping Companies and Airlines. Prices for these have risen sharply in recent years and they continue to grow in popularity along with early British Rail examples. A fine collection of LNER and early BR posters sold for a total of £160,000 in 1996. The rarest example was The Night Scotsman by Alexander Alexeiff which realised £11,000. These had been discovered by a woman from East Anglia when she was moving house. Her late husband had worked for British Railways as an area maintenance engineer in the late 1950's and salvaged them from Liverpool Street Station when they were being thrown out with other advertising material.

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