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CONTENTS

Railway and Canal Records in the House of Lords Record Office

BY H. S. COBB.

The purpose of this note is to provide a brief description of the above records, drawing attention in particular to those types of record which are not to be found in local record offices or amongst the British Transport Commission Historical Records in the Public Record Office.[1] In addition, details are given of the facilities available in the House of Lords Record Office for public access to the records.

Prior to 1794, the canal and river navigation records in the House of Lords Record Office consist chiefly of copies of Bills and the engrossed Acts (from the sixteenth century onwards), petitions to the Lords for and against Bills, and brief minutes of Lords Committee proceedings on Bills from 1660 (the equivalent Commons Bills, petitions, and committee minutes were destroyed in the fire of 1834). Some verbatim transcripts of evidence given before the Lords on Canal Bills survive from 1789 onwards but the two regular series of verbatim evidence given before committees of each House do not begin until 1835.

In 1793 both Houses of Parliament ordered the promoters of every canal or water Bill to submit plans, sections, and books of reference (listing the owners, occupiers, and lessees of land affected) before the Bill was introduced into either House.[2] A substantial series of canal (and later, railway) plans deposited in the House of Lords survives from 1794 onwards, with a much less complete House of Commons series from 1796. Plans, sections, and books of reference were also, of course, required to be deposited with the Clerks of the Peace and with boroughs through which a canal or railway was intended to pass and large numbers survive in local record offices.[3] The 1793 orders also required promoters to deposit in each House (but not in the counties) estimates of expense of the intended works (detailed until the mid-1830s and continuing in summary form until the present day) and subscription lists and contracts of those promising to take out shares in the proposed undertakings (the deposit of these was abandoned in 1858). The estimates and subscription lists are to be found with the deposited plans and many also survive amongst the historical records of the British Transport Commission.[4] A further deposit required in the Lords and Commons (but not apparently elsewhere) from 1794 onwards (until 1922) were the Lists of Consents which recorded whether the owners, occupiers, and (from 1836) the lessees of land and other property to be affected by a scheme 'assented', 'dissented' or were 'neuter' in respect of it. These provide some indication at least of the amount of support or opposition which projects encountered locally.

From 1853 the House of Lords (and the Commons from 1874) required promoters to deposit a 'Demolition Statement' for any scheme involving the compulsory acquisition and demolition of 'thirty houses or more inhabited by the Labouring Classes in any one parish or place'. The statement was to specify the number, description, and situation of the houses and the number (so far as could be estimated) of persons to be displaced, and it was to state whether any provision was made in the Bill for remedying the 'inconvenience likely to arise from such displacement'.[5] Such statements are still required when thirty or more inhabitants are affected in any one area.

When changes were made by a Lords or Commons Committee to the proposed route of a canal or railway they were shown on a special plan of the affected area signed by the chairman of the committee. The enabling Act draws attention to this, for example the Hull, Barnsley and West Riding Junction Railway Act 1882 states 'in constructing the Railway no. 1 where it will cross the (Stocks Moor) common the Company shall divert the centre line thereof as shown upon the plan signed by the Honourable William Henry Berkeley Portman the Chairman of the Committee of the House of Commons to whom the Bill for this Act was referred . . . . and copies of which have been deposited in the Private Bill Office of the House of Commons and the Parliament Office of the House of Lords'.[6] It does not appear that copies of such signed plans were deposited locally.

Verbatim evidence given before committees of either House on opposed Private Bills (including canal and railway Bills) survives in two continuous series from 1835 onwards. Although much of this evidence is also to be found amongst the British Transport Commission records the two series in the House of Lords Record Office are the most complete.[7] In addition, there are Minutes of Proceedings and Evidence given before the Examiners of Private Bills of each House who investigated the compliance of promoters with the Standing Orders on Private Bills including confirmation, or correction, of points of detail in the deposited plans and other documents.[8] There are also the Minutes of Evidence of the Commons Court of Referees (1865 to date) which enquired into the right of petitioners to be heard before a Private Bill Committee and sometimes into the engineering and other details of a Bill.

The records of Appeal Cases heard in the House of Lords include a considerable number of cases concerning transport, many of them requiring the deposit of plans and other technical evidence. The records include the petitions and cases of Appellants and Respondents, summaries of proceedings in the printed Law Reports, and Judgments of the House.

Any member of the public may consult the records of either House in the House of Lords Record Office. The Search Room is open between 9.30 a.m. and 5 p.m. from Mondays to Fridays. No reader's ticket is required but searchers are requested to write before their first visit to the Clerk of the Records, Record Office, House of Lords, London SW1A OPW. It is also advisable to write or telephone before subsequent visits in order to be sure of a seat in the Search Room and to order documents in advance (Tel: 01-219 3074). Xeroxes, electrostatic prints (of maps), and microfilms can be supplied.

1 See also: M. F. Bond, *Guide to the Records of Parliament* (HMSO, 1971) and H. S. Cobb, *Sources for Economic History amongst the Parliamentary Records in the House of Lords Record Office* (HLRO *Memorandum*, No. 50, 1973)
2 *House of Lords Journal*, vol. XXXIX, pp. 556–7
3 J. Simmons, 'Railway History in English Local Records', *Journal of Transport History*, vol. 1, no. 3 (1954), p. 157
4 Ibid, p. 159
5 *House of Lords Journal*, vol. LXXXV, p. 244
6 Local and Personal Acts, 45&46 Vic. cap. ccxlvi, s.8
7 Some 3,000 volumes of Commons evidence survive for 1835–99 and 1,500 volumes of Lords evidence for 1835–1970. There is access, also, to later evidence for committees of both Houses up to the present day.
8 House of Commons 1847 to date, House of Lords 1859 to date (1837–58 in the Lords Committee Books).

The Metamorphosis of the Ellesmere Canal

BY RICHARD DEAN

Of the existing published accounts of the inception and development of the Ellesmere Canal project, those by Charles Hadfield rest on the firmest ground,[1] and several others add useful information with varying degrees of accuracy.[2] The present writer's intention is to detail the rapid and complex changes which took place mainly between 1791 and 1805, resulting in a waterway very different both from that originally conceived and from that first authorised. As an aid to understanding these changes, considerable attention has been given to the preparation of the accompanying maps.[3]

Little will be found here concerning Pontcysyllte Aqueduct as it is hoped to devote a separate article to it in the near future.

The Main Line

The earliest proposals for what later became the Ellesmere Canal have already been noticed in the *Journal*.[4] The project was revived in 1789, and it was a trio of Shropshire gentry who called the first public meeting in August 1791 'to consider of the scheme and of the line to be adopted.' John Duncombe, a local engineer from Oswestry, carried out the initial technical appraisal and made a preliminary estimate of £100,000 for a narrow canal.[5]

Whatever route the promoters had in mind (and the venues of the first meetings at Overton and Ellesmere may give some clue) it was clearly a subject of considerable discussion: a draft circular to landowners indicated that 'the course of the canal is not at present absolutely fixed'. The unanimous resolution at the August meeting stated 'that it is practicable to make such canal so as to pass near to or communicate with *branches from* several extensive coal lime and slate works in the Parishes of Chirk, Ruabon . . . . Llangollen . . . . and Oswestry . . . . and with a branch to extend to Llanymynech' with the possibility of further branches to Wem and Whitchurch. The draft presented at the meeting had not included the words in italics, and both versions are carefully recorded in the minutes. Dumcombe was directed to make an additional survey 'of a line which has been mentioned at this meeting'.[6] A route from the Mersey to Chester and east of the River Dee to Shrewsbury was set out in a preliminary newspaper notice agreed at the meeting, formally reported on by Joseph Turner in September,[7] and described by him in a pamphlet published on 11 October 1791.[8] Branches were included to Ruabon and Llangollen, to Whitchurch, to Llanymynech, and to the Grinshill quarries. It seems likely that Denbighshire coal and iron proprietors, dissatisfied at being on a branch, suggested the possibility of a main line west of the Dee which Duncombe was to examine, but that they had to accept for the time being the proposals put forward at the August meeting on which the preparatory work had already been done.

With the prospect of serious disagreement looming, the Committee resolved to ask William Jessop to survey 'the said canal and the (two) different lines which have been proposed for the same and to consider and give his opinion'. He was to be accompanied by Duncombe and William Turner, another local engineer, and the latter was to explain his ideas for a shortened eastern line using the existing Chester Canal as far as Tattenhall, and from there to Braden Heath near

Welshampton, and also a branch from Whitchurch to near Prees.[9] Jessop reported to a meeting on 9 January 1792 held in Wrexham (on the western route) when it was determined to defer any parliamentary application that session pending completion of the survey work.[10] This report was subsequently withdrawn at his request and replaced on 23 August by 'a more general and comprehensive report upon the subject containing the substance of his former report with such additions as he was enabled to make in consequence of his having taken a second survey of the line of the intended canal and the branches . . . .'[11] It is worth quoting the introduction in full:

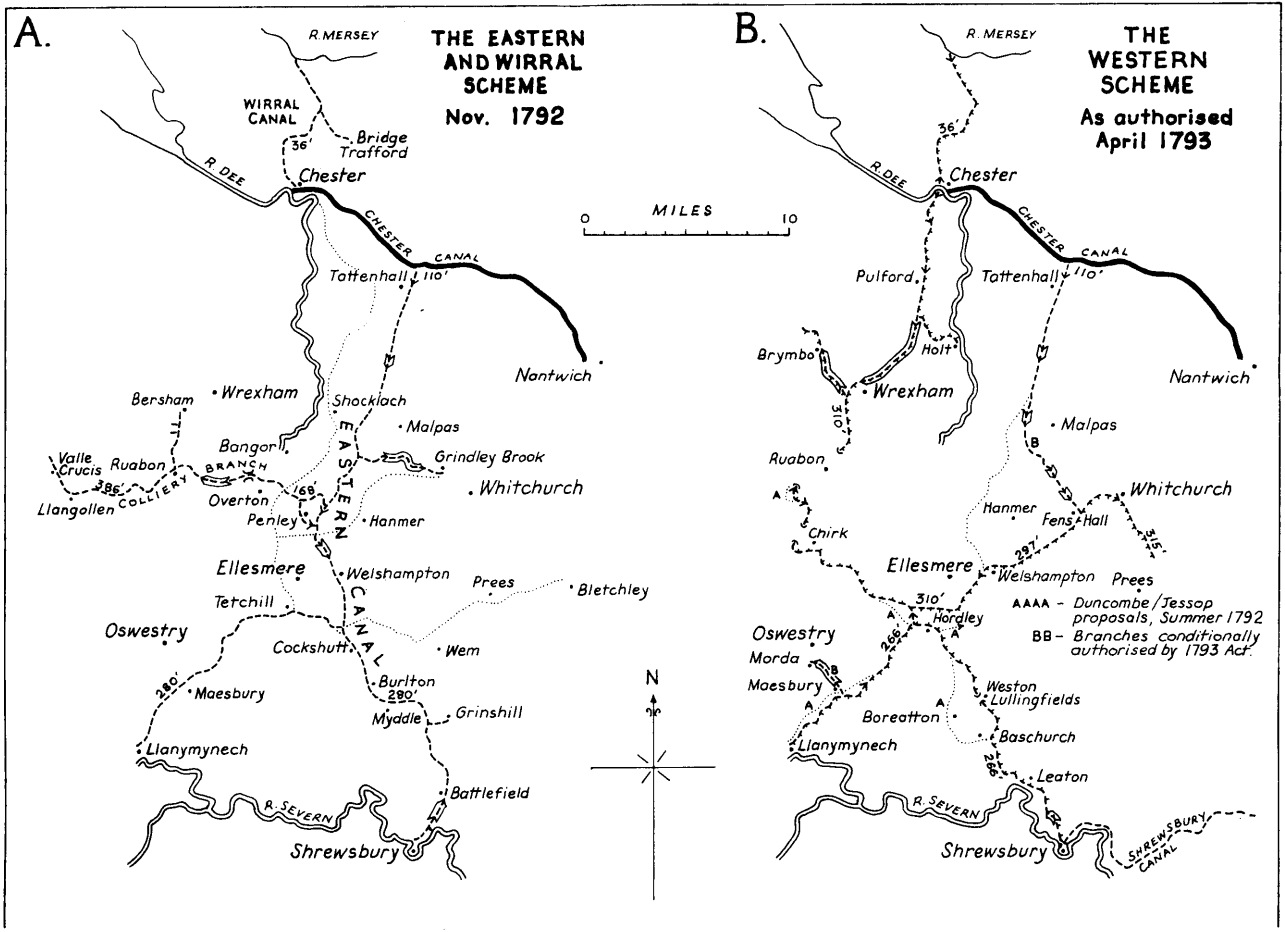
> On the cursory view of the country between the Mersey and the Severn which I took the last year when it was a question whether a line on the eastern or western side of the River Dee would be most desireable it appeared to me that the western line would be best. I could not nearly judge of the comparative expence as no particular surveys had been made, in both there were local difficulties yet I had some reason to believe that the western line would cost more than the other, but on considering that though the mercantile trade might be considerable it would bear no comparison with the carriage of coal and lime which from the information that I received was very great I recommend as the first object the survey of the western line for the following reasons The towns of Chester and Shrewsbury which consume a great quantity of coal are now supplied at a price not very moderate, it appeared to me an object material to the interest of the undertakers of the proposed canal that those towns should be supplied by it. If the eastern line had been adopted the communication with the collieries must have been so circuitous that there was hardly a probability of conveying coal to those towns at a less expence than they now received them at. If every possible line could have been actually surveyed I might more satisfactorily have formed my opinion but Mr Duncombe's time having been wholly occupied by the western line and he having produced a survey thereof I shall state to you my observations thereon.

Jessop went on to recommend a canal across the Wirral, a level crossing of the Dee below Chester, and a western route via Wrexham, Ruabon, Chirk, and Baschurch to Shrewsbury, with branches to Holt and Llanymynech, at a total cost of £196,898 (Map No. 1B). He suggested exploration of a route, which must soon have been found impractical, to the west of Boreatton Park to avoid a 476-yd tunnel at Weston Lullingfields, and also the construction of a branch from Hordley to Smithy Moor that could be extended towards Whitchurch if the necessary locks near Croesmere were supplied by pumping up water from the Hordley pound. He preferred a direct low-level route to Shrewsbury rather than deviating the main line from Hindford towards Tetchill at a high level to join with and follow the southern part of the eastern route by Cockshutt and Grinshill.

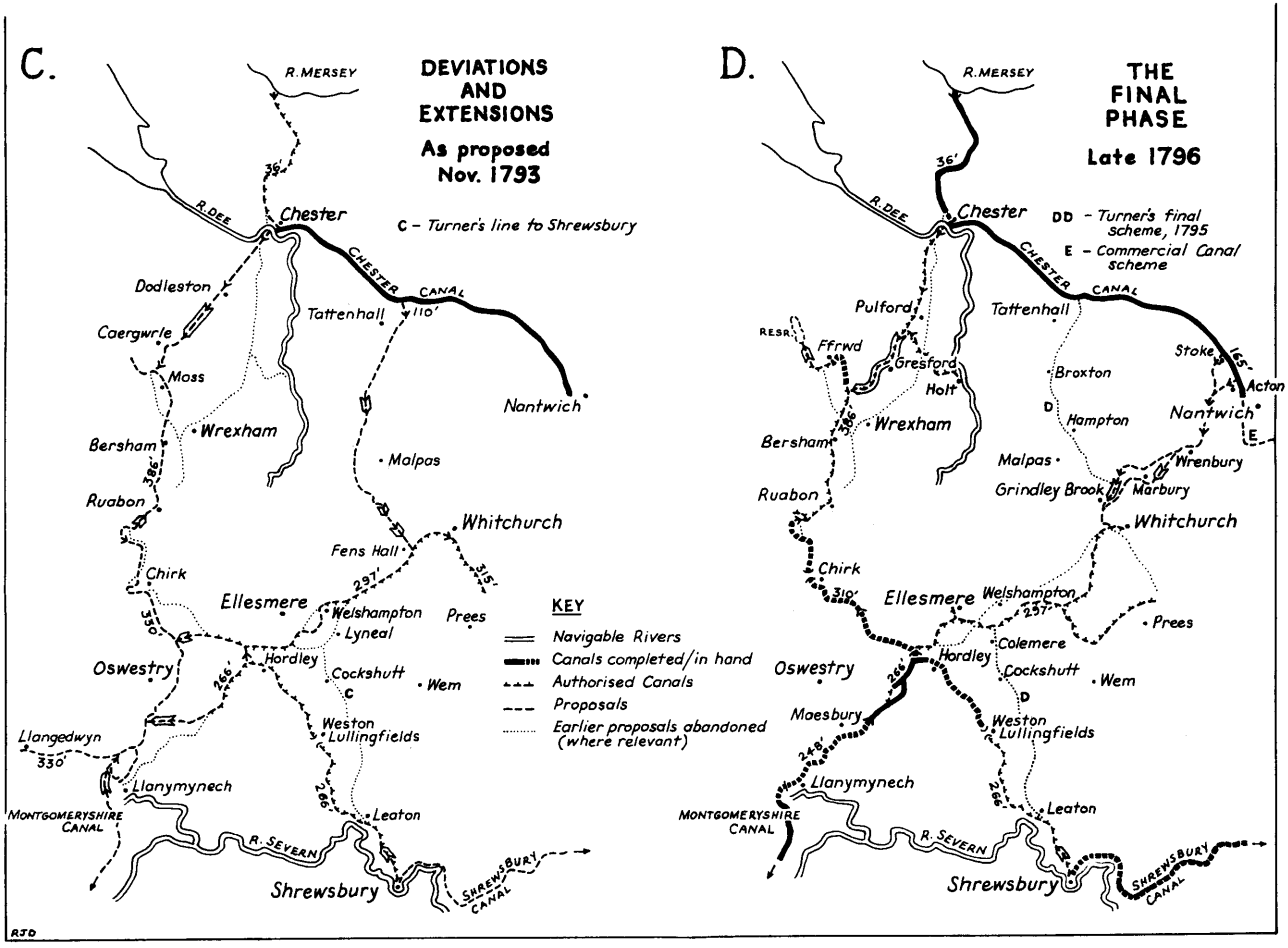
The revised report was made public at a meeting in Ellesmere on 10 September 1792 which came at the height of the 'Canal Mania'. Almost £1M in subscriptions was proffered from 1500 speculators, and:

> So great is the Navigation Mania that Shrewsbury, about 16 miles from Ellesmere, was so crowded on the nights before and after the meeting that many people found very great difficulty in getting accommodated: several gentleman being obliged to take care of their own horses, cook their own vitals, and sleep two and three in a bed; and so difficult was it to procure horses and carriages from Leicester and Market Harborough (on account of the people going from those towns) that six gentlemen from the latter place actually hired and went in a mourning coach.[12]

Jessop's support for the western route had by no means extinguished the earlier proposals, and in the heady atmosphere of the time subscriptions were also



MAP No. 1 The Development of the Ellesmere Canal


C.
DEVIATIONS AND EXTENSIONS
As proposed Nov. 1793
C – Turner's line to Shrewsbury
R. MERSEY
R. DEE
Chester
CHESTER CANAL
Dodleston
Caergwrle
Moss
Tattenhall
110'
Nantwich
Wrexham
Bersham
Malpas
Ruabon
Whitchurch
Fens Hall
Chirk
Ellesmere
Welshampton
Lyneal
Prees
Oswestry
Hordley
Cockshutt
Wem
C
Weston Lullingfields
Llangedwyn
Llanymynech
MONTGOMERYSHIRE CANAL
R. SEVERN
Leaton
Shrewsbury
SHREWSBURY CANAL
KEY
Navigable Rivers
Canals completed/in hand
Authorised Canals
Proposals
Earlier proposals abandoned (where relevant)
D.
THE FINAL PHASE
Late 1796
DD – Turner's final scheme, 1795
E – Commercial Canal scheme
Pulford
Tattenhall
RESR.
Ffrwd
Gresford
Holt
Broxton
Stoke
Acton
Nantwich
D
Hampton
E
Wrexham
Bersham
Malpas
Wrenbury
Grindley Brook
Marbury
Ruabon
Whitchurch
Chirk
Ellesmere
Welshampton
Prees
Colemere
Hordley
Oswestry
Cockshutt
Wem
D
Maesbury
Weston Lullingfields
Llanymynech
MONTGOMERYSHIRE CANAL
R. SEVERN
Leaton
Shrewsbury
SHREWSBURY CANAL
RJD

opened for a separate and rival 'Eastern Canal'. As submitted for the 1793 parliamentary session (Map No. 1A) this included a revised route north of Cockshutt to pass east of Ellesmere by Welshampton and Penley to the Chester Canal near Tattenhall, with an extended 'Colliery Branch' crossing the Dee by an aqueduct at Overton and locking up to Ruabon, where one branch ran to a terminus at Valle Crucis near to the slate quarries above Llangollen, and another on the same level to John Wilkinson's Bersham Foundry. Whitchurch was served by a branch up the Wych Valley to Grindley Brook, and the Llanmynech quarries by a level but lengthy branch from Croesmere.[13] A nominally separate 'Wirral Canal' linked the Chester Canal to the Mersey with a branch to Bridge Trafford.[14] Barge width was proposed throughout, and the proprietors of the near-derelict Chester Canal were urged to give it their support.

With opposition threatened from this scheme the western committee negotiated for a merger whilst taking immediate steps to strengthen and consolidate their position in preparation for any parliamentary contest. The provisional capital was increased by £100,000 so that a more positive attitude could be adopted towards 'the neighbourhood of Whitchurch and Wem where the coals and lime are likely to be most in demand.[15] To secure this territory William Turner and others were given immediate instructions on 11 September 1792 to survey a branch from Maestermyn Bridge to Prees Heath via Whitchurch for inclusion in the proposed bill. The parliamentary notices published the following week duly incorporated it, Jessop was asked to view and estimate, and it was hurriedly added to the deposited plans.[16] As a further counter to the Eastern Canal, a connection was proposed from the new branch to the nearest convenient point on the Chester Canal. Turner seems to have laid out the branch so that it could if necessary make a convenient junction with the summit level of the rival scheme at Welshampton, perhaps with the aim of adopting the Welshampton to Tattenhall section of that project. The matter was complicated by the objection of Sir Thomas Hanmer to this section passing through his estate, and an alternative had to be sought.[17]

Negotiations dragged on through the winter, and by the time the final merger of the opposing groups was agreed in February 1793[18] it was too late fully to incorporate in the Western's bill all the changes that were needed to satisfy the Eastern subscribers, with the result that the Act did not represent the current intentions of the two groups of promoters, by then united in law if not in spirit.[19] The new company now needed powers to build both routes north of Ellesmere, with the junction of the broad Eastern line being moved six miles further east along the Whitchurch Branch to Fenns Hall to accommodate Sir Thomas Hanmer's wishes. A lengthy clause in the Act[20] authorised this, subject to the unlikely event of all affected land-owners voluntarily agreeing, failing which a further Act had to be sought. Not surprisingly, the project was back in Parliament the next session.

William Turner, by now on the Committee, represented a faction which still favoured a more easterly high-level route for the southern part of the Main Line, striking south from a point on the Whitchurch Branch near Cole Mere to rejoin the western route at Leaton. This would shorten the distance for through traffic on the eastern line at the expense of that on the western, which he in turn wanted to demote to the status of a northwards branch serving the Denbighshire coalfield rather after the nature of the original project. The levels would be raised both north and south of Pontcysyllte to avoid the Ruabon and Chirk tunnels and to facilitate an upper route to Llanymynech (see below). The Committee initially supported these proposals, which they further resolved would be broad canals, and authorised detailed surveys of the various parts,[21] included Fenns

Hall to Tattenhall, so that plans could be deposited in time for the 1794 session of Parliment.[22] (Map No. 1C) There were two amendments to Turner's proposals: a western line to Chester was retained, and the Colemere to Leaton deviation of the Main Line omitted. However, a short variation of the Whitchurch Branch shown between Spoonhill and Welshampton may have been in anticipation of the latter's being proceeded with at a later date.

On 3 September 1793 Thomas Telford was appointed General Agent to the concern,[23] a key post sought by Turner, who soon found himself increasingly isolated as opposition grew within the Committee to the nature and scale of the changes he was pursuing. Telford vividly summed up the atmosphere — 'besides the real labour that attends such a great public work, contentions, jealousies, and prejudices are stationed like gloomy sentinels from one extremity of the line to the other'.[24] Matters came to a head in December when the Committee recorded that their engineers were 'not yet fully prepared to point out what lines will be practicable or adviseable' and set up a sub-committee to consider all the additional cuts, variations, and branches that had been proposed.[25] On Jessop's recommendation, the Company postponed their bill for that session as 'he is of the opinion that considerable improvements may still be made in the lines and plans . . . . and that it will be adviseable to have some parts of the adjacent country resurveyed in order to determine whether in various instances expensive aqueducts deep cutting and other difficulties may not be avoided or the expense thereof reduced'.[26] This coincided with pressure to start work on the authorised lines in Shropshire to accommodate the coal and lime trade and the Montgomeryshire Canal. The Committee took the plunge and made an early start on the authorised Llanymynech Branch, the first contract being let in March 1794. Frankton Locks and the Main Line northwards to Chirk Bank followed at the beginning of 1795, being justified on job-creation grounds — 'a great number of persons are out of employ owing to Wilkinson having stopt his Bersham Works'.[27]

With the Committee resolution in January 1795 that William Turner be treated in future as a proprietor only, he ceased to hold any formal position with the Company, but 'being a proprietor and an acting engineer under the unanimous appointment of the General Assembly of the Company I think it my duty to use every means to improve this extensive undertaking'.[28] Fortified with a legal opinion the Committee had refused him access to all the Company's papers, but, undeterred, he proceeded at the end of 1795 to publish parliamentary notices and deposit plans[29] at his own expense for the 1796 session which the Company had to repudiate formally. The matter was referred to Jessop, who reported against proceeding with any of the Turner schemes and pointed out that 'as I do not think any of them are properly surveyed, I submit it to the Committee that on the future survey of them Mr Duncombe or Mr Denson should accompany Mr Turner so that there may be nothing left to dispute afterwards'.[30]

The Main Line as far south as Weston Lullingfields was completed in 1797.[31] It had been determined the previous year to extend through the tunnel to near Baschurch,[32] but in the event the line to Shrewsbury petered out in a remote field quarter of a mile south of Weston Wharf. Several attempts were made to revive it subsequently, either along the authorised route or the alternative at the Whitchurch level, but it was proved in 1803 that the Shrewsbury Canal would command the market for coal in Shrewsbury and that the construction cost would not yield a satisfactory return.[33]

North-west from Frankton, the canal must have been opened to Chirk Bank by November 1798 when a wharfinger was appointed there.[34] Water had to be drawn from the River Morlas, subject to restrictions contained in the 1793 Act, for the supply of the four locks at Frankton, and in view of the scarcity

it is surprising that two of them were constructed in a staircase pair. From Chirk Bank the easiest route called for an embankment straight across the Ceiriog Valley above Chirk Bridge, but to satisfy the landowner the authorised line lay up the steep south side of the valley to Pont Faen, followed by a 1236-yd tunnel through the high ground to the north. At Jessop's suggestion, he was prevailed upon to accept the direct route with the offer of an aqueduct in lieu of the embankment for the full width of the valley, to form an attractive landscape feature. Work started in 1796 and John Rennie's rather harsh comment on the resulting structure makes an interesting comparison with Jessop's intention:

> This aqueduct is situated in a beautiful romantic vale & might had it been planned with taste been one of the most beautiful things in this Kingdom but as it is, it is one of the most ugly things I have seen & does but little credit in that respect to the architect.[36]

Not everyone would agree with him.

Beyond the aqueduct a 459-yd cut-and-cover tunnel and a long curved cutting brought the line back to the parliamentary route, and it was opened through to the Vron Basin on the south side of Pontcysyllte about Christmas 1801,[37] and over the aqueduct there on 26 November 1805.

The Wirral Line

One of the few proposals on which the eastern and western groups were generally in agreement was that between Chester and the Mersey. As the Wirral Canal this was nominally separate from the Eastern Canal and would have locked up from the Chester Canal Basin to the Mersey at Whitby (later Ellesmore Port), with a level branch to Bridge Trafford.[38] The western scheme, as authorised by the 1793 Act, was very similar save for the absence of the branch, but connected direct into the Dee at Chester to avoid the Basin owned by the River Dee Company who were initially hostile to the western project.[39] They were placated with protective provisions in the Act giving them power to build the parts on their property, for which tolls could be charged, and preventing the Ellesmere Company carrying water across or under the Dee for the supply of the Wirral Line: Jessop had originally envisaged an iron syphon for this purpose.[40]

Construction proceeded quickly with the prospect of early traffic receipts, and a passage boat began running on 1 July 1795, presumably from a temporary terminus at Chester. It was an immediate success, and Telford could report three weeks later that:

> The business of the Passage Boat is encreasing, every person is pleased with it, and the Eastham coach is nearly deserted, the market carts are expiring, and I am taking measures that will prove a severe blow to the land carriage to and from Manchester & Chester etc.[41]

The locks to the rivers at either end were not built as part of the original contract, probably due to the uncertainty of obtaining water – Jessop had pointed out that the country could not provide a continuous natural supply and mentioned both pumping from the Stanney Mill goit and taking in the waste water of the Chester Canal. The latter scheme was soon implemented, but did not provide sufficient for the lockage-demand. This had to be accommodated by a steam engine at Ellesmere Port, completed in 1799, back-pumping the water from the lower basin there.

At Chester the Company were authorised in 1796 to revert to the original proposal to join the Chester Canal Basin,[42] and after lengthy negotiations with the River Dee Company this was accomplished by two locks. A short branch from the Wirral level was also carried directly into the Chester Canal for the benefit of

traffic between the two, involving a difficult junction part way up the Northgate staircase lock, completed in January 1797. All boats passing between the River and the Chester Canal had in future to use the Ellesmere Canal, and the tidal basin was improved in 1802 with the completion of an entrance lock making it into an enclosed wet dock.[43]

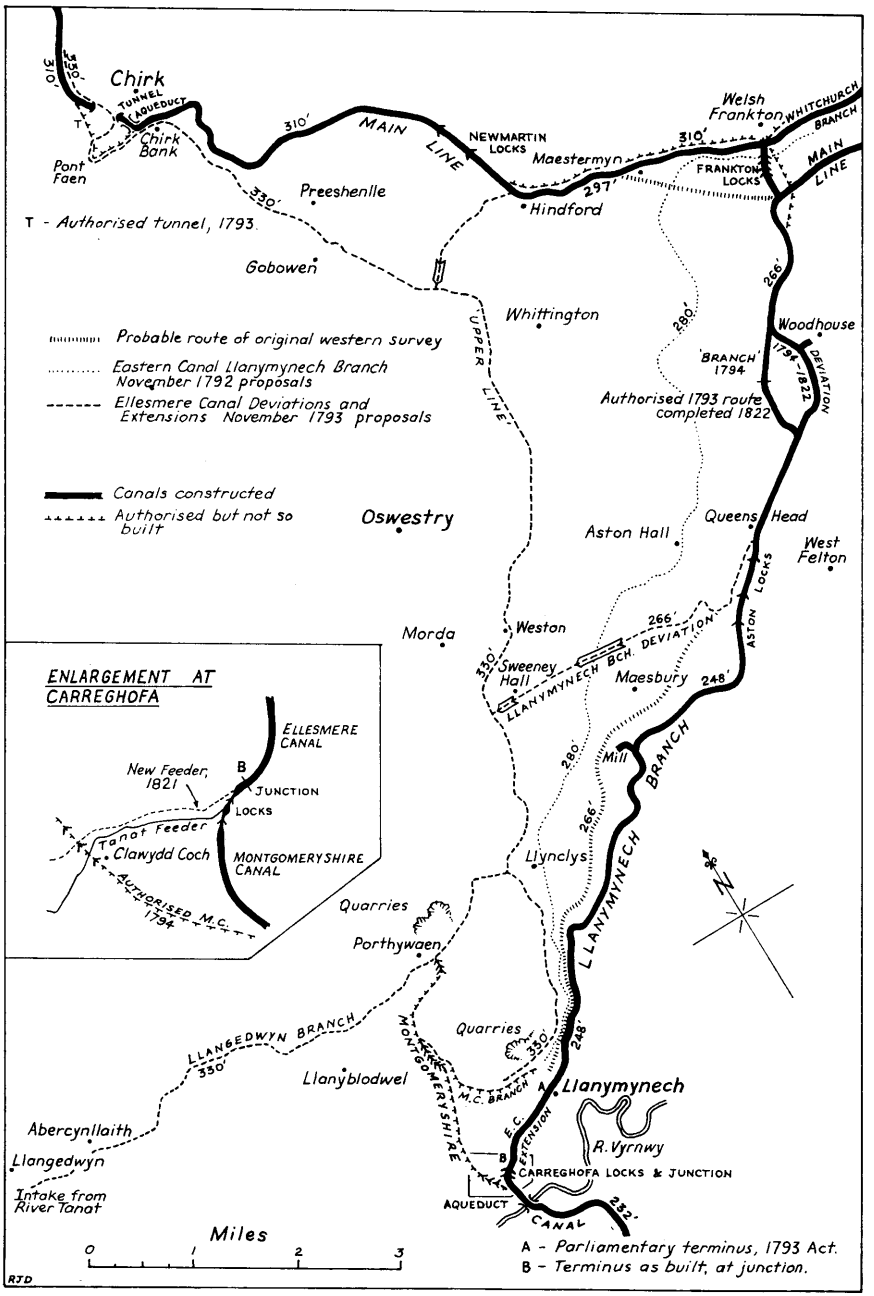
Llanymynech and the Montgomeryshire connection

A branch to Llanymynech, putting the limestone quarries there in contact with the Denbighshire coalfield, formed an integral part of all the early proposals.[44] As shown on the deposited plans for the Eastern Canal, it was laid out on the summit from Croesmere via Frankton, Berghill, Aston Park, and Llynclys - a level, if roundabout, route skirting the low-lying moors. Duncombe brought the western line down to cross these moors, and his Llanymynech branch, commencing near Hordley, took advantage of existing drainage cuts as far as Queen's Head. As referred to in Jessop's report of August 1792 this branch was to be at the Hordley level throughout, but by the time the parliamentary plans had been deposited in November the route had been altered below Queen's Head to create an even lower pound into Llanymynech. This otherwise inexplicable introduction of locks at Aston drawing valuable water from the main line probably followed the decision that had been taken in October to extend the branch into Montgomeryshire; [45] any continuation had to be at low level to cross the River Vyrnwy.

The inhabitants of Oswestry and proprietors of the collieries near there were 'much dissatisfied' at being by-passed both by the main canal and by the Llanymynech line. Under pressure from them, the Committee agreed to provide a branch towards the town,[46] an unsatisfactory scheme involving over 100ft of lockage. Richard Myddleton owned both the Chirk collieries and Llanymynech quarries, and his agent Thomas Lovett suggested a better alternative:[47] a direct canal from the main-line summit near Preeshenlle to Llanymynech, which would save five miles and all the lockage between the coalpits and limeworks, and supply fuel-starved Montgomeryshire. The line would pass much closer to Oswestry; a public meeting there provided subscriptions for a survey and the proposal was pressed upon the Ellesmere Committee.

This activity took place whilst the Ellesmere Canal bill was in Parliament, and during the gestation of the now-independent Montgomeryshire Canal which had not been sufficiently advanced to seek authority in that session. The Montgomeryshire party strongly supported the direct Oswestry route and were prepared to adopt it if the Ellesmere would not. The latter still preferred their own line, but agreed in January 1793 not to offer any opposition.[48] After further discussion two additional clauses were inserted in the Ellesmere's bill and became part of the Act.[49] The first authorised a branch of about two-and-a-half miles from the Llanymynech Branch at Maesbury Marsh to Morda Bridge for Oswestry and the collieries near there subject to the consent of intervening landowners; if not obtained, the Company had to use its best endeavours to secure an Act within two years. The second and lengthier clause suspended for two years all the powers to build the Llanymynech and Morda branches until the expediency of substituting a direct upper line had been reported on jointly by engineers acting for the Ellesmere and embryo Montgomeryshire companies, and if favourable, then provisions were made for a parliamentary application. Jessop and Thomas Dadford were respectively nominated for this duty, and although their final report was not signed until April 1794, much correspondence and discussion took place in the intervening months.[50] The scheme agreed upon seems to have been that shown on the plans deposited by the Ellesmere Company for the

MAP No. 2 Chirk to Llanymynech



1794 session, comprising an upper line from Llanymynech towards Chirk, with a long branch at that level from Llynclys past the Porthywaen Quarries and up the Tanat Valley to tap the river near Llangedwyn. At Sweeney Hall the upper line was joined by a deviation of the already-authorised Llanymynech branch rising from Queen's Head, and another link near Hindford would enable the authorised main line north of there to be abandoned. A short branch from Weston Mill would have extended into Oswestry.[51] The Montgomeryshire party sought and obtained their incorporating Act in this same session, commencing at a junction near Porthywaen with the Ellesmere's proposed Llangedwyn branch (sharing the water supply from the Tanat) then falling quickly to cross the Vyrnwy near Newbridge, with a high-level branch around the hill to serve the Llanymynech quarries.

Jessop attended a meeting of the Ellesmere Company on 17 January 1794 at which he recommended postponement of the bill that was then in Parliament as he felt that further improvements to the project could still be made: this probably did not relate to the upper line with which he had been fairly closely involved, but he did specifically suggest abandonment of the Llanymynech branch deviation as the already authorised line 'will be more for the advantage of the Company and the publick'. Between March and September contracts were let for construction of the whole of the authorised branch together with a short connecting portion of the Main Line as far as Hordley Wharf. Telford reported the branch as already cut in October 1795,[52] but the troublesome lower length over porous limestone strata does not seem to have been fit for navigation until the middle of 1797.[53]

The Montgomeryshire Canal Company had wisely deferred starting on the expensive portion of their line between the north side of the Vyrnwy Aqueduct and Porthywaen until the Ellesmere were committed to the Llangedwyn branch, but apart from opting for a feeder rather than a navigation west of the proposed junction,[54] the Ellesmere Company busied itself with construction of the lower line and made no moves towards resurrecting the upper line or applying for further powers. Noting that neither of the bills promoted in the 1796 session by the Ellesmere contained any reference to the Oswestry line, the Montgomeryshire obtained on petition a clause obliging them to seek powers within four years and to build it as per the Engineers' joint report, failing which it could be constructed by others at the Ellesmere's cost.[55] The matter again rested until the time-limit expired, when a legal opinion was sought, but with no apparent effect; there was already a well-established connection and it was understandably difficult to generate enthusiasm for an expensive parallel route, except perhaps as a reliable supplier of water, but that justification was also removed once the decision had been taken to tap the Dee.

At Llanymynech a mile-long extension of dubious legality took the Ellesmere's branch beyond their authorised terminus and over the border into Wales where it was intended to meet the Montgomeryshire's line near Clawdd-coch, and the latter company carried their waterway across the Vyrnwy meadows towards this point. Delegations from both canals met on site in January 1796, and the Montgomeryshire agreed to deviate their line 500 yards nearer to Llanymynech, notwithstanding that the ground had already been prepared towards the original junction. In consideration of the saving by shortening their extension, the Ellesmere later paid £300, part of the cost of the two locks that the Montgomeryshire built up to the new junction.[56] The Montgomeryshire Canal Act of 1821[57] finally confirmed that the *de facto* beginning of the canal 35 yards on the Llanymynech side of Carreghofa Top Lock was deemed to be the formal commencement in lieu of the obsolete one at Porthywaen, and the Ellesmere's extension to here achieved belated statutory authority in 1827.[58]

The Llanymynech branch as built followed the authorised route of 1793 fairly closely except at Frankton, and near Woodhouse, the residence of William Mostyn Owen MP, one of the original promoters with an honoured seat on the Committee. He was instrumental in deviating the canal to pass through his estate, with a short private arm virtually to his door. Half a mile of the parliamentary line had already been cut,[58] and this was later paid for by the Revd John Robert Lloyd, another of the original trio, to the intent that it would become a private appendage to his Aston Hall lands.

In 1799 the Committee resolved to repay this money so that the 'branch' could be used for public traffic, and by a further arrangement in 1822[60] the parliamentary line was completed throughout at the expense of Mr Owen and the Woodhouse deviation given up – the rude Shropshire boatmen had evidently ceased to be a fashionable parkland amenity.

Pontcysyllte to Chester

John Duncombe deserves considerable credit for the design of the western scheme through difficult country with a seventeen-mile summit-level only four locks higher than the eastern alternative, but at the cost of major engineering works between Ruabon and Chirk including a tunnel at first planned to be 4607 yards long, later shortened by 600 yards of deep cutting proposed at the north end. Although projected with the specific intention of directly serving the Denbighshire coalfield, access was denied to most of the Acrefair pits by reason of the tunnel, and the 310-ft summit contour ran well away from the workings in the valleys north-west of Wrexham. Jessop clearly recognised the latter problem in his report of August 1792 – 'perhaps a branch up the Bersham Valley towards the Brombo Collieries should also be made as it may go a considerable way on a dead level'. This was rather a curious statement given the geography of the area, and the Brymbo terminus as later settled on at Gough's House was a further 250 feet above the main-line summit in an area devoid of natural water supplies. Perhaps a tramroad was envisaged for part or all of the route, as the bill included a general power to substitute railways or roads for any portion of the canal system.

At the Committee meeting on 26 September 1792 it was resolved to ask Jessop to reconsider the route – 'It having been suggested that it may be possible to avoid the tunnell from Pont Cysyllte towards Ruabon and in such a manner as to put the coal owners as near as possible on an equal footing'. This suggestion seems to have come from William Turner.[61] Once the decision had been taken to interrupt Duncombe's summit by a low-level aqueduct at Pontcysyllte, there was no reason why the northern length should not be carried at a higher level to eliminate tunnelling and approach closer to all the collieries, introducing more lockage on the main line but reducing the rise to Brymbo. This developed into a proposal to extend the branch to the Cegidog Valley at Ffrith, where ample water was available to feed the newly-elevated route (now isolated from the River Morlas supply south of Chirk originally proposed). But to use that water the highest part of the Brymbo Valley needed tunnelling, or the branch diverting to an easier line.

Turner's principal concern was to put the collieries in contact with Shropshire; traffic to Chester could use the Eastern route once terms had been settled with the promoters of that line. The Committee, however, were not yet ready to give up the western line so recently approved by Jessop, and time was running out for fresh surveys. In the end, the plans that were deposited on 10 November showed the whole of the original western scheme including the tunnel,[62] the only concession to the new proposals being the hurriedly-added extension of the

Brymbo branch to the Cegidog and its precious water, but with no indication of the level intended. It is possible that, anticipating a settlement with the Eastern promoters, the Committee hoped to adopt parts of that project including the higher level Plas Kynaston – Ruabon – Bersham route already in the Eastern Canal bill: but they were forced by necessity to pursue their original scheme in Parliament, despite having resolved by December to apply for a deviation of the Pontcysyllte to Cegidog Valley section in the next year's session together with a more direct main line from the Brymbo area to Chester.[63]

Their incorporating Act being achieved, application was duly made for the alterations in November 1793. The revised route locked up from the aqueduct site at Pontcysyllte to a new 386-ft summit at Rhosymedre, this level being followed through Ruabon to Bersham as previously surveyed for the Eastern Canal's colliery branch, and on the Cegidog Valley where 66 feet of lockage took the line up to its terminus at Tan-yr-Owen Mill. To avoid tunnelling at Brymbo, the new route ran through the easier Moss Valley, although still needing some deep cutting. The direct line to Chester was probably little more than a sop to the westerners – after dropping down from a junction at Ffrwd to an aqueduct about 90 feet high over the Alyn below Caergwrle, it continued by seven dead-straight falling miles to the Dee.[64]

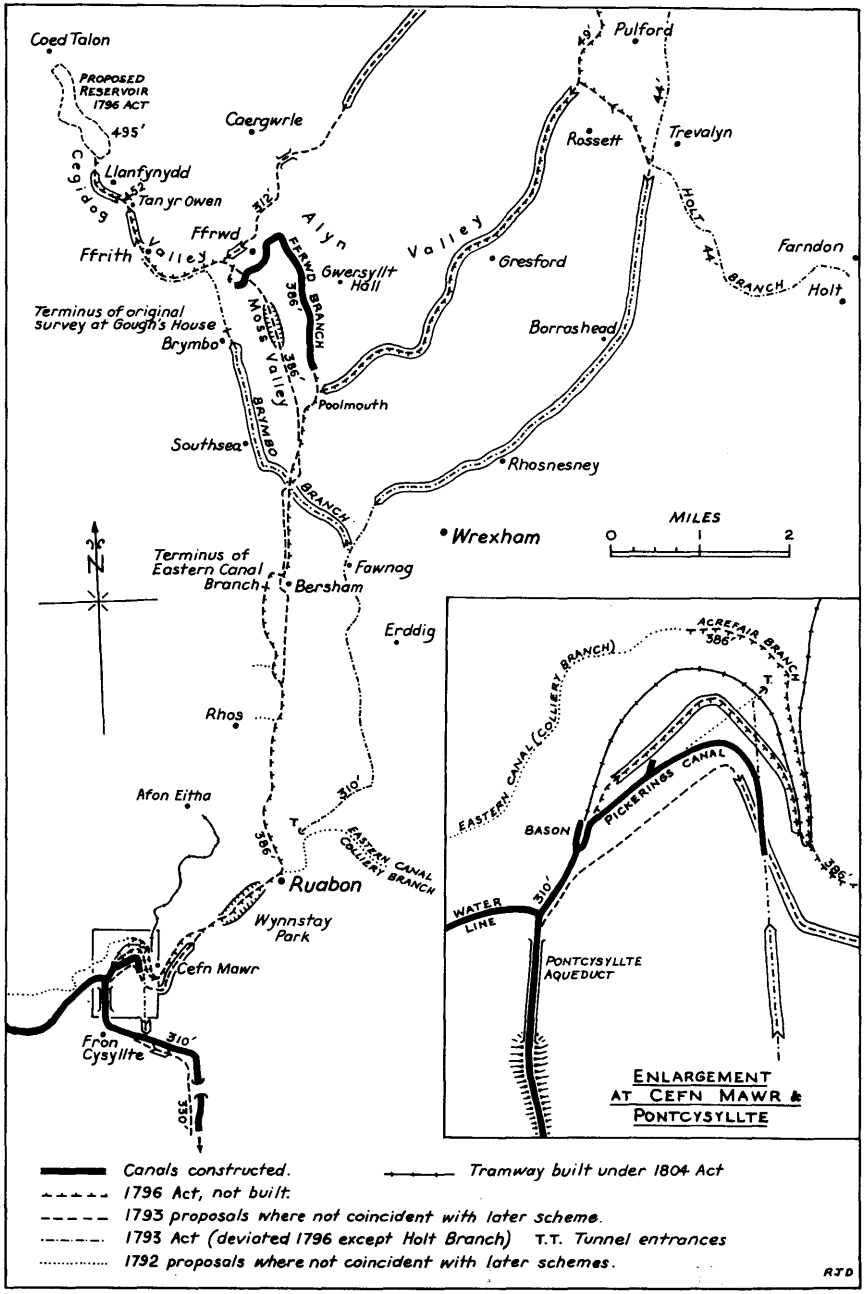
As discussed earlier there seems to have been a reaction at the end of 1793 against Turner's re-introduction of the eastern proposals, and the bill for the deviations was not proceded with. The Company had, however, to accept that his basic proposals north of Pontcysyllte were sound, provided that they were linked by a more realistic route to Chester. Duncombe prepared fresh surveys, and after various attempts to find a way through or around Wynstay Park finally settled on a line much the same as Turner's, but using the Alyn Valley between Poolmouth and Ffrwd to miss the deep cutting at Moss at the cost of extra mileage. To reach Chester, he followed the Alyn down through Gresford and Rossett to rejoin his earlier authorised line at Saltney Side, two miles from the Dee, and the original Holt branch was retained and extended to link with the new route.[65] As before, water was to come from the Cegidog, with the line extended up the valley to Llanfynydd where a dam along Offa's Dyke would create a 200-acre reservoir. This extension, if built as a navigation, would also have served the Coed Talon collieries, and could if necessary have been extended further to Mold and beyond at the same level. Jessop approved the revised proposals on 14 July 1795 with minor adjustment at the south end including a short branch on the summit round to the Acrefair collieries, and preparations were made to apply for a deviation Act.

Turner, undefeated, had revised his own scheme by raising it 10 feet in height to reduce the cuttings at Ruabon and at the Moss valley, and from there he pointed out that a half-mile tunnel could be driven to the Southsea collieries in the Brymbo valley if required. Jessop, called in to arbitrate, preferred Duncombe's route by reason of its better connection to Chester and dismissed Turner's ideas for a return to an eastern line only:

> I consider this extension [to Chester] so essential to the accommodation of the trade (particularly from the Montgomeryshire Canal to Chester and Liverpool, as boats will always on returning take back with them coal or lime) that I am not a little surprised that such an idea as Mr Turner suggests could for a moment be entertained by him.[67]

The revised scheme received authority in 1796 after some delicate negotiations with John Humberstone Cawley of Gwersyllt Hall who objected to the Ffrwd branch passing through his park.[68] Early steps were taken to build this part of

MAP No. 3 Denbighshire proposals



the branch as far as Richard Kirke's Ffrwd colliery,[69] and he agreed to supply water to the canal by pumping there.[70] Kirke had clearly influenced the Committee of which he was a member, but after spending £9,000 on the works a halt was called in 1798 with only two and one third miles cut.[71] It is doubtful if this length, which included bridges and an aqueduct, was ever used.[72] The Company then considered an inclined plane as a substitute for the heaviest lockage in the Alyn valley, followed by schemes for a railway on the branch or elsewhere along the main line. The proprietors finally settled for a railway from Pontcysyllte to Holt,[73] presumably along the canal line, but the works in Shropshire and Cheshire claimed their attention and no action resulted.

William Jessop made an inspection of the whole canal at the beginning of 1800:

> On our way to Pont Cysyllte, I saw the cut made on the branch to Brumbo; it is doubtful whether it can be made useful, until an extension may be made to Holt; and that is a subject which, I comprehend, does not immediately demand consideration. When the works more immediately necessary are executed, they will tend very much to narrow the field of speculation, and bring the objects, which it may have in view, more distinctly under the eye.
>
> As the many obstacles thrown in the way of the original intention, and the change in circumstances which have taken place since the obtaining of the Act, have shown it to be wholly unadviseable to execute a canal between Pont Cysyllte and Chester, and especially since the extensive opening of the collieries between Hawarden and Flint, which will communicate by means of railways with the Dee, so as to deliver coal at a much less price at Chester than formerly – the great object for immediate consideration is, how to deliver coal at least expence, from the Ruabon Collieries, into the bason on the south side of the Dee at Pont Cysyllte.[74]

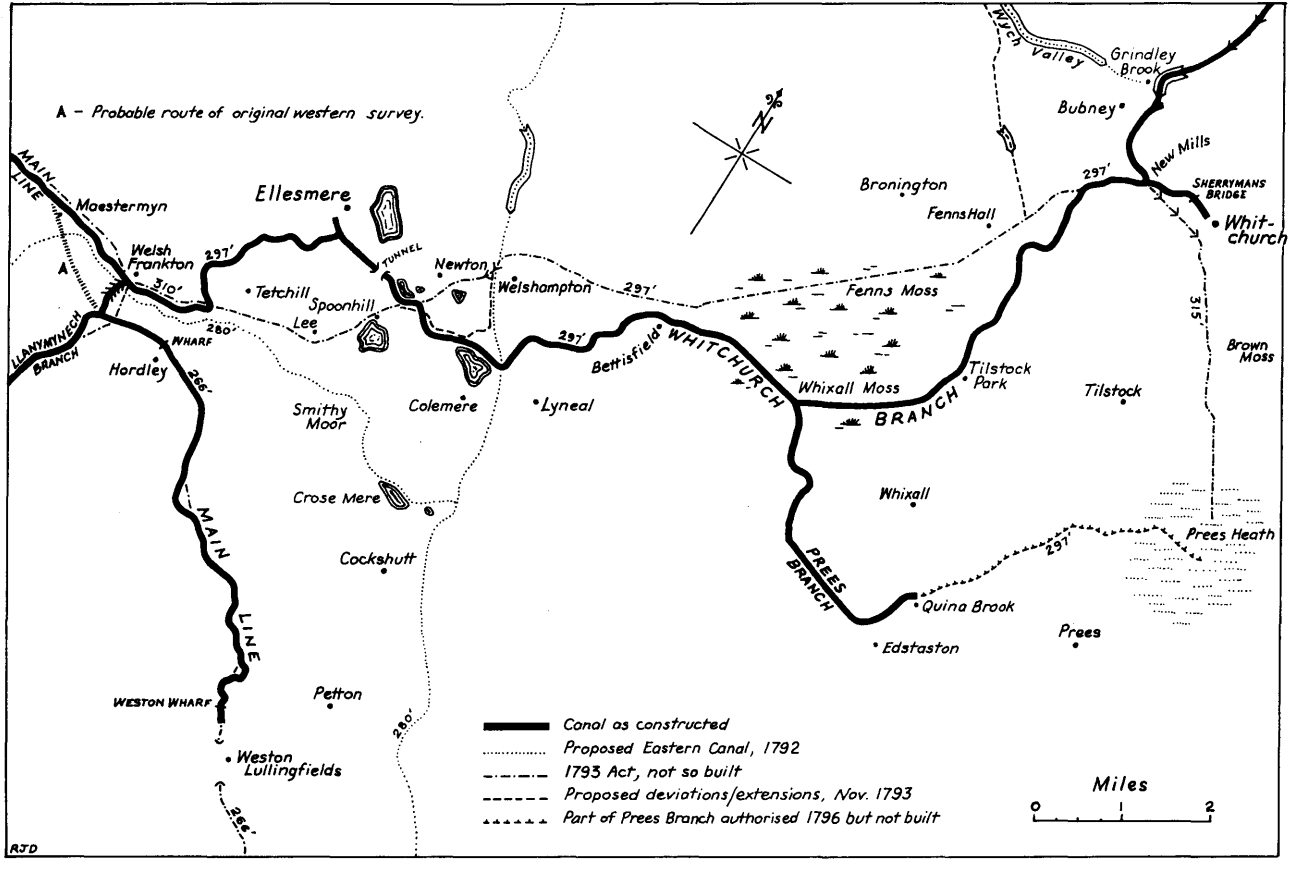
He recommended a railway for this purpose which was built under powers obtained in 1804 from Ruabon Brook to a bason on the north side of the aqueduct.[75] Although railways were to be considered again later, the western line of canal to Chester had effectively died in 1798. In the words of the Company's 1805 report:

> . . . . the great quantity of lockage, which would have been required upon this part, and the difficulty and expense to have been incurred in procurring a sufficient supply of water upon that high and short summit, made it evident that a canal navigation through that district would be perfectly unadviseable.

Whitchurch and the Chester Canal

William Turner's Whitchurch branch as authorised by the 1793 Act was to run from the junction at Frankton by a substantial embankment at Tetchill and deep cuttings at Lee and Newton to Welshampton, then across Fenns Moss and the Red Brook valley to reach Whitchurch. Beyond there locks took it up to a summit extending to Prees Heath with a feeder from Brown Moss. It may be surmised that the heavy earthworks at the western end and the distance from the town of Ellesmere were the penalties for the reasonably direct course that would be necessary for this portion subsequently to become part of an eastern main line. Following the revival of the western line, the Committee took a fresh look early in 1795 at the problem of reaching Whitchurch and their statutory obligation to seek a connection to the Chester Canal.

John Duncombe was directed to resurvey the country from Frankton to Prees Heath, and produced a completely level route on the south side of Fenns Moss which could be connected by a short arm with Ellesmere and passed within two miles of Wem, but Whitchurch anger was aroused: 'by the new survey it will appear



MAP No. 4 Ellesmere and Whitchurch

that the branch will not come nearer to Whitchurch than *Prees* as the level will end there. *Must be opposed.*"[76] A lockless branch from Whixall Moss to Sherryman's Bridge, outside the town, was duly included, and the amended scheme received Jessop's blessing in July: 'Considering the general irregularity of the country the ground chosen is uncommonly favourable. When power is obtained it will be very adviseable to execute this part of the line immediately, as it will certainly be very productive.'[77] The deviation Act passed in 1796,[78] but construction did not proceed with any great vigour. The contract for the first section to Ellesmere was let in February 1797, but the contractors were discharged twelve months later in favour of direct labour.[79] The tunnel and cutting beyond the town were started in November 1798, with the canal towards Hampton Bank soon after. This was completed about the middle of 1800, and a further extension to Tilstock Park involving the difficult crossing of the Moss was taken in hand late in 1801 and completed by 1805. The first portion of the Prees line was built at this time and extended in 1803-4, but the last three miles beyond the main Wem road at Quina Brook never materialised.

Negotiations took place in April 1795 for the purchase of the controlling interest in the Chester Canal, with the purpose, one suspects, of lessening the objection to any subsequent repeal or postponement of the expensive obligation to pursue a junction line contained in the 1793 Act. However, 'Mr Egerton did not then conceive himself fully at liberty to treat',[80] and the obligation remained. Jessop, committed to the western line, was lukewarm:

> Respecting the line for connecting the Whitchurch branch with the Chester Canal, as it could be of no possible use until water could be brought to it by the execution of the main line and the Whitchurch branch, I think it would be very premature to take any steps towards this object at present, and more especially as I have reason to believe that from the line as now proposed a much more eligigible connection might be made than any hitherto surveyed: but time and change of circumstances will probably throw lights upon this subject that cannot be well forseen, and such as it would be idle to predict.[81]

Turner's scheme for this link was rejected. In its final form he had proposed an extension of the Whitchurch level via Grindley Brook, Hampton Heath, Duckington, and Broxton, then falling to join the earlier line to the Chester Canal near Tattenhall.[82]

The Company's Whitchurch deviation Act of 1796 repealed the obligations in respect of the Fenns Hall to Tattenhall line, and gave further room for manoeuvre by providing that engineers appointed by both Companies should agree on the best route for which the Ellesmere must then seek powers within three years. Duncombe for the Ellesmere and John Fletcher for the Chester quickly settled on and prepared plans for the route that was later built through Wrenbury to the summit level of the Chester Canal, save that the junction was to be at Stoke about half a mile north of that finally adopted at Hurleston.[83] Although parliamentary notices were published in August 1797, the project was pigeon-holed whilst the other works on the canal were in hand, despite periodic pressure from the Chester Canal. Not until after the decision early in 1800 finally to abandon the western line to Chester was the question revived, as without it the greater part of the system, and the Montgomeryshire Canal, were totally isolated from the Wirral line and its outlet to Liverpool.

Several variations to the route had been considered, including a more southerly line extending the Whitchurch level to Marbury,[84] and the 1797 notices had envisaged a junction with the Chester Canal at Acton, not far short of the Nantwich terminus, perhaps influenced by the Commercial Canal project of

1795-7. In the end, the original joint plan of 1796 was dusted down and deposited for the 1801 session, this route being duly authorised in the Act.[85] A proposal later that year to start construction between Church Bridge, Norbury, and the north end of Wrenbury Common, was soon detected as a ruse to divert water from the Cholmondeley and Steer Brooks for the supply of the luckless Chester Canal, and the contract for this first section was not let until the spring of 1803 after the Chester company had agreed to pay interest on the expenditure and indemnified the Ellesmere against claims from millowners. All the remaining parts of the line from Tilstock Park to Hurleston were contracted for later that year, once the water problem had been finally solved with the decision in June to bring supplies from the Dee at Llantisilio by a feeder to Pontcysyllte. The through route opened in 1805.

The Committee had decided in June 1800 to save money by not building the last mile of the Whitchurch branch between the proposed junction at New Mills with the Chester Canal link and Sherryman's Bridge. An application in 1805 to construct this length privately was refused,[87] but the Company finally agreed at the end of 1806 to undertake it themselves and to extend further to a more convenient terminus at Castle Well subject to the Whitchurch inhabitants providing a loan of £2,000.[88] Powers for the extension were granted at the second attempt by an Act of 1810,[89] and the canal opened to Castle Well basin in 1811.

Conclusion

The original promoters saw their scheme as both a trunk route of through communication between the navigations of the Severn, Dee, and Mersey, and as a carrier of local traffic: but eastern and western proposals differed sharply in the relative importance attached to each function, leading to different criteria for route selection. The eastern party, after toying initially with a narrow canal, looked primarily to the easiest north-south line big enough for the barges that used the connecting waterways, with local traffics dealt with as necessary by means of branches. The western group, restricted by their engineering works to a narrow-boat canal, wanted direct accommodation for the principal coal and lime traffics with the through connection as an incidental benefit.

Jessop's previous experience had mainly been with broad waterways, and he may have had difficulty coming to terms with the requirements of the Ellesmere scheme. He was never enthusiastic about the eastern line once the Denbighshire industrialists had sold him their expensive western project, and he does not seem to have been further involved once the tide had finally turned away from the canal he had recommended.

William Turner seems only to have had local experience and support as an engineer, and it is not surprising that his persistent but conservative voice was frequently unheeded in the highly-charged atmosphere of the time. Much of what he said was sound in principle, and the Ellesmere Canal Company might have achieved far more than it did if the proposals he supported had been allowed to develop. No doubt he derived some hollow satisfaction at the turn of events after 1798, but the very costly dice already cast largely negated any benefit to the proprietors from the return to more sensible objectives. Like so many promising launches of the period the Ellesmere Canal was swept up on the crest of a speculative wave and carried away with unrealistic ambitions, only to be beached on rising prices when the mania receded. It was to the Company's credit that so much was salvaged to become the irreplaceable asset that we enjoy today.

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3 Where possible the maps have been based on the best available original plans rectified to incorporate present day topographic knowledge. Whilst they are considered to be more correct than any offered previously, the depiction of proposals nearly two centuries old can often only be a personal interpretation. Locks are generalised, and the figures beside the pounds represent the height in feet above present Ordnance Datum.

4 E. A. Shearing, 'Chester Canal Projects', *Journal* Vol. XXVIII Nos 3 & 4, 1984. R. J. Dean, 'Sir Richard Whitworth and Inland Navigation', *Journal* Vol. XXVII No. 4, 1982. Whitworth was on the Committee of the Eastern Canal.

5 Ellesmere Canal Proprietors minute books, Public Record Office, Kew, RAIL 827/4, 28 June 1791

6 Ibid. 31 August 1791

7 Ibid. 15 September 1791

8 Joseph Turner, *A description of the intended canal from Shrewsbury to Chester and Liverpool . . . .* Edmund Monk, Chester, 1791. The exact publication date was advertised in the *Chester Courant.*

9 PRO RAIL 827/4, 7 November 1791

10 Ibid. 9 January 1792

11 Ibid. 21 August 1792, with a full transcription of the report and estimate

12 *Chester Courant,* 18 September 1792

13 Deposited plans, 11 November 1792, Cheshire Record Office QDP 2 (Shropshire, Flints., and Denbighs. copies also survive)

14 Ibid. QDP 3

15 PRO RAIL 827/4, 9 January 1792

16 The only survivors of the original large-scale deposited plans of 10 November 1792 are Cheshire RO QDP 1, and Shropshire RO parcel 287. Both have Turner's hurried survey of the branch pasted on as an annex, with the main line now deviated to a higher level between Maestermyn and the intended junction at Frankton to accommodate it.

17 PRO RAIL 827/4, 28 December 1792

18 Ibid. 14 February 1793

19 No record is available of the terms, except that the Eastern promoters were to receive £1,000 towards their surveying expenses. The extent of the combined project at or soon after this time is probably represented by an undated MS map (with later additions) in the Shropshire Libraries Local Studies Dept. Knight Collection

20 33 Geo. III c.91, 30 April 1793, clause 96. Standing Orders of the House of Commons had prevented the new route's being authorised under cover of the Eastern's existing plans and parliamentary notices.

21 Ellesmere Canal General Committee minute books, PRO RAIL 827/1–3, 17 July 1793

22 Deposited plans 11 November 1793, Cheshire RO QDP 5 (Shropshire, Flints., and Denbighs. copies also exist)

23 PRO RAIL 827/1, 23 September 1793
24 Letter to Andrew Little, 29 September 1793, quoted by Sir A. Gibb
25 PRO RAIL 827/1, 18 December 1793
26 Ibid. 17 January 1794
27 J. Knight's rough notes of proceedings at Committee meeting 4 December 1794. Shropshire Libraries, Knight Colln 15022
28 Ibid. 5 January 1795, quoting extracts of letter 3 January 1795 from Turner
29 Curiously, the only plan to have survived is for a Whitchurch to Tattenhall canal (see Map No. 1D) Cheshire RO QDP 10, but from the parliamentary notice it seems that he was applying also for Pontcysyllte to the Cegidog valley, and from Spoonhill to Leaton Heath.
30 Copy of Jessop's report 8 December 1795, Knight Colln 15031
31 PRO RAIL 827/2, 12 April 1797, concerning arrangements with mill owners along the River Perry for filling the canal to Weston
32 PRO RAIL 827/1, 27 June 1796, and 827/2, 29 July 1796
33 PRO RAIL 827/2, 9 February 1803, 26 September 1803, 27 June 1804. See also printed report to the Proprietors 27 November 1805.
34 The locks at Frankton were built some yards west of the parlimentary route, the latter suggesting an even steeper rise
35 Copy of Jessop's report 14 July 1795, Knight Colln
36 Rennie's notebooks, 15 November 1801. National Library of Scotland, MS. 19874
37 Telford's printed report to the Proprietors, 25 November 1801. Knight Colln
38 Deposited plan QDP 3, Cheshire RO
39 Ibid. QDP 1
40 PRO RAIL 827/4, Copy report 23 August 1792
41 Letter from Telford to Rowland Hunt, 17 July 1795, NLS MS. 19772
42 36 Geo. III c.96, 14 May 1796. Clause 11
43 Telford's printed report to the proprietors, 30 June 1802, mentions that the lock was then finished
44 e.g. resolution of meeting 31 August 1791, PRO RAIL 827/4
45 PRO RAIL 827/4, 25 October 1792. As a result of a meeting at Welshpool two days earlier the Committee recommended an extension there either by consolidated stock or by an independent company.
46 PRO RAIL 827/4, 28 December 1792 and 11 January 1793
47 Thomas Lovett to Richard Myddleton, 14 January 1793. Chirk Castle MSS. E234, National Library of Wales. The first survey was taken by 'Mr Wareing, a person concerned in the Leominster Canal'.
48 NLW Chirk Castle MSS. E255 and E550
49 33 Geo. III c.91, 30 April 1793, clauses 98 and 99
50 No copies of this report seem to have survived
51 No plan can be found of this branch, but a separate parliamentary notice was issued for it, referring to a terminus in the Reverend Mr Steel's land within the Liberties of the Town of Oswestry. It would have been less than a mile long with three or four locks.
52 Printed report to the Proprietors, 21 October 1795. Knight Colln
53 Montgomeryshire Canal minute book, PRO RAIL 852/11, 27 February 1797 and 3 July 1797
54 Ibid. 7 August 1794
55 36 Geo. III c.96, 14 May 1796, clause 19
56 PRO RAIL 852/11, 15 January and 23 February 1796
57 1&2 Geo. IV c.119, 23 June 1821
58 7&8 Geo. IV c.102, 21 June 1827

59 PRO RAIL 827/2, 27 November 1799
60 PRO Ellesmere & Chester Canal minutes, 28 February 1822
61 Turner's printed notice 6 October 1795, Knight Colln
62 Cheshire Record Office QDP 1. Shropshire RO Parcel 287
63 PRO RAIL 827/4, 28 December 1792
64 Deposited plans 11 November 1793, Cheshire RO QDP 5. Shropshire, Flints., and Denbighs. copies also survive. Kept with the Cheshire copy is an interesting official survey c.1800 of the completed canal from Chirk Bank to Llanymynech, purpose unknown.
65 Deposited plans 25 September 1795, Cheshire RO QDP 10, also Flints. and Denbighs. copies
66 Jessop's report 14 July 1795, copy in Knight Colln
67 Ibid. 8 December 1795
68 36 Geo. III c.96, 14 May 1796
69 PRO RAIL 827/1, 27 June 1796, and 827/2, 29 July and 24 August 1796
70 PRO RAIL 827/2, 30 November 1796
71 Ibid. 13 June 1798
72 R. J. Dean, 'The Ffrwd Branch of the Ellesmere Canal' *Journal* Vol. IX p.109
73 PRO RAIL 827/4, 28 November 1798
74 Jessop's report 24 January 1800. Knight Colln, 15037. Against the first part of the second quoted paragraph an unknown hand has endorsed 'This might have been seen before had ye survey of ye line been made by persons of ability'
75 44 Geo. III c.54, 29 June 1804. The canal was extended privately about half a mile c.1820 by Pickering's arm. The Ellesmere & Chester Company sought powers in 1830 to build on the level to Plas Kynaston, but withdrew this provision from their bill, and it was carried out privately soon after by an extension of the arm and a short tramway.
76 Undated MS notes, Knight Colln 15019
77 Jessop's report 14 July 1795. Copy in Knight Colln
78 36 Geo. III c.71, 26 April 1796
79 PRO RAIL 827/2, 10 February 1797 and 7 February 1798
80 Potts & Leeke account books 26 April 1793. Cheshire Record Office DPB/-
81 Copy report 14 July 1795, Knight Colln
82 Deposited plan 28 September 1795. Cheshire RO QDP 10 RO QDP 25
83 Ibid. dated 30 December 1796, deposited 29 September 1800. Cheshire
84 Undated MS plan in Knight Colln, and PRO RAIL 827/2, 5 June 1800
85 41 Geo. III c.70, 20 June 1801
86 Copy report by John Hill, John Knight, and Geo. Corser, Knight Colln 15066
87 PRO RAIL 827/3, 31 July 1805
88 Ibid. 26 November 1806
89 40 Geo. III c.24, 6 April 1810

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Railway Stations of a Lesser Breed

BY HARRY PAAR

The railway station is the most important meeting-point of railway history and local history, is often important too in relation to industrial history and to canal or coastal navigation history (e.g. Wisbech, Portreath), and is almost always highly relevant to road history. These points of contact with other modes of transport and other kinds of history are always interesting because things happened at those places other than the simple, mechanised passage of trains – awkward things like handling passengers, lifting cases, machinery, or road carriages on or off wagons, unloading coal, loading potatoes, getting minerals down to a harbour, and so on.

Passenger stations in particular were – and often still are – most diverse in their characteristics, because, even where a company adopted a standard type of building, the track layout, topography, and traffic at each station was generally different and a different community was served. Major stations are recorded, in varying detail perhaps, in books and articles; the great majority of stations were much more elementary in layout and architecture, but each of them has a history which can vary from a few years of placid slumber (like Stoke Bruerne) to one of considerable activity over many years, sometimes punctuated by a single episode of high drama (e.g. Soham). Each one merits some record.

Where a line has been the subject of a careful and detailed study there will exist a good record of its stations, but too often there will be little more than a dot on a map, a date for closure, and such ground remains as have been permitted to survive, as a memorial to long years of public service.

A 1938 map of the LNER main line from King's Cross to Edinburgh indicates 127 stations, neglecting major ones. An atlas of 1977 shows only 44. What were the vanished stations like? We know when they were closed, thanks to *Clinker's Register*, but opening dates may be harder to find. Yet openings were far more important, because from that day the community served had access to the national network as it then existed. True, the very poor were just as shackled to their village by their poverty as they were the day before, but excursion fares enabled large sections of the community to travel and to see places hitherto almost as remote as a foreign country, and this great increase in mobility in time affected the lives of people profoundly, as to where they could live and where they could work and whom they could visit.

Whereas the branch line both evokes great interest and is of a scale which permits highly-detailed study by amateur historians, minor stations on main lines suffer from a grave disability in that the history of such a line is generally recorded as part of the history of a major company and as such there is little space, even if there is the inclination, to define the dates, nature, and purposes of every one of the stopping places.

There were other interesting categories of passenger stations. The temporary termini offer a challenge at times because they were sometimes so short-lived that they escaped the cartographer, artist, and photographer – Hopesbrook on the Hereford & Gloucester line is an example. This applies also to certain stations which were closed in early times, such as Gatcombe on the South Wales line, which was opened in the early 1850s and closed in 1869.

Flag stations and drop stations long preceded the more numerous class of halts, but were akin to them. The Eastern Counties Railway in particular found that

full stations were costly luxuries in rural areas, and occasionally provided a platform at which trains stopped to pick up only when a flag was exhibited, or to set down only when the guard was notified at the previous station. In August 1857 the ECR chairman and officers visited 'the Langford Flag Station' on the Maldon branch. This station had been in use for nine years, but the Hon. F. Byron had proposed that it be moved nearer the village, offering to bear the cost of removing the platform and erecting a booking office.[1] This poses an interesting question – was it in fact moved? The fact that the officials agreed – possibly because it was not going to cost the company anything – is not conclusive. Certainly, in its present location it was in about the best position for serving the village, whilst being adjacent to the road; the single platform can still be seen, with the 'station-house' which is a century older than the railway. To the one question must be added another, because the line was laid with double track, but was singled (it is said) during the Crimean War of 1854–1856.[2] The nearby overbridge, now filled in, was wide enough for two lines, yet there is no sign of another platform. So an apparently very simple station can present features of interest when examined a little more closely.

In December 1858 the ECR Traffic Committee declined to open even 'a flag station' at Boreham or Hatfield, on the main line east of Chelmsford.[3] The strange case of Boreham has been examined to some extent;[4] at nearby Hatfield Peverel it is believed that Hatfield station was opened in 1844 with the line; it was burned down in 1849 and the village had to wait until 1878 for a replacement. Originally, no station building existed, for when in April 1845 the Traffic Committee travelled the line, inspecting each station, they reported of Hatfield, 'There being no accommodation whatever for passenger traffic at this station, that the plan proposed by Mr Wood for this station be adopted and an estimate be submitted. That the road to the station be ballasted'. Again, this still operational little country station has a story.

Another version of the basic station was the 'drop station', a term of a later period and another part of the country, the Forest of Dean area in the 1870s. The term was applied to Monmouth May Hill station in 1873, and to Bilson platform near Cinderford in 1876; both were intended to be temporary stations but one – May Hill – survived until 1959.[5]

As to the relatively modern outcrop of halts, Charles Clinker has provided a study of those on the GWR, which probably built more of them than any other company, but there were examples on other lines, and a study of them would be of considerable interest.

Perhaps the most common type of minor station, apart from those directly serving an adjacent village, were the wayside stations. The expression 'wayside' or 'roadside' station, not often used today probably because so few are left, meant a station beside a way (land or road) so that the station did not serve a village hard by, but was rather a collecting-place for travellers, livestock, goods, and other traffic from remotely-placed communities. This relationship between road and rail is so obvious that it can be overlooked, yet it was a feature of the earliest public railways, and although their predecessors the industrial wagon-ways and tramroads nearly always led to the nearest river or canal, the first recorded English railway, near Nottingham c.1604, terminated on Wollaton Lane.

Jefferies gives a fine description of such a station;[6]

> A country 'roadside' railway station seemed deserted upon a warm August afternoon. It was all but concealed on that level ground by the hedges and trees of the fields with which it was surrounded. There was no sound of man or wheels, and nothing moving about the platform.

. . . . The red brick of the booking office looks redder and more staring under the fierce light. The door is locked, and there is no waiting-room in which to take shelter; nothing but a projecting roof over a part of the platform. On the lintel is the stationmaster's name painted in small white letters, like the name of the landlord over the doorway of an inn. Two corded boxes lie on the platform, and near them stand half a dozen rusty milk tins, empty. With the exception of a tortoiseshell cat . . . . there seems nothing living in the station, and the long endless rails stretching on either side in a straight line are vacant. For hours during the day the place slumbers, and a passenger gliding by in the express may well wonder why a station was built at all in the midst of trees and hedges without . . . . a single visible house.

But by night and very early in the morning there is bustle enough. Then the white painted cattle pen . . . . is full of frightened beasts, lowing doubtfully, and only goaded in by the resounding blows upon their backs. Then the sheep file in in more patient ranks . . . . An engine snorts to and fro, shunting coal wagons on to the siding – coal for the traction engines . . . . threshing out the golden harvest around. Signalmen, with red and green lights, rush hither and thither, the bull's-eyes now concealed by the trucks, and now flashing out brightly like strange will-o'-the-wisps. At intervals long and heavy goods trains go by, causing the solid earth to tremble. Presently the sun rises . . . . and the red arms of the signals stand out clearly defined, and then . . . . the approach of the milk carts with their freight for the early morning train . . . . a few yards from the gate a small inn is hidden under the tall elms of the hedgerow. It has sprung up since the railway came, and is called the *Railway Hotel.* It proffers good stabling, and even a fly and posting for the passenger who finds himself set down at that lonely place – a mere road – without the certainty of a friendly carriage meeting him. The porter may, perhaps, be taking his glass within. The inspector, or stationmaster . . . . now that the afternoon express has gone safely through, has strolled up the line to his garden to see how his potatoes are getting on. He knows full well that the slow, stopping train despatched just after it will not reach his station for at least an hour.

. . . . A farmer's son . . . . watches the stationmaster unlock the booking-office . . . . it is booking-office, parcel-office, waiting-room and all combined, and the electric telegraph instrument is there, too, some of the needles blocked over with a scrap of paper. The place is crammed with sacks, bags, boxes, parcels, and goods mixed together, such as ironwork for agricultural machines, and in a corner lies a rick-cloth smelling strongly of tar like the rigging of a ship. On the counter, for there is no sliding window as usual at large stations, stands the ticket-stamping machine, surrounded with piles of forms, invoices, notices, letters, and the endless documents inseparable from railway business, all printed on a peculiar paper with a faint shade of yellow. Somebody says 'A' be coming', and the young farmer walks out to watch the white steam now just visible far away over the trees. The train runs round the curve onto the straight . . . . .

Although Jefferies was writing of Wiltshire (he wrote 'The Story of Swindon' for *Fraser's Magazine* in 1875), his description, with variations, could be applied to hundreds of such stations.

A somewhat later writer, in the Edwardian period, epitomizes what such stations must have meant to many people. 'One remark I overheard at a small wayside station will, perhaps, impress the town-dweller with the isolation of some village lives. A woman, who had evidently walked far to take the train, having deposited

her great bunch of flowers and queer parcels on the bench, exclaimed with evident fervour "Oh! how nice to see a railway station once more!" "[7]

Finally, there were station oddities such as the private stations about which a book has recently been published,[8] Angel Road (GER) which had two platforms, both on the same side of a single track with a level crossing between them,[9] and Dartmouth, which has the trappings of a railway station but no rails, being the terminus of a railway-owned ferry.

For some of us there will be little interest or importance in recording these lesser railway stations, but I suggest that those who feel that an historical whole is made up of a large number of parts, and that stations formed an important and numerous class of such parts, will find it rewarding to look around their own districts and record the station history. The contemplation of a vandalised ruin, a bare platform, or even a neat house which has burgeoned forth from a discarded station, is a rather sombre pastime, but to create a history of the place in its hey-day, and through its active span, is a worth-while task.[10]

As to research methods, the 25" OS plans can usually provide the physical layout at various times, supplemented by official plans which exist in record offices; old post-cards or other photographs can bring the plans to life, and directories will tell us the names of stationmasters and traders. The personal testimony of local people can be valuable for day-to-day details which will otherwise go unrecorded, but here time is running out – to remember a station which was closed in 1930, a witness would really have to be not less than sixty-five years old. Details of events in earlier years may emerge from a study of company records and the local press. May I at this point enter a plea that when searching this voluminous material members should note brief references to such matters, even if they are not the object of the search, so that they can be passed on to others.

One important consideration should not be ignored: the reasons why stations were placed in the positions adopted. We have a good example of such a study in our *Journal.*[11]

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Brotherton Tubular Bridge: A surprising miscalculation?

BY BRIAN LEWIS

Of the various wrought iron tubular bridges designed by Robert Stephenson, the one over the River Aire at Brotherton on the Knottingley branch of the York & North Midland Railway does not seem to have been one of his happier ventures. The chequered early history of the bridge has been briefly referred to elsewhere,[1] but a closer look at the facts reveals a long-running dispute between the Y&NMR and the Railway Inspectorate over a period of two-and-a-half years.

The construction of a double-line branch from Burton Salmon to Knottingley was authorised by an Act of 9 July 1847 (10–11 Vic. c.141) and, to enable the line to be opened as speedily as possible, the railway company constructed a temporary wooden viaduct over the River Aire for a single line only; this was also intended to facilitate construction of the permanent bridge. The first Railway Department inspection[2] was carried out by Captain Wynne on 22 March 1850,[3] when he found that although the remaining works were satisfactorily completed, the temporary viaduct was still unfinished. He could not, therefore, sanction the opening of the line. Another inspector, Captain Laffan, made a further inspection on 11 April 1850,[4] by which time the wooden viaduct had been completed. He recommended that the line should be opened, subject to a pilotman accompanying every engine over the bridge to obviate the possibility of a collision.

However, the Directors of the Aire & Calder Navigation, the body responsible for the River Aire, submitted a lengthy memorial to the Railway Commissioners on 22 April 1850 complaining that the Y&NMR were exceeding the powers granted to them in the Act for the construction of the line. They requested the Railway Commissioners to restrain the railway from using the wooden viaduct for traffic.[5] The Act stipulated a bridge of stone, brick, or iron of three arches over the River Aire and adjoining towing-path with spans of not less than 50 feet giving a minimum clearance of 28 feet above ordinary surface water level. The Act allowed for variations if agreed in writing by the A&CN engineer. It was stated in the memorial that their engineer had approved the bridge in principle, but, as he had never been given detailed plans, he had not formally sanctioned it. The railway had erected wooden scaffolding across the river which, although the memorialists did not consider it strictly covered by the Act, they had nevertheless tolerated, as they believed it to be necessary to the construction of the bridge and to be of a very temporary nature. They were not at all amused when the railway proceeded to convert the structure into a viaduct intended for the passage of trains. Apparently the viaduct was carried on seven rows of piles, five of which were placed obliquely to the current of the river, narrowing the navigable waterway from 150 feet to about 30 feet. This, they said, was not only very inconvenient but had also led to a number of accidents including one sunken vessel.

The Railway Commissioners sent a copy of the memorial to the Y&NMR for their comments and their Secretary retorted[6] that they had in fact supplied plans for the temporary and permanent bridges to the A&CN engineer as long ago as 9 February 1849. It was suggested that the A&CN engineer had made no objection, apparently only delaying his written approval pending Admiralty agreement.

The Admiralty in their turn were quite agreeable to any plan which suited the Navigation Company's engineer. The Y&NM engineer conveyed this to his opposite number on the A&CN but received no reply.

A meeting later took place between them, and the A&CN engineer objected to the bridge crossing the river obliquely. An alternative plan was submitted to him within the limits of deviation allowed by the Act, but he returned with another site outside the deviation limits. As this was not practicable, Robert Stephenson devised the plan for the tubular wrought iron bridge which was eventually built and which, of course, more than met the stipulations of the Act by passing over the canal and towing path in one span. The Y&NMR board also maintained that they had fully explained that the temporary bridge would be used for traffic until one tube of the iron bridge had been completed. They pointed out that the Act did in fact allow for an opening of only 28 feet with 20 foot headroom during the construction or repair of the bridge and their temporary viaduct gave 38 feet width and 30 foot clearance – the only accident they knew of had been due to the carelessness of persons in charge of a vessel whilst fenders were being added to the piles adjacent to the navigable width.

The Y&NMR was confident that the first tube would be completed by the end of September 1850, and they said they would remove the wooden bridge in the following month. This was rather over-optimistic in view of the actual date of completion of the first tube (as will be seen later) and in fact the scaffolding was to remain for another two-and-a-half years. The Y&NMR made the point that it seemed to be only the traffic passing over the bridge that was the cause of the objection and not the bridge itself and surely the passage of trains could make no difference to the navigation.

No doubt, however, more was at stake than merely the temporary inconvenience of a restricted waterway on the A&CN, as both this undertaking and the Barnsley Canal submitted virtually identical memorials to the Railway Commissioners in May 1850[7] claiming that the Great Northern Railway, the South Yorkshire Railway, and the Y&NMR were acting as dealers in as well as carriers of coal. They asserted that these companies were exceeding the powers granted in their Acts of Parliament and expressed concern that the public would suffer if the railways used their network of stations to deal in coal. They felt the railways would have a monopoly and squeeze out small traders, and that the practice would soon spread to other types of goods. The A&CN particularly mentioned its status as an east-west coast trunk-route on which large sums of money had been spent to bring it up to 'its present state of efficiency', and they feared loss of traffic from what was considered an unfair practice, emphasising that they were carriers only and not dealers. The GNR and SYR denied the allegations altogether, and the Y&NMR only admitted to a dealership in Hull, pressed on them, they said, by popular demand and which they would be prepared to give up if it was considered objectionable by the Railway Commissioners.[8] Nevertheless, the Y&NMR came to an agreement with the A&CN in July 1850[9] banning or restricting the carriage of coal by rail from collieries where the A&CN had direct access and giving an advantage to one party or the other for other types of goods traffic on certain routes by a system of differential rates.

George Hudson, prior to his fall from grace as Y&NMR chairman, had allied his company to the GNR at the expense of the old route to London (Euston) via the Midland and London & North Western Railways, and the Y&NMR was therefore naturally anxious to open the short Knottingley branch as soon as possible to connect its system with the GNR. The use of the temporary bridge by local traffic, which had begun just before the canal authorities had complained, was followed on 8 August 1850 by through running between London and York over

the newly-completed Peterborough to London section of the GNR.[10] Returning to the tubular bridge, the plan for the wrought-iron bridge, which had been approved by the A&CN engineer, was submitted to the Y&NMR board by John Cass Birkinshaw, the resident engineer, on 19 October 1849[11] and appears to have replaced an earlier proposal for a cast-iron structure, presumably resting on a pillar or pillars in the river, hence the objections referred to earlier. Alternatively, the scare which followed the collapse of the cast-iron bridge over the River Dee at Chester may have been a factor. The contractors for the whole of the branch, including the bridge, were Hutchinson & Ritson, although the ironwork, according to the Railway Department inspector Captain Wynne, in his report on the completed first tube inspected on 2 July 1851,[12] came from Robert Stephenson's 'workshops partly rivetted and the whole was put together in position on a platform extending across the river'.

Robert Stephenson had, of course, gained considerable experience from the construction of the Britannia and Conway bridges, the longest tubes of which were approximately twice the span of the Brotherton Bridge (stated by Captain Wynne in his report to be 232 feet). It had been found that wrought iron was much stronger in tension than compression, the reverse of the characteristics of cast iron, but the cellular construction of the top and bottom of the tubes at Menai and Conway, used to achieve greater strength and stiffness, was not considered necessary at Brotherton due to the much shorter span and the tubes were of plain box section with an elliptical top to aid dispersal of rain water and vertical three-inch angle irons inside and out were provided at 2 ft 6 in. intervals. Further stiffening-plates were added at intervals along the top and bottom of the structure.[13]

The almost inexplicable difference, especially bearing in mind that this short branch was intended to form part of the main line from London to York, however, was in the width of the tubes. Those of the Britannia Bridge gave 12 ft 5 in. clear inside the tubes between flanges, midway between rail level and the top of the tube, whilst those at Conway gave 14 ft.[14] The Brotherton tubes allowed only 9 ft 11½ in. clearance at the mid-point as they tapered from 10 ft 3 in. at the base to 9 ft 3 in. at the top.[15] It should be mentioned here that a tube for each track was considered necessary in the tubular type of construction to avoid the possibility of tilting when a train passed through.

When Captain Wynne inspected the first tube he gave all the relevant measurements in his report but made no adverse comment on the width and considered the tube ready for opening to traffic. He did make the suggestion that the company could avoid single-line working pending the completion of the second tube by retaining the temporary viaduct but, as Captain Laffan stated in his earlier report,[16] the wooden viaduct was formed of 'part of the scaffolding to be used in the erection of the permanent structure'. It is obvious therefore that Wynne's suggestion would have incurred extra expense and no doubt, in view of the earlier disagreement, the A&CN was keeping a wary eye on the situation.

The GNR trains had not been using the tube for long before its narrowness became the object of criticism. The company's General Manager, Seymour Clarke, compiled a report dated 17 September 1851[17] indicating that a passenger on one of its trains had already had his hand knocked and carriage-lamps had also been knocked off. There was apparently only 16½ in. at window level between the train and the side of the tube, and it was felt that anyone looking out of the train would project up to 21 in. No doubt this conclusion had been reached by careful experiment, as there is a drawing extant[18] showing a train in the tube with a projecting person sketched in afterwards, his head in contact with the side of the tube! Further, the latest type of brake-van, when fitted

with side lamps, only left half an inch clear on each side. It was also pointed out that the tube was entered from a curve and there was side-play in the axle-guards and between the wheel-flange and the rail. It was also felt that anyone in the tube, such as a platelayer, would be caught by an outside-coupled engine. The GNR took the matter up with the Y&NMR when it was immediately referred to Robert Stephenson who, in defence of the existing width of the tube, explained at some length[19] that the subject of the relative width of carriages and railway works had been considered by more than one railway company. He cited a tunnel on the L&NWR at Reaves Green near Coventry which was only marginally wider than the Brotherton Bridge and where, despite heavy traffic, there had not been a single accident. He also stated that L&NWR signal posts were six inches nearer the sides of carriages than the sides of the tubular bridge. His general conclusions were that a single bar should be placed across the windows of carriages of the widest type to prevent anyone putting his head out and that platelayers should be warned that the engines of goods trains (the only types to have coupled wheels at that time) would leave them insufficient room when passing through the tubes.

With the benefit of hindsight, Robert Stephenson's remarks would appear merely to seek to justify the existing width of the bridge in the light of certain practices elsewhere and go nowhere towards explaining why it was designed to be so much narrower than his other tubular bridges. Nor does he comment on future carriage design which, as far as the GNR was concerned, constituted one of the principal objections. Stephenson's views were conveyed back to the Y&NM board by one of his assistants, George Berkley,[20] as Stephenson was about to go abroad. This letter was sent to the GNR, which lost no time in forwarding the correspondence between the two companies to the Railway Department, asking to be released from any responsibility in the event of an accident.[21] Against this background it is hardly surprising that Captain Wynne, when inspecting the second tube on 4 November 1851,[22] felt obliged to comment adversely on the narrowness of the tube and withhold his recommendation that it should be opened to traffic. He reiterated the points made by Seymour Clarke and said the matter had escaped his attention on the inspection of the first tube as he had been more concerned with the strength of the structure. He felt that as the scaffolding was still in place the expense of any alterations would be comparatively small and that more trouble and expense would arise later from growth of traffic and other factors.

The Y&NMR board renewed notice of its intention to open the second tube in one month's time and informed the Railway Department[23] that it was once again referring the matter to Robert Stephenson as soon as he returned from abroad as the company wished to get his first-hand opinion (rather than one transmitted through Berkley which it had already received) and in the mean time it agreed to leave the scaffolding in place. The Y&NMR directors evidently hoped that a direct opinion from Stephenson would cause a change of heart by the Government Inspector in view of his stature in the engineering world at that time. The company was proud of its connection with Stephenson, and on a number of occasions when disputes arose it always referred to him as its Engineer-in-Chief, although by then, of course, he acted in a purely consultative capacity or for specific projects only. A further letter was written to Stephenson from which the following is an extract:[24]

> The Directors therefore request your own professional opinion as to whether (on) a permanent work on the trunk line of the eastern route from South to North, the dimensions of the bridge are such as may be considered safe and satisfactory or otherwise, what measures you could recommend, and what you would estimate is the cost of the alteration.

It is also clear from the minutes that the Y&NMR felt most of the GNR's objections were connected with the trains stopping before entering the down tube, causing passengers to look out, and felt these objections would be obviated by allowing the second tube to be opened temporarily pending any decision on future alterations. The Railway Commissioners would have none of this, however, and responded that the problem would continue to exist regardless of Robert Stephenson's opinion and it would be better for the Y&NMR to get on with widening the tubes.[25]

One might be tempted to think that the Railway Commissioners would by this time be beginning to lose patience and that matters could have been brought to a head by more positive action on their part. However it must be borne in mind that although the Regulation of Railways Act of 1840 gave the inspectors power to prevent a line opening if they considered there was any danger to the public through the incompleteness or inadequacy of the works, they had no power to act subsequently. Had they possessed such powers, closure of the first tube would no doubt have brought the affair to a speedy conclusion by forcing the Y&NMR to widen the tubes immediately.

Captain Wynne made a further inspection on 2 December 1851[26] and, finding nothing changed, postponed the opening for another month. The company's engineer, Birkinshaw, was instructed by the board to suspend all work on the tubes pending Stephenson's further report.[27] At this juncture relations between the Y&NMR and the Railway Inspectorate were further strained due to a somewhat unfortunate error by Captain Wynne. It seems he was returning to London by train on 18 December after inspecting the Stirling & Dunfermline Railway and, upon crossing the Aire, thought he was in the up tube which had not yet been approved for traffic. He reported this to his superiors,[28] who requested an early explanation from the Y&NMR.[29] The Y&NMR quickly retorted[30] that Wynne was mistaken and had in fact passed through the first, or down, tube, inspected and approved by him on 2 July 1851. Doubtless his prudence in not looking out of the window for fear of hitting his head made it more difficult for him to ascertain the true position!

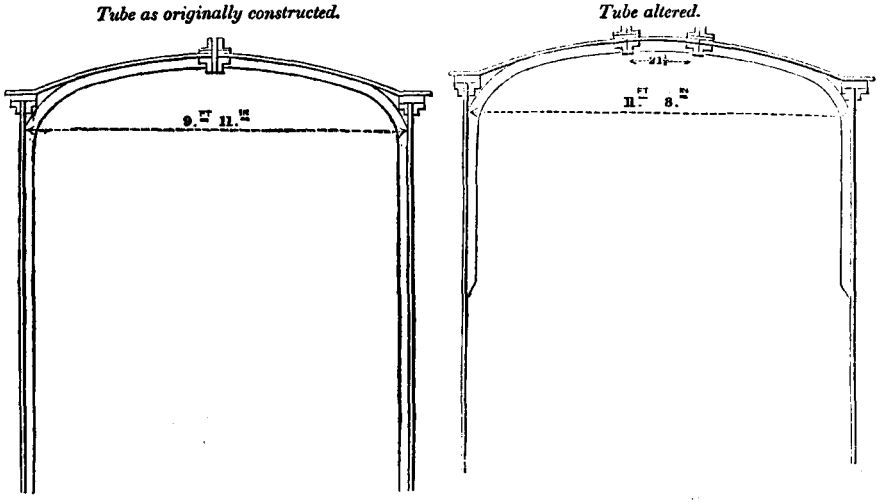
Captain Wynne's explanation to his superiors[31] is worth quoting from as an example of tactful phraseology:

> In explanation of my having so reported, I would observe that on my first inspection after having tested the down tube, I proceeded to examine the tube already opened with the view of comparing the permanent sets of the the two tubes, my attention was then drawn to the insufficiency of the width of this tube for the safe transit of the traffic and I was for some time occupied in ascertaining how much spare space there was between the sides of it and one engine and carriage, so that when I left the bridge my last impressions were so consumed with this tube (the up) that until I referred to my notes I was not undeceived in the matter.
>
> I have only to express the regret that I have done the York & North Midland Railway the injustice of leading it to be supposed that they would disregard the prohibition of their Lordships.

The tube was inspected at monthly intervals thereafter, and the Y&NMR having re-applied to open it after each inspection, but no further progress was made until Robert Stephenson returned from abroad in May. After a discussion with Captain Simmons, another inspector, Stephenson suggested removal of the angle-irons at the junctions of the sections of the bridge to increase the interior width by six inches. He referred again to the width of the L&NWR tunnel at Reaves Green and also cited a narrow tunnel on the York, Newcastle & Berwick Railway

near North Shields. He felt the Y&NMR was suffering hardship solely because the GNR chose to use carriages wider than those generally employed on narrow-gauge lines.[32]

Captain Wynne made the by-now customary monthly appearance at Brotherton on 26 June 1852 and found no change, but he reported at great length on 3 July 1852[33] on Stephenson's scheme for widening the tubes. There seems little doubt that he felt the reputation of the Railway Department to be at stake. He went closely into the widths of various classes of carriages and guards-vans and drew attention to the significance of the height from the floor of the window as being an important factor determining how far a person could lean out. He countered Stephenson's examples of narrow tunnels where no incidents had occurred with an example on the Manchester & Leeds Railway of a narrow bridge which had caused three fatalities and had since been replaced for this reason; apparently the tunnel at Reaves Green was originally of adequate dimensions but had been relined due to weathering of the bricks. He stressed that the Knottingley branch was an important link in a great main line and such as was likely to have the stock of various companies working over it. It was therefore most important that it should not be of inferior width. The few inches that would be added would not be sufficient in his view and he did not wish to be responsible for drawing a fine line which might subsequently be taken as a precedent.



Stephenson and the Y&NMR board were therefore left in no doubt that a more radical (and expensive) alteration to the tubes was required, despite the fact that Stephenson had presumably received the blessing of Captain Simmons at the outset. Plans were well advanced when on 14 July 1852 a collision occurred at the south end of the bridge, at the point where the double line became single, between a northbound GNR express and a southbound goods train belonging to the same company. The goods train had not quite cleared the single-line section when the express, failing to stop, ran into the last five wagons. Luckily there

were no serious injuries, and blame was hard to apportion due to the conflicting nature of the evidence. The signalling system was criticised and the practice of having a travelling porter riding on each train across the bridge – as a sort of human token – which had been a condition of the opening of the temporary bridge and which had been quietly dropped when the first tube was brought into use, was speedily reintroduced on the recommendation of Captain Wynne in his first report on the accident,[34] although both Stephenson and the Y&NMR had misgivings, as they thought the stopping of trains to pick up the porter would increase the tendency of passengers to look out.[35] Further details of this accident are not relevant to this account, but plainly the timing of the incident was particularly unfortunate, as it gave the Y&NMR board another opportunity to criticise the single line working,[36] forced on them, as they saw it, by the intransigence of the Railway Department whilst being totally unconnected with the narrowness of the tube, thereby denying the inspecting officer the comfort of having his point proved.

The Duke of Montrose, who was a passenger on the GNR express, complained to the Vice-President of the Board of Trade, Lord Colchester, feeling that the public should not be put at risk due to 'a squabble between a railway company and a government officer'.[37] Captain Wynne combined his inspection of the accident with the monthly inspection of the second tube and commented that when the first tube had been opened he had been told by an officer of the company that the temporary bridge would be available as a second line of rails pending completion of the second tube. This the company denied, pointing out that the plan to use the temporary bridge to build the second tube was known to the Railway Department and had in fact been mentioned in Wynne's first report on the second tube.[38] It had also been referred to in reply to the Y&NMR's letter of 12 November 1851[39] in which the Railway Department made reference to the single line. Wynne, in his second report,[40] defended his original statement:

> I have to remark upon this, that when I inspected the first tube, the second tube was in progress in its present position, and the temporary bridge carrying a line of rails was then in existence, and placed at such a distance as not to interfere with the construction of the second tube. On referring to my inspectorial report I find that I there state 'that by retaining the present temporary line the throttling of the traffic at this point into a single line will be obviated'. As I wrote this report two days after my inspection, with all the facts fresh in my mind, it will be obvious to their Lordships that I could not have made the statement I did without having sufficient grounds, and I am perfectly satisfied that it was so stated to me. At this distance of time I cannot positively state by whom, but it is my impression that it was by Mr Birkinshaw, the engineer of the line . . . . . if an active man is appointed who can mount on the engine when it is slowed, and so avoid a direct stoppage, the curiosity of the passengers is not likely to be excited.

It is therefore hard to decide exactly to what extent the timber viaduct was used in the construction of the second tube, and it is not really clear whether it was under or alongside it. It should be mentioned that the various inspecting officers must have had ample opportunity to observe the exact method used to construct the second tube and the mode of working the single line on their numerous visits during the first half of 1852, and it is accordingly difficult to understand Captain Wynne's remarks. The GNR and Y&NMR haggled for some time regarding the cost of the accident, but they eventually agreed to split the amount equally between them.[41]

The work of widening the second tube then proceeded smoothly, Stephenson having agreed to supervise the work and allow £500 towards the cost,[42] and by

October 1852 the inspector was at last able to pass the tube as fit for traffic. The Y&NMR engineer, Thomas Cabry, was able to report to his board that he had opened the tube on Monday 11 October 1852[43] and the first tube was then similarly altered and passed for traffic by Captain Wynne on 16 November.[44] The accompanying illustration taken from Wynne's report[45] shows the method adopted which involved the insertion of a plate 21½ inches wide along the centre of the top of the tube. The original mode of construction greatly facilitated the work as the top of the tube was in two parts.

In addition, the removal of the angle-irons to a height of 9 ft 6 in. above rail level, as earlier suggested by Stephenson, gave a total clear width inside the tube in excess of 11 ft 6 in. Despite the removal of part of the angle-irons, tests showed that the alterations had in fact increased the strength of the bridge considerably.[46] The final account for the alterations came to £1,283-13s-1d, of which Robert Stephenson & Co in fact offered to pay half, a proposal which not surprisingly met with the approval of the Y&NMR board.[47] The bridge was not finally completed until the summer of 1853, as in June of that year Thomas Cabry was instructed to proceed with the completion of the abutments.[48]

So ended at length a somewhat unfortunate episode from which it would seem that neither Robert Stephenson nor the Railway Inspectorate emerged totally unscathed. To what extent the Y&NMR contributed to the problem by a desire to keep the initial constructional costs to a minimum it is not possible to ascertain, but without doubt the company was reluctant to spend more than was absolutely necessary on the subsequent alterations. Stephenson presumably acknowledged some degree of responsibility by paying half the cost of the work needed to meet the Railway Department's requirements.

In 1898[49] it became apparent that the tubes were in need of renewal, but it was not until 1901 that tenders were invited for a steel girder span of conventional construction, the lowest tender, that of the Cleveland Bridge & Engineering Co. for £17,770-12s-2d, being accepted.[50] Work commenced in 1903 and, true to earlier form, the A&CN raised certain difficulties, complaining that the piles and staging put across the Aire to assist in the reconstruction left too narrow a waterway.[51] Their engineer worked out a compromise with the contractors,[52] but this incurred an extra expense of £1,000, £600 of which was borne by the Cleveland Co. and £400 by the North Eastern Railway.[53] The final cost of the new bridge was £20,224-10s-8d, which was within the 1901 estimate of £21,500.[54] Work was completed by the end of 1903, and on 5 December the A&CN engineer was able to report to his board that all temporary piles and staging had been removed from the river.[55]

The original stone piers of the bridge remain to this day and carry a plaque indicating that the bridge was built in 1850 and the superstructure rebuilt in 1903.

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2 The Railway Department of the Committee of the Privy Council for Trade. In 1846 the Railway Commission was set up and directed the policy of the department. When the Commission came to an end in 1851 the department reverted to the Committee for Trade. Although in use previously, the title 'Board of Trade' did not come into existence officially until 1861. ('Sources for the History of Railways at the Public Record Office', D. B. Wardle, *The Journal of Transport History,* Volume 2, 1955/56, p. 217)

3 Public Record Office (PRO) MT29/9
4 PRO MT 29/9
5 PRO RAIL 1053/20 Appendix to the Report of the Commissioners of Railways for the year 1850. pp. 173–6
6 ibid.
7 ibid. (PRO RAIL 1053/19) pp. 330–5
8 ibid.
9 PRO RAIL 770/5 Y&NMR board minutes 26 July 1850
10 Wrottesley p. 54
11 PRO RAIL 770/3 Y&NMR board minutes
12 PRO MT6/9/137 report dated 4 July 1851
13 ibid.
14 *The Britannia and Conway Tubular Bridges, with general enquiries on beams and on the properties of Materials used in construction,* Edwin Clark 1850
15 PRO MT6/9/137
16 PRO MT 29/9 report dated 11 April 1850
17 PRO RAIL 770/37 Y&NMR correspondence with GNR regarding widening of the Tubular Bridge near Brotherton
18 PRO RAIL 236/430 GNR board papers regarding the extreme narrowness of Brotherton Tubular Bridge
19 ibid. Letter from George Berkley to Y&NMR dated 28 October 1851
20 ibid.
21 PRO RAIL 770/37
22 PRO MT6/9/115
23 PRO RAIL 770/5 Y&NMR board minutes 12 November 1851
24 ibid.
25 PRO MT11/20 letter from the Railway Department to Y&NMR dated 15 November 1851
26 PRO MT29/11
27 PRO RAIL 770/5 10 December 1851
28 PRO MT29/11
29 PRO MT13/16 Minute 298
30 ibid. Minute 329 (letter from Y&NMR dated 29 December 1851)
31 PRO MT6/10/2 letter from Captain Wynne to Board of Trade dated 1 January 1852
32 PRO RAIL 1053/20 p. 66 letter from Robert Stephenson to Captain Simmons (not dated)
33 ibid. pp. 67–8
34 PRO RAIL 1053/20 pp. 249–250 letter dated 28 July 1852
35 ibid. pp. 251–2 letter from Y&NMR to Railway Department dated 6 August 1852
36 ibid.
37 ibid. p. 248 letter dated 7 July 1852 (sic)
38 PRO MT6/9/115
39 PRO RAIL 770/5 Y&NMR board minutes 12 November 1851
40 PRO RAIL 1053/20 pp. 252–3 letter dated 11 August 1852
41 PRO RAIL 770/6 Y&NMR board minutes 2 March 1853
42 ibid. 11 August 1852
43 PRO RAIL 770/35 Y&NMR reports & letters 1851–2: letter dated 13 October 1852
44 PRO RAIL 1053/20 pp. 73–4 report dated 19 November 1852
45 ibid.
46 ibid.
47 PRO RAIL 770/6 Y&NMR board minutes 26 January 1853
48 ibid. 15 June 1853

49 PRO RAIL 527/44 North Eastern Railway Way & Works Committee minutes 15 September 1898
50 PRO RAIL 527/46 NER Way & Works Committee minutes 7 February 1901
51 PRO RAIL 800/41 A&CN Sub Committee minutes 19 July 1901
52 ibid. 7 October 1901
53 PRO RAIL 527/46 NER Way & Works Committee minutes 3 October 1901
54 PRO RAIL 527/47 NER Way & Works Committee minutes 12 May 1904
55 PRO RAIL 800/306 A&CN Engineer's Monthly Reports

Official Opening of the Clinker Collection at Brunel University

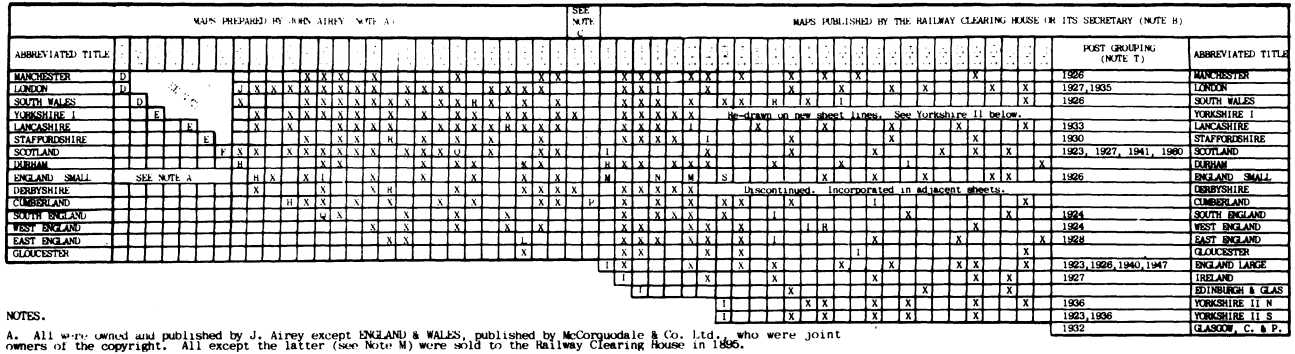
The Clinker Collection of 8,000 railway books, journals, maps, and other documents was officially opened at Brunel University Library on 24 April by Mr Dennis Rowell, Chief Civil Engineer, British Rail (Western Region).

To mark the occasion Mr Rowell presented the Library with a fine reproduction of an engineering drawing signed by I. K. Brunel, and throughout his visit he carried with him Brunel's walking stick – the one which extends to 7 ft 0¼ in., so that it could be used to measure the broad gauge. As Chief Civil Engineer he is 14th in succession to Brunel himself, whose GWR is celebrating its 150th anniversary this year.

Left to right foreground: Nick Childs (Librarian, Brunel University), Stephen Bragg (former Vice-Chancellor, Brunel University), Mrs Doreen Clinker, Dennis Rowell (Chief Civil Engineer, British Railways Western Region).

SCHEDULE OF ALL KNOWN EDITIONS OF THE MAPS OF JOHN AIREY AND THE RAILWAY CLEARING HOUSE

ORIGINALLY PREPARED AS A SUPPLEMENT TO THE JOURNAL OF THE RAILWAY AND CANAL HISTORICAL SOCIETY - NOVEMBER, 1959



NOTES.

A. All were owned and published by J. Airey except ENGLAND & WALES, published by McCorquodale & Co. Ltd., who were joint owners of the copyright. All except the latter (see Note M) were sold to the Railway Clearing House in 1895.

B. Maps in the 1896 & 1897 columns were "Published by H. Smart, Secretary of The Railway Clearing House". Also see Note T.

C. Called "Airey's" but "by John Airey" and "Published by J. Airey" deleted. Note B applies but only for 1897.

D. Undated first edition called "RAILWAY DIAGRAM OF - ".

E. Undated first edition called "RAILWAY MAP OF -".

F. Undated first edition called "AIREY'S RAILWAY MAP OF -".

G. No maps were dated before 1876. For a list of the undated maps see the Society's JOURNALS for March & July 1979, Volume XXV Nos. 1 & 2. Updated lists may be obtained from the Hon. Sales Officer, or from the author.

H. Dated in year at head of column but actually published (as recorded in the Stationers' Hall Register) in the previous November or December.

I. Lithographed in colour by McCorquodale from a new plate by John P. Emslie.

J. On the only known copy "JUxx 1876" has been scratched from the lithograph and "1877" superimposed professionally, in indian ink. There are manuscript additions updating the map. The 1877 edition, recorded in the next column, has the date and corrections lithographed.

L. These maps are actually dated "1888-1893". For a tentative explanation see the JOURNAL for March 1975, Volume XXI No. 1.

M. Published by McCorquodale. The R.C.H. did not acquire the copyright of this map until October 1901, after publication of the 1901 edition; but see Note S.

N. Railway Clearing House copyright. This was reduced from the new, larger, edition. An experiment never repeated.

O. In addition to the maps dated 1889 there are some to which -90 has been added in indian ink. On these, some only of the new routes associated with the Forth Bridge have been shown open by hand coloured additions to the lithographed blue of the North British Railway.

P. In 1896 the R.C.H. commenced removal from the maps of sales promotion features, inter Company agreements and all reference to Airey. The title "OFFICIAL RAILWAY MAP -" appeared and the change was completed by 1898. Some non-definitive wording appeared in 1896 and 1897, including two versions of CUMBERLAND in 1897.

Q. There are 'A' and 'B' versions of this date.

R. Reported but not seen by the author and not admitted in view of some erroneous reports from credible sources.

S. Despite Note M this map appears to be an exact copy of the 1901 edition with only the date changed and an R.C.H. cover. Still called "Airey's" and "Eight Edition" and "Published by McCorquodale & Co. Ltd.,". Possibly an urgently needed reprint with only the date altered.

T. SCOTLAND 1980 was published by the British Transport Commission.

X. Dated copy known.

Latest Revision: 12/81

D Garnett fecit. July 1959.
Redrawn January 1982 D.G.

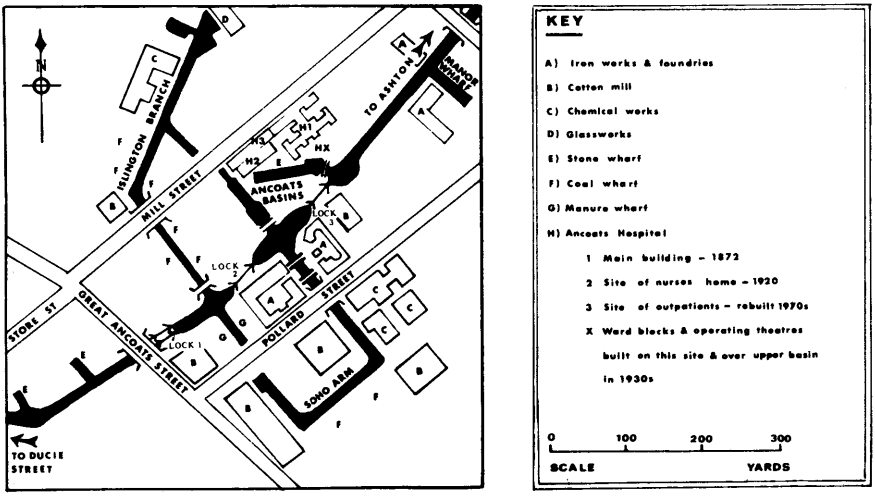
The Ashton Canal and Ancoats Hospital

BY JOHN M. T. HOWAT

I recently came across an old photograph in the bowels of Ancoats Hospital in Manchester (Fig 1).

It shows the narrow boat *Dove* on the Ashton canal which runs immediately behind the hospital. Or at first sight it does. Only on careful examination does a feature come to light that does not seem to fit. At the extreme right of the photograph is the beginning of a sloping structure most of which is off the frame. What is it? It does not look like the wing walls of the third Ancoats lock which is behind the hospital. I thought at first that it was the approach and parapit of an overbridge across the mouth of the 750-yard Soho arm which left the SE bank of the canal at this point and passed beneath Pollard Street to serve the Soho Iron Foundary and Caledon Mills. Perusal of the 1848 5-ft-to-1-mile Ordnance Survey plan shows that this cannot be the case, for although there was a bridge over the arm it was some yards from the junction with the main line and in any case it was probably a low pivoting structure of wood. However the early maps do provide the answer.

When the canal from Manchester to Ashton-under-Lyne was built in the 1790s, Ancoats Hospital did not exist on the present site, which was open ground. When first opened in 1796, the canal terminated at Ancoats where numerous wharves and sidearms were built. It was not until four years later that the canal was extended to its junction with the Rochdale canal at Ducie Street and to extensive wharves beyond. Above and below the third lock two branches or basins were built to serve stone wharves on the NW bank of the canal. The 110-yard Ancoats lower branch joined the main line at right angles between locks 2 and 3 and immediately opposite the mouth of the Soho arm. At its junction with the main



THE ASHTON CANAL AT ANCOATS CIRCA 1875

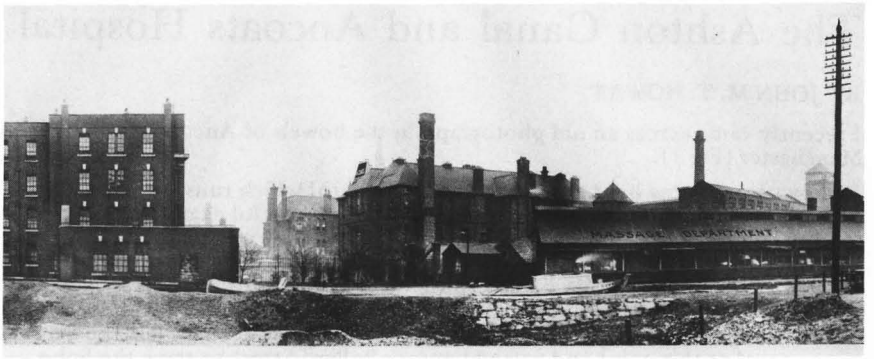


Figure 1. *The narrow-boat* Dove *behind Ancoats Hospital in the 1920s*

canal the towpath was carried over it by a substantial masonry bridge. The 100-yard Ancoats upper branch left the canal immediately above the third lock. The first few yards of this arm were narrow, but then it widened considerably and angled back beside the lock, running approximately east to west. It reached almost to the edge of the lower basin but was 8 ft or so above it due to the difference in height of the pounds (see plan). This basin was elevated above the surrounding ground and partly supported by a masonry embankment. On early maps the width of the eastern end is shown to have been increased a little by cutting back the banks on each side. The purpose of this widening is obscure. It appears too small to allow boats to turn, and although the shape of the excavations is reminiscent of the recesses for a stop gate, the dimensions are too great. The 'bite' out of the north bank has disappeared on later maps.

The main towpath was originally carried over the narrow part of the arm by a wooden swingbridge a few yards from the junction. When the canal was first built there was a considerable deviation of the SE bank of the main canal opposite the Ancoats upper branch to form a place not only for boats to turn but to allow them to negotiate the narrow, angled entrance to the basin. This feature had disappeared by the end of the century. A similar arrangement was presumably necessary for access to the lower basin, but in this case both the main canal and the branch were somewhat wider and the wide, chamfered mouth of the Soho arm opposite could function as a winding hole. The photograph shows the *Dove* not on the main canal but in the Ancoats upper basin, which continued in use after the hospital was built in 1872 on the land immediately to the north. Heaps of stone brought by canal and the masonry embankment can be seen, and the slight widening of the south bank immediately following the narrow entrance channel can just be discerned. At some time the wooden swingbridge was replaced by a masonry structure which was in line with the tow path of the main canal across the entrance to the arm. This is shown on the OS Map of 1891. It is the approach and parapet of this bridge that is the structure seen at the right hand margin of the photograph.

The old photograph appears to have been taken from the towpath beside lock 3, which is behind the camera position. The date is uncertain but the Physiotherapy Department (originally known as The School of Massage) was built in 1918 and the Nurses Home, the square block to the left, in 1921. The photograph probably dates from around that time.

Figure 2. *The Ashton Canal at Ancoats today. The lower branch left the main line between the two locks. The original hospital of 1872 can just be seen behind the ward-block of the 1930s which stands on the site of the upper branch. The nurses home has been extended.*

Figure 3. *The only remains of the Ancoats branches. Large masonry blocks delineate the wharf at the end of the lower branch.*

It is not possible to repeat this picture today, for in the early 1930s extensions to the hospital, which included four new wards, obliterated the Ancoats upper branch, and the lower branch was shortened by half. This too was subsequently filled in (Fig 2). Only a subtle change in the masonry blocks of the NW bank immediately above the top lock indicated the site of the mouth of the upper basin. Of the lower basin a little more remains. There is similar evidence of a junction in the masonry of the towpath bank of the main canal below the lock and immediately opposite the filled-in Soho arm, but in addition there is an alley which leads to the car park behind the hospital and which runs between the new out-patient block and a derelict mill. This follows the line of the lower branch which reached almost to Mill Street. The large stone blocks which capped the edge of the wharf on the SW side remain in place at the bottom of the mill wall. The OS Map shows that the branch narrowed as it approached Mill Street, where it was covered by an awning. A distinct step in the alignment of the blocks can still be clearly seen (Fig 3) (SJ 854983). Near to the main line store rooms and an incinerator have been built on the line of the arm.

Other relics worthy of note in the area include the parapets of the bridges that carried (Old) Mill Street and Pollard Street over the now-truncated Islington branch and the obliterated Soho arm respectively. In the late 1820s as a result of increasing traffic the first lock on the Ancoats flight was duplicated, and although one of the pair had been filled in by 1891 the entrance and coping stones remain in the shadow of the Great Ancoats Street bridge.

Acknowledgement

I am grateful to Miss J. Perry, of the Department of Medical Illustration at North Manchester General Hospital, for permission to publish Figure 1.

Book Reviews

STEAM BRITISH ISLES, R. Crumblehome and T. Kirtland, 208 pp., 215 X 183 mm, no illustration, boards. David and Charles, 1985. 1SBN 0-7153-8673-5. £9.95.

This comprehensive index of 516 locations lists other types of traction and rolling stock exhibits in addition to steam. Very little at 7¼" gauge and above can have been missed, but mention is made of only one of the very enjoyable passenger carrying lines of still smaller gauge. Entries are grouped into 11 areas (including Ireland), but within each area the ordering appears haphazard; fortunately there is an index arranged in alphabetical order. A grid reference is given, and also a warning if visitors are unwelcome.

Many entries appear to have been printed directly from information supplied by the operating company or owner, so that some variation in treatment occurs: a few footnotes are over-detailed, while in other cases a lack of comment is to be regretted.

A highly recommended publication, but after 15 years of expansion, and with the price now practically £10, a drastic re-editing job is overdue. Computerised techniques could maintain a logical order of entries, and simplify the insertion of inevitable year-by-year changes in detail. DENNIS HADLEY

THE KENNET & AVON CANAL (3rd edition), Kenneth R. Clew, 224pp, 31 plates, 5 maps and 17 text figures, boards. David & Charles, 1985, ISBN 0-7153-8656-5 (or -3 if you consult the dust jacket!). £12.95

It is encouraging that interest in the K&A remains high enough to warrant a third edition of this book first published in 1968. The principal addition consists of a 20 page, non-controversial description of the tortuous saga of the continuing restoration. Otherwise changes in the text are minimal, even as regards up-dating: the author still claims to have known the waterway for 17 years; the bibliography refers to the 1966 edition of Hadfield's *British Canals* and the 1969 edition of Household's *Thames & Severn.* Several illustrations refer to recent developments. There are two more plates than originally, but they are rather greyer and there is no coloured frontispiece. The description still mentions traces of the horse railway by the towpath on Caen Hill: further information would be desirable, as the 1804 plans show the tramway on a completely different alignment.

If you don't already possess an earlier edition the book is well worth considering, but not otherwise. DENNIS HADLEY

THE CANALS OF THE WEST MIDLANDS, Charles Hadfield, 352pp, 16 plates, 20 maps, plans and line illustrations, boards. David & Charles (3rd edition) 1985, ISBN 0-7513-8644-1. £15

All serious students of transport history should have this book. It covers the core of our inland narrow-boat system together with complementary broad and river navigations and extends into Wales and Cheshire. First published in 1966, it was immediately hailed as a standard work of great accuracy so that any revision and updating is largely confined to the preface. Unfortunately the publishers have taken advantage of the opportunity to reprint without resetting by removing the list of illustrations to accommodate the extended preface and thus retain the text pagination. As a result one has to wade right through the book in search for a map showing, for instance, Lappal tunnel, only to find apparently that no map covers this area. At the new price of £15 this production-economy is not passed to the reader who also has to contend with a deterioration in halftone reproduction that is deplorable. The pictures are unsharp and of such high contrast that some of the important middletones appearing in the first edition have disappeared. Charles Hadfield deserves better than this. JOHN DENTON

THE CANALS OF SOUTH WEST ENGLAND (2nd edition), Charles Hadfield, 206pp, 16 plates, 11 text illustrations and maps, boards. David & Charles, 1985, ISBN 0-7153-8645-X, £13.50.

This, Volume 3 in the *Canals of the British Isles* series, is a reprint with minor corrections of the first edition of 1967. In a preface, Mr Hadfield briefly summarises the present position of some of the canals he describes (though he overlooks the water bus on the Exeter Canal!). Although not one of the classic areas of canal history, the south west is one of extraordinary interest, due to the peculiar things canal promoters did, or wanted to do: as late as 1888 the Admiralty was contemplating a ship canal right across the peninsula. Even by Mr Hadfield's customary high standards, this is an outstanding book, and quite indispensible. P. A. STEVENS

BRADSHAW'S JULY 1922 RAILWAY GUIDE, reprinted by David & Charles, lxii + 1,166 pp., folding map. Introduction by D. St J. Thomas, boards. ISBN 0-7153-8708-1, £20.

The name Bradshaw is, or at least was until 1961, synonymous with railway timetables. It was the classic among timetables, covering all rail passenger services in the British Isles together with a substantial section (in this instance more than 250 pages) consisting of advertisements for shipping companies and hotels. It used to appear monthly. This particular issue is the fourth which David & Charles have reprinted in recent years, the others having been 1887, 1910, and 1938. The choice of the year 1922 is particularly appropriate, as the Grouping under the Railways Act 1921 had just commenced. Some well-known company names had already disappeared from page and section headings, though they were still used as sub-titles in the relative table headings, eg GW (late Brecon & Merthyr), North Eastern (Hull & Barnsley section) and others, some of the preliminary amalgamations having by then taken place.

Whilst 1910 showed the railways at the period of their greatest prosperity in the years leading up to World War 1, 1922 was the last year before they all went into the melting pot to emerge as the four big 'groups'. The subsequent rationalisation of duplicated routes and services was to make many reductions in services over the succeeding years.

As the blurb states, every page has its curiosities and tells its own piece of history. As an example the Midland Railway's Irish subsidiary is described as 'Midland (NC of I)', a name that the railway never had. Bradshaw appears to have used this form throughout MR ownership of the Northern Counties but got it right in LMS days as LMS (NCC).

The price is high, but as Mr Thomas points out in his introduction inflation has taken its toll. When issued in 1922 the price was 2/-, with paper covers of course!

NEIL PITTS

SOMERSET RAILWAYS, Robin Madge, 154pp (260 X 190 mm), 167 photographs, 19 drawings and plans, map, soft covers. Dovecote Press, Stanbridge, Wimborne, Dorset, 1984, ISBN 0-946159-22-X, £8.95

Somerset, a self-effacing and now mutilated county, is widely known through Alfred's burning the cakes at Athelney, Botham flaying the bowling at Taunton, and the boring stretch of motorway between Bristol and Exeter. But for the railway historian it has much interest: it was a battleground for Broad and Narrow Gauge interests, the heartland of that extraordinary phenomenon the Somerset & Dorset Railway, the setting for three of the worst accidents ever to mar the GWR's splendid safety record, and the racecourse on which *City of Truro* may or may not have achieved the first 'ton'. Mr Madge, who rightly deals with the old, large Somerset, makes no claims to original research, but incorporates in material derived from secondary sources his own reminiscences and a coverage of the minutiae of history which may get overlooked (a pity, though, that he did not record that Brent Knoll station gave its name to the village, not the other way round, like South Wigston on the Midland Railway). Several chapters deal with 'The Trains that used the Lines', but these have too much general detail such as can readily be obtained from any locomotive history — a pity that the local material (including an interesting section on projects which failed) was not expanded instead.

The pictures are, as usual, a mixed bag, but there are many of them, and a large proportion are of great interest – far more than the customary 'Smoke-box door' variety. More layout diagrams – e.g. of Taunton, Cogload, Norton Fitzwarren at various periods – would have been welcome, and, since they are not listed elsewhere, the illustrations should have been included in the admirable index. Standards of production are high, though the odd misprinted date occurs, and the book is a pleasure to read. Altogether, a useful and attractive summary.

P. A. STEVENS

THE FLOWER OF GLOSTER, E. Temple Thurston, with introduction and commentary to illustrations by David Viner, xiv + 146 pp. 248 X 172 mm, 75 photo illus., 6 colour plates, boards. Alan Sutton, Gloucester, 1984, ISBN 0-86299-177-3, £11.95

This sentimental Edwardian travelogue written around a canal holiday with a philosophising boatman was first published in 1911; the itinerary includes the southern Stratford and the Thames & Severn with a legging passage through Sapperton Tunnel, all of nostalgic appeal to canal enthusiasts. Tom Rolt, introducing the 1968 facsimile reprint, did not question the reality of the voyage, but David Viner now discusses the many discrepancies and concludes that the round trip is a synthesis of quite separate experiences with errors of detail in the resultant narrative. David Blagrove, in *Waterways World* Dec 1972, reached a similar conclusion, while Philip Stevens, reviewing the 1968 edition *(Journal,* October 1968 p. 77), noted that Thurston's topographical memory sometimes erred. The new edition is entirely reset and attractively illustrated with the author's own and other contemporary photographs, and colour plates. A beautiful book, but the text is of minimal value to the canal historian. EDWIN SHEARING

THE MELTON MOWBRAY NAVIGATION, M. G. Miller and S. Fletcher, 48 pp., 15 photo illustrations, location map and strip maps, soft covers. Railway and Canal Historical Society, ISBN 0-901461-37-7, £2.40 + 50p p&p.

This is a publication that is well worth reading. Not only does it give a concise history of the Navigation from 1781 when the proposal for it was first put forward through to 1791 when it received the Royal Assent, and finally on to 1 August 1877 when the Melton Mowbray Navigation (Abandonment) Act was passed; it also includes a section concerning the Navigation as it is today.

In this towpath guide the authors have split the Navigation into sections of about one to two miles in length. Each of these detail the many sights and features of interest still to be seen. In addition the guide, in an effort to assist the walker to trace the line of the Navigation, contains a series of strip maps, which, together with the Ordnance Survey map references given in the text gives accurate directions as to how to locate any particular aspect or feature desired.

The historical section of the book is well referenced with numerous facts and figures for those interested in such things. Your reviewer found that reading the history of the Navigation was not as mind-boggling as some canal histories in which the reader becomes so involved with the what's, who's, why's and wherefore's that some lighter points of the canal history tend to get overlooked. It could be criticised for its concise straightforward approach to the history of the Navigation, but bearing in mind the lack of proper documented evidence, much of the content having been culled from contemporary local newspapers, it is an excellent work. STEVE KIRKHAM

HISTORY OF THE GREAT WESTERN RAILWAY, Peter Semmens,
Vol. 1 CONSOLIDATION 1923–1929, 102 pp, 40 illus., ISBN 0-04-385104-5
Vol. 2 THE THIRTIES 1930–1939, 96 pp, 60 illus., ISBN 0-04-385105-3
Vol. 3 WARTIME AND THE FINAL YEARS 1939–1948, 102 pp, 40 illus., ISBN 0-04-385105-1 boards. George Allen & Unwin (Publishers) Ltd, £8.95 each volume.

The Great Western Railway is the third of the four grouped companies to have its history recorded in the 'Steam Past' series and appropriately all three volumes have appeared together in GWR 150 year, 1985. The pattern already established in the series by the volumes on the LMS and LNER has been followed, the period from grouping to nationalisation being divided into three convenient sections each of which is covered by one volume. In the case of the GWR the first volume might almost have been called 'Digestion' instead of 'Consolidation' as the degree of consolidation required was much less than in any of the other three groups. The GWR merely absorbed a number of smaller concerns, mostly in Wales. Even those having the status of constituent companies gained little more influence on the new GWR than the appointment of a single director in each case to the enlarged board.

This is not a third volume of MacDermot but a self-contained history of the company in grouping days. Hence Volume 1 commences with a chapter entitled 'The Heritage' followed by one called 'The Newcomers'. These two chapters constitute an introduction, giving a general picture of the amalgamation including a useful summary of the financial details thereof. The third chapter, 'The Rivals', gives an indication of the nature of the competition the GWR experienced at the hands of its newly formed competitors. Chapter 4 is headed 'Twixt Rail and Sea' and describes how the GWR became the largest dock-operating company in the world, a position held by the NER in pre-grouping days. This chapter title, as stated in the text, was lifted from a 1927 publication of the GWR on the subject of its ports. The final chapter in Volume 1 covers developments of the 1920s in all aspects of the company's activities.

Volume 2 is concerned with the 1930s, the decade which included the great depression and the rapid increase in road transport competition. It describes the numerous efforts the GWR made to meet this competition, new motive power, ways and works, improved catering, taking to the air, etc. There is also a chapter on the 1938 proposals for electrification of lines west of Taunton which were never carried out, but the cost of locomotive coal had fallen significantly in the meantime. The financial record of the 1930s is displayed in a table showing how it compared with those of the other grouped companies and the suggestion is made that the meagre dividend paid in 1938 (½% only) was largely a gesture to back up the 'Square Deal' campaign organised by the big four companies.

Volume 3 is devoted very largely to the part the GWR played in World War 2, with a chapter on the last few years of the company's existence (1945–1947) which were dogged by shortages of materials and a vast backlog of maintenance to be made good, to say nothing of an exceptionally severe winter at the beginning of 1947. Finally brief details, mainly financial and statistical, of nationalisation are given, followed by a short chapter 'The Tradition Lives On'.

All aspects of the GWR's activities are dealt with and considerable attention is paid to the financial history of the company. This is an aspect not always covered in much detail in railway histories but one which has a considerable influence on the course of events.

No map of the system appears in any of the volumes. Surely no railway history should be without one. The meaningless and misleading conversions of £.s.d. to decimal currency abound. What is the purpose of quoting a 1928 fare of 1½d as equivalent to five eighths of a 1971 New Penny (Vol. 1 p. 82)? It is difficult to see why it has been produced in three slim volumes. At £27 for all three it is not by any means cheap although the content is good. There cannot be many would-be purchasers who would wish to buy just one of the three volumes, bearing in mind the relatively short periods covered by each. It might be pertinent to mention that your reviewer has, since having received the review copies, has seen a publishers' advertising blurb which quotes (in two places) each volume as having 240 pages. This must be a misprint in the relative leaflet. The number of pages in each volume is as stated in the heading of this review. NEIL PITTS

THE DELPH DONKEY, Michael & Peter Fox, 48 pp, card covers 200 mm X 200 mm, 36 photographs and plans. Published by the authors, c/o The Commercial Centre Ltd, Clowes Street, Hollinwood, Oldham, Lancashire, £2.95

Delph lies in the independently-minded region west of the Pennines that until 1974 was in Yorkshire. Its branch railway was a mere 1 mile 33 chains in length although most trains ran to Oldham Clegg Street, 6¾ miles away. The title of the book is the nickname given to branch passenger trains. The authors have not been able to discover its origin but they discount the tale that trains were initially horse-drawn (except possibly for a very short period).

This is a good book, well researched and with a high standard of presentation. It covers the line's origin, birth, life, and death, and concludes with a detailed description of the present day scene. The reader gets the feeling that until 1939 at least the railway was a vital part of the community it served.

ALLAN BRACKENBURY

SHORTER REVIEWS

DISCOVERY & INVENTION – A REVIEW OF FILMS AND VIDEOS ON THE HISTORY OF SCIENCE AND TECHNOLOGY, March 1985, published by the British Universities Film and Video Council, 55 Greek Street, London W1V 5LR, £7 inc. p&p

This is a catalogue of video films produced by the BUFVC on a wide range of subjects covered by the all-embracing title. Those of particular interest to our members consist of eight on railways, which include *Bowes Line, Glasgow Subway, A Hundred Years Underground* and the GPO documentary of 1936 entitled *Night Mail*, together with one on *The Forth & Clyde Canal*. There are others on road transport and industrial archaeology and many of a more academic nature.

BROAD GAUGE, Lance Day, HMSO on behalf of the Trustees of the Science Museum, 44 pp., 1 map illus., soft card covers, £2.75

A useful concise history of the Broad Gauge era of the GWR, culled very largely from secondary sources and illustrated with reproductions of Bourne's lithographs, contemporary photographs, etc. There is also a brief chapter on the use of broader gauges in other countries.

THE RYE AND CAMBER TRAMWAY, Peter A. Harding. Published by the author at 'Mosgiel', Bagshot Road, Knaphill, Woking, Surrey GU21 2SG. 32 pp., illus., card covers, £1.50 + 25p p&p

This is Mr Harding's latest booklet on branch lines and minor railways in South East England. It deals with the history of the line, description of the route with station plans, motive power and rolling stock, life on the tramway and the run down and closure following Admiralty occupation during World War II. It is well illustrated.

THE OTTAWA RIVER CANAL SYSTEM, Norman Lafreviere, 95 pp., 24 illus. THE WORK FORCE OF THE RICHELIEU CANALS 1843–1950, P. André Sevigny, 134 pp., 21 illus.

These are the latest books on canals published by Parks Canada. The Canadians re-discovered their canals quite recently. With New World aplomb Parks Canada engaged in historical research and in making abandoned canals available for public recreation. What they then did put Britain to shame. These books are researched to a high standard and are well illustrated. They may be obtained from: Canadian Government Publishing Centre, Supply & Services Canada, Hull, Quebec, Canada K1A 059 price of each C$6.30 outside Canada. Cheques to be payable to Receiver General for Canada.

BRANCH LINES, LINKS AND LOCAL CONNECTIONS, L. Popplewell, Melledgen Press, 71 Thornbury Road, Southbourne, Bournemouth, Dorset, 44 pp., 1 map, 10 drawings, £2.85

This booklet sets out to examine the interplay of provincial local government and the emergent railway interest. It is concerned mainly with the railway development of Bournemouth with some reference to that of Poole and Southampton. This year is the centenary year of the opening of Bournemouth (lately Bournemouth Central) station. The information has been gleaned from secondary sources, very largely from contemporary press reports.

All copy for the March *Journal* should be with the Editor by 29 November 1985 and must conform to the style-sheet published in the November 1981 issue. The top copy should be sent, not a carbon or a photocopy.

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