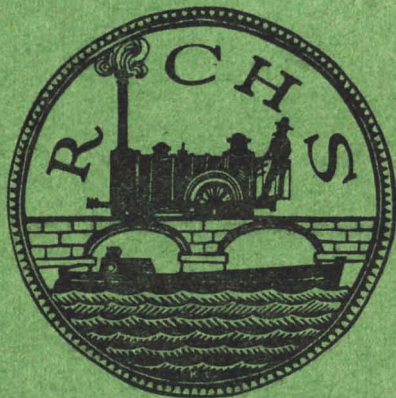


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THE WENDOVER BRANCH OF THE GRAND JUNCTION CANAL

By A. H. Faulkner

In the early days of the Grand Junction Canal the question of how to carry the waterway over the Chiltern Hills ranked high amongst the many problems. For not only was it a question of the building of many locks but, what was far more important, how these locks were to be provided with an adequate water supply. Eventually the decision was taken to cross the Chilterns near Tring, with a three-mile long summit level and to feed the summit from several springs at Wendover, supplemented by local springs near Tring.

As Wendover was some seven miles away from the main canal the original Grand Junction Act (33 Geo III. Cap 80), passed on 30 April 1793, authorized the construction of a level feeder branch to convey the water from the springs.

At one of their first meetings on 5 June 1793 the Grand Junction General Committee ordered the Clerks to open negotiations with the Marquis of Buckingham for the purchase of his Mill at Weston Turville, whilst at their meeting on 17 July instructions were given to apply to Mr. Lucas for the purchase of his Mill at Wendover. At the same meeting Mr. Barnes, one of the Company's engineers, produced a plan and section of the proposed course of the feeder to bring the Wendover water into the summit of the main canal. The Committee approved the plans and gave instructions that the landowners should be approached to arrange for the purchase of the necessary property. A copy of the plan and section was sent to the Marquis of Buckingham and he was asked to approach Sir John Dashwood King for the sale of his Mill at Halton and for his consent to the proposed line through Halton.

The Committee met again on 5 September and the Clerks were able to report that the Marquis of Buckingham's Mill had been bought for £400. Agreement had also been reached for the purchase of Mr. Lucas's Mill for £1,750 whilst Sir John Dashwood King had consented to the canal taking its course through Halton and had agreed to sell the Company the water rights to his Mill on the Wendover stream.

It was realized very early on, however, that little extra cost would be involved in making the feeder branch to Wendover navigable and at a General Assembly of the Proprietors it was decided to apply to Parliament for leave to bring in a Bill to carry out this work and to construct certain other branches. This Act (34 Geo III. Cap 24) received the Royal Assent on 28 March 1794.

Construction work on the branch started at a very early stage and was certainly under way by the autumn of 1793. In May 1794 an approach was made to the Company to extend the canal further into Wendover, but the Company declined and suggested the construction of a road from the town instead.

Work was pushed ahead rapidly, as this was a vital section of the canal, and whilst the actual completion date is not known the branch was certainly finished by early 1797, for this fact is mentioned at a Committee meeting on 15 March 1797. It was probably not used for

traffic, however, for at the time the branch, together with a section of the Tring Summit with which it was joined, was isolated from the rest of the canal. By the end of 1798 or early 1799, with the completion of the Berkhamsted to Tring section of the main line, the branch was linked to the Thames, and by May 1800, the main canal had stretched as far north as Fenny Stratford, and a few months later, with the opening of the Blisworth Railroad, the line was finished.

With the growth of traffic over the Tring Summit it soon became apparent that the water supplies were insufficient and in 1802 work was started on a small reservoir at Wilstone to store surplus water drawn from the Wendover feeder during wet periods. A pumping engine was installed at what is now known as 'Whitehouses' to draw water from the low-lying reservoir back into the feeder as required. These works were completed, despite various setbacks, in June 1803.

Meanwhile in the spring of 1802 a loss of water by leakage through the banks of the Wendover Arm was experienced. Temporary repairs were made but in the autumn of the following year the branch from Whitehouses to the main line was closed to traffic to enable further repairs to be carried out. The arm was eventually reopened early in the summer of 1804 with the repairs still not fully completed. During the closure the Wendover water was passed down into Wilstone Reservoir, or, as soon as this was full, run off to waste.

In 1806 a reservoir at Marsworth was constructed to store surplus water from the summit and in 1810 a steam engine was erected on the banks of the Wendover Arm, about 350 yards from the junction with the main line, to pump the water into the feeder.

In April 1814 construction of Tringford reservoir was started and a year later Startopend reservoir was begun. The outlet culvert from both these reservoirs was built to yet another pumping station built on the banks of the Wendover Arm at Little Tring. This pumping station, Tringford, was destined to become the centralized station for the entire system of reservoirs on the Tring summit. Whilst these works were in hand—they were completed in August 1818—water again ran short on the summit, and as a temporary measure a steam engine was set up at the Wendover end of the arm to pump water from Weston Turville reservoir into the feeder. Although only a short term measure, water was so scarce that this temporary engine continued in use in dry periods for a quarter of a century. As water from Marsworth reservoir could be passed into the new Startopend reservoir, which was at a lower level, the pumping engine on the banks of the arm near the junction was dismantled in 1817 and all the Marsworth water was pumped from the new engine at Tringford.

In 1811 the banks of Wilstone Reservoir were raised and then again in 1827. In May 1835 an additional reservoir at Wilstone, as large as the enlarged original, was started. Early in 1836, as the engine at Whitehouses was nearly worn out, a new culvert was built from Wilstone to the Tringford pumping station and pumping started in November 1837. At about this time a third reservoir at Wilstone was commenced.

During this time the problem of leakage from the feeder recurred from time to time and spasmodic repairs were carried out, but in 1841 it was found that 20 locks of water per day were being lost, equal to 1,120,000 gallons. In 1844 the arm was closed for testing and a report

was issued on 9 December giving the results of the test: first foot in depth—no leakage; second foot in depth— $4\frac{3}{4}$ locks per day; third foot in depth—six locks per day; fourth foot in depth—20 locks per day. Sir William Cubitt was called in to inspect the arm with the Company's Surveyor, Mr. John Lake, and to advise on the problem. Between them they decided that it would be better to try and stop some of the leakage rather than spend from ten to twelve thousand pounds in completely relining and repuddling the arm. Accordingly one cubic yard of puddle was put in on both sides of the canal for $4\frac{1}{2}$ miles at a cost of £2,654.

In 1855 the Wendover Arm was again closed for testing and on 13 March a report gave the leakage at the rate of 25 locks per day, or 1,400,000 gallons. It was proposed that the entire arm should be repuddled, at a cost of some £12,500, and a little work was actually carried out. Then an alternative proposal was put forward, which it was thought would be cheaper and more efficient, and this consisted of lining the canal bed with asphalt about $2\frac{1}{2}$ inches thick. Sir William Cubitt gave the proposal his blessing, estimating the cost at £700 per mile whereas if the arm were to be repuddled it would cost £2,700 per mile. The asphalting was completed in 1858 from Little Tring to Aston Clinton, a distance of 4,843 yards, at a cost of £6,465. The effect was an immediate saving of 18 locks per day.

Again in 1860 serious leakages were reported and £555 was spent on special repair works. In 1870 the loss of water was reported to be at the rate of 204 locks per week, equal to 1,680,000 gallons daily and further repairs to the puddle and asphalt were carried out. In 1871 the arm was again closed to traffic in order to trace the leakages. It was found that from Little Tring Bridge to Aston Clinton Bridge the loss was 70 locks per week; from Aston Clinton to Wendover 64 locks per week; or a total loss of nearly 19 locks per day. It appeared that the asphalt had cracked due to contraction and expansion of the earth's surface and had been damaged by the chines of boats rubbing against the lining about two feet below the water level and had also been broken by shafting.

A considerable sum of money was then spent in repairing the asphalt and in removing the worst lengths and repuddling the bottom of the canal, £2,000 being charged to reserve as a special work. In August 1873 the arm was yet again closed for testing, and the loss was found to be at the rate of 216 locks per week. In 1894 the loss was found to be 28 locks per day and was more than the entire supply from the Wendover springs. £1,650 was spent in 1895 and the following year in remedial measures, which reduced the leakage for a while.

In 1897 a proposal was made to cure the leaks once and for all by constructing mass concrete brick faced walls on both sides of the arm to cover the defective portions for a three-mile length of channel and to provide the bed with an asphalt lined concrete invert, but, probably owing to the great cost, nothing was done.

On 21 August 1897, during a particularly dry summer, as the leakage was so great as to be affecting the main line of the canal, making it impossible to maintain a level of more than four feet, two sets of stop planks were put in at Little Tring Bridge and the intervening space was pumped out, thus severing most of the arm from the main canal. An immediate improvement was effected to the main line water level,

whilst on the other side of the dam the level sank, notwithstanding the supplies coming into the arm from Wendover. Later this temporary arrangement was made permanent by the construction of a stop lock at Little Tring.

The intention was that the arm should be available for traffic when there was sufficient water, but in fact the dry weather persisted and the branch remained closed except for a short time in 1901 when a few boats navigated up to Stable Bridge at Buckland. At other times the level beyond the lock was so low as to form merely a shallow stream in the bottom of the canal, whilst the water from Wendover was run down into Wilstone Reservoir.

The stop lock appears to have been built in 1898, which is the date given by Gordon Thomas, the Grand Junction's engineer, in evidence to the Royal Commission on Inland Waterways in 1908. However D. G. McGarey in his account of Tringford Pumping Station gives the date as 1896 and claims that it had been the practice to dam the branch at Little Tring during dry periods for several years before this.

Several complaints were received about the closure of the Wendover Arm and in 1903 Lord Rothschild and other landowners approached the Railway and Canal Traffic Commissioners, but the Commissioners held that the Act authorizing the making of the branch navigable was permissive and not obligatory, and the only obligation was to make the branch a feeder. The Grand Junction pointed out that to keep the arm open would only mean emptying the reservoirs and closing the main line.

In 1903 some repairs were carried out to the surviving portion of the arm between the junction and the pumping station and also at the northern end of the main line summit pound in order to reduce leakages. Gordon Thomas also inspected the rest of the arm and produced three alternative schemes.

The first was to restore the navigation by repairing the asphalt and the puddle at an estimated cost of £15,683.16.10d. The second scheme was to repair the asphalt and the puddle and to provide brick and concrete side walls between the pumping station and Drayton, the estimate coming to £19,547.13.6d. The final scheme was to repair the arm as a water conduit, at a cost of some £4,782.2.8d, the water level being permanently lowered.

It was a variation on the third and cheapest scheme that was finally carried out. In 1904 the bed of the arm between Drayton and Wendover was repaired, using clay puddle from the sides of the canal. The water level was lowered and the water was diverted into Wilstone Reservoir via a stream at Drayton. The canal between Drayton and the stop lock was then abandoned.

As Wilstone was a low lying reservoir the cost of pumping from Tringford to surmount a lift of from 60 to 75 feet was formidable and in September 1910 a proposal was made to pipe the Wendover water along the abandoned stretch of the arm by means of a 21-inch diameter pipe line laid along the bed. This would have brought the Wendover water direct to the pumping station, where it would have been pumped by a new pump into the summit. In November 1910 authority was given to go ahead and an estimate of £3,491 was made.

However, it was found impossible to design a pump to cope satisfactorily with the very variable flow of water from Wendover and in

April 1911 a further report was made in which it was proposed that water from the end of the pipeline should be passed into Tringford reservoir, from where it could be pumped into the summit. It was also proposed that the size of the pipe should be reduced to 18 inches, the cost of the work now being estimated at £2,481.6.6d. The work was commenced early in the summer of 1911 by the Company and the pipeline was finished in about 12 months, the completed works being inspected by the Committee on 12 June 1912. Overall the pipeline, which operates entirely by gravity, has a fall of about 18 feet from the entrance chamber at Drayton to the pumping station. In 1945 two new variable speed pumps were installed to pump from the end of the pipe into the summit, whatever the rate of flow of the Wendover water, as had been the intention of the 1910 scheme.

The arm today exists in three distinct sections. From the terminus at Wendover to nearly midway between Buckland and Drayton Beauchamp the waterway is an open feeder, the water forming a shallow stream at the bottom of the canal bed. From the end of the open feeder the water flows into the pipeline laid in the bed of the canal and it follows the canal until it nears Little Tring Bridge where the pipeline leaves the canal to take a more direct course to the pumping station, whilst the canal turns through an 'S' bend, passes under Little Tring Bridge, through the stop lock, to arrive at the pumping station. A section of this part of the arm was filled in a few years after the building of the pipeline and has now been reincorporated into the surrounding field. From Tringford stop lock the canal exists as a waterway, albeit a shallow one, and passes through New Mill to reach the Main Line at the head of Marsworth Top Lock, a distance of 1 mile 20 chains.

There are, or were, 13 bridges across the branch. Seven carry public roads, one carries a farm access road, one carries the main line towing path across the mouth of the branch at Bulbourne, one carries a private road at Halton, and one carried a branch railway line into the R.A.F. depot at Halton—this was removed in about 1964. There were two swing bridges; both of these have now disappeared, that at Whitehouses being merely a bank of earth across the dry road.

Before the opening of the railway to Wendover the arm used to carry several thousands of tons of traffic every year, consisting mainly of road-stone, tar and general merchandise. With the coming of the railway traffic dropped heavily. In 1897 there was 500 tons of manure to Wendover and 300 tons to Buckland Wharf, and 350 tons of hay and straw from Wendover and 150 tons from Buckland.

Traffic survived a little longer on the section from Little Tring to the main line, being mainly grain to W. N. Meads' flour mill at New Mill, but the traffic ceased many years ago. There was a boatyard at New Mill operated by Bushall Brothers, but this ceased operations in the 1940s. Nowadays the surviving portion of the branch sees very little traffic. An occasional maintenance craft navigates up to the pumping station and a few pleasure boats explore the arm. At the junction many old working narrow boats have been moored and sunk.

In evidence to the Royal Commission on Canals and Inland Waterways Gordon Thomas gave some interesting information as to why the branch leaked so badly. The primary cause was undoubtedly due to the nearness to the Tottenhoe Stone stratum. In consultation with Mr. Frank Buckland it was discovered that there was a small crab which bred in very large quantities in the Tottenhoe Stone just at the

outcrop. These animals continually bored through the puddle and created the leaks. The only effective way of stopping them would have been vertical side walls and a bitumen bottom to the canal.

The main water supply for the branch is derived from two artesian wells and from surface springs. The No. 1 Well is near the church in Wendover, the water passing along a half-mile culvert to discharge into the canal at Wharf Road. The No. 2 Well is near the Well Head Public House along the Hale Road, the water passing through another culvert, which links up with that from No. 1 Well. The springs feed an old mill stream which also enters into the canal at Wharf Road.

A small supply of water is also obtained from a culverted stream which enters the canal half a mile from Wendover. Water from springs in the Tring area enters the arm by way of the Tring Feeder at New Mill.

At Wendover there was a wharf and a small basin to enable boats to turn. Alongside was the local gasworks but it never provided any traffic for the canal, as all the coal was brought by rail. There were also wharves at Halton, Buckland and New Mill.

Maintenance work on the arm is strictly limited nowadays. The canal and the open feeder are kept cleared to enable the water to pass, but only occasional scrub clearance work is carried out on the piped section. During the years 1943 and 1944 the pipeline between Drayton and Whitehouses was repaired, but funds ran out before the section to the pumping station could be dealt with.

In conclusion I would like to thank Mr. D. G. McGarey and his collaborator Mr. C. N. Hadlow, for their research into the Tringford Pumping Station on which I have drawn for information about the reservoirs and pumping arrangements. Also my thanks to various members of the staff of the British Waterways Board, and to Mr. G. N. Webb, for help with the research.

* * *

NEW FORK RAILWAY

A ceremonial sod-cutting spade in the possession of the Museum of British Transport is inscribed as follows:

‘Presented to William Baillie Esq.,
by Robert McAlpine & Co.
on the occasion of his cutting the first turf
of the New Fork Railway
at Larbert, May 1881’

The ‘New Fork’ Railway seems to be something of a mystery. The Caledonian had powers (18 July 1881) ‘for new railways to connect the Scottish Central line at Larbert with Grangemouth Branch &c., new capital £100,000, borrowing powers £33,300’, and a line $\frac{1}{2}$ -mile long in this vicinity was opened 3 June 1882. Does any member know if this was the New Fork? And who was William Baillie?

DISUSED REMAINS

By Michael Croall

(Continued from p. 52, July 1966. These notes were prepared by Mr. Croall in 1965, and further changes may by now have taken place.)

PORTPATRICK & WIGTOWNSHIRE JOINT

Dumfries to Challock Junction. Closed to all traffic, but rails have to remain for two years in case of any development in the area. The first mile or so is used (double track) as there is still a 'Carnation' milk creamery at Maxwelltown. The down line is used for another half-mile to give access to the I.C.I. works, where a train, mostly of tank cars, arrives each morning. The remainder of the route is gathering rust and weeds. Goods yards have been lifted at all stations. Some signalling remains but all telegraph poles have been removed. The single line to Kirkcudbright has been lifted and bridges demolished. Stations closed several years ago, such as Lochanhead and Kirkgunzeon, can still be traced, although some of the buildings have been demolished. One station, at Buittle, was closed as long ago as 1894, but I have not been able to establish the site with certainty, but it must have been where a row of gangers' cottages (now derelict) can be seen.

Whithorn branch. Lifted early 1965.

Portpatrick branch. Lifted, and some bridges demolished.

Garliestown branch. Lifted, but rails still in position—very rusty—in 1964.

CALEDONIAN RAILWAY

Solway Junction. This line has long been dismantled, although the route can be seen. Part of the northern section is used for a water main to or from the nuclear power station at Chapelcross. The stone-faced embankments leading to the viaduct are still prominent on both shores of the Solway, and the foundations of some of the piers can be seen at low tide.

Lockerbie and Dumfries. Lifted, and intermediate stations have been dismantled. St. Mary's freight station at Dumfries has been closed.

Moffat branch. All except a mile has been lifted. It is rumoured that this is used occasionally for stabling the Royal train at night.

Symington and Peebles. In use for freight traffic as far as Broughton, but lifted thereafter; some bridges remain. A good deal of meat traffic originates at Broughton.

The construction line from Broughton to the Edinburgh Corporation reservoir at Loch Talla can still be traced, although it was closed about 60 years ago. It was quite substantially built, but was never opened for public traffic.

Dolphinton branch. Completely dismantled, but may be followed. Ran through thinly populated area. No through running with N.B. branch.

Wilsontown branch. Lifted, but some bridges still in position. The extensions to serve various closed pits in the Forth area have also been lifted.

Lanark and Muirkirk. Still in use for coal traffic from the Douglas Colliery at Ponfeigh (village is called Douglas Water). From Ponfeigh

to Muirkirk has been lifted. The station at Douglas West served the small village around Douglas Castle Colliery; both station and pit are closed, and the village, on a dead-end road, may become a ghost village. Kennox Mine, near Inches station, formerly had a steeply-graded rail connexion but is now dependent on road transport.

Hamilton and Strathaven. Lifted. Line formerly served a number of small pits, but all worked out.

Strathaven and Darvel. Lifted. Piers of a substantial viaduct are to be seen near Loudonhill. Boundary with G. & S.W. was at County Boundary Junction.

Hamilton and East Kilbride. Lifted by 1955.

Hamilton and Coalburn, etc. At one time a complicated network of lines ran from a triangular junction between Motherwell and Hamilton southwards to Strathaven, Coalburn and Poniel Junction on the Lanark-Muirkirk line; they served numerous small pits and brickworks, most of which are now closed. All lines have now been lifted, except the through Larkhall Central to Coalburn which is used for coal traffic. The only remaining colliery on the line is at Coalburn. The country has several deep valleys and earthworks were quite heavy. Piers of a viaduct over the River Nethan, near Tillietudlem, still stand. An interesting line went on from Coalburn to Bankend (0.6 miles), Galawhistle (4.2 miles) and Muirkirk, but was used only for freight. Bankend was in use until the end of steam trains as there was no loop at Coalburn. Galawhistle was in existence in 1937, but it is not known when the line on to Muirkirk was abandoned. There were collieries at Bankend, Cumberhead and in the Galawhistle area; the last-named was a remote junction, about a mile from any road, a mile north of Glenbuck village. Glenbuck had an ironworks, established in the 18th century, as well as at least one pit, but all industry has gone now. Another branch ran from Glenbuck down to Muirkirk, passing underneath the line from Coalburn, which was steeply graded and had two substantial viaducts—the piers can still be seen. The area is a rich field for the industrial archaeologist.

Lanarkshire & Ayrshire line. Diverse fates have overtaken the various sections of this line. As far as Neilston it is part of the Glasgow South Side electrification; from here to south of Lugton it has been lifted. A single track branch joins it near Lugton from the G. & S.W. line and follows the L. & A. for a mile or so to give access to a Ministry of Defence depot. Line is then dismantled again as far as a connexion with the G. & S.W. near Stevenston, from whence it is intact to Montgomerie Pier. At the south end of Lugton (Cale.) station there is an impressive array of six uppr quadrant signals; as all other signals have been dismantled they may have been left for use in testing enginemen's eyesight. Most underbridges on line have been dismantled, but the long viaduct near Lugton still stands.

Beith branch. Lifted, but course largely visible.

Irvine branch. Lifted, but course largely visible.

Giffen and Kilbirnie. A short distance at the Giffen end is in use to give access to a Ministry of Defence depot; remainder of branch has been lifted, but a part has been taken over with industrial lines through the steel works at Glengarnock.

BOOK REVIEWS

STONE BLOCKS AND IRON RAILS, by Bertram Baxter. David & Charles. 8½ ins. x 6 in. 272 pp. (including 17 pp. art plates). 45s.

It is a minor tragedy that many authors start to write railway books late in life and frequently therefore ambitions are not fulfilled. It must be a great source of satisfaction to Mrs. Baxter and her family to know that our well loved chairman lived long enough to see his book in print. It is the result of over 35 years painstaking work, both in research and even more important, in the field.

The book may be divided into four parts although not described as such in the text. In the first five chapters the first traces the history of the horse tramway in this country from 1603 to its final disappearance from the quarries of North Wales in 1963; it also includes details of early Acts of Parliament from 1801 to 1829. Chapter II deals with the track and traces its development from the wooden 'Newcastle road', the 'double way' to the contemporaneous growth of the plateway and the edge rail. The next chapter is devoted to engineering features, gradients and inclined planes, embankments, tunnels, staithe, cost of construction and maintenance; this is followed by one on operation with a description of the wagons, rules and regulations, and charges and tolls. The last chapter, perhaps the most interesting of all, deals with tracing the lines. It includes advice on maps, and valuable hints to photographers written, no doubt, for the black and white enthusiast but equally applicable to the more modern colour film. Advice is also given to avoid possible misadventures. Many old lines, of course, are no longer traceable, buried under suburban housing schemes or destroyed forever by open-cast mining.

The next section consists of an art section of expert photographs, most of which, it is believed, were taken by the author, and not previously published; they are a most valuable addition to the book. There are also two unidentified and fascinating photographs on the dust-cover.

The third section (Part II of the book) consists of an extensive gazetteer, arranged in counties from north to south with six-inch map references, and a list of existing features, and other known details. There are some omissions, two surprising to the reviewer, Kepwick and the Elsecar and Thorncliffe tramway. Both are easily traceable; the former is mentioned in Tomlinson and the latter was well written up in the L.N.E.R. magazine. The final section is a full bibliography both of books and articles and a valuable map list.

The book is a 'must' on the shelves of all members of the Society. Any small criticism is made in the hope that corrections may be made in a second edition of the work. I am sure that Mr. Baxter would have welcomed comment.

A.L.B.

THE BRITISH IRON AND STEEL INDUSTRY: a technical history by W. K. V. Gale. David & Charles. 1967. 198 pp. 16 pp. plates, 7 line drawings. 35s.

As befits a work by a member of the Society and a distinguished Past-President of the Newcomen Society this is an excellent book within the clearly defined limits laid down by the author in his preface. Mr.

Gale remarks that there is no lack of specialized literature on iron and steel, particularly in connexion with natural and regional economic studies, but that proper attention has not always been given to the technical aspect of its history. He writes not as an economist or sociologist but as a technician, viewing machines and methods and people from the early 16th century to the present day in a carefully controlled, systematic, yet very readable manner. The book is not claimed to be a definite history—had it been so it would have been much longer and, to the general reader, perhaps less useful.

In just over 140 pages of text there are nine chapters, entitled as follows: Introduction and Definitions; Ironmaking up to 1750; The Spread of Mechanization; Industrialization gains Momentum; The Heyday of Wrought Iron; The Steel Age Begins; Steel Supreme; Into the Twentieth Century; and The Last Twenty Years. The familiar names of Bessemer, Darby, Dudley, Foley, Gilchrist, Huntsman, Mushet, Neilson, Rastrick, Siemens, Thomas and Wilkinson occur in their appointed places but we are introduced also to many less well known figures and the processes they helped to develop. Various hoary myths are despatched to oblivion on the way.

The present reviewer found chapters 5, 6 and 7 particularly informative but the whole book is to be warmly commended. The author conveniently italicises technical terms which are then explained as they arise. There is a comprehensive 18-page glossary, a short—too short?—bibliography, several clear line diagrams, and 27 photographs, including 'period' blast furnaces, and modern rolling mills.

It can be safely assumed that members of the Society are interested not only in canals and railways but also in the basic industries which they served and which in turn served them. The important connexion between both forms of transport and the development of the iron and steel industry has long been the subject of study and Mr. Gale's book is a welcome contribution to the latter's technical history, appearing as it does as the first volume in David & Charles's new series on 'Industrial History', uniform with their successful *Industrial Archaeology of the British Isles*.

M.I.B.

LOCOMOTIVE STOCK BOOK, 1966. Railway Correspondence & Travel Society. 56 pp. 20s. post free.

LOCOMOTIVES OF THE L.N.E.R. PART 5: 0—6—0 TENDER ENGINES. Railway Correspondence & Travel Society. 230 pp. 45s. post free.

(Both available from Honorary Assistant Publications Officer, 5 The Friary, Lichfield, Staffs.)

For many years the Stock Books of the R.C. & T.S. have supplied up to date details of the locomotives in service throughout Great Britain and Ireland. Additions to stock and withdrawals are most carefully chronicled, and the plates present an interesting record of classes which have become extinct in the period since the previous edition. The 1966 volume (covering the years 1963 to 1965) is of outstanding interest as it deals with a period in which some 5,800 steam locomotives were taken out of service. Undoubtedly it will be invaluable to future generations of historians who, even though they may not be concerned about the

numbers of individual engines, will mark the disappearance of types which were a very familiar part of the railway scene. Mr. Don Rowland's very readable review of these changes puts the details in perspective.

Those of us who knew the L.M.S. after 1923 recall its ubiquitous 0—6—0 locomotives. According to the reviewer's calculations there must have been about 3,500 falling into some 28 classes, but one was seldom in doubt about their origins. In contrast, the antecedents of L.N.E.R. locomotives of the same wheel arrangements could be quite baffling. Part 5 of the R.C. & T.S. *Locomotives of the L.N.E.R.* shows that when 1923 began the newly-formed company found itself with 38 distinct classes of 0—6—0s, 2,527 engines in all, which would work anything from a local goods to a heavy excursion and even the occasional express passenger train. A remarkable assortment they were, including a veteran of Stockton & Darlington type (designed by Bouch), Stirling and Ivatt designs from the G.N.R., Robinson's G.C.R. '9Js' and T. W. Worsdell's Great Eastern 'Y14s' (of which there were 272 in 1923) and the same engineer's North Eastern Class 'Cs' (201 in 1923). The casual observer might often be confused by the disguises which could alter these engines beyond recognition: reboiling, chimneys of different patterns, alterations of cabs and so on. Among the 328 illustrations (most of them excellent) are several showing these variations. They include a picture of a former M.S. & L. engine with a North British chimney, and another with a side-window cab. The remarkable point emerges that 69 North Eastern and North British locomotives survived as recently as the end of 1965. These two publications will give pleasure to locomotive historians for a long time to come.

G.O.H.

INDUSTRIAL MONUMENTS IN THE MENDIP, SOUTH COTSWOLD AND BRISTOL REGION, by Neil Cossons. Field Guide No. 4, pub. by Bristol Archaeological Research Group, c/o The City Museum, Bristol, 8. 32 pp. Map. Index to sites. Bibliographical notes. 3s. 6d. (4s. including postage).

Today, when so much dreary matter is churned out by some publishers of transport books (especially some of the pot-boiler stuff written by well-known authors) it is refreshing to find a writer such as Neil Cossons, who has assembled facts and figures of over a hundred industrial sites in the area, and produced a very readable, and never dull, field guide to the remains of industrialization. Each site has a national grid reference and is given a brief description; enough, at any rate, to give a lead to those interested in industrial monuments. It is not, of course, a work devoted to railways or canals, but one section is concerned with Roads—tollhouses, milestones and bridges; Canals; Tramways and Railways; and Transport Industries. Other sections deal with Bristol: docks, shipbuilding and commercial buildings; Traditional Industries; Mining, Quarrying and Metal Industries; and Wind and Water Mills. There is a neat, clear map. It is unfortunate that there are no photographs, especially of some of the lesser-known sites, but this could hardly be expected for a mere 3s. 6d. The reviewer has no intimate knowledge of the area and, able to take an objective view of the matter, finds it a most interesting and useful guide.

J.G.S.

CORRESPONDENCE

Doncaster-Thorne deviation

Sir,—Undated revisions of Sheet 87SE of the First Edition One-inch Ordnance Survey show that the original Doncaster-Thorne line of the South Yorkshire Railway was indeed wholly alongside the Dun Navigation from its junction with the Great Northern—question (i) by Mr. D. T. Wilkins on page 47 of the *Journal*, Vol. XII No. 3, July 1966. It had been squeezed in between the two river channels, alongside the slightly straighter but not navigable northernmost one as far as Long Sandall, where it bridged a now abandoned section joining the two channels to reach the north bank of the canal section, which it then followed very closely except between Stainforth and Thorne, where it ran up to 100 yards away across the bends. As the adjacent Sheets 87NE and 86 show, it terminated at first alongside a now disconnected section of the river at Thorne Waterside (Grid Ref. SE 675142) and also on the canal bank above Thorne Lock, the line being afterwards extended further along the north canal bank through new stations below Thorne Lock and at Maud's Bridge to Keadby.

As planned* for the Bill in Session 1862, the 8 mile 7 furlong deviation to Maud's Bridge was to begin just above Long Sandall Lock, between the two arms of the river, crossing almost immediately the 'abandoned' interconnecting channel on a new bridge just south of the old one and then the canal at the head of the lock. Although the working agreement scheduled to the West Riding & Grimsby Railway Act, 25 & 26 Vic. cap. ccxi of 7 August 1862, did not mention any promise of the South Yorkshire to make the deviation, the W.R. & G.R. plans* had been drawn up on such assumption. The main line finished at North Field Bridge, Barnby Dun, where it was to join the old S.Y.R. line on the canal bank, but a 2 mile 46.30 chain branch continued on the level across the old S.Y.R. and then over a moveable bridge on the canal to join the 'proposed deviation' at Hatfield Parks, near Stainforth. This moveable bridge lasted until November 1955, when it was finally replaced by a fixed span on a slightly different alignment.

Colonel Yolland made a preliminary inspection of the line between Long Sandall and Maud's Bridge on 2 July 1866, continuing over the W.R. & G.R. between Adwick and Hatfield Parks on the following day, but he would not approve the latter beyond Barnby Dun, nor the S.Y.R. deviation. This was inspected again on 30 August, however, and sanctioned for use from Monday, 10 September.† With the construction of this deviation proceeding simultaneously, the W.R. & G.R. presumably dropped any idea of making the connexion with the old line at Barnby Dun.

The powers granted by the S.Y.R.'s Sheffield & Thorne Act, 25 & 26 Vic. cap. cxli of 17 July 1862, were limited to the section already detailed, although modified somewhat within these limits in connexion with the branch to Thorne N.E.R. by a subsequent Act, 26 & 27 Vic. cap. cxlvi, on 13 July 1863. Nevertheless, the Company seems to have assumed its usual unscheduled right to alter the deviation at Long Sandall and then to continue alongside its own navigation property, but up to 200 yards away from and on the opposite side of the northern river channel, finally crossing it to reach the original junction at Doncaster. This course had already been adopted on 26 October 1864,

when the Boards of the S.Y.R. and the W.R. & G.R. met in the Doncaster Hall-gate offices to receive tenders for construction of the whole of the new line 'in substitution of the one which at present keeps to the course of the River Dun Navigation, and will be about *11 miles* in length'. Competition was restricted and the tender of Messrs. Knight & Gordon of Manchester accepted, the line to be completed by the following 1 July.† It was not, of course, and there must have been a temporary connexion into the old line at Long Sandall until the remaining *3 miles* of this straightening were finished. It was approved by the Government Inspector on Friday, 30 November 1866, and used by the regular trains from the following day, so completing a double line of rails between Doncaster and Thorne.†

It may be of some interest to note that the S.Y.R.'s 1862 Session plans* also indicated that much of the Meadow Hall—Woodburn Junction extension of the Chapeltown branch had already been formed—between Tinsley Bridge and Attercliffe, where it lay close to the Sheffield Canal. No rails had yet been laid, however, and powers were being sought to deviate slightly at two points from the rather sharply curved route already adopted and to acquire land for the necessary extensions beyond the canal property at each end of the line.

* House of Lords copies examined by the kind permission of the staff at that Record Office.

† Reported in the pages of the weekly *Doncaster Gazette*.

A. L. BARNETT and P. STEVENSON

Alteration to Names of Stations, G.C.R.

Sir, — Nottingham (Victoria): Nottingham (Joint) was the Great Northern Railway's name for this station; the Great Central's was, naturally, Nottingham (Central). Dow, *Great Central Vol. III* p.16 describes how the two companies disagreed over the name, and how the present one was suggested by the Town Clerk and adopted by the Joint Station Committee 'without loss of face', almost immediately after the opening of the station. Tickets with the respective name were printed by each company and used until stocks were exhausted. Dow illustrates one (p.15) from NOTTINGHAM (Central) to ARKWRIGHT STREET (NOTTINGHAM) and there is one in my collection from LONDON (MARYLEBONE) to NOTTINGHAM (CENTRAL).

A. L. BARNETT

(Only timetables, preferably the company's own, can be used as a basis for this type of research. Tickets, like station nameboards, varied considerably.—Ed.)

Train destination indicators, East London line

Sir,—As a result of my letter in the *Journal* for January 1967, I have been shown a photograph of a District Railway engine bearing the headboard: 'NEW CROSS LBSC'. This photograph would appear to have been taken some time during the later period of steam operation, and of course does not mean that headboards were equally precise during the whole period of steam working on the East London Railway.

H. V. BORLEY

Alderbury Junction and West Moors Line

Sir,—With reference to the *Journal* for January 1966, page 11: the date of opening for public traffic of the line between Alderbury Junction and West Moors was 20 December 1866. A special train was, however, run on the previous day for Directors and Officers. Authority: *Salisbury & Winchester Journal* and *Wiltshire County Mirror*.

H. V. BORLEY

Red for Danger

Sir,—With reference to p.15 of the *Journal* for January 1967: it is to be regretted that Mr. Rolt did not correct a small error in his account of the accident at Kentish Town in 1861. Had the staffing and working arrangements been as Mr. Rolt sets out there would have been a target on the previous train and the collision would probably have been avoided, but the staff at the stations and those with the ballast train were L. & N.W. men. All the passenger trains were North London, and that company did not provide targets to indicate a special train following. At that time there was no telegraph communication of any kind between Kew and Willesden, and the stationmaster at Kew sent forward the special train when ready. In an effort to avoid a recurrence the North London took entire charge of the Hampstead Junction line for about twelve years and telegraphic communication was provided between Kew and Camden Road and intermediate stations, together with improved signalling and interlocking.

H. V. BORLEY

Centenaries in 1967

Sir,—Owing to the decision (not publicized when the list was prepared) to put on a shuttle service between Birmingham (Snow Hill) and Oldbury, the note† is partially incorrect, as the line from Smethwick West to Handsworth Junction was consequently not closed on March 6.

M. D. GREVILLE

'Rain, Steam and Speed'

Sir,—In the *Journal* for April 1965 I referred to Turner's painting 'Rain, Steam and Speed', and linked it to the London & Birmingham Railway. But not a bit of it! Rev. Mace, in *The Railway Enthusiast's Bedside Book*, notes that the sub-title is 'The Great Western Railway'. We are rarely so prone to error as when we are so sure of our facts that we do not bother to check them.

It may be of some interest that the West Somerset Mineral Railway achieves the distinction of being mentioned in one of the admirable guides to ancient monuments published by H.M.S.O. for the Ministry of Public Buildings and Works, viz. 'Cleeve Abbey'. This Abbey was founded towards the end of the 12th century for the Cistercian Order, and much of it is surprisingly complete. The guide states (p.9) that 'where the main wall ends, the northern and eastern boundaries of the precinct were continued in the form of broad wet moats. The northern moat remains intact, but much of the eastern moat was destroyed when the line of the West Somerset Railway, now abandoned, was laid along its course'.

H. W. PAAR

Peter Robertson, Loco. Supt., G. & S.W.R.

Sir,—I am seeking biographical details of Peter Robertson, Locomotive Superintendent of the Glasgow, Paisley, Kilmarnock & Ayr Railway, and of the Glasgow & South Western Railway from October 1840 until May 1853. Can any member suggest a source of information please?

H. A. VALLANCE

RECENT LITERATURE

William J. Skillern

BLACKBURN, A. and MACKETT, J. *The Freshwater, Yarmouth & Newport Railway; with a section on tickets by D. G. Geldard.* 1966. (Branch-Line Handbooks, 9s. 6d.; by post, 10s.)

CRAFT, Maurice. *Museums and historic buildings in Lancashire and Cheshire; with an introduction to industrial archaeology in the two counties by Owen Ashmore and J. Harold Norris.* Revised edition. 1966. (Available from The Registrar, Department of Sociology, Edgehill College of Education, Ormskirk, Lancashire, 4s.)

HAMILTON, J. A. B. *British railway accidents of the twentieth century.* 1967. (Allen & Unwin, 30s.)

LEE, Charles E. *Sixty years of the Bakerloo.* 1966. (London Transport, 2s. 6d.)

LEE, Charles E. *Sixty years of the Piccadilly.* 1966. (London Transport, 2s. 6d.)

PEARSON, A. J. *Man of the rail: [autobiography—from junior clerk, Cheshire Lines, to Assistant General Manager, London Midland Region].* 1967. (Allen & Unwin, 42s.)

ROBBINS, Michael. *George and Robert Stephenson.* 1966. (Clarendon Biographies Series.) (Oxford University Press, 9s. 6d.)

TIME TABLES of the Great Western Railway, January-April 1902: [facsimile reproduction. 1967]. (Ian Allan, 21s.)

ARTICLES

**Vicissitudes of the Exeter Canal : Britain's oldest pound lock waterway may be preserved for maritime museum, by John Brierley. (In 'Municipal Review', Vol. 38 No. 445, January 1967.)*

Transport and the local historian : some suggestions for further work, by B. F. Duckham. (In 'Amateur Historian', Vol. 7 No. 3, 1966.)

Social policy and the floating population : the administration of the Canal Boats Acts, 1877-1899, by Roy M. MacLeod. (In 'Past and Present', No. 35, December 1966.)

**By boat to Stanton and Shipley, by Peter Stevenson. (In 'Stanton & Staveley News', August and December 1966.)*

The Aire & Calder Navigation : Part 1, The Beginning of the Navigation, by R. W. Unwin. (In 'Bradford Antiquary', New Series, Part 42, November 1964.)

**The Working of British canals, past and present, by Edward Wilson. (In 'Ships Annual, 1967'. Ian Allan, 12s. 6d.)*

**In the Society's Library.*

SOURCES OF TRANSPORT HISTORY AT AUDLEY END

On a family visit to Audley End House, near Saffron Walden in Essex, last year, the writer was impressed by the very fine library, but a busy Sunday afternoon was not the time to institute detailed enquiries. A recent letter to the Custodian of the house, which is maintained and administered by the Ministry of Public Buildings and Works, has produced a speedy and most courteous reply.

The library is in the main a collection of works on history and archaeology by the third Lord Braybrooke which ceased about 1830. Nevertheless, it produces the following:

Historical Tour Through Monmouthshire Coxe, 1801.

The Steam Engine Lardner, 6th Ed. 1836.

Our Railways John Pendleton, 1894. (2 vols.)

Report & Survey of a canal from Marylebone . . . to the Waltham Abbey . . . to Moorfields Robert Whitworth, 1773.

History of Navigation, Kings Lynn and Cambridge. 1766 (deals with the draining of the Fens).

Survey of the River Shannon. H.M. Commissioners, 3 vols. 1837-1839.

In addition there are files of *The Gentleman's Magazine*, The British Almanac and the Annual Register, and various County and other histories (one of Ludlow, 1841) which could well be useful to the transport historian. The Custodian also adds that in the family archives of the late owners at Essex Record Office, there are records of a projected canal from Bishop's Stortford to Cambridge via Saffron Walden, and he gives for good measure other sources on the subject.

Students may use these sources with the permission of the Estate Office and the Ministry. It will be seen that some potential exists in such libraries for our subjects, and I hope that members will always take the opportunity to make suitable enquiries when they see any sizeable collection of books, ascertaining also if such may be consulted by *bona fide* students.

H. W. PAAR, Honorary Research Officer

* * *

At a joint meeting of the officers of the L.&N.W. and G.W. companies at Paddington on 24.5.1880 it was proposed to close Glanrhyd as a goods station from 1.7.1880, and traffic to be dealt with at Llangadock. In 1879 the total weight was 2 tons 14 cwt. 2 qrs. 14 lbs., and receipts £1 18s 8d.

* * *

ERRATA

p.10 Jan. *Journal*: Opening on May 1: For GREAT WESTERN & LONDON & SOUTH WESTERN JOINT read GREAT WESTERN AND LONDON & NORTH WESTERN JOINT.

p.20 Jan. *Journal*: Delete line referring to p.68 Oct. *Journal* which should read:

Oulton Broad South 26.9.1927 Carlton Colville

Acts supplement: on p.1 para. 2: for 26 Vict. read 29 Vict. and for 26 & 27 Vict. read 29 & 30 Vict.

CHARGES for advertisements on this page are as follows: Members 2d. per word (non-members and commercial advertisers 3d. per word). Minimum charge for any advertisements 4s. Name and address charged for. No Box Numbers. Remittance should be sent, with the advertisement, to the Editor not later than the 1st of March, June, September or December.

W. HARRISON'S *History of the Manchester Railways* (1882): Reprint of this work (36 pages with map and explanatory note) will be published in April (not listed in 'Ottley'). Price 5s. post free. Orders with cheque or postal order to **Lancashire and Cheshire Antiquarian Society, c/o The Portico Library, Mosley Street, Manchester, 2.**

R. & C.H.S. PUBLICATIONS

The following publications are available, by post only, from R. & C.H.S. Publication Sales, Ashbrook, Blind Lane, Southwick, Trowbridge, Wilts.

A SHORT HISTORY OF THE LIVERPOOL & MANCHESTER RAILWAY, by G. O. Holt. (Revised edition). 7s 6d. (6s 3d to publications fund subscribers.)

Back issues of the *Journal*: Duplicated typescript issues, up to November 1964, 2s. 3d.; printed copies for 1965-6. 7s. 9d. each; for 1967, 5s. 6d.

THE RAILWAY & CANAL HISTORICAL SOCIETY offers:

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