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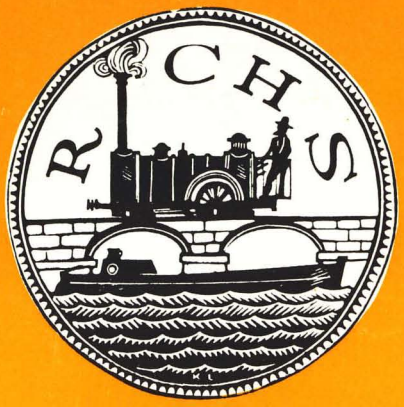

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JOURNAL OF THE RAILWAY & CANAL HISTORICAL SOCIETY

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CONTENTS

Stations in Hereford, Part II

BY C. R. CLINKER

Hereford (Barton)

This station was constructed by the Newport Abergavenny and Hereford Company (incorporated by Act of August 1846) and opened in January 1854.

The Hereford Hay and Brecon Company, by their Act of Incorporation 1859, were empowered to construct a line from Brecon to the line of the Shrewsbury and Hereford Company, but by another (Deviation) Act of 1860 they were authorised to abandon the junction with the Shrewsbury and Hereford railway and to make, in lieu of it, a junction with the Newport Abergavenny and Hereford railway at the Barton station.

The Newport, Abergavenny and Hereford Company was by Act of 1860, incorporated in the West Midland Company

The West Midland Company was, by Act of 1863, amalgamated with the Great Western Company

By Agreement dated the 17 March 1863, and scheduled to the last mentioned Act, the Midland Company were given power to run over the Hereford and Newport sections of the West Midland railway and to use the stations works and conveniences (Section 12)

In 1863 the junction authorised by the Hereford Hay & Brecon Act of 1860 was put in, but the Government Inspector would not pass it for passenger traffic because it formed a connection with one line only of the Newport Abergavenny and Hereford Company instead of being a double junction connecting with both lines.

Under Agreement dated the 20th August 1864 between the Hereford Hay and Brecon and the Great Western Companies, a substituted junction was made by carrying a line parallel with the Great Western Main line up to the Barton station whereby trains could run in and out of that station to and from the Hereford Hay & Brecon line on a separate line of rails.

This agreement provided that the Hereford Hay and Brecon Company should pay to the Great Western Company for the use of the station and junction £300 a year until their line was opened for traffic beyond Eardisley and thereafter £620 a year, such sums to cover all expenses in connection with passenger traffic and in addition, a toll as for one mile on each passenger according to class, for the use of the piece of line between the Junction and the Barton station.

The Hereford Hay and Brecon Company worked their line up to July 1865 when, by Act of that year, they amalgamated with the Brecon and Merthyr Company who continued the user of the Station on the same terms up to the 30th June 1867 on which date they ceased to run their trains into the Barton station, having given the requisite notice to terminate the Agreement on the 28th February previous.

The Great Western Company ceased to use the Barton station for their passenger trains in July 1866, these trains then being run into the Barrs Court station.

The union of the Hereford Hay and Brecon Company with the Brecon and Merthyr Company was severed by the Brecon and Merthyr (Amalgamation) Act of 1868 and an arrangement was soon afterwards made for the working of the Hereford Hay and Brecon line by the Mid Wales Company who under that arrangement worked the line and used the Barton station from the 16th March 1868 until the 30th September 1859.

The terms upon which the Mid Wales used the Barton Station and junction line were £400 a year for rent and services at the station and a toll as for one mile, which latter during the eighteen months they worked the line amounted to £436..8..9

Under the Agreement of 1863 before mentioned the Midland Company commenced running goods trains between Worcester and Hereford on the 16th Novr 1868 and passenger trains on the 1st July 1869.

In 1869 a Bill was promoted by the Hereford Hay and Brecon Company by which they sought power to enter into an arrangement with the Midland Company for the working of the line by that Company, but the Bill was opposed by the Great Western Company and thrown out. A working agreement, dated the 14th September 1869, was, nevertheless entered into by the Hereford Hay and Brecon and Midland Companies and on the 1st October 1869 the latter Company attempted to run into the Barton station, which they contended they had a right to do under that agreement, but they were prevented by the Great Western Company from doing so—

On the 4th February 1870 the Midland Company filed a bill in Chancery for an injunction to restrain the Great Western Company from preventing them from using the junction and the suit was heard on the 27th June 1870 before Vice Chancellor James who decided that notwithstanding the notice given by the Hereford Hay and Brecon Company in February 1867 to terminate the agreement of August 1864, the Great Western Company were bound to maintain the substituted junction and were also bound to permit the Hereford Hay and Brecon Company to use the same as a junction between the Main lines of the two Companies from main line to main line, as fully as they would have been entitled to have used the junction in lieu of which the same was constructed—

The Midland Company thereupon again attempted to use the junction but were prevented by the Great Western Company and another Bill was filed which came before the Master of the Rolls on the 11 Febry 1873 and was dismissed with costs, but this decision, being appealed against by the Midland Company the Lords Justices, on the 28th April 1873, reversed the decision of the Master of the Rolls and ordered the Great Western to refrain from obstructing the Midland Company's trains passing through the Junction—

The Midland Company then applied for permission to use the Barton station for their passenger traffic from the Hereford Hay and Brecon line, and at a meeting of the Great Western and Midland Joint Committee on the 12 June 1873 the Great Western Company consented to their doing so on the understanding that it should be without prejudice to the rights of either Company, that the terms should be agreed forthwith and that the arrangement should be terminable on reasonable notice being given by either Company. The Midland Company also desired to have their own staff at the Barton station but to this the Great Western Company objected. They, however, subsequently agreed to their having their own Booking Clerk and Inspector. (See Mr. Grierson's letter of the 2nd March 1874 to Mr. Allport)

On the 1st April 1874 the Midland Company commenced to run their Hereford Hay and Brecon trains into the Barton station and closed the station of the Hereford Hay & Brecon Company at Moorfields which between the 30th September 1869 and this time had been the Hereford Terminus of the Hereford, Hay and Brecon Company.

The Hereford, Hay and Brecon line was leased to the Midland Company in perpetuity by the Midland and Hereford Hay and Brecon Act of 1874.

Prior to the latter portion of these proceedings viz. on the 31st October 1872, the Midland Company ceased to run their passenger trains over the Worcester and

Hereford line and since that date their Coaches have been conveyed on Great Western trains.

The Carriages are conveyed from Worcester on Great Western trains and detached at the Barton Junction from which place they are hauled by the Midland Company's Engines into the Barton station and vice versa.

In 1878 the Mayor and Corporation of Hereford memorialised the Board of Trade and complained that the station accommodation provided by the Railway Companies at Hereford was inadequate and Colonel Rich was directed to inspect the places complained of, and on the 14th January 1879 he reported that the accommodation was 'defective and dangerous,' that there was great want of platform accommodation and the Signals were not properly interlocked.

In consequence of this report the Officers of the London and North Western and Great Western Companies were directed to prepare a Joint report as to how the accommodation could be improved, and at a meeting of the Joint Committee on the 7 February 1879 such a report, prepared by Messrs Grierson, Findlay, Nelson and Roberts was submitted which recommended that the Barton station should be enlarged and re-arranged so as to accommodate the combined passenger traffic of the three Companies and suggested terms upon which the arrangement should be carried out.

At this meeting the Great Western Company's representatives stated that they had been in communication with the Midland Company and it was suggested that from the opening of the new station the Midland Company should pay by way of rent or interest on the Capital Cost of the station expended and to be expended during the arrangement £600 a year, and that from the same period they should pay one fifth of the working expenses of the passenger station and expenses incidental thereto (other than interest on Capital Cost) These terms were to be in force for three years and subsequent terms were to be agreed or settled by arbitration; but it was reported that the Midland Company would not agree unless the terms offered were fixed for 10 years and the proposal had, therefore, been withdrawn.

The Committee directed that the offer to the Midland Company should be renewed for a period of five years.

Considerable correspondence ensued in the course of which it was intimated to the Midland Company that the London and North Western and Great Western Companies were not prepared to leave the Barrs Court station unless it was fully agreed that Barton should for the future be adopted as the permanent general station for the three Companies. The Midland Company, however, declined to bind themselves to the permanent user of the station and the negotiations fell through, and on the 10th October 1879 the North Western and Great Western Joint Committee decided to abandon the plan for making Barton the central station and instead to improve the station at Barrs Court. This decision was communicated to the Midland Company on the 10th February 1880.

Up to this time no settlement had been arrived at of the terms to be paid by the Midland Company for the use of the Barton station for the Hereford Hay and Brecon traffic, and for the traffic conveyed in their carriages to and from their line beyond Worcester, nor of the toll for the use of the junction line, and in January 1881 Mr. Grierson submitted a proposal to Mr. Noble that they should pay for the past up to the 31st December 1880, the sum of £7,000 (there is nothing to shew how this amount was arrived at) and for the use of the portion of the Great Western line connecting the Hereford, Hay and Brecon line with the Barton station a toll of one mile gross on passengers according to class, and on goods of one mile in the mileage division on actual mileage.

This was declined by the Midland Company but a similar proposal was again made at a meeting between Messrs Grierson and Noble on the 13th January 1885 when Mr Grierson further stated that if the question of the payment to be made by the Midland Company for the past user of the Barton station were referred to arbitration, he should require at the same time that the terms of the future user should be submitted. He also asked Mr. Noble whether the Midland Company desired to remain at Barton or would go into Barrs Court station. Mr. Grierson explained that he asked this without authority either from the Great Western Board or the North Western Company and Mr. Noble undertook to consider the matter.

On January 24th 1885 Mr. Grierson submitted these facts to Mr. Findlay and asked him to ascertain whether his Directors were prepared to concur in the Midland Company running into Barrs Court upon terms to be agreed and on the 26th January Mr. Findlay replied in the affirmative.

The actual cost of the station and of the Brecon Curve (including land) over which the Midland Company would have to run to get into Barrs Court was got out by Mr. Johnston (the Joint Engineer) & submitted to Mr. Noble by letter dated the 20th October 1886 with a draft of the terms which he suggested might be agreed upon by the Great Western, North Western and Midland Companies if the last mentioned finally agreed to run into Barrs Court. (NOTE: For particulars of the amounts and terms see the account of Barrs Court in the July *Journal.*)

On the 21st July 1886, at a meeting between Messrs Grierson and Noble, the former offered that if the Midland Company decided to run their trains into Barrs Court he would be prepared to recommend the Great Western Directors to accept to the 30th June 1886, exclusive of interest, a sum of £13,600 for rent and services and the same toll for passengers and coaching traffic as offered in 1881.

At a meeting with Mr. Grierson on the 8th Decr 1886 Mr. Noble asked for particulars of the revenue expenditure on the Barrs Court station to be furnished to him & this was sent in May 1887. (NOTE: See July *Journal.*)

At a meeting between Messrs Lambert and Noble on the 15th January 1889 it was agreed that the Midland Company would run their trains (Passenger) into the Barrs Court station on terms to be agreed & would pay in full settlement of the Great Western Company's claim for the user of the Barton station and toll for the piece of line between there and Moorfields up to the 31st December 1888, the sum of £16,500 and that the rent to be paid from January 1st 1889 (to cover toll, rent and services) should be at the rate of £1,100 a year subject to further consideration should arrangements not be made for the admission of the Midland Company to Barrs Court.

Under Agreement dated 21 May 1891 the Midland Company were admitted into the Barrs Court station from the 2nd Jan 1893 from which time their trains ceased to run into Barton.

* * *

The Maldon, Witham & Braintree Railway: An Investigation of Its Shareholders

BY ADRIAN GRAY

How was the construction of a local branch line financed during the years of the Railway Mania? Dyos and Aldcroft have suggested that many projects were financed locally because the advantages to local commerce outweighed their importance as profitable organisations in their own right: '...not all lines were by any means so encouraging to investors as they were to local merchants and industrialists, whose measure of success was often the size of the construction job and the cut to be made in freight rates.'[1] In contrast, Hobsbawm has suggested that 'hard-headed businessmen' began to be 'attracted less by rational calculations of profit and loss than by the romantic appeal of technological revolution, which the railway symbolized so marvellously, and which brought out the dreamer....in otherwise solid citizens.'[2]

So where did the money actually come from? Some clues can be gathered through a brief examination of an Essex local scheme, the Maldon, Witham & Braintree Railway. This line was proposed to connect Maldon, a small port on the River Blackwater, with Braintree, a market town at the centre of a rich farming district; there was to be a link into the Eastern Counties Railway's London to Colchester line at Witham. Such a project must have been fairly low on 'romantic appeal', but nonetheless an Act of Parliament was obtained in 1846. Capital was to be £200,000, with shares of £20 each,[3] and promises to invest were collected on the Company's subscription contract, although this only lists shares up to a total of £150,000.[4]

The Company's prospectus concentrated almost entirely on the likely importance of the goods traffic between Maldon and Braintree, calling the district 'one of the most important both for corn and cattle in the kingdom.'[5] It was anticipated that corn, grain, and seed would be exported from Maldon, whilst there would be a balancing flow of coal, timber, slate, and manure into the Braintree district. The final two paragraphs of the prospectus highlight two important motives behind the scheme:

> It presents the prospect of maintaining the prosperity of the port of Maldon, which now has a decided advantage over every other port in the county, inasmuch as there are no dues chargeable; and with the means of railway communication it can continue to supply the county at a cheaper rate than any other port, while if the railway communication be not conceded, its prosperity as a port will be endangered and the trade and property of the merchants seriously injured.
>
> The construction of the line will diminish materially the expense of land carriage for many goods now supplied by the port of Maldon, which in some instances is greater than the original cost of the article supplied; in all cases it is very burdensome and peculiarly felt, inasmuch as the goods supplied consist of the necessaries of life.[6]

The subscription contracts for the MW&B contain a considerable amount of information on how the capital was to be raised.[7] The contracts are 'promises' to buy shares and do not indicate amounts that were eventually paid over; many people, including some directors, promised more than they were able to pay.

The information contained in the subscription contracts regarding the residence of subscribers is presented in Figure 1. Notably this shows that over half of the £150,000 was subscribed by men who lived in Essex; the exact figure was £79,500. £16,800 was provided by the capitalists of Ipswich, who should be regarded as 'local' investors since the Suffolk port was a major commercial centre and influenced the affairs of northern Essex; among the Ipswich men the Cobbold family figures prominently—a name which still influences the region through Tolly Cobbold beer and Ipswich Town Football Club! London, with £45,500, was the largest single contributor.

Figure 2, the map, shows the location of all the 'local' investors in relation to the line itself. It is noticeable that investment was drawn from a wide area of northern Essex, rather than from the immediate vicinity of the line alone. There was a marked tendency for progressive local landowners, such as Hobbs of Mark's Hall, to invest in the railway for the general stimulus that it would bring to an agricultural region. Heavy investment from Maldon was due to the severe decline that was facing the port because of the silting up of the Blackwater estuary; investment in the railway was a last-ditch attempt to re-invigorate its trade, part of which had been lost to Heybridge when the Chelmer & Blackwater Navigation had opened along a route that avoided Maldon.

But the most surprising fact about the location of shareholders was the complete absence of Braintree itself, a town which stood to benefit greatly from the railway. Bocking, its adjoining 'twin' town, was represented, most notably with £4,000 from Samuel Courtauld, who owned a silk mill there. The only possible explanation of this circumstance would appear to be the existence of rival railway projects which could have put Braintree on a through route between Chelmsford and Suffolk; the proposed Essex & Suffolk line would have been an example of this.[8]

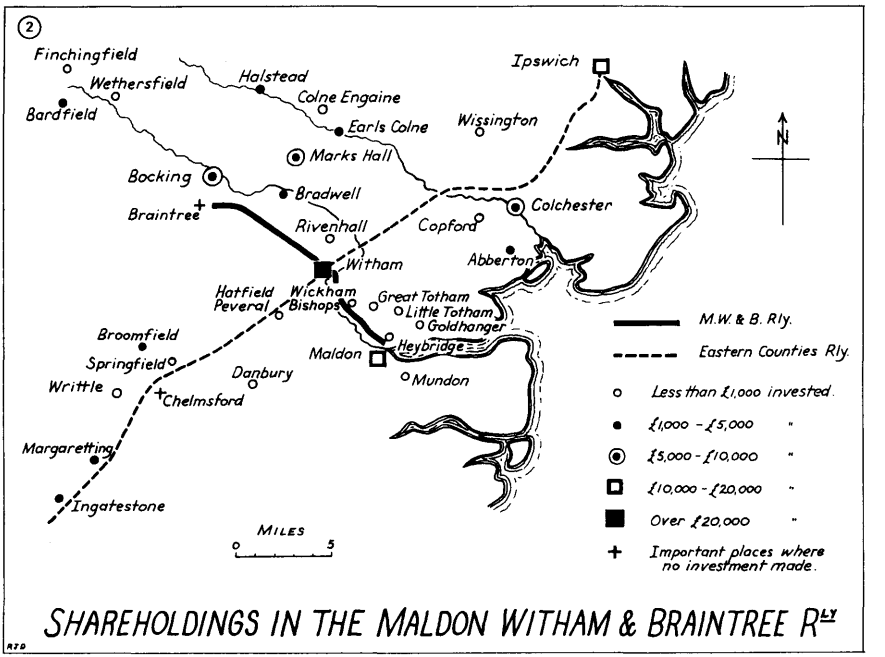
Ipswich emerges as a regional commercial centre of much greater importance than Colchester. Three members of the Cobbold family subscribed (a banker, a merchant, and a gentleman) as did J. Ransome, who was described as 'ironfounder'. There were several bankers in both the Ipswich and the Colchester contingents.

The table below, which can be compared with Figure 3, shows the way in which money was subscribed from the six leading centres:

Place	*Amount subscribed*	*No. of subscribers*	*Average subscription*
London	£45,500	48	£948
Witham	£24,840	19	£1,307
Ipswich	£16,800	16	£1,050
Maldon	£11,360	28	£406
Colchester	£6,800	8	£850
Bocking	£6,300	4	£1,575

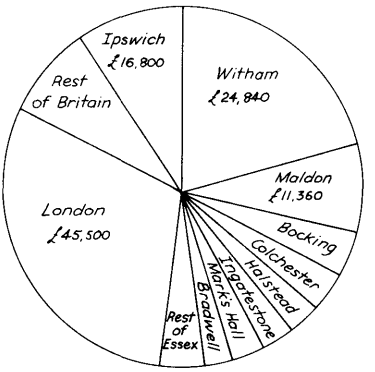
The very low average subscription of Maldon residents, at £406 per shareholder representing less than half of the average stake made by men from the other important centres, is the most notable feature of this table.

The decline of Maldon as a port was clearly destroying the livelihood of many of the town's traders, and this stimulated the desire of the minor commercial classes to invest in a railway that they believed would rescue them. Listed amongst the important merchants of Maldon were tailors, a plumber, a bookseller, a bootmaker, and a chemist; there was even a subscription of £40 from J. Walker, 'a servant'. In contrast the average subscription from Witham people was comparatively high, due



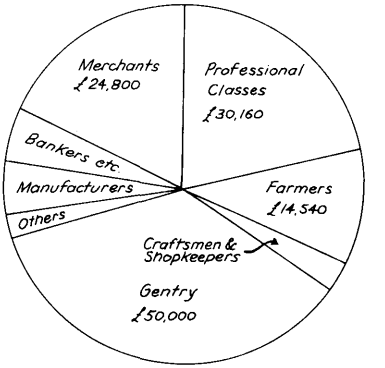
(1)

RESIDENCE OF SUBSCRIBERS



(3)

OCCUPATION OF SUBSCRIBERS



largely to a number of substantial local landowners living in the town; several of these, such as H. Dixon who subscribed for £8,000, described themselves as 'Esquire'. Other Witham people included farmers, merchants, and tradesmen. The London group included a number of surveyors, solicitors, stockbrokers etc., any of whom could have had a professional interest in the line; W. Tite, the architect, was amongst them.

Because of the description 'Gentry', Figure 3 does not help a great deal in determining why people invested; landowners and farmers were often not described as such. It is noticeable that manufacturing interests invested little.

Finally we can study the strength of local investors on the first Provisional Committee of the Company; some names were spelt differently in the Board Minutes[9] and on the subscription lists.

Name	*Residence*	*Occupation*	*Amount contracted*
John Page Wood (Chairman)	Bradwell	Bart.	£2,200
William Luard	William Lodge	Esquire	£400
P. K. Smith	Rivenhall	Esq.	£400
J. Hardcastle	Ingatestone	Esq.	£4,000
S. Courtauld	Bocking	Manufacturer	£4,000
Henry Dixon	Witham	Esq.	£6,000
W. F. Hobbs	Mark's Hall	Esq.	£6,000
J. H. Pattison	Witham	Esq.	£2,200
George May	Maldon	Esq.	£2,000
Alfred May	Maldon	Auctioneer	£2,100
Edward Bright	Maldon	Merchant	£100
Henry Weston	Not on subscription lists		
W. Hutley	Witham	Farmer	£1,000
J. Foster	Witham	Farmer	£4,000
R. Walker Dixon	Wickham Bishops	Miller	£100
P. S. F. Martin	Halstead	Gentleman	£4,000
Isaac Belsham	Heybridge	Merchant	£100
John Beddall	Finchingfield	Farmer	£100
John Payne	Maldon	Merchant	£200
J. Wright	Maldon	Merchant	£400
J. B. Rickards	Maldon	Merchant	£1,000
J. Wilmshurst	Maldon	Grocer	£100
H. Harridance	Maldon	Merchant	£200

Clearly, therefore, control and direction of the line was in the hands of local men even though much of the capital was raised outside the county of Essex. The majority of these men, as tradesmen or landowners masquerading under the title of 'Esquire', stood to gain from the introduction of railway facilities to the area rather than from any profits the line might make. However, many of the shares were not fully paid up and the line fell into George Hudson's hands, becoming incorporated into the Eastern Counties Railway in 1847. Overall though, the MW&B would appear to bear out the argument of Dyos and Aldcroft whilst suggesting that Hobsbawm's 'solid citizens' were well aware of the financial benefits a railway could bring to a district.

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2 E. Hobsbawm, *Industry and Empire,* Penguin, London 1969, p. 113
3 C. P. Lombardelli, *Branch Lines to Braintree,* Stour Valley RPS, Halstead 1979, p. 11
4 MW&B Subscription contracts, PRO ref. RAIL 415/5
5 MW&B Prospectus, PRO ref. RAIL 415/1
6 Ibid.
7 The subscription lists contain a list of names and amounts subscribed for, with the occupation and place of residence of the subscribers. Some names appear on the list several times.
8 *Railway Times,* 15 March 1845
9 MW&B Minutes, 11 March 1845, PRO ref. RAIL 415/2

* * *

Charles Augustus Hartley and the Scottish Central Railway

BY C. W. S. HARTLEY

Charles Augustus Hartley* was born at Gateshead on 3 February 1825 to an agent of the Tyne Iron Works of Lymington who, in the course of his travels, had married a Scotswomen from Bo'ness on the Forth. At the age of thirteen Charles left school and was engaged in various apprenticeships first in County Durham and later in Leeds, where he was in the office of the highly-respected George Leather & Son and made the acquaintance of James Falshaw.† In 1845 Falshaw left the Leathers and was called north by Thomas Brassey's partner John Stephenson to take charge of the Lancaster & Carlisle contract. Before the work was half done, however, he was sent to Scotland to become the contractors' Resident Engineer for the Scottish Central Railway, and in July he settled in Stirling to take 'sole charge of the operation on terms highly favourable to himself'.[1]

Falshaw had to gather a set of young engineers or District Agents, each to take on a stretch of the line; and he thought at once of young Hartley, still only twenty and slogging away at an unrewarding job at the famous Wylam colliery.[2] In spite of his young age he already had a good deal of experience behind him, and he had developed into a striking figure of manhood, over six foot three inches tall, broad-shouldered, clean-shaven and with regular features, and upright in carriage. He accepted the job with alacrity.

* Sir Charles Hartley KCMG made his name as an engineer when, as Engineer-in-Chief to the European Commission of the Danube, he opened the mouth of that river to navigation by means of jetties and later straightened the channel through the delta.

† Sir James Falshaw Bt subsequently partnered Brassey in the construction of the Inverness & Nairn and the Inverness & Aberdeen Junction Railways. Later he moved to Edinburgh where, in 1874, he was the first Englishman to hold office as Lord Provost.

Hartley left Newcastle on 19 September, and on that day he started to write a diary, a habit which, though there were some important gaps, was not abandoned until he died at the age of 90 in 1915.

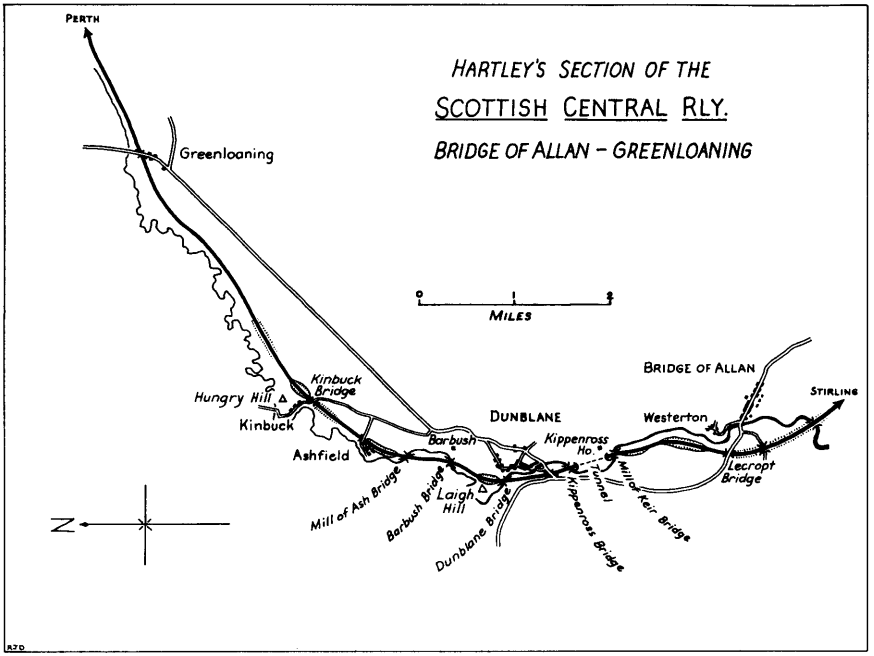
The Scottish Central Railway, about which comparatively little has been written in the literature of railway development, has a peculiarly interesting place in the history of British railways. During the middle and late 1830s the first important group of trunk lines was established in England, and all of them, except the Great Western, were built by what has been called the Stephenson group of engineers from the north country, *i.e.* by George Stephenson himself, his son Robert, and Joseph Locke. The latter took over the Grand Junction, linking Birmingham with Manchester and Liverpool, when George Stephenson failed to satisfy the directors, and it was here that his association began with his partner John Errington and with the greatest of all railway contractors, Thomas Brassey.

In Scotland, although Locke built a line from Glasgow to Greenock during 1839 – 41, and Edinburgh was connected to Glasgow in 1842, no trunk routes to England had been projected in the early years. Locke, however, had submitted a report to the Grand Junction directors on a possible route to Glasgow as early as 1836, and nine years later work was going on simultaneously under his direction on the Lancaster & Carlisle, the Caledonian, the Scottish Central, and the Scottish Midland Junction Railways, the latter taking the line as far as Forfar and soon to join with other lines to complete the link from London to Aberdeen.[3]

The route of the Scottish Central from Stirling to Perth and south to Greenhill to join the Edinburgh & Glasgow Railway had long been under consideration. In 1841 the landowners had engaged Errington to survey the line, and in August 1844 Locke met a provisional committee at Perth to describe the work and explain that the line could be constructed to the satisfaction of all and so as 'not to injure the amenity of Mr. Stirling's very beautiful park at Kippenross'.[4]

Hartley's meeting in Stirling with Falshaw was a momentous one. 'Happening to talk about office matters', he wrote, 'Mr. F said he wished he could find a person suitable in every respect to take the management of the Stirling Establishment. I mention—my brother Will and at his request wrote and offered him the situation—also offered to place Alfred along with me at Dunblane—I took my leave for the night highly elated with the prospects of myself and family'.[5] And so within a fortnight his two brothers followed him, and before October was out his mother and sister were on their way north to set up house at Dunblane. For accommodation he was fortunate. William, of course, had to lodge in Stirling; but the rest of the family obtained the lease of Balhaldie House, an old stone building of much historical interest set at right angles to the road at the top of the High Street.[6]

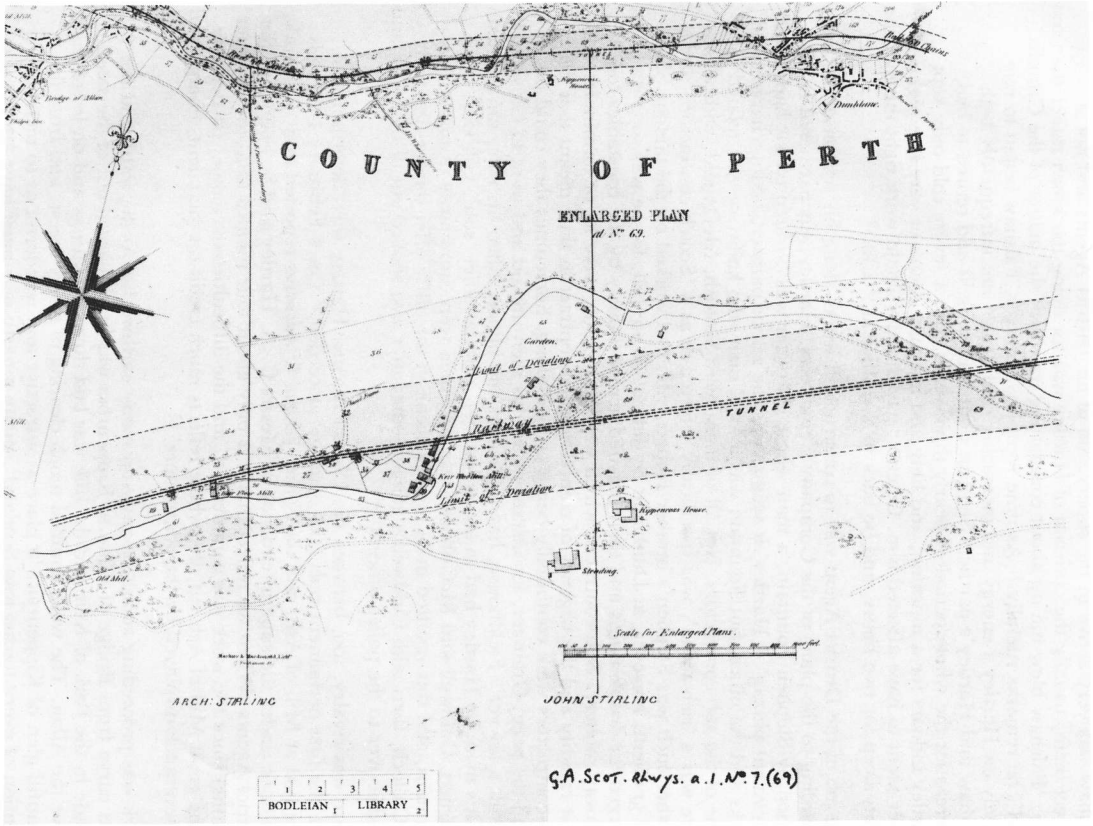
The thirteen miles of railway for which Hartley became the contractors' District Agent ran from just north of Stirling through Bridge of Allan and Dunblane to Greenloaning and, later, to Blackford. After crossing the Allan near its confluence with the Forth, the railway had to force its way through a narrow gorge before plunging through Kippenross park to Dunblane; thence it penetrated Laigh hill and ran along steep slopes on both sides of the river before emerging into Strathallan above Kinbuck. In a space of less than five miles the Allan was crossed six times by bridges which Falshaw described as entailing 'masonry of a heavy character'.[7] Perhaps the most interesting of the bridges for which Hartley was responsible is the one between Dunblane and Kippenross, which has two massive stone pillars standing askew in the river and joined by iron girders; these are flanked by two stone arches which carry the bridge to rivets on the banks, the river passing under the main span and one arch with a path running under the other. It was from the temporary works on this bridge that he was to fall backwards into the river from a



loose sleeper: 'fearful fall—no bones broken, but weak', he recorded, and it was a miracle that he fell into deep water and not onto rocks.[8]

The beautiful plans of Locke and Errington (of which there is a well-preserved copy in the Bodleian Library)[9] allowed for only one tunnel in Hartley's section and included three diversions of the river to avoid further bridging. In the event, three tunnels were constructed, though the one at Laigh hill was very short, and all the river diversions were carried out. Apart from these works the section included massive cuttings in the narrow defile between Bridge of Allan and Dunblane, further cuttings between this city and north of Kinbuck, considerable embankments near Bridge of Allan and along Strathallan towards Blackford, and numerous bridges, stations, level crossings, and drainage works.

In the contract for the Scottish Central Railway Brassey was partnered by William Mackenzie, an older contractor who had first competed with and then joined him, and John Stephenson, a Scottish contractor who died shortly after the line was completed. Mackenzie never appeared on the line, perhaps because he was heavily engaged in other contracts including at least two on the continent of Europe. John Stephenson was in Stirling for some days on Hartley's arrival, but his visits were infrequent, as were those of Brassey himself. By early 1846 these contractors had twelve major contracts in England and Scotland, and they relied heavily on their resident agents to see them carried out.[10] Similarly, Locke and Errington, though responsible to the Company for the design and execution of the railway itself and all works upon it, relied on their resident representative, Tasker, to supervise the contractors' operations. Locke was at the summit of his career and was engineer to innumerable railways and other works scattered over Europe. It was to Falshaw



therefore that Hartley looked for guidance and encouragement, and never a week went by without his seeing Falshaw several times, either along the line or in Stirling or when the latter was passing by in the Defiance coach on one of his frequent visits to Perth.

Falshaw was very active in the supervision of his District Agents and not slow to correct them; usually the criticism of Hartley was for doing too much rather than too little: 'Falshaw blew me up about committing myself in the matter of the Cromlix road', he remarks ruefully.[11] As time went on, however, Falshaw began to rely heavily on Hartley's energy and increasing confidence; not infrequently both Falshaw and Hartley's partner, Stephen Fountain, took ill and retired to bed, whereas for the whole period of nearly three years even a severe cold only kept Hartley indoors for a morning, and long and irregular hours or very late nights never seem to have affected him. Often at pay time he would work right through the night, sleep for two hours, and be back in the office at 9 a.m.[12]

The job of the District Agent was to construct all works along his section of the line according to the plans of the Company's engineers. Hartley was partnered in his section by Stephen Fountain, a man whose character was 'written on his happy and benevolent phizag'.[13] Hartley, it seems, was the senior partner, taking charge of all works and the office, but Fountain was a local man who knew, or was related to, some of the sub-contractors. Not all of these were Scottish; McDonald, with whom there was a 'rich scene', was specifically referred to as a 'Scotch contractor', and another such was Stephen's brother Robert, who had worked on the famous Shap Fell gradient; however, at Dunblane he did not do so well, for he was soon discharged for drunkenness and then pursued across country by the constables for highway robbery! Sub-contracts, which were numerous, were let or terminated with great rapidity and the urgency of completing the contract in time meant that the sub-contractors were continually being pushed along. Sometimes they could not stand the pace; Grainger, for instance, 'left his men unpaid and went to Glasgow to consult a lawyer'. Fieldhouse, having beaten and almost killed his wife, ran off and left his men; so Hartley had to act as 'ganger' until another 'sub', Gibbons, returned. Caldwell and McCulloch with their men were summarily dismissed by Fountain, and this resulted in 'a regular scene in the office after dinner first with McCulloch, then with Caldwell's ganger—the latter was shoved out of the office and handed over to the police officers'.[14]

There was rivalry, too, between the District Agents. Hartley was 'determined to have the first permanent rails laid', and he succeeded.[15] On 4 February 1846 rails were laid at Mill of Ash, and the *Stirling Journal & Advertiser* reported that 'this work was done under the superintendence of Messrs C. A. Hartley and S. Fountain, the District Agents. When we reflect that it is only about four months (and these winter months) since the work was commenced, and the difficulties overcome, particularly at the great Mill of Ash cut, the whole reflects much credit on the talent, energy and perseverance displayed by the contractors'.[15]

Work was proceeding simultaneously on many earthworks. At the south end the great curve from Bridge of Allan to Kippenross was being carved out of the steep hillside in the Park of Keir and the line was laid through cuttings and on ledges high above the Allan. The work entailed much clearing of heavy forest, and from the beautiful glen of Kippenrait, 'a place as attractive and wonderful as to merit the attention of every tourist into Scotland', many a nasty scar must have appeared on the hillside opposite, where hundreds of navvies were working for twelve hours a day and sometimes at night. The entrance to this curve from the south had presented a problem. The railway had to burrow under the main road, but as the ridge on which it stood was of sand and loose rocks the road had first to be diverted through

the schoolmaster's garden and the line of the railway then opened from on top and a wide bridge or short tunnel inserted.[16] A small river diversion was also needed.[17] Today all these earthworks have re-clothed themselves in forest and from the hill above Bridge of Allan on the east bank one hears but does not see the expresses rushing north and south.

Locke was determined that the line should run as straight as possible from the Mill of Keir through Dunblane, Laigh hill, and the big hill at Ashfield to Kinbuck. To accomplish this it was necessary to cross and re-cross the Allan and to carve considerable cuttings. It was also necessary to keep the landlords happy, and so there was much debate as to where tunnels should be used instead of cuttings. The first obstacle was Kippenross Park. In January 1846 a reporter on the *Stirling Journal & Advertiser* recounted that 'from the nature of the ground here the tunnelling must also be by opening from above, through its whole length, and building the arch in open day, when the soil must be again replaced, and the lawn levelled as before'.[16] This idea has gained general currency, but both Errington's report that shafts were sunk for the tunnel[18] and events and calculations recorded in Hartley's diary show that in fact the eventual tunnel had a total length of 594 yards of which only 406 yards was open cut; the remaining 188 yards of tunnelling may not have been continuous, but the greater part, if not all, must have been at the southern end where the line drives straight into a rocky face.[19]

The work here was not easy. In January 1847 the whole operation was in jeopardy through the sudden fall of 'two or three lengths on account of moving the centres too soon'.[20] At the end of 1846 an arrangement was made to have a travelling crane laid on staging across the open length of the tunnel; the latter had walls three feet thick and was arched with bricks of which 1½ million were produced near Bridge of Allan.

The owner of Kippenross Park was John Stirling, Laird of Kippendavie, a property which lay to the north-east of Dunblane. Kippendavie, as he was called, was the most important figure in the district, being an instigator and director of the railway company as well as Master Mason of the Masonic Lodge.[21] Hartley met him on the work almost daily in the early period and an 'occupation road' and a bridge had to be constructed to Kippendavie's satisfaction from the park bridge across the river to the cutting, and across it to the house. Work on the tunnel continued throughout 1846 and 1847, but on 20 January 1848 he was able to calculate its cost as only £34,000 and two days earlier he had walked right through with his mother and sister.[22]

North of Dunblane wide curves again became necessary, and the plotting of these took a good deal of his time during the early months. The first obstacle was Laigh hill and it was eventually agreed that this should be open cut although a small tunnel was employed at the north end. The sub-contractor here, Charlesworth, seems to have been one of the most successful on the line, perhaps because of the good relations he had with his miners. As soon as the excavations had penetrated some distance he organized a special three o'clock dinner and Hartley joined them all in the tunnel: 'a famous sitdown—plenty of grub, music, soup and speeches'. The day was later marred by a fall of sand which crushed one of the miners, and he died next morning.[23]

The spoil from Laigh hill was used to make high embankments across Laigh haugh and a filling for a major river diversion. 'At this spot the river was threatened with two bridges, within three or four hundred yards, but the contractor...is employed in cutting a new water course'.[16] In view of his later career it is significant that Hartley's section should have encompassed several river works. The diversion at

Laigh hill entailed the filling of over two furlongs of river, the construction of a high embankment over it, and the cutting of a diversion channel of about 250 yards. At Greenloaning, to the north, an even larger diversion was undertaken, and Hartley's section had been extended to Blackford to take in this work. Here the railway line was to cross the old bed of the river six times, so a diversion about half a mile long was cut and a straight embankment of similar length erected immediately south of the new channel. Just west of Blackford, too, the river was straightened to make it possible for the line to continue its course without deviation after crossing the Allan. Planking was used to hold the new bank of the river. Near Muckle Burn, half way between Kinbuck and Greenloaning, Hartley thought the river came too near the line for safety, and he planned a new channel about half a mile in length north of the line;[24] this was never done, but it is interesting to see that a special straight dyke had later to be dug to protect the railway along this stretch.

After the river diversion north of Laigh hill the line climbed on through a succession of cuttings: Barbush, Auchinlays, Mill of Ash, and Hungry hill beside Kinbuck. The cuttings were opened for the most part by the classic method. The surface soil was removed and a gullet formed large enough to take the waggons which removed the soil to the embankments further along the line or, when not required, deposit it by agreement with the landlords. Loose subsoil, sand, or gravel was removed by pick and shovel and, when not taken out by wagons, was hauled up the sides in barrows on planking,[25] but in certain cuttings blasting was needed. The quarrying of stone at Craigton and Ardoch for the bridges, stations, and other works was also assisted by blasting. At this time gunpowder was used and accidents not infrequent. Soon after Hartley arrived one man was killed and two seriously injured by premature ignition at Craigton. In 1847 Hartley started experiments with gun cotton and this illustrates how up-to-date the contractors were, for gun cotton, which required primers and detonators, had only been invented by Schönbein in Basle in the previous year.[26] The explosions seem to have failed to provide the shattering effect desired. Of two explosions at the Kippenross tunnel 'one blew slewing, the other went through into drift', he recorded. Further trials in Auchinlays cutting were no more successful.[27] Experimenting with new explosives in those days must have been a chancy business.

The curved cutting at Ashfield near the Mill of Ash was one of the greatest works on the line. The total length was about half a mile and the question was whether to tunnel the hill at any point and, if so, for what length. The setting out of the curve was to cause Hartley much worry and he later had it checked by one of Locke's men.[46] It was decided at the end of 1845 that the centre of the curve, to a length of about 300 yards, should be tunnelled; and it was to be worked in three lifts, the middle length to come out of the drift shaft. A length of tunnel near this shaft later fell in, luckily missing two workers, and a new square shaft had to be sunk. This was completed within a week, but another fall occurred within two months. By this time the work was being pushed forward on all parts of the line and, as a result, there were other mishaps. At Barbush cutting 1,000 yards of rock and till slipped onto the line; at the Kippenross tunnel a 24-foot length of the roof fell in because the pressure of the earth came on it before the mortar had fully set. Sub-contractors were now under more pressure than ever. In the space of two days Ross was dismissed for disobeying orders, Dan 'blown up for the state of his tip', Little caused displeasure by the way he was working his cutting, and there was a 'blow up' with McLaren over the Kippenross arching.[29]

The gradients on this section of the Scottish Central Railway have received little comment, probably because the gradient controversy has centred on Shap on the Lancaster & Carlisle Railway which was being surmounted at about the same time. The climb to Shap summit from the south is from 30 feet to 916 feet in 30 miles,[3] whereas the ScCR climbed in nearly 14 miles from about the same elevation to just

over 400 feet at the pass between Strathallan and Strathearn, a mile beyond Blackford. The average gradient was thus of the same order (about 1 in 180), and although the pull to Shap summit of 1 in 75 runs for four miles, there was also a stretch with the same stiff gradient for over a mile between Bridge of Allan and Kippenross.[30] So Locke's 'up and over' policy[31] was equally pursued in the Scottish Central Railway, and it is difficult to see how it could have been avoided or how the gradients could have been reduced without much more expensive earthworks; as it was, lengthy embankments were employed in the five mile stretch along Strathallan between Muckle Burn and Blackford to avoid heavy cuttings or tunnels further on.

The whole of the long climb, except for one mile at the top, was in Hartley's section, and the maintaining and transferring of correct bench marks was one of his most continuous and anxious occupations. On one occasion in early 1846 John Stephenson and Falshaw convinced themselves that Hartley's levels at Kippenross Park were wrong, in spite of the latter having tried them again 'and found them right to an inch'. Falshaw insisted on checking them again personally after the week-end, and finding them right had to withdraw his doubts and give the word for a new shaft to be dug. It was shortly after this that Locke and Brassey made their first appearance on the line to check the progress of their subordinates.[32]

Apart from the work on the line itself there was the erection of navvies' houses, staff houses, and stations, the latter with their distinctive crow-stepped gables and ashlars of white sandstone.[6] Then there was the quarrying, the preparation of ashlar for the stone facing of bridges, brick production, the transporting and storing of rails, sleeper cutting, culvert or creep construction, and a hundred and one other things. The experience that was packed into these three years at Dunblane was the foundation of Hartley's working life, but above all he was to learn from Locke and from Brassey the value of meticulous measuring of work, calculating of supplies, and control of expenditure, for Locke was the first great exponent of accurate estimation both through the drawing up of detailed specifications for contractors and through the subsequent control of their performance. Thereby, it has been said, he had a greater influence on civil engineering practice in the future than either Robert Stephenson or Brunel, both of whom were often hopelessly out in their estimates.[33] Hartley was never to forget the lesson he learnt, and good estimating and financial control was a strong feature of his later engineering career.

Hartley's sub-contractors controlled the large armies of navvies who built the railway with their hands. A total force of 8,000 men and 1,000 horses are said to have been used for the whole Scottish Central and Scottish Midland Junction Railways between Greenhill and Forfar.[1] A high proportion of the navvies were English, and their reputation for strength and hard work was unsurpassed; but others were Irish or lowland Scots. Carpenters and pile-drivers were also imported from England. There was very little trouble on Hartley's section of the line, and he reports no cases of fighting and only one of drunken navvies on the main road. Brassey had a reputation for fairness to his men and for encouraging them to rise to be gangers or even sub-contractors, and he passed this attitude to his work-force on to his agents.[25] Considering the scale of the work and the numbers involved, accidents were few. One man was buried by a sand fall, and an Irish navvy was killed in the Kippenross gullet. In October 1846 he 'saw a poor fellow's arm cut off—died next morning', and in the same month he records that there were a good many deaths from fever.[34] His greatest difficulty was the employment of Highlanders. The second infamous wave of Highland clearances had started early in the 1840s and Highland destitution was made worse by the potato blight which reached Scotland in 1846, the year in which the Destitution Relief Boards were established in Glasgow and Edinburgh.[35]

Some members of these Boards and of the Free Church Committee saw the railways as a splendid means of employing the destitute, and the contractors were asked to co-operate. In late 1846 Falshaw agreed to take three hundred men. Hartley received 28 Highlanders ('the first gang of destitutes') on 29 January 1847 and personally set ten of them to work with the sub-contractor (Manners) at Laigh hill. A larger gang was placed 'with great difficulty' on 1 February, and altogether 220 were received in that month.[36] The fact was that these poor men were unused to the strenuous work of the railway gangs and 91 left before February was out. There was much criticism of the apparent inability of the contractors to employ them; on 4 March, therefore, Falshaw countered this criticism by sending a letter from Hartley to the *Scotsman* which was published the following day.[37] He wrote that although, by that time, 248 men sent by the Free Church Committee had arrived and been put to work:

> 91 have left the work, in consequence of the rate of wages at which they were paid. On pay night, Saturday the 15th ult., when told of the rate of their daily pay, they said they deemed it insufficient, and that they would not stay unless their wages were made equal with those of other men who worked along with them. Still, on being told that the men with whom they worked had been engaged many months, and had thereby gained experience, and although it was explained to them that when they had acquired the like experience that their wages would be made equal to the rest, yet they still persisted in their determination, and accordingly left the district on the Monday and Tuesday following.

Hartley also reported in the same letter that:

> many Highlanders who had been working on the railway for several months previously left. . . alleging as an excuse that their fishing season was commencing, and that they had work nearer home which would suit them better.

It is not difficult to detect in this letter the prevailing employer's view that Highlanders had little chance of competing with real workers though, for charity's sake, the effort must be made. The average wage at this time was 2s 4d per day, but a ganger could earn 4s 6d.

What was life like for the young Hartleys while engaged in this pressing and exacting work? It might be thought that there would be neither time nor energy left for a social life; but no, not only did Charles and his brothers take part in numerous social and sporting events, but when opportunity presented itself they enjoyed the most active outings possible. Distances did not deter them; they moved about on horseback or in dogcarts or gigs belonging to the contractors or borrowed at a moment's notice from landowners or friends. When horse transport was not to be had, they walked. They treated everyone with good humour and friendliness, dined with Kippendavie or Major Henderson of Westerton, and drank toddy in the evening in town houses in Stirling or Dunblane or in Kinross's Inn. Hartley's diaries bear out Barty's description of Dunblane society in the forties as being undivided into sets, with the wealthiest and poorest on familiar terms, conversing easily and greeting each other by their Christian names.[21] The free and easy atmosphere was extended to Sundays, which were not very strictly observed. Although they might attend church once or twice in the day, they would also dine out or have friends to the house. There was little sign of the dour Scottish sabbath, and they were willing to attend the churches of any denomination; temperance meetings were derided.

The Hartleys became close friends of a number of families both in Stirling and Dunblane and there was much toing and froing of attractive young ladies. Hartley was susceptible to beauty and liveliness. Early on there was a Miss Kinross from Mill of Ash, 'a nice looking girl and free and lively' who was prepared to dance

reels well into the night. This seems to have ripened into a temporary attachment. Miss Kinross began to be 'gallanted home' and he found time to snatch a quick luncheon with her in the morning; but by October 1846 he had introduced her to a friend who was 'determined to make a conquest here and settle down quickly as a married man.' Soon the Misses Mary and Margaret Macmillan of Stirling were constant visitors at Balhaldie House and no visit to Stirling seems to have been complete without supping or dancing with them. Hartley was quite prepared to dance until five in the morning and then go straight on to work 'highly delighted with the evening's entertainment'.[38]

Dinner was taken at any hour between noon and 6 p.m., according to how long Hartley had to stay out on the job. When he was invited out, dinner was usually in the late afternoon; at Kippendavie House they dined at four to half past four, at Westerton sometimes not until six, and he would stay on for music, dancing, or cards.[39] Sometimes the Macmillans would stay at Dunblane for as long as a week, and in summer Hartley would take a day off and drive them to the Trossachs or Lock Katrine, a trip of over 50 miles, hiring extra horses from Kinross's Inn.[40] Horse transport was more perilous than motoring is today. Horses had to be bought at short notice, and they were often uncertain mounts or unsteady between the shafts. Hartley's first grey took the reins between its teeth and made off with the gig, racing a cow and nearly capsizing the vehicle. Then on Christmas Day the same animal, ridden this time by William, bolted on the way to Crieff, and fell 'at the topmost speed' near the Ardoch tollgate. William was put to lie down in the Ardoch Arms with bruised and swollen wrists and a face much disfigured; 'the poor fellow was very weak and several times about fainting', Hartley reported. On New Year's Eve a hired horse bolted with Alfred in the dogcart, swerved from side to side and, hitting the kerbstone, overturned the cart and completely smashed it, Alfred coming off lightly.[41]

In early 1846 a bay mare was bought for £25 for Hartley to ride. After a few days he was off on her to Crieff with three others when they came on the Victor coach capsized: 'all of us about her' he wrote, but 'no one seriously hurt.' In spite of this delay they arrived safely at Crieff, 17 miles away, before nightfall. Next morning on the way to Comrie the mare was found to be lame and taken to the stable for examination. Led out for trial she could hardly put one hind leg to the ground and on return to the stable she fell down and was dead in three minutes. On opening, her hind quarter was found to have had a heavy infection and to be extensively gangrenous.[42] Hartley was much upset by this affair and it was four months before he broached the subject of a replacement with Falshaw. He must have felt there was a spell on his mounts, for within six weeks of this last incident a clipped pony was found nearly dead in the stable at Balhaldie; it had choked itself by thrusting its hind leg into its halter! It was a further four months before he acquired another mare, a grey, and she did not suit him. So next he had a horse; this animal broke both shafts of the dogcart and threw itself down. 'John had foolishly fastened the reins to the wheel', he reports, and instead of driving his own vehicle he had to take the Victor coach to Bridge of Allan. Only four days later a horse hired with a gig from Kinross's Inn ran into a brewer's dray and broke the gig 'literally to atoms'. Fortunately, he managed to hold the reins and secure the horse, but Stephen Fountain had the 'trace hook run into the fleshy part of his thigh' while Hartley himself escaped with a bruised knee.[43] Later that year he acquired a 'new brown Irish stead', but it was not long before there was another pair of smashed dogcart shafts when the horse fell down on approaching Mill of Ash. Perhaps it was all these equestrian mishaps that made him such a keen and vigorous walker![44]

It was not until after the railway was opened that Hartley was able to explore parts of the Highlands, and this he proceeded to do with extraordinary vigour. In early

June, 1848, he and two companions started on foot at eight in the evening for Callander, a distance of 12 miles. Next morning they left at 5.30, breakfasted at the Trossachs Inn (about six miles), took a boat to the head of Loch Katrine, walked over to Inversnaid (five miles), took another boat on Loch Lomond to Tarbet, walked to Arrochar (two miles), and then after tea swam around in Loch Long, sleeping afterwards at the Arrochar Inn. Next day they returned to Dunblane after taking the steamer to the head of Loch Goil.

That trip was by way of a practice run, for a week later, after a full working day which included walking to Greenloaning before breakfast, Hartley arrived in Glasgow at 11 p.m. with William and another District Agent. Next day, Saturday, they crossed to Dumbarton in fine warm weather and took seats on the coach to Balloch, from where they sailed by the *Water Witch* the full length of Loch Lomond to Inverarnan. Returning after lunch to Tarbet, they walked 24 miles via Glen Croe to Inveraray, arriving at Walker's Hotel at 10 p.m. The following day was intensely hot and even more punishing; after visiting Inveraray Castle before breakfast, they set out for a tramp of some 35 miles through the birch forests of Glen Aray, around Loch Awe to Oban, 'all thoroughly tired but William worse than all—McLean and I made a capital tea but William went to bed'. It was easy to see who the office worker was![45] William seems to have persuaded his energetic brother to reduce the foot-slogging, for the return journey via Loch Tay was by steamer, coach, and post horses, with a mere 23 miles walked in three days. Soon they were back on the job at Dunblane 'all highly delighted with our Highland tour', having covered about 90 miles on foot and about the same distance on horseback.

For young men from the populated parts of the north of England, venturing into the Highlands was like entering another continent. Hartley was observant and took note of all he saw. Around Comrie he noted that the shielings were rubble huts in secluded areas where parties of 40 or 50 Highlanders would sleep on the heather for several days in summer and where butter-making was commonly undertaken. Shepherds on the hills were paid £12 per year with two pecks of oatmeal per day and some potatoes when in season. A married shepherd could keep a cow. Hares were plentiful and up to one hundred could be shot by one gun in a few hours; 300 would weigh a ton! The desire for education was so strong that children could be seen trudging over the hills, preceded by their schoolmaster, the girls bonnetless but the boys covered; 'the master sleeps alternately at the different hovels of his pupils', Hartley recorded.[46]

From early 1848 there was a big change in the work. Major constructions were brought rapidly to a finish, rails were being laid, and ballasting was continuous. At this stage, too, there was constant measuring of the work, calculations of cost, and the checking of these with Locke's representatives.

The Directors' opening day for the line was 15 May. A large party travelled to Perth, and there was a dinner for 150 in a shed near the station, followed by speeches and toasts. The newspapers reported the whole affair with satisfaction, but the contractor's men were anything but pleased. Hartley 'witnessed the Directors' opening with mingled feelings of disappointment and dissatisfaction. Not one cheer given from one end of the line to the other. Not one of the contractors' people invited to the banquet except Mr F.' Regular trains first ran on 22 May.[47]

After the opening there was a period of uncertainty for everyone. Mrs Falshaw settled things for her husband by moving house to Perth while he was away, and he obtained the maintenance contract. William moved before him into new lodgings and continued to manage the office; his mother and sister followed, and Alfred obtained a temporary job.[48] Falshaw was anxious to find Hartley another good

appointment as he considered him to have done better than the other District Agents, and early on he recommended him to Brassey. Things came to a head all at once. Locke, now an MP, arrived in Perth and, on Falshaw's recommendation, offered Hartley the job of reconstructing Sutton Harbour, Plymouth, to his design. He accepted immediately. Within a few days the County Surveyor of Roads died, and Kippendavie tried to persuade him to take over this job.[49] But Locke's work could not wait. To be picked out at the age of 23 by one of the three leading engineers of the day for a job where he would be left largely on his own was as unusual as it was exciting, and to hesitate would have been madness. So on 19 October 1848 he went south. In November the roads job was offered to him, but he declined; had he accepted he might well have spent the rest of his life in Scotland on work of a type which would have made few demands on his ability.

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Parliamentary Papers and Nineteenth Century Railways, Part II.

BY GOULVEN GUILCHER

II NON-SPECIALIZED REPORTS IN THE SESSIONAL SETS

Many parliamentary reports on various subjects are useful for studying rail passenger transport.

The social aspects of workmen's trains were well covered in the Select Committees on Artisans and Labourers' Dwellings (1881 and 1882) and in the Royal Commission on Housing of the Working Classes (1884/5). Some railway managers insisted on their advantages for the workers, while others pointed out that respectable passengers paying full fare and respectable middle-class season-ticket holders objected to proximity to their inferiors, even on the platforms. [1]

Most reports, however, dealt with leisure transport. The observance of the Sabbath was a major issue exemplified in several reports: Observance of the Lord's Day in 1831/2 (which ignored railways but deprecated river traffic to Richmond); Sunday Closing in Wales (1890) afforded many examples of the *bona fide* traveller nuisance; the Committee on the Lord's Day Act (HL 1895) was rich in appendices on the

activities of the Sabbatarians, and on the exertions of the National Sunday League in promoting rail excursions; the Committees of 1905 and 1906 on Sunday Closing and Sunday Trading were a continuation of the report of 1892 on Shop Hours. The growing popularity of week-end railway services to the seaside created new problems and some railwaymen, shopkeepers, hawkers, and entertainers became part of the young but fast-developing leisure industry.[2]

The Committee on Public Walks (1833) and, on a larger scale, the Royal Commission on the State of Large Towns (1845) provided many elements on recreational customs and opportunities for inhabitants of industrial cities all over the kingdom. Steamer and railway trips were already very common in the middle 1840s. The peculiar habits of the Londoners and their use of the commons on Sundays and Bank Holidays were described in the Committees on Preserving for Public Use the Commons (1865) and on the Metropolitan Commons Act (1868/9): the Great Eastern carried East Enders to Epping Forest, and Londoners did not appear to take their pleasures sadly on such occasions.

The reports on Drink and Intemperance were the richest source of information about excursion trains: Committees on Public Houses (1852/3 and 1854), on the Sale of Beer on the Lord's Day (1854/5), on the Sale of Liquor in Scotland (1860), on the Sale of Liquors on Sunday (1867/8, particularly useful on the curtailment of excursion facilities by railway companies), on the Sale of Intoxicating Liquors on Sunday in Ireland (1877), on Intemperance (HL 1877 and HC 1878), and the Royal Commission on Liquor Licensing Laws (1897 – 9, seven volumes). Railway refreshment rooms, thirsty trippers, and excursion trains were used as scapegoats.

The part played by railways in the economy as a whole can be assessed from a large number of reports: Royal Commission on Agriculture (1880 – 2) and Agricultural Returns, Cattle Plague (1866 and 1867/8), Royal Commission and Committee on Coal (1871 and 1873), Sea Fisheries (1866), Meat Markets (1850) and Trade on Animals (1866). A short list appears in Hawke, *Railways and Economic Growth,* p. 414. Three reports dealt with the Protection of Cattle during Transit (1870, 1894, and 1898). The reports on industry and trade must be studied in connection with the voluminous reports in which Parliament tried to solve the problems of rates and fares in 1881, 1882, 1890/1, 1892, and 1893/4, all reprinted by IUP together with the six reports of the Board of Trade on Traders' Complaints from 1890 to 1899.[3]

Official correspondence was also printed: The Home Office and the South-Eastern Railway on Prize-Fight specials in PP 1860 LXI, 261 – 3.

III PRINTED PARLIAMENTARY PAPERS OUTSIDE THE SESSIONAL SETS[4]

A Minutes of Proceedings and Notices on Private Bills for HC

These documents were printed (often on blue sheets like Public Bills) every day, circulated to MPs when the House was sitting, and gathered in volumes at the end of the session. They were bound with the volumes of *Supplement to Votes and Proceedings* from 1836 to 1847, and from 1847 they formed the volumes of *Private Business* which also included lists of petitions on Private Bills.

The corresponding papers for HL were bound in the first volumes of each sessional set, just before the Public Bills, whereas the supplementary volumes for HC mentioned above and those for Petitions were only to be had on payment of separate subscriptions (see PP 1840 XLV, 1).

B Reports of Committees on Private Bills HC

These reports—without the minutes of evidence—were included in the volumes *Supplement to Votes and Proceedings* from 1836. A general assessment of the projected line was given, as well as the final decision about it and the motives for rejecting or, more commonly, for accepting the Bill.

C Public Petitions

There were no petition volumes for HL. See Journal HL below.

1 Public Petition Volumes HC

The texts of many public petitions were given in the appendix to the volumes *Votes and Proceedings* from 1818 to 1826, and in the volumes *Appendix to Votes and Proceedings* from 1827 to 1833. Four ninths of all petitions were printed (PP 1840 XV, 244). After 1833 there appeared each session one or generally several volumes of formal reports: *Reports of Committees on Public Petitions*. These gave the date, place, and title of the petition, and the number of signatures. The texts of some petitions were reproduced in special volumes: *Appendix to the Reports of Select Committees on Public Petitions*. Both series of volumes were carefully indexed each session. The only general index to public petitions covers 1833 – 1852, fortunately the most prolific period for petitions. It is included in the sessional sets as PP 1854/5 (531) LIV. The number of petitions printed in the appendix was much reduced after 1833: one thirteenth of the total in 1839 (PP 1840 XV, 244).

2 Origin and Nature of the Petitions on Railways

This can be summarized as follows:

a House of Commons

In the early 1830s stage-coach and post-horse owners complained against unequal taxation as compared with railways. From 1835 to 1837 a large number of Church Assemblies, mostly from Scotland, petitioned against Sunday trains. In 1837/8 and 1867 – 9 petitions coincided with parliamentary inquiries on Irish railways. It was common in all sessions which saw important Bills introduced. In the early 1840s, as taxation on railways increased, the railway companies asked for its repeal or at least for some reduction of it.

In 1844 – 5, 1847/8, and 1864 many steamship and canal companies sent petitions to Parliament against the ownership of canals and steamboats by railway companies, but finally without success. 1846 was obviously the great year for petitions on railway gauges, many of them signed by travellers voicing their grievances.

In 1870 eleven companies petitioned for an alteration of the law on compensation in case of accident (a committee was sitting on the problem). Around the 1870s attention was focused on workmen's trains, and from 1870 to 1900 the railway interest in connection with the co-operative movement repeatedly petitioned for the repeal of the Railway Passenger Duty. During the last thirty years of the nineteenth century there was a continous flow of petitions from Chambers of Commerce and Traders for a better control of safety (overwork) and rates on railways (goods traffic). The railway companies were petitioning at the same time against intended legislation, and railwaymen were also appealing to Parliament (e.g. 1862, 1873, 1874, 1893/4, and 1899).

b House of Lords

The petitions to HL were on the same themes as those to the Lower House and sometimes identical (on Sunday trains, in 1846 on railway gauges, or in 1861 for

lamps in railway carriages). Their number declined considerably after 1877, and it was much smaller on the whole than for HC. The bulk of petitions to the Upper House were against Sunday trains (from 1837 to 1849), presumably since the House of Lords was thought to be more favourable to a strict observance of the Sabbath.

D The Journals

1 The Journal of the House of Commons

This is useful for procedure on private Bills (the minutes of proceedings mentioned above were more complete), on public Bills, and for petitions of all kinds which were briefly mentioned: subject, place of origin, and signature. There was a table of Accounts and Papers (entry for Accounts and Papers in the index) with numbers in the Journal and corresponding numbers in the PP. No fuller list is in existence. Papers ordered to be printed which were not eventually printed are included. No similar lists were provided for Bills or Committees. The appendix to the Journal has no railway matter in it, but the sessional and general indexes are extremely useful. On private Bills and petitions about them see the entry for Bills (subsection Private, Railways), on petitions about public Bills see the entry for Petitions (subsection Railways).

2 The Journal of the House of Lords

This is similar to the Journal of the House of Commons for procedure. The minutes of proceedings on private Bills are more complete in the sessional sets than in the Journal. The Journal is the only printed source for public petitions to the Lords. The references to petitions (entry for Railways) are very short and undated in the indexes. The Journal itself is a little more precise, but the texts are never printed in it (same as HC). As stated before, some reports from Select Committees on Public Bills were printed in the PP and reprinted in the same session in the Journal. Their texts were completely reset for the change from folio to double-folio size, but the original pagination was preserved in marginal notes. The index to the Journal is slightly less elaborate than the index to the Journal of the House of Commons, e.g. the table of Accounts and Papers omits their numbering in the sessional papers.

For lists of general indexes to the Journals see Bond, *Guide to the Records of Parliament,* pp. 31 – 2 (HL), and 212 (HC). The early general indexes cover longer periods and are very useful for studying the progress of private Bills in the 1830s and for tracing the numerous Committees of Investigation into the affairs of railway companies after the manias of 1836 – 7 and 1844 – 5.

E Hansard

Hansard is the basic source for debates on public Bills and Motions. For each session it included a list of Acts and a cumulative index which was very short in the early years. Speeches were considerably shortened (actually one third only was given), particularly for the lesser-known MPs or Lords. See the entries for Railways, names of individual railways, titles of Bills, names of individual MPs or Lords, and Board of Trade for some sessions (the method of compilation varies).

The only rival to *Hansard* was the *Mirror of Parliament* (sixty volumes 1828 – 41). Although it declined after 1833, this might be useful since it used its own reporters—while *Hansard* relied heavily on the Press—and a voluminous digest of PP was appended until 1838.

For *Hansard* quotations should be as follows:

123 H.C. *Deb.* 3s. 7 Dec. 1852, col. 1068.
1 2 3 4

1: volume number; 2: HC or HL; 3: *Deb.* applies to volumes edited by Hansard or their successors; 4: series number (four series for the nineteenth century).

There is a good section on *Hansard* in Ford's *Guide,* pp. 63 – 70 and 74.

F Acts of Parliament

A volume of Public Acts was printed every session, but it is more convenient to refer to complete collections of Acts such as the *Statutes of the UK of GB and Ireland 1801 – 1869* in 29 volumes, continued in yearly volumes of *Public General Statutes.*

Collections like the *Statutes Revised* or *Halsbury Statutes* are basically unsatisfactory because they omit sections or Acts which have been repealed.[5] A considerable amount of time can be saved by using *Bigg's General Railway Acts* (sixteen editions to 1912), a well-indexed compilation, and the companion volume for Scotland.

An *Index to Local and Personal Acts 1801 – 1947* was published by HMSO in 1949. For references to lists of Private or Public Acts, see the General Indexes to PPHC and PPHL.

IV ADDITIONAL NOTES

A Illustrations and Maps

Normally photographs were not accepted in PP, although 111 plates including many postcards were reproduced in appendices to the report of the Royal Commission on London Transport in 1905 – 6. Accurate drawings of carriages were extremely rare in reports about railway accidents: PP 1843 XLVII, 60 (roof-seats on a Chester & Birkenhead first-class carriage), PP 1864 LIII, 660 (Inverness & Aberdeen Junction third-class carriage) and PP 1883 LX, 233 (sketches of the Pullman carriage in which Dr Arthur was burnt to death). They were equally rare in other papers, the only instances known to us being the splendid collection of drawings of spartan third-class carriages in PP 1845 XXXIX, 45 – 79, nearly all reproduced in Charles Lee, 'Passenger Class Distinctions', *Railway Gazette* 1946, pp. 22 – 32, the sketches of North American rolling stock in PP 1857/8 LI, pp. 631 ff., the Russian first-class carriage in PP 1867 XXXVIII Pt 1, app. CJ, 241, and the standard types of Irish locomotives in PP 1867/8 XXXII, 657.

Technical illustrations were very common and extremely interesting. They covered the various aspects of railways such as tyre fastening (PP 1860 LXI and 1861 LVII), signal arrangements, brakes, boilers (whenever an explosion took place e.g. PP 1864 LIII, 1865 XLIX and 1880 LXIII), communication systems (PP 1872 LII), bridges (for new lines, extensions, or after failures; PP 1849 XXIX with seventy-seven plates on Iron Structures), folding diagrams of stations and sidings (Bills or accidents), and sections of rails (in Ireland: PP 1867/8 XXXII, 653). Sections, gradients, bridges, and tunnels were shown in great detail for reports on Bills concerning early lines. They filled three large folios on Irish Railways in 1837/8 (Royal Commission: 30 maps and 50 sections) and also PP 1867/8 XXXII, and such diagrams can be found in PP 1840 XLV, with plates about a project for an extraordinary ten-mile bridge and embankment across Morecambe Bay, and 1841 sess. 1 XXV.

Coloured folding regional maps were also numerous in the latter volumes (seven maps in 1840 XLV and eleven in 1841 sess. 1 XXV) and in PP 1845 XXXIX (nineteen maps including three for Ireland, one for Scotland, and one for Wales).

London was extremely well covered in PP 1845 XXXIX, 327, PP 1846 XVII, 401 – 78 (forty maps), 1859 sess. 1 XIII, 327, 1864 LIII, 869 – 70, 1865 XLIX, 249 – 50, 1867 XXIII, 505 – 6, 1884 LXX, 3 – 4 and 1905 XLIII and XLIV.[6]

Fine coloured maps of the existing network with railway Bills were printed in PP 1847/8 LXIII, 485 and 487 (GB and Ireland), 1852/3 (40): the largest map ever produced in the PP, encased in a special unnumbered dummy volume, PP 1859 sess. 1 XIII, 320 – 30 (England, Ireland, Scotland, Liverpool, Manchester and Leeds), 1863 LXII, 27, 1867 XXXVIII Pt 2, 293 – 4 (map of the break of gauge), 1867/8 LXII, 259 (GB), 1867/8 XXXII, 647 (Ireland), 1868/9 XVII, 529 and 531 (Belgium and Germany), 1872 LII, 497 – 8 (= 1872 XIII Pt 2, 289, map of GB), 1872 XIII Pt 2, 77 – 8 (amalgamations in Manchester—Liverpool and Leeds), and 1888 XLVIII, 201 – 2 (Ireland).[7] The splendid maps of GB in 1847/8 and 1872 have been reproduced in Stevens, *English Railways* (frontispiece, and facing p. 332).

The maps were not often mentioned in the indexes, nor even in the tables of contents to each volume, but their size makes them obvious when one has the books in hand. It should be remembered that the Board of Trade did not pretend to perfect accuracy in maps concerning the detail of railway Bills (this point was mentioned on all the maps in PP 1845 XXXIX).[8]

B Errata and Omissions in the General Indexes to PP

The General Indexes correct errors in the sessional indexes whenever they have been traced. The following have survived:

—House of Commons

Index 1801 – 1852 (Accounts & Papers), p. 805, 1.6, Second Report of the Commissioners on [. .] Railways for Ireland is in PP 1837 – 38 [145] XXXV, 449, not (145).

Index 1852/3 - 1868/9, p. 611, 1.22, accidents May—July 1869 as in PP 1868/9 [4120 – IV] LIV, 191, not LIX; p. 612, 1.38, accidents in 1866, as in PP 1867 (516) LXII, 1, not (576). Index 1870 – 1878/9, p. 375, 1.13, accidents February—July 1872 is in PP 1872 c. 644 LII, 447, not 477; and accidents March—July 1872 is in PP 1872 c. 668 LII, 465, not PP 1873.

—House of Lords

All entries for papers in session 1837/8 are given as 1838. Index 1801 – 1859, vol. 2, p. 794, 1.34, Mail Trains in 1851 given as reprinted in PPHL 1852/3 (in 33) XL, 352 is wrong, but the reference of the original paper is correct; PPHL 1852 (129) XVII, 213.

—Omissions

References to two traffic returns are missing from the General Index HC 1801 – 1852, vol. 3, although they have been printed in PP 1852 XLVIII, 361 – 74 and 375 – 88 (first and second half-year 1851). In the General Index PPHL 1801 – 1859, vol. 2, p. 790, 1.11 – 13, an omission should be completed as follows, Second Report of the Commissioners [on Railway Communications in Ireland]; with Appendix and Index, Plans, Atlas, and Sections. 1838 [i.e. 1837/8 as stated above] XLVII, 1 (in three volumes, one folio and two large folios). The index states that this report was reprinted in 1843, but it is wrong.

C Mode of Citation of PP

In the absence of any recognized rules, references to the sessional sets were given in the past with very little explanation as to the rules adopted by each individual writer or historian. There are now two methods which are admissible. Both have advantages and disadvantages.

Professor Ford in his *Guide to PP,* p. 71, says it is safer to give the printed pagination of papers, while he considers the manuscript pagination is not essential.

Maurice Bond in his *Guide to the Records of Parliament,* p. 235, prefers to rely on the manuscript pagination alone.

The first mode of citation is always much longer, since the description of the paper must be very accurate in order to avoid any confusion (no number being printed on Command papers before 1870). It can be used by people doing research on or having access to isolated papers only, or to papers bound differently from the original bound sets (e.g. some collections at the University of London, and the IUP reprint). The printed pagination might be erroneous, but the errors are the same on all printed copies.

The second mode of citation is brief and perfect for original bound sets with complete volumes and correct manuscript pagination, and for the microcard reproductions which have been developing in recent years. For returns about accidents with an intricate printed pagination and a complex division in periodical parts it is much more convenient. For reports it is also simpler, but for minutes of evidence references are given to questions, not to printed or manuscript pagination. The only problem is with collections in which the manuscript pagination departs from the original one, which is the same (with its oddities) in all official sets.

On the whole there is a strong case to be made for using the MS pagination except when it is defective. A few examples are given below:

Memorandum on the Means of Communication between Guards and Drivers of Railway Trains, PP 1852/3 (215) XCVII, 330.

1 2 3 4 5 6

1: short title of the paper; 2: PP means PPHC; 3: session; 4: paper number; 5: volume (and part if in several parts); 6: MS pagination.

Shorter form: PP 1852/3 XCVII, 330.

Ford would give the title with as much detail as possible (the section within the paper is essential: minutes of proceedings, report, minutes of evidence, appendix or index), then the printed pagination (in this case p. 2), and the rest unaltered.

Annual Report of the Railway Department of the Board of Trade for 1858, PP 1859 sess. 2 [2560] XXVII, 641.

Shorter form: PP 1859 sess. 2 XXVII, 641.

The numbers are between square brackets for Command papers until 1870, afterwards they are preceded by c., which makes square brackets unnecessary. The previous reference—PP 1852/3 (215)—is to a paper ordered to be printed by the House.

Select Committee on Railways and Canals Amalgamation, Second Report, PP 1846 (590) XIII, Q. 324, evidence of Sir F.B. Head, Chairman of the Grand Junction Canal Company.

Shorter form: PP 1846 XIII, Q. 324.

D Dating the Papers

Dating is generally very easy. The date on the paper is the date on which it was ordered to be printed. Papers were prepared during the session, and returns covered the previous year or half-year. When correspondence was reproduced (mostly circulars and answers) it was always dated. The minutes of evidence were dated day by day. For Select Committees they were taken during the session, but for Royal Commissions they might be two or three years old, a point not to be overlooked (1865 – 6

for the Royal Commission of 1865 – 7, and 1874 – 5 for the Royal Commission of 1874 – 7). Statistics and documents in the appendices were often older.

E Lists of Volumes Including Periodical Returns on Railways

References to General Annual Reports on railways are given in Ford *Select List,* pp. 147 – 8, from the origin in 1841, except for the years 1857 to 1874. References to traffic returns (semi-annual to 1860, then annual) are listed in Hawke, *Railways and Economic Growth,* Oxford University Press 1970, p. 413, but they are provided only for 1847 – 1890/1. The references to previous returns are given here as they are difficult to find in the indexes: PP 1839 X; 1840 XIII; 1841 XXV; 1843 XLVII; 1844 XI and XLI; and 1846 XXXIX.

Annual Reports and periodical returns underwent several changes during the century. They were generally bound in the same volume as the traffic returns, or in the previous volume when they were too bulky.

From 1844 to 1849 the number of volumes on railways was considerable each session because of the large number of Committees, but even returns from the Board of Trade were scattered in different volumes for some years: PP 1846 XXXVIII and XXXIX; 1847/8 XXVI and LXIII; 1849 XXVII and LI; 1850 XXXI and LIII; 1851 XXX and LI; and 1854 XXXVIII and LXII.

The General Annual Reports of the Railway Commissioners (from 1875) were isolated in volumes quite distinct from the other returns on railways (e.g. PP 1878 XXV, when the bulk of returns was gathered in vol. LXVI).

F Sales and Circulation of PP

The circulation of PP was never large. 1750 copies of all Command papers and 1000 copies of every report were printed in the 1840s. In the late 1850s this was reduced to 1000 copies for annual or half-yearly reports (general reports or accidents), 875 copies for traffic returns, and 750 copies for monthly returns on accidents. After 1889 reports about accidents were sent only to MPs or individuals (journalists) requesting them (300 copies in 1908 according to PP 1908 X, QQ. 329 – 34, Select Committee on Publications).

Some papers enjoyed a circulation larger than average: 1846, Royal Commission on the Gauge of Railways (3000 copies); Railway Termini in the Metropolis (3500 copies); Metropolitan Railway Commissioners (2000 copies); 1857, Railways in the USA (2500 copies); 1860, Railways in India (1750 copies); 1863, Metropolitan Railways (2000 copies); 1864, Metropolitan Railway Schemes (2500 copies); and Railway Iron Structures (1750 copies).

For the overwhelming majority of papers, sales to the public averaged about 100 copies even during the Railway Mania. However, over 500 copies were sold of the Reports of Committees on Railway Bills, on Railways and Canals, of the Note on Railway Gauge by the Commissioners, and of the List of Railway Subscribers (all in 1846), and in 1847, 810 copies of the Bill to Increase the Powers of the Railway Commissioners were sold, making it one of the best selling papers. Two hundred and sixteen copies of the Note on Railway Gauge were circulated *gratis,* but normally this was restricted to between twenty and fifty copies.[9]

Copies of all papers were carefully kept in stock in three different warehouses, which explains why most early parliamentary reports on railways were still available in 1851 (see the advertisement by Bigg in the *Catalogue to the Great Exhibition*). In 1914 nearly all reports and even Accounts and Papers over seventy years old were still available (see *Jubilee of the Railway News,* Pt1, pp. 221 – 3).

Parliamentary papers were very cheap, but not attractive and extremely difficult to obtain from booksellers. They were read by an élite of MPs and journalists, and it is through the enormous number of articles on PP in newspapers and magazines that the public was kept informed about the work of Committees and Commissions, the debates in Parliament about legislation, and the innumerable reports and returns by the Board of Trade which paved the way for all of these.

Since very few people had access to the actual texts of the PP the comments of influential periodicals played an important part in moulding the reactions of the public. Little research has been done on this interesting point. Let us hope that some member of the Society undertakes this rewarding study.

REFERENCES

1 See J. R. Kellett, *The Impact of Railways on Victorian Cities,* Routledge 1969, and H. J. Dyos, in *Journal of Transport History,* First series, vol. 1 1953/4, pp. 3 – 19 and vol. 3 1957/8, pp. 25 – 31

2 The best work on this subject has used PP to a considerable extent: J. A. R. Pimlott, *The Englishman's Holiday,* Faber 1947, reprinted with introduction by J. Myerscough, Harvester Press, Hassocks, 1976

3 On railwaymen see P. S. Bagwell, *The Railwaymen,* Allen & Unwin 1963 (List of PP, pp. 703 – 4) and the Royal Commission on Labour 1892 – 4 (brief summary of the papers in *Catalogue of British PP IUP 1000-Volume Series,* IUP, Dublin 1977, pp. 136 – 41, and list in Ford, *Select List,* pp. 72 – 3)

4 Six to ten various volumes were published each session, but not included in the sessional sets. For some detail on their contents see Bond, *Guide to the Records of Parliament,* pp. 213 – 16. The Journals, Hansard, and the Acts form further classes of documents.

5 For a list of Public General Statutes on railways see G. Alderman, *The Railway Interest,* Leicester University Press, Leicester 1973, pp. 260 – 1 (with a selection of references to Bills, Reports, and Papers HC and HL from 1871 in the previous pages, pp. 255 – 60)

6 A good list of PP on London traffic is given in PP 1906 XLII, appendix L, pp. 1003 – 7

7 There is no map of Ireland in the Fifth Report of the Viceregal Commission, PP 1910 XXXVII, but pp. 10 – 16 provide a short parliamentary history of railways in this country

8 On railway maps generally, see J. Simmons, *The Railways of Britain,* second ed., Macmillan 1968, app. B, section 9, pp. 257 – 61

9 Sources on the circulation of PP: PP 1844 XXXVIII, 345 – 57 (for 1842); 1847/8 XVI, 103 – 38 (for 1846 and 1847); 1854/5 XI, 203 – 46 (for Command Papers 1846 – 52); 1857 sess. 2 XXXIV, 35 – 7 (for Command Papers 1856); 1857/8 XXXIV, 343 – 6 (ditto 1857); 1859 sess. 2 XV, 545 – 8 (ditto 1857/8); 1860 XL, 291 – 4 (ditto 1859); 1861 XXXV, 217 – 21 (ditto 1860); 1865 XLIV, 351 – 76 (ditto 1860 – 4); 1875 LX, 217 – 25 (for 1875); 1911 VII, 743 – 7 (Reports of Royal Commissions 1906 – 1910)

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The Southern Terminus of the Croydon, Merstham & Godstone Railway

BY PAUL W. SOWAN

The Croydon, Merstham & Godstone Railway (CMGR), a horse-drawn freight-only plateway, operated from 1805 to 1843. It was a legally distinct extension of the Surrey Iron Railway (SIR) which operated from 1803 to 1844 between Wandsworth and Croydon. There was an end-on junction between the two lines at Croydon, and also a connection with the Croydon Canal (opened in 1809) via the canal company's own private plateway. The SIR was promoted mainly by millers and other Wandle valley interests; substantially the same men, with the addition of Jolliffe family interests from Merstham, promoted the CMGR. It is a puzzling line as planned, as named, and as built and operated. New field and documentary evidence makes it possible to offer a clearer interpretation.

Originally envisaged, purportedly, as a second stage in making a strategic overland connection from London to Portsmouth, and empowered by its Act[1] to be made from Croydon to destinations of co-equal status at Reigate and Godstone, the CMGR was in fact constructed only as far as Merstham, where the junction was to have been. A number of commercially-produced descriptions and maps of the first half of the C19 purport to show the Godstone and Reigate extensions completed, but there is no doubt they were never started. Beyond Merstham, the obvious 'main line' for Portsmouth would have been that via Reigate—then and now (with Redhill) in any case the most important town in east Surrey. It is clear from the deposited plans and books of reference[2] that the two lines beyond Merstham were to have been of equal status. And, oddly, the relatively small village of Godstone appears in the company's title. Why was it not the Croydon, Merstham & Reigate Railway? Or why not just the Croydon & Reigate—why include the name of the unimportant village where the junction was to have been?

Explanations for the line's terminating at Merstham have revolved around lack of sufficient capital raised, and victory at Trafalgar in 1805 (although that was on 21 October, after the line's opening day on 24 July) diminishing the need for a link with Portsmouth. It was resolved, though, it seems as early as 1803, to build only to Merstham, although the additional 5 – 6 km to Reigate, at least, should have guaranteed useful additional traffic. Previous historians have generally referred to the southern terminus as having been at 'the Greystone Limeworks' or at 'the quarries' at Merstham. A detailed study of the last kilometre of the line as built, and of the extensions as surveyed, reveals much of interest. It seems possible that as early as 1802 there was no serious intention of building beyond Merstham.

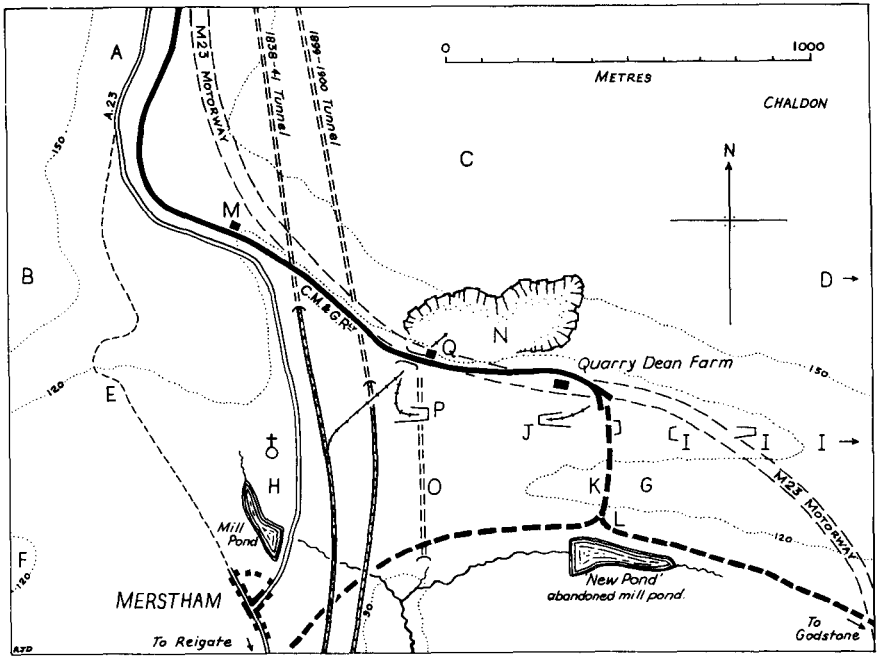
The Merstham Gap and Quarry Dean

The line followed the deposited plans closely. The wind-gap through the crest of the North Downs (A) which it utilised lies 1 – 2 km north of Merstham village, the chalk escarpment rising towards some 200 m above sea level on either side, at (B) and (C). But the floor of the gap is at 135 m, and the CMGR occupied a cutting in it some 8 – 9 m deep and 2 km long. Both the A23 main road and the northern end of the M23 motorway now take this route. A part of the CMGR cutting survives between the modern roads at TQ 286 546 and is now a scheduled Ancient Monument. The London – Brighton main railway lines of 1838 – 41 and 1899 – 1900

both pass below the gap in tunnels. Surprisingly, the gap had little or no significance as a routeway until shortly before the building of the CMGR in 1804 – 5, and the Croydon & Reigate Turnpike in 1807 – 8. Such roads as there were northwards over the downs before 1805 ran over higher ground on either side, at Hilltop Lane (D) at TQ 312 540, and the (now abandoned) Marling Glen-Harps Oak route (E) at TQ 285 540. The latter road gave way to, or was replaced by, the present-day gap-road on or after its southern end was closed to allow William Jolliffe senior to erect Merstham House in 1790, hence the 'dog-leg' bend in Merstham village High Street to this day, the truncated section of the old road now forming, as Quality Street, a welcome quiet backwater. The most important road from London to the south coast had since 1755 been the turnpike from Sutton to Reigate some 3 km further west. And the former Roman Road (now the A22) from Croydon to the coast via the Godstone gap, about 5.5 km to the east, is known[3] to have been important for the conveyance to London of iron from the Wealden furnaces and, from the seventeenth century, of stone from the quarries at Godstone Hill.[4]

To the south of the North Downs escarpment there is a lower ridge formed by the outcrop of the Upper Greensand, especially prominent in Gatton Park on the west (F) and where followed by the modern Rockshaw Road on the east (G). A subsidiary gap (H) in the lower ridge is exploited by the modern A23, and by the two British Rail lines in deep cuttings. The route of the CMGR avoided this second gap, although this was the obvious route to take, from the civil engineering point of view, for Reigate and a branch to Godstone. In fact the line taken by the plateway, on emerging from the main gap, was then sharply eastwards into Quarry Dean, a blind-ended shallow valley extending into neighbouring Chaldon parish, where underground building-stone quarries (I) had been worked as an important source of stone for London since medieval times or earlier.[5] This deviation into Quarry Dean was as proposed in the deposited plan of 1802. William Jolliffe senior, who had purchased and added to estates in and around Merstham since 1788 and, since his death in 1802, his elder son Hylton, had sought to exploit their mineral resources. Subterranean stone quarrying had been extended from Chaldon westwards to a point (J) at TQ 2985 5391 near Quarry Dean Farm. Even before the CMGR was built, the cutting and drift entrance here[6] appears to have had its own private quarry plateway going underground. Conveniently, for the Jolliffes, the CMGR was planned to pass this way, and in fact terminated here. Had the line been continued as authorised by its Act, it would have had to turn south here to cross the Rockshaw Road ridge in a massive cutting (K) about 10 m deep, leading to the intended junction (L) on the south-facing slope. As the book of reference puts it, the line was to run from the 'Field at the Barn to the Hill at the fire-stone Quarry here cut through the hill'. As it happens, the M23 motorway takes just such an alignment, a little further east, so as to avoid Merstham village, and the most casual glance is sufficient to indicate what a major civil engineering problem this posed, especially as the outcrop of the Upper Greensand overlying the Gault Clay was subject to a serious tendency to founder. The CMGR had been surveyed and built to Merstham with minimal earth-moving requirements. Apart from the cutting already mentioned through the Merstham gap, the only other civil engineering work of any size was an embankment and bridge at TQ 2962 5935 to carry the line over the Chipstead Valley at Lion Green, Coulsdon. The southern part of the embankment survives and is now a scheduled Ancient Monument. The proposed, entirely avoidable, cutting beyond the stone quarries was quite out of character with the line.

Conveniently, then, the line terminated at the Jolliffes' quarries. There is no doubt about this. Numerous extant contemporary plans and descriptions amongst the relevant estate papers confirm the alignment of the final kilometre of the line. And stone sleepers and plate rails have been excavated *in situ* from two locations north



The terminus of the Croydon, Merstham & Godstone Railway. The CMGR crossed the North Downs by way of the Merstham gap (A), but then turned eastwards to terminate (in the event) in the shallow-east-west valley Quarry Dean to serve the underground stone quarries then operating (J). For full details of the development of the site, refer to the text. The M23 motorway which now crosses the northern part of the site is indicated; the M25 motorway, which runs across the southern part of the map, has been omitted for clarity. Contour heights are in metres.

and east of the (now-demolished) Quarry Dean Farm. The true alignment and terminus location, and a review of the field evidence, have been presented by Osborne (*op. cit.*). All published maps hitherto purporting to show this last kilometre of the line in detail are in error in showing a sinuous course (described in at least one account as 'curves to reduce gradient', somewhat incomprehensibly!), and a route to the south of the farm-house. This caveat apart, the most recent and reliable guide to the line's history and visible remains is that of Bayliss.[7] A terminus a kilometre from the public road (and one about to be made into a turnpike), within a privately-operated quarry area, seems odd for a public railway looking for tolls from general traffic. In fact the toll-house and weighbridge for the southern end of the line were on the public road just before the point where the plateway diverged into Quarry Dean. Intriguingly, it appears that this and other accessory structures for the railway were not erected until two or more years after its opening date: Jolliffe & Banks' civil engineering partnership was formed in 1807, and an 'Index of all the

works executed...' by them[8] lists the 'Croydon Railway Machine House' (almost certainly the weighbridge on Merstham Hill) at £184 16s 0d, as well as the 'Pitlake Toll House' (at the Croydon end of the line) at £110 10s 0d, and 'Dean Bridge' at £140, which was probably one of the several bridges made over the line in cutting in the Merstham gap. The Merstham Hill structure (M), now a listed building, still stands at TQ 289 544 as 'Weighbridge Cottage', in private occupation. Fullers earth from Nutfield, and timber from the district at large, have been positively identified as significant northbound general traffic put onto rail at this point. Presumably the non-Jolliffe CMGR shareholders saw what was in effect the Jolliffes' 1 km private works siding, constructed at the company's expense, as worthwhile in return for the traffic in stone likely to arise. The line is known, incidentally, to have been made 250 yards longer than its contract length, but the location of the additional stretch, and whether or not it was single or double track, is not clear. This may have been no more than compensation for a surveying error.

The Unbuilt Extensions to Reigate and Godstone

Did the non-Jolliffe promoters realise the civil engineering and financial implications of the Quarry Dean route? A spur to serve the quarries, and a main line through the subsidiary gap, would have been far more practicable. Aspects of the deposited plans cast further doubts on the Committee's and the Company's serious intentions of going beyond Merstham. The 'collateral branch' to Godstone was specified to have been of somewhat over three miles. This is about the distance 'as the crow flies', but plateways of this period did not generally take the shortest direct route, but a circuitous one to minimize earth-moving and maintain optimum gradients—horses of course could readily negotiate small-radius curves. The route to Godstone actually depicted seems exceptionally sinuous and, if so, would have demanded more track than specified. The route to Reigate was more direct and of about the right length, but seems impracticable in civil engineering terms. It is extremely difficult, without going into the identification of each parcel of land specified in the books of reference, to identify the exact routes 'intended', too, because it is quite clear (especially at the Reigate terminus) that north on the deposited plan has been rotated through up to 90°! Were these just skimped surveys, specifying sufficient track for the shortest routes regardless of topography? Was it already decided in 1802 that the extensions would never be built? The books of reference give the impression that land ownership at least, if not levels, had been checked carefully enough—there is scope for research here. Is the puzzling variable orientation along the extensions just a result of squashing the survey into the space at the end of the sheet?

There are further odd features. Both the routes and the termini carefully avoided the most obvious sources of heavy freight. The Nutfield fullers earth pits could not have been accommodated without a long branch or detour and a stiff climb anyway. But except perhaps at Wray Common, Reigate, neither line was to have gone anywhere near working or potential stone quarry locations which might have yielded stone in competition with the Jolliffes! Likewise chalk-pits. The Reigate terminus was to have been on the east side of Bell Street at about TQ 254 501, south of the town-centre cross-roads. The town, the castle mound, and some 1.5 – 2 km of intervening country separated the spot chosen from the quarries and pits at Colley and Reigate Hills. Similarly, at Godstone the line was to have approached the village from the south-west, via Ivy Mill, and terminated at Godstone Green at about TQ 349 515, some 2 km short of the underground stone quarries at Godstone Hill (which, incidentally, had their own internal subterranean plateway system). Both termini *could* easily have supplied silver-sand from the extensive sand-mines in the town and

village centres—a commodity not worked by the Jolliffes. Were the talk of Portsmouth, the application for Parliamentary permission to build to Reigate and Godstone, and the inclusion of Godstone in the railway's name attempts to disguise the Jolliffes' real intention to bring the line to a terminus at their own quarries, making it little more than a very long private siding from Croydon? Did Godstone in the name and plans win support (financial or political), or deflect opposition, from Sir William Clayton, who was at this time leasing rival quarries on his Godstone and Chaldon estates to tenants, some of whom at least are known to have had Croydon connections?

The Jolliffes' Works at Merstham

There seems little doubt that the line was deliberately built, despite appearances, to terminate at the Jolliffes' underground quarries as worked in 1802. That it points straight at that part of the Quarry Dean valley almost certainly provides a firm date for these quarries' westerly development down the valley from Chaldon. Parish register entries make it clear that quarrying was in progress before the railway was projected, and even hint at expertise imported from Godstone to assist development. But there is no clear evidence for any substantial chalk pits or limeworks before the railway came. The line crossed the outcrop of the Lower Chalk between the weighbridge/toll-house (M) and the stone quarry mouth at (J). It was initially easy to drive an open chalk pit (N) at CMGR rail-level, into the slope of the hill on the south-east flanks of the gap, and erect kilns. Fortunately, the stone from the quarries enjoyed a deservedly higher reputation as a refractory material (hence its name, firestone) than for building. It was used for kilns, ovens, furnaces, chimneys, hearths, and glass-houses. When used for building, it was generally known as Reigate, Chaldon, or Merstham stone.

William Jolliffe senior died in 1802. The elder son, Hylton, inherited the Surrey estates, but their management was largely in the hands of his younger brother William. The Reverend William John Jolliffe, though trained for the church and appointed a curate, devoted the remainder of his life to the management of the estates, and to his partnership with Edward Banks, formed in or about 1807. Banks, from Yorkshire, had considerable canal- and turnpike-building experience in the midlands and north. Thus was formed the famous civil engineering concern of Jolliffe & Banks[9, 10] which, based at offices, quarries, and limeworks at Merstham, executed numerous major works between 1807 and 1832. Their most important works included numerous bridges (among them London and Waterloo Bridges), river navigations, docks (including Sheerness), gaols, etc. Why such a firm should have chosen to operate from a village in rural Surrey, 32 km from London, is a further puzzle. We can only assume that the Jolliffes' capital and business acumen made it worthwhile. Constructional materials for the firm's works were derived from sources country-wide—they pioneered the use in south-east England of Aberdeen and Devon granite, and were involved in the Devon Haytor Granite Company and the General Steam Navigation Company. They certainly also had dealings in Portland stone. And from 1821 they leased chalk-pits at Halling, on the Medway in Kent, as an additional or alternative source of grey lime. In fact it is unlikely that much Merstham stone, or even lime, was used in the firm's major contracts, and they may well not have been such heavy users of the railway as has been supposed. In particular, contrary to local folk-lore, it is extremely unlikely that Merstham stone, or even lime, was used in building the new London Bridge. An almost complete series of Jolliffe & Banks' annual statements of their affairs survives amongst the Jolliffes' papers.[11]

Although the partnership prospered, the Merstham works (formally leased from Hylton Jolliffe from at least as early as 1813,[12] although there is evidence for their having had an interest as early as 1807) appear to have been more trouble than they were worth. The works', and thus the railway's, fortunes steadily declined. By about 1820 the stone quarries were full of water and virtually abandoned. It is widely reported, though yet to be positively verified, that George Valentine Hall, founder of Hall & Co. Ltd, builders' merchants, etc., later of Croydon,[13] leased the works from 1824. The partnership's problems started in their first year. The further west the subterranean stone quarries were worked, the more rapidly the water-table was reached. Severe flooding seriously hampered quarrying, especially after wet winters. As flood-water forced quarrying further west along the strike of the beds, and even up-dip, stone had to be hauled further and further underground back to the CMGR terminus. There was, too, an unsound roof inside the quarry mouth which had to be supported by a dry-stone barrel-vault which ultimately collapsed. Between 1802 and 1807 such major changes were set in train that the final kilometre of the CMGR was, at some time in 1807 or relatively soon after, rendered redundant. Between 1807 and 1809 an ambitious drainage adit or sough estimated to have been from 400 to 500 m long (O) was driven from lower ground at Sharps Mead, to the south of the Rockshaw ridge, upwards through the Gault Clay, below the flooded quarry. This seemingly foolhardy feat appears to have been accomplished without intermediate working shafts. Presumably Banks' experience with the Standedge tunnel was helpful here. Despite persistent assertions to the contrary, this was in no sense a mine level or subterranean canal! It is geometrically impossible to accommodate meaningful navigable bodies of water of the dimensions often claimed in a stone quarry working beds barely 1.5 m thick, in a formation having an overall thickness of the order of 10 – 12 m, inclined at a dip of 7°! The approximate position of this drainage adit has been established with some confidence. The southern portal was at about TQ 294 535, where its outflow joined Merstham's two mill-streams below their respective ponds (the New Pond, to the east, at TQ 298 535 has been claimed as possible advance work for the Merstham to Newbridge canal scheme, but is in fact an abandoned mill pond.) The adit was embarrassingly successful. It not only drained the quarry, but diverted the water which hitherto had issued at a spring further west and fed the stream which powered Thomas Durrant's mill in the village. Litigation ensued in 1810, with Jolliffe & Banks as defendants, which led to their being fined £70, with forty shillings costs.[14] To make matters worse, by 1817 the adit had fallen in and the quarry flooded again.

A stationary steam winding-engine, further internal plateway, and an inclined plane were now required to raise stone from a new quarry mouth (P) to CMGR level at the limeworks (N). We know from their furnace ledgers that the Butterley Company of Ripley, Derbyshire, supplied a steam engine to Jolliffe & Banks in 1809, and there is positive evidence that there was one at the works by 1811, when the parish register records the death of a labourer in an accident with it. The firm's statements indicate that there was certainly an engine and plane at the works until 1818, and possibly a 'Teazer ballast engine' thereafter. By 1823, and probably much earlier, the chalk pit (N) had been deepened considerably below CMGR rail level, creating the need for devices for raising chalk or lime to that level as well as stone. The railway now ran along the crest of a narrow ridge of unworked chalk, with lower chalk pits and stone quarries on either side. The two lower operational levels appear from Hassell's watercolour of 1823[15] to have been linked by an internal quarry plateway running through a bridge under the CMGR main line. This cutting and bridge was later to be the site of the post-1841 standard gauge spur to the limeworks from the new main line from London to Brighton. It seems probable that chalk, lime, and stone were all raised on a common inclined plane from the chalk pit floor (north of the bridge) to a point near Lime Cottage (Q), which a number of lines of

evidence point to as having been associated with the winding-engine. In any event, the earlier stone quarry drift (J) having been abandoned because of the collapse of the barrel-vault just inside it, and the new entrance (P) with its plateway/under-bridge/inclined plane link to Lime Cottage at (Q) having been opened, the final stretch of the CMGR was of little or no further use (unless as a siding), and the terminus effectively shifted westwards to Lime Cottage at about TQ 294 541. To what extent the plate rails beyond here were lifted and re-used is not known, although certainly some were found *in situ* in 1967, when the gauge was found to be 4 ft 2 in. over the outside faces of the vertical flanges, or 4 ft 6 in. between the peg-holes. It is not yet known either if this final length of the CMGR was of single or double track. On the evidence available, it is possible that this contraction of the CMGR occurred surprisingly early—perhaps even by 1807 if the making of the drainage adit indicates a shift in the focus of quarrying so far west by then, or by 1809 or 1811 if the engine indicates a need for stone-raising at Lime Cottage then, and certainly by 1823, the date of Hassell's watercolour. The 1838 Merstham tithe-map shows a further contraction, the effective terminus then being another 20 m or so further west, at a point at the western end of the open chalk pits, some 40 m beyond the weighbridge/toll-house.

Jolliffe & Banks and the Croydon, Merstham & Godstone Railway

To what extent were Jolliffe & Banks concerned with the CMGR? The Jolliffe family were certainly behind its promotion. Banks has been credited with having been involved in its building, although no positive evidence for this is forthcoming. No accounts of freight carried or tolls collected survive, so the nature and quantities of ex-works and general public traffics can only be guessed at. The Chipstead Valley bridge had Merstham stone abutments and arch, which Hylton Jolliffe presumably supplied in 1804 or 1805. On the other hand, as already reported, the firm built at least three structures which seem to have been late additions to the line. They also carried out repairs to the railway and had dealings in tolls—the annual statements refer to sums of £70 13s 7d in 1813 and £60 2s 9d in 1817 for the former, and £705 13s 0d in 1815 and £1,072 16s 9d in 1819 for the latter. Was the railway and its terminus works a success or a failure? The stone quarries can hardly have yielded an adequate return on the capital directly or indirectly invested in them. The limeworks was more flourishing, and ultimately developed into one of the larger such works along the North Downs escarpment. It closed as the works of the Merstham Greystone Lime Co. Ltd about 1956. The railway contracted and fell into disrepair and disuse, and never yielded much of a return to its shareholders. But Jolliffe & Banks' partnership flourished, and the Jolliffes' fortunes flourished.

The Site Today

Since the closure of the CMGR much has happened to the terminus and works areas. The stone quarries, desultory small-scale exploitation for domestic hearthstone apart, never really recovered after 1817, although the new drift was standard-gauge rail-linked in or after 1841. Even hearthstone mining, which was never on a large enough scale to come to HM Inspectors of Mines after the 1872 Metalliferous Mines Regulation Act, seems to have ceased after the rail-link was severed by the construction of the 1899 – 1900 Quarry Line from Coulsdon to Earlswood. Nevertheless, the subterranean works, though largely collapsed and flooded, are now the best-preserved features of the site, and can still be explored by those possessed of caving equipment and technique. The chalk pits were extended beyond recognition.

Reconstructed length of CMGR track near the Jolliffe Arms, London Road, Merstham Fourteen plate-rails found in and around the Merstham limeworks were mounted on original stone sleepers set in a concrete slab as a public display in or about 1951. They were not on the original line of the railway, and ere set up before the gauge of the plateway had been conclusively established from the discovery of plates in-situ in 1967. One plate was stolen some years ago, and the remaining thirteen disappeared early in 1982. Photo: Paul W. Sowan.

The main railway line to Brighton emerged from a tunnel just to the west of the works in 1838 – 41, and a spur from this was laid into the limeworks (apparently utilizing an early plateway cutting and under-bridge) with a sub-spur to the new stone quarry. The duplicate Quarry Line was made in 1899-1900, and cuttings and spoil from both lines further changed the landscape, as did further spoil (white chalk over-burden) from the chalk pits. The pits, limeworks, and Quarry Dean Farm, and parts of the CMGR route, have been buried under domestic refuse and the M23 motorway between the toll-house and the terminus site. In spite of all this, the site still repays an informed visit, preferably with Bayliss' booklet in hand, and retains industrial-archaeological potential both above and below ground. It represents an intriguing record of business adventuring and technological innovation unusual, for its date, south of London.

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The Military Railways of Kent, Part III

BY ROBIN M. LYNE

RAILWAY GUN LOCATIONS 1940-43

CRA — Canadian Royal Artillery
SHR — Super Heavy Regiment, Royal Artillery
RM — Royal Marine Siege Regiment

ADISHAM 'Y' Battery CRA November 1940 — February 1941. 16th Battery, 2nd SHR, 2 x 9.2-inch. Covered St Margaret's — Dungeness coastline. HQ at *The Lindens.* BOP at Minster Laundry.

ASH 12th Battery, 2nd SHR, 2 x 12-inch. BOP at Deal Castle. Cover as Adisham guns.

ASHFORD RAILWAY WORKS No. 3 Battery RM, *Piece-Maker* and *Gladiator.* Guns parked in Ordnance Siding. Used to harass Calais counter batteries. Covered Ramsgate — Dungeness and approaches to Dover Harbour in conjunction with *Scene-Shifter* at Canterbury East Station. February — May 1941.

BISHOPSBOURNE 11th Battery 2nd SHR, *Boche-Buster.* HQ at Charlton Parl. Offices at station. Gun houses at Bourne Park tunnel, also at firing spur at Kingston and operator on exercises at other locations.

CANTERBURY EAST STATION 'Y' Battery CRA, 1 x 9.2-inch. From 1 November 1940. No 4 Battery RM, *Scene-Shifter.* In training 14 February 1941. Covered invasion beaches and Dover Harbour. CRA mobilized for France 3 October 1943.

ELHAM 'Y' Battery CRA, 2 x 9.2-inch. 7th Battery 2nd SHR, 2 x 12-inch. Replaced 'Y' Battery on 1 January 1940. Replaced by 8th Battery 2nd SHR, 2 x 12-inch in 1942.

ELHAM STATION *Boche-Buster* here from 29 November 1943 for practice shots. HQ in station buildings.

EYTHORNE 8th Battery 2nd SHR, 2 x 12-inch. Guns based in nearby tunnel. HQ at Eythorne Court. Covered coast line against invasion. Replaced 7th Battery at Elham in 1942. 11th Battery 2nd SHR, *Boche-Buster* reported here probably on practice camp or exercise.

FOLKESTONE HARBOUR 4th Battery 3rd SHR, 1 x 9.2-inch.

GROVE FERRY 'Y' Battery CRA, 1 x 9.2-inch.

GUSTON Nos. 4 & 5 Battery RM, *Piece-Maker.* Gun based at station, operated from firing spurs at St Margaret's Bay. Ready for operation on 27 November 1940. Back to Ashford on 11 March 1941, returned on 25 March 1941. Transferred to 7th Battery on 17 November 1942. Nearby tunnel used for camouflage.

HOTHFIELD Gun at 'stand to' position to cover Dungeness — Folkestone as counter invasion battery in July 1941. Battery No. unknown.

HYTHE 4th Battery 3rd SHR, 1 x 9.2-inch. Companion gun to Folkestone Harbour.

HYTHE & SANDLING One of Elham's guns stationed for a short time prior to 15 November 1940.

KEARSNEY No. 3 Battery RM, *Gladiator.* Gun based south east of loop line at 'stand to' position. Covered Pegwell Bay — Folkestone coast line. July 1941.

KINGSNORTH (CALVES WOOD) 'X' Battery CRA, 2 x 9.2-inch. 1 November 1940 — 3 February 1941. Replaced by 3rd Battery. 17th Battery on test firing in February 1943, No. 1 gun based here on 26 March 1943.

KINGSTON 11th Battery 2nd SHR, *Boche-Buster.* Specially constructed firing spur camouflaged in cutting, 200 yards long. Calibration shots fired locally February — April 1941. Covered Pegwell Bay area supporting 43rd Infantry Division.

LYDDEN 'B' Battery RM, *Scene-Shifter, Piece-Maker,* and *Gladiator.* Old railway sidings of Stone Hall Colliery used as gun park for maintenance and barrel changing. *Gladiator* was ready for action on 8 May 1941 but doubtful if used. 3rd SHR took over from RM on 17 March 1943. *Piece-Maker* transferred to 7th Battery 3rd SHR on 17 November 1943.

LYMINGE 13th Battery 3rd SHR, 2 x 12-inch. Railway spur used for test firing in February 1943, No. 1 gun West, No. 2 gun East on 26 March 1943.

MARTIN MILL RM Siege Regiment training at Canterbury on 14 February 1941. Guns in area on 27 June 1941. Guns also at Kearsney Loop, Lydden. Invasion 'stand to' position in July 1941 to cover Ramsgate — Folkestne coastline. Ready for action on 20 September 1941. New position between Canterbury — Faversham in December 1941. Dispersal positions in Guston Tunnel and at Cold Blow Farm, Walmer.

RUCKINGE (GOLDEN WOOD) Dummy guns at Ruckinge Crossing. Battery HQ at Mumford House, Kingsnorth. BOP at Lydd Church tower and at Aldington. 'X' Battery CRA, 2 x 9.2-inch. Replaced by 15th Battery 2nd SHR, 2 x 9.2-inch from 3 February 1941 — March 1943. Replaced by 4th Battery 3rd SHR. 2 x 12-inch in March 1943. Joined by 2 x 12-inch (ex Elham?) guns on 29 November 1943. Converted to road mounted artillery on 3 August 1944.

RUCKINGE (HOLLYBUSH FARM) 13th Battery 3rd SHR, 1 x 12-inch. Companion gun at Sellinge, transferred there on 7 June 1941 until November 1941.

SELLINGE Battery November 1941 — August 1944. HQ at Sommerfield Court. Hollybush Farm gun transferred here on 7 May 1941 and to Larkhill on 3 August 1944. 13th Battery 3rd SHR, 1 x 12-inch to Elham on 20 May 1943. Took over duties of RM.

SEVINGTON Practice shots in May 1941. Firing tests at Kingsnorth in February 1943, No. 2 gun at station on 26 March 1943. Rail spur held No. 1 gun of 19th Battery 3rd SHR, 2 x 9.2-inch.

SHEPHERDSWELL 5th Battery 2nd SHR, 2 x 12-inch. Covered St Margaret's Bay — Dungeness area from November 1940. 11th Battery 2nd SHR, *Scene-Shifter* and *Piece-Maker* reported here in 1942. Calibrated 18-inch Howitzer, either *Boche-Buster* or converted *Scene-Shifter*. Guns calibrated here on 21 May 1941 (*Scene-Shifter* and *Piece-Maker*).

ST MARGARET'S BAY 'B' Battery RM, *Scene-Shifter* and *Piece-Maker*. Three firing spurs and railway sidings, also tracks laid to long range guns at Wanstone Farm, *Winnie, Pooh,* and *Bruce*. Magazines at Townsend Farm and Swingate Bridge, also narrow gauge railway for shells. The 13.5-inch-guns fired calibration shots at various times, co-operated with 'A' Battery RM who manned the static guns.

TENTERDEN (Spur site. No. 4) Battery 3rd SHR, 2 x 9.2-inch. December 1940.

TENTERDEN (MIDLEY CROSSING) No. 13 Battery 3rd SHR, 2 x 12-inch here on 31 January 1943.

TENTERDEN (ROLVENDEN ROAD) HQ at Wassal Court, Rolvenden. Guns here from November 1940.

TENTERDEN (WITTERSHAM ROAD) As Rolvenden Road.

WALMER (COLD BLOW FARM) Rail spur at Devil's Firs, for Martin Mill guns. Used for storage of ammunition trucks.

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Subsequent to the research on this report, the following information has been found on two little-known light railways, constructed during the First World War. During this wartime period a large number of sidings were constructed, at Government expense, as well as three light railways. Two of these are detailed below. The other, the Trench Warfare Light Railway, is detailed in the main report.

MANSTON CAMP LIGHT RAILWAY[25]

In connection with the building of the new Royal Air Force aerodrome at Manston, the War Department constructed a 3½-mile-long, single track, standard gauge line to the field. At their request the SECR constructed a siding connection with the up main line between Birchington and Herne Bay stations. By the end of 1918 the line was in operation for passenger and freight with the SECR being responsible for the running. At first the motive power was a Q Class 0-4-4T, but in later years a variety of light locomotives were operated until the line closed about 1925. The passenger service had a particularly poor operating system. Passengers had to board a train at Birchington Station which conveyed them to the start of the Manston line, at Upper End Farm. They then had to board another train to the Aerodrome. The maximum speed allowed on the line was 10 mph.

LYMPNE CAMP RAILWAY

During December 1917 a standard gauge line was being constructed from Westenhanger (Racecourse Station) to the Military Camp and Aerodrome at Lympne by the War Department. Work was completed by April 1918 and a goods-only service was in operation, by the SECR, in August. The only locomotive permitted on the railway was a P Class 0-6-0, which operated from Ashford. The goods trains were limited to 10 wagons with a loading limit of 70 tons to the Camp. The line had only a limited operation and appears to have closed about 1920.

25 D. Gould, *The South-Eastern & Chatham Railway in the 1914-18 War,* The Oakwood Press, 1981 *and* 'Isle of Thanet Railways', *Bygone Kent,* September 1981

(*Concluded*)

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Postcards and the Canal Historian

BY PHILIP DANIELL

It is unfortunate that neither the camera nor the picture postcard had been invented when the canals were being constructed. But a lot of history has happened since the camera became available. There are postcards to be discovered, dating from the early years of the present century; some of them depict vanished canal scenes. This note is concerned with the problem of discovering them.

The postcard world has its professional dealers, auctions, journals, and clubs. There are postcard stalls at antiques fairs and boxes of unclassified treasures in junk shops. There is the Canal Card Collectors' Circle with its magazine *Gongoozler* and its annual Cardmeet. (Membership details from A. K. Robinson, 56 Henley Avenue, Dewsbury, West Yorks.)

There is a huge range of postcard prices. Its not long since one canal card fetched £70 at auction. In a specialist postcard shop you may have to pay up to £12 for an old card. At the 1982 Cardmeet a collection was being disposed of at £1.50 per card. Few dealers seem to have a separate 'canals' category for their stock; if they do, prices will be on the high side. If your local dealer knows you are a likely buyer of canal cards, he may put them aside for you. You will probably have to search through regional or County classifications; or try 'shipping' and 'rivers'.

The excitement of the hunt arises at the 'unclassified' end of the market, if you have time and stamina. Even on a specialist postcard market stall there is probably a junk box. It will indeed contain lots of junk cards—but also the rare find. I recall the occasion when, with a train to catch, I was confronted with a stall bearing hundreds of postcards. I could spare just two minutes—and I immediately put my hand on a card showing the Rhoddlan Navigation, postmarked 1903! After that discovery, I have just kept searching.

Good cards disappear into the hoards of specialist collectors and museums and seldom reappear on the market. It may, however, be possible to borrow them to illustrate a book or article, perhaps for a fee. One can advertise one's particular wants in *Picture Postcard Monthly* or *Gongoozler* or one can ask the big dealers to send material on approval. I have had little success with either method in obtaining cards of the Croydon Canal (or rather its remains, since it closed in 1836) for a forthcoming history to be published by Living History Publications. Should you want cards of the Royal Military Canal you will have no problems. It must surely be the most carded canal in Britain!

Finally, there are reproductions of old postcards, e.g. by British Waterways Board and Pamlin Prints. Not collectors' items these, but conveying just the same information as 'the real thing' at a much lower price.

* * *

Book Reviews

IRELAND'S FIRST RAILWAY, by K. A. Murray. 236 pp, with 47 illustrations and 17 maps and diagrams. Irish Railway Record Society, Dublin, 1981. ISBN 0 904078 07 8. Obtainable from 30 Stanford Avenue, Hassocks, Sussex, BN6 8JJ, £8.00, incl p&p.

The Dublin & Kingstown, the subject of this book, was Ireland's first 'proper' railway. It can be regarded as the Liverpool & Manchester of Ireland, the first fully fledged public railway in the country which used mechanical power to handle all its traffic. Mechanical power did not always take the form of steam locomotives, however, as for some time the Dalkey Extension was worked on the atmospheric system, and was in fact the first public railway to be worked in this fashion anywhere. Two other 'firsts' scored by the Dublin & Kingstown were, one that it was the first railway to use tank engines, in 1835, and two that it produced the first locomotive to be built by a railway company in its own works ('Princess' of 1841). It was the only railway in Ireland built to the 4 ft 8½ in gauge, though later it was altered to the subsequent Irish standard gauge of 5 ft 3 in. It retained its legal independence right up to the Great Southern Railways grouping of 1925, although leased to and worked by the Dublin, Wicklow & Wexford (later the Dublin & South Eastern) for the greater part of its life.

A railway with so many interesting features, in spite of the fact that the original line was only six miles long, deserves a comprehensive history, and Kevin Murray has done it full justice. The book is fully up to the standards one has come to expect from the Irish Railway Record Society, and its author, like a good wine, needs no bush. The full history of the line and its extensions is described in detail, both when it was a wholly independent concern and when it was leased to the DW&WR. There are chapters on engineering, locomotives, rolling stock, men and methods, trains and charges, and 'variorum' which chapter is a sort of pot-pourri of unclassified events and facts concerning different aspects of the company and its line.

Full descriptions are given of technical innovations, such as details of the atmospheric system and Bergin's patent spring buffer. These are illustrated by clearly drawn diagrams. The photographs, though not on art paper, have reproduced well.

To criticise a book like this must seem like carping but a couple of small points come to notice. First the list of illustrations omits the drawing of 'Burgoyne' class locomotive on page 183, and second the reference to the locomotive 'Star' on page 180 gives its builders as the Horseley Iron Company of Tipton, Yorkshire, which should of course read Staffordshire (as at 1833). This might be overlooked but on page 184 when new wheels were required for 'Star' because the original ones were not satisfactory it was suggested they may be obtained from Forresters of Liverpool or 'some other Lancashire house'. The author considers this was scarcely tactful in implying the superiority of Lancashire over Yorkshire, raising memories of the Wars of the Roses in which Staffordshire was not involved.

The book is nicely produced and is certainly one which anyone interested in Irish railways should have on his bookshelf. A veritable classic among Irish railway books.

NEIL PITTS

LOCOMOTIVES AND ROLLING STOCK OF CORAS IOMPAIR EIREANN AND NORTHERN IRELAND RAILWAYS, by O. Doyle and S. Hirsch. Second edition, 1981. 96 pp, with 107 black and white plates and a map. Signal Press, 17, Millview Court, Malahide, Co. Dublin. ISBN 0 906591 00 7. £1.95.

This pocket-sized book is the Irish equivalent of the ABC series produced by Ian Allan Ltd. However, within the compass of 96 pages all locomotives, diesel multiple-units, carriages and freight wagons running on the two railway systems are described, both by mechanical details and running numbers. A fleet list of locomotives is included and it is interesting to note from this that Northern Ireland Railways muster only eight locomotives, most of their passenger services being worked by DMUs. There is also a map of Ireland showing which lines are open to all traffic and those open to non-passenger traffic only. The book is comprehensively illustrated and a high standard of accuracy is maintained. The first edition appeared in 1979 and the second in 1981, the information therein being correct to 31 Dec 1980.

This is an invaluable publication to anyone interested in the current railway scene in Ireland and particularly to have with one when travelling on CIE or NIR.

NEIL PITTS

The following reprints have been published by Avon-Anglia Publications & Services, Annesley House, 21 Southside, Weston-super-Mare, Avon BS23 2QU. Special offers to R&CHS members were contained in Bulletin 258, July 1982.

EARLY WESTERN RAILROADS: an 1888 description of nine railway locations in S.W. England, by R. Handsford Worth. 16 pp, no illus. ISBN 0 905466 46 2. 1982.

This is a straight reprint of a paper given by Richard Hansford Worth in 1888 when he was but 19 years of age. He was a competent antiquarian and historian and the railways which lie directly in his knowledge, the Plymouth & Dartmoor and the Tavistock Canal inclines, are well described but the same cannot be said of other railways, particularly those in West Cornwall. Alas, the publisher has not included any introduction or explanation which could have corrected one or two points.

Worth, as an engineer by profession, seems particularly interested in permanent way and in addition to the text there is a page of rail sections. Despite its limitations this is an interesting booklet, neatly printed. M. J. MESSENGER

THE ASHBY-DE-LA-ZOUCH CANAL AND ITS RAILWAYS, by C. R. Clinker and Charles Hadfield. 28 pp, with 4 illus. and 2 maps. 1978. ISBN 0 905466 16 0.

A review of this reprint, originally published in 1958 from the Transactions of the Leicestershire Archaeological and Historical Society, appeared in Book Review Supplement No. 27, Feb 1979.

The story is told in three parts. The first takes the Ashby Canal from its inception in 1794 to 1846, when control passed to the Midland Railway. The second treats the canal's associated railways during that period. The narrative is completed by an account of the canal and its railways under railway ownership up to 1954.

Needless to say, the authors are a hallmark of the accuracy of the book. It is a pity the opportunity was not taken to add a postscript to bring the story up to date, as many changes have taken place since 1954, but the booklet is a welcome reappearance. R. DAVIES

EASTERN COUNTIES RAILWAY: SIGNALS AND REGULATIONS, DEC 1846. 20 pp, no illus. 1982. ISBN 0 905466 52 7.

This slim reprint, in its attractive maroon 'antique' limp cover, is welcome on at least two counts: first because any fresh material on the ECR is welcome, as it was a long, major railway having many features of interest which have yet to be distilled from the copious surviving records, and also because the rules were based on experience acquired in the first seven years of operation. One wonders what labours of Hercules were performed by engine crews out on the road with the screw-keys, wrenches, chisels, hammers, jacks, chains and other impedimenta they were required to have on hand, but ECR records make one feel that at times even this inventory was inadequate. Signals, lamp codes, use of fog signals, the duties of enginemen, guards, station staff, policemen and platelayers are all covered. The track gauge (converted from 5 ft 0 in to standard only two years before) was to be 4 ft 8⅛ in 'at switch points and crossing points.' A comparison of methods, nomenclature and so on between these regulations and those of contemporary companies would be interesting. A worth-while reprint. H. W. PAAR

THE 1935 EXPERIMENTAL TUBE STOCK, by Brian Hardy and Piers Connor. 36 pp with 36 photos and 2 pp scale drawings and tables. The London Underground Railway Society as Issue No. 10 of *Underground,* 1982. £1.25.

This is another issue of 'Underground' devoted to one lengthy article to the exclusion of all else. Perhaps not of such great interest to the majority of RCHS members as the last issue (devoted to the Northern Line Extensions and already reviewed) as it deals with rolling stock rather than a line or system. However, if the subject does fall within your sphere of interest, this is a definitive, highly detailed study of the experimental stock which has influenced every new type of tube stock built since the mid-thirties. It can be warmly recommended. P. R. DAVIS

AIR DOOR EQUIPMENT ON THE LONDON UNDERGROUND TRAIN, by Piers Connor. 96 pp, with 44 photos and 53 diagrams. Capital Transport, 1981. £3.35.

A highly detailed technical history of every type of air door equipment used on Underground rolling stock from 1905 to the D Stock introduced in 1979. Although technical in character, the book has been written with the enthusiast and historian in mind, and covers the subject exhaustively. P. R. DAVIS

(The above two titles are obtainable from the Assistant Sales Manager, London Underground Railway Society, 21 Chestnut Grove, London, W5 4JT. Prices include p&p.)

THE RAILWAY TO KING WILLIAM STREET AND SOUTHWARK DEEP TUNNEL AIR-RAID SHELTER, by Peter Bancroft. 28 pp. Published by the author at 16 Gosden Road, West End, Woking, Surrey GU24 9LH. £0.95.

This is the story of the tunnels from Borough High Street to King William Street station, which formed the original northern end of the City and South London Railway, and of the various schemes for their subsequent use. During the Second World War the section south of the river was converted into a public air raid shelter for 14,000 people, and that north of the river into a private shelter for office staff, an interesting early example of the re-use of an abandoned railway.

GRAHAME BOYES

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Correspondence

Staggered Platforms

Sir,—Mr G. O. Holt's interesting letter (March) commenting on my earlier note (November 1981) on the staggered platforms at Chelford contained a slip. He stated that the Up platform 'gap' had been abolished by 1941 or 1942. My own clear recollection, having seen the station very frequently throughout the period, is that the 'gap' remained till the complete rebuilding at the time of the Crewe—Manchester electrification, and this recollection is confirmed by several elderly locals. Mr Holt accepts my view, and suggested that I should write a brief note of correction for the benefit of members. A. St. G. WALSH

Central London Railway

Sir,—A recently-acquired map shows the Central London Railway extended by the Ealing and Shepherd's Bush Railway. It also shows a dotted connection from Shepherd's Bush station, CLR, to a point just south of Goldhawk Road station on the Hammersmith & City line.

If this line had been built it would not only have given the CLR access to Hammersmith but also to Richmond via Richmond Junction on the H&C and Grove Road, L&SWR.

This would have involved the CLR in far less expenditure than their abandoned route to Gunnersbury, authorized in 1913. When was the proposal for this shorter link in vogue and why was it abandoned? DAVID GARNETT

A Problem

Sir,—In his book *A Vale in Kent,* Philip Rogers quotes from a contemporary account of an explosion in 1839 at the powder mill at Wilmington in north-west Kent: 'The body of John Bush was a long time before it was found, as it had fallen into the canal, which was drained for the purpose of discovering it.' The only local waterway is the Dartford Navigation, over two miles on the far side of Dartford.

About a mile south-west of Wilmington is the *Ship* public house at Puddledock.

A puzzle indeed! PHILIP DANIELL

Leeds to Selby Navigation

Sir,—When searching recently in the archives of the Yorkshire Archaeological Society I came across a map in a bundle of otherwise irrelevant documents, being a plan of the intended navigable canal from Leeds to Selby, undated. This could conceivably be of interest to your members. Reference is Yorkshire Archaeological Society, Claremont, Clarendon Road, Leeds LS3 0NZ, Skipton Castle Papers, their reference BD 121, Bundle 87. DAVID R. PEDLEY

Charges for advertisements: £15 *full* page and £10 *half* page. Remittance should be sent, with camera-ready copy, to Mr Pat McCarthy, 6 Carisbrooke Close, Wistaston, Crewe CW2 8JD.

All copy for the March *Journal* should be with the Editor by 20 November and should conform to the style-sheet published in the November 1981 issue.

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