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JOHN SMEATON

AND

THE CALDER & HEBBLE NAVIGATION

by B. F. Duckham, M.A.

The Act of Parliament passed in 1699 empowering a group of Leeds and Wakefield gentlemen to improve the rivers Aire and Calder may justly be looked upon as the most important single event in the history of Yorkshire river navigation. Nevertheless, in spite of its significance, the benefits of water carriage were restricted to only part of the woollen manufacturing district of the West Riding. The Calder was made navigable from Wakefield downstream to its confluence with the Aire at Castleford, but no real effort was made by the proprietors of the Aire & Calder Navigation to extend the waterway above Wakefield Bridge.

Clothiers in the upper valley of the Calder were not long satisfied with this situation and when some of them wrote to John Smeaton in 1756 indicating that they wished to undertake the further improvement of the river as a completely separate venture, this was in fact no new idea. As early as 1740 attempts had been made to obtain the approval of Parliament, but opposition from Landowners and fulling-mill proprietors, amongst others, had been too powerful. In September 1756, however, a strong committee of

interested parties was formed whose names included those of such prominent local gentry as Sir George Saville and Sir John Armitage.

The decision to employ Smeaton as surveyor is perhaps easily explained. He was himself a Yorkshireman, having been born in 1724 at Austhorpe near Leeds, and he was known to have studied Dutch river and canal engineering at first hand in 1755. Moreover, his work on the Eddystone lighthouse was already gaining for him a certain measure of fame. Initially he was invited to "... come over and view the River Calder from Wakefield to Elland" and undertake a survey. Smeaton accepted the commission, but pointed out that his commitments on the Eddystone lighthouse made it impossible for him to begin before August 1757. However, in July of that year he wrote to the committee from Plymouth and suggested that they should send him all possible information about the Calder together with any map they possessed of it. Anticipating the requirements for his survey, he begged them "to procure a light Boat... which can be carried by four Persons over the Shoals in order to examine the Depths of Water."

Smeaton was sent the old survey originally made in 1740 and appears to have found it satisfactory for his purposes. Meanwhile the committee prepared its first subscription roll on 10 August in order to defray the cost of the survey. The document shows that a little over £529 from some 99 subscribers was immediately forthcoming; a second appeal raised only an additional £184. Not until October did the committee receive the letter it wanted. In this, again written from Plymouth, Smeaton assured the members that: "Having now finished what I intend to do on the Edystone /sic/this Season I propose to be in London the beginning of next Week... and from thence shall go down post directly to Halifax..."³

The actual survey was evidently made at a fortunate time, for it was said that the river was at the very lowest it had been known for many years. The committee was acutely conscious for the need to meet objectors resourcefully and decided that Smeaton's report should be made public at a special gathering arranged for 7 December at the White Hart Inn, Wakefield. No fewer than 1,000 copies of replies to objections were printed, and a similar number of copies of the report were ordered from the press. Representatives were appointed to wait on the most important landlords, including the Marquis of Rockingham, Viscount Irwin and Sir John Ramsden.

John Smeaton's long-awaited report was carefully arranged to meet the opposition point by point.⁴ Danger of the surrounding meadowland becoming permanently waterlogged by floods was carefully discounted, whilst it was claimed that proprietors of fulling-mills had no reason for concern. Though the water had been exceptionally low, Smeaton had found on even one of the higher reaches that "there was in general a Sufficiency of Water to keep two Fulling Mill wheels constantly going..." He concluded: "From a due consideration of the Facts before-recited, I am of the Opinion that it is practicable to continue the Navigation of the River Calder from Wakefield to Brooksmouth, for Boats and Barges (such as navigate from Rawcliffe to Wakefield) that is, such as do not draw above 3 feet 6 inches Water in dry Seasons....."

The waterway was to proceed, then, from Wakefield to a point above Elland where the Hebble entered the Calder, and was to connect, amongst other places, Horbury, Dewsbury, Mirfield and Brighouse. A small portion of the Hebble was to be rendered navigable up to Salterhebble Bridge, but because of the great difference in levels, it was not at that time proposed to take the navigation into Halifax itself. The short canal which was later to link Halifax with the river system was not begun until 1825. Smeaton calculated the total fall of the relevant part of the Calder as being 178 feet, with an average descent of 1 foot in 700. The length of the proposed navigation, measured by the odometer was $23\frac{1}{2}$ miles from Wakefield up to Brooksmouth, with an additional half mile from there to Salterhebble Bridge. Half the river's fall was accounted for by the dams built by fulling-mills to create suitable heads of water to turn their wheels. Obviously, there were going to be several cuts necessary for by-passing mill weirs and others for avoiding unnavigable stretches of the river. When all work on the navigation was ultimately completed there were to be only eight miles of riverway as compared with nineteen miles of canal. By then (the late nineteenth century) the main line - including the extension to Sowerby Bridge - was 21 miles and 4 furlongs in length. The several short branches totalled $5\frac{1}{2}$ miles.⁵

From the outset the Calder & Hebble was planned as a "broad" navigation so that through traffic from the Humber estuary via the Aire & Calder system could reach the valley. The locks were built to accommodate vessels measuring approximately 57 feet 6 inches by 14 feet, which in practice meant that most square-rigged Humber keels had access to the new waterway. It stood then in the main tradition of Yorkshire river and canal navigation, and the draught was also that of the Aire & Calder at that time. Nowadays extensive dredging operations have ensured a standard draft of six feet and upwards, but in the eighteenth century few river navigations could guarantee such a depth.

It was at once decided to apply to Parliament for the necessary legislation and, chiefly at the request of a number of Lancashire gentlemen from the Rochdale area, an amendment was made to the Bill to provide for the navigation to proceed to Sowerby Bridge. The promoters acted with the greatest determination, and provided for an impressive list of witnesses to attend the Committee of the House of Commons. A miller was sent to plead on behalf of the navigation and to take the wind out of the sails of any objectors on behalf of the fulling-mill interest. Moreover, it had already been agreed by the committee, with some astuteness, to allow all material essential for building and repairing the mills to go free of tolls. The Bill appears to have enjoyed a relatively smooth passage, however, and received the Royal Assent on 9 June 1758 (31 Geo. II, cap. 72). Under the Act 42 commissioners were appointed to improve the Calder & Hebble, any nine of whom were empowered to conduct affairs. The qualification to serve was a not unusual one for that period: an income of at least £100 per annum, or a personality of £3,000.⁶

In July and August the new proprietors met and arranged for work to commence, but not "...till the Sum of Thirty-six Thousand Pounds be subscribed."⁷ Smeaton was now officially appointed superintendent of the

works at a salary of £250 a year. He was to be allowed up to £100 per annum to engage the services of a deputy surveyor, and at first the proprietors seem to have been over-anxious to economize. At least they directed that whoever was made master carpenter or master mason should also act as Smeaton's deputy. This soon proved impracticable, and by 1760 the commissioners had bowed to reality. Joseph Nickalls, described as a millwright, was appointed deputy surveyor at a salary of £100, whilst a mason was engaged for £50 per annum, and a carpenter at 18/- a week. Smeaton was encouraged to purchase any tackle from the Eddystone lighthouse which he felt might be necessary for the navigation, and he did in fact have about £20 worth of equipment sent up to him. Although the proprietors may have been unduly parsimonious, it must be borne in mind that the Act of Parliament alone had cost them £2,075. The chief single item had been the fees and expenses of their solicitors (which amounted to £739), but much had also been spent on the witnesses who had been despatched to London. 8

Little real work, save the invitation of suitable tenders for stone, alder, beech and oak, was done before 1760. In May 1759 Smeaton was in London to present two papers to the Royal Society (Experimental Enquiry into the Natural Powers of Wind and Water to turn Mills) for which he was awarded the Copley medal. For much of the rest of the year he was in Plymouth supervising the final stages of the Eddystone project. He wrote in October apologizing for the delays which had been caused "by an epidemical Distemper" amongst his workmen, and by November he was back in Wakefield.

The actual construction of locks and cuts was commenced on the Wakefield - Dewsbury stretch of the river, since the proprietors were anxious that navigation should begin as soon as possible so that some toll revenue might be earned. From the many records of the company which have survived it is possible to piece together a fairly full picture of the operations and of John Smeaton's connexion with them. Besides the minute books and copies of letters sent and received by the commissioners' agent, there exists an interesting Superintendent's Journal kept partly in Smeaton's own hand. Together with a general account book these MSS form an exceptionally well documented account of mid-eighteenth century river improvement and canal building. Their value is, of course, enhanced by the interesting sidelight they throw upon the work of the founder of the Society of Civil Engineers.

Smeaton was originally employed by the proprietors of the Calder & Hebble from 1759 until January 1765, but during this period he continued to have many other irons in the fire. These included the review of rivers such as the Nith near Dumfries in 1760 and the Witham in 1761. He was also consulted about the improvement of the Fosdyke in 1762 and reported two years later on the possibility of a Forth - Clyde canal. As though this were not enough, he was asked to give advice about enlarging London Bridge and repairing Bristol Old Bridge.⁹ Despite these activities, he undoubtedly gave a great deal of time to the improvement of the Calder (as his Journal shows). Indeed it was the largest commission of the kind which he

had yet undertaken.

The two chief difficulties encountered by the engineers were the loose nature of the land, and the constant floods. In December 1760 when the cuts near Horbury were being excavated frequent subsidence was experienced along the banks of the new canals. Smeaton noted that "...the Matter of the Valley of the Calder turns out in many places extremely loose, being Nothing but the Wreck of former Courses of the River." ¹⁰ The sides of the cuts were accordingly given a much more gentle slope than usual, but the same difficulty cropped up at later stages in the improvement scheme.

Flooding turned out to be an even more serious matter. The catchment- area of the Calder includes a large region of mountainous terrain, and the river can still rise quickly and unexpectedly. Today special flood-gates guard the entrance to several cuts so that surplus water can be restricted to the river channel. The Journal is full of accounts of numerous floods which damaged the works or delayed operations. Most interruptions naturally came in the autumn and winter months, but summer also brought its troubles, which appear to have been welcomed by some. In June of 1760, for instance, Smeaton commented in a letter to the proprietors: "... the Rain has occasioned some Hindrance. Tho' not any Damage more than what we shall always be liable to in Works of this Kind on like occasions; when I was there on Wednesday last I found the Wakefielders had been very Industrious in propagating a report concerning the Greatness of our Damage and that all our Tools were carried away etc. from whence we may judge what they wish to be true." ¹¹

At other times petty disputes caused frustrations and delays, as when in July of the same year contractors for the Halifax - Wakefield Turnpike were discovered taking large quantities of gravel from the river at the very point where Smeaton wished to build one of his dams ! Some difficulty was also experienced in finding and keeping skilled workmen, and in order not to lose his masons Smeaton had to "...give it out that we shou'd keep a Number of Hands During the Winter." ¹² Nevertheless, by March 1762, the first vessel was able to navigate the new cut up to Horbury Bridge, and it was noted with pleasure that it drew over three feet.

In January 1765, when virtually all the works below Brighouse were completed, Smeaton left the employ of the Calder & Hebble proprietors and was replaced by James Brindley, who was paid £1. 11s. 6d for each day's attendance. The last part of the improvement, that is the section to Salterhebble Bridge and Sowerby Bridge was carried out under Brindley's direction, but this had scarcely been perfected when disaster hit the whole waterway. In the night of 7-8 October 1767 a great flood occurred which partly breached some of the cuts and wrecked most of the locks. Navigation was brought to a standstill. Several reviews of the devastation were made by the commissioners, but not until June 1768 was really positive action taken. An emergency subscription had failed to produce the money needed for the widespread repairs, and so it was decided to apply to Parliament for an Act empowering the proprietors to raise more capital. It was woefully recorded that: "...all the Cash receiv'd on the former

Subscriptions or from the Tolls or otherwise is entirely expended and there remains a Debt still for Contracts perform'd and Works done, to Labourers, Workmen and other Persons." Temporary dams were hastily thrown across the cuts to prevent further damage, and the lock gates which remained were closed and secured. ¹³

Smeaton, who must have followed these events closely, wrote offering to go to Parliament to assist the passage of the new Bill, and not unnaturally he was invited to superintend the repairs. The Act (9 Geo. III, cap. 71), which received the Royal Assent on 21 April 1769 repealed the earlier statute, and reorganized the proprietors. 81 proprietors were in fact elected, and a committee of five were given the general direction of the navigation, subject to annual meetings of the commissioners. New borrowing powers were granted, and the capital of the company was to be divided in £100 shares. The official title of the organization was to be the 'Company of the Proprietors of the Calder & Hebble Navigation'.

The repairs were placed in hand immediately, and within a year well over £5,000 had been spent. Smeaton reported to the committee in December 1770 and it is clear from the document that work was proceeding rapidly. However, the restoration of the banks proved difficult, and in July 1771 operations were still so far from complete that the committee felt it necessary to discourage celebrations "with Music upon the Water, Fire Works etc.," which some of the inhabitants of Sowerby Bridge had rather prematurely arranged. ¹⁴

The company continued to be advised by Smeaton from time to time until 1779, though one of his pupils, William Jessop, was actually employed as engineer to carry out the later recommendations. At last the navigation began to show a profit, though it was a long time before a respectable dividend was paid. The dividends for the last decade of the eighteenth century may be summarized as follows: ¹⁵

1790	6%	1795	6%
1791	7%	1796	7%
1792	7%	1797	7%
1793	7%	1798	4%
1794	7%	1799	6%

Besides serving the West Riding woollen industry well, the Calder & Hebble navigation was extensively used by the manufacturers of Manchester and Rochdale. Before the opening of the Rochdale and Huddersfield canals goods were brought across the Pennines to Sowerby Bridge wharf. Later the waterway formed an important link in the navigational chain connecting Lancashire and Yorkshire, and, although through traffic (by these two routes) has long ago ceased, the Calder & Hebble still carries up to 200,000 tons of merchandise annually. It remains as a not unworthy monument to the man who designed it and supervised its construction.

References:

1. Committee meeting held in Halifax. General minute book I, 2 Sept 1756.
2. Letter from Smeaton to the committee, dated 15 July 1757.

3. Ibid, dated 2 October 1757. The financial details are taken from the general minutes.
4. The report is dated 26 November 1757 and recorded in the general minutes for 3 December 1757.
5. The modern measurements are taken from de Salis, H.R.; Bradshaw's Canals and Navigable Rivers of England & Wales, London, 1906.
6. Both the 1758 and 1769 Acts will be found summarized in Priestley, J: Historical Account of the Navigable Rivers, Canals and Railways throughout Great Britain, London, 1831.
7. General minute book, 17 July 1758.
8. Ibid 31 August and 15 November 1758; 31 January 1759.
9. Smiles, Samuel: Lives of the Engineers (Vol II), London, 1862. Technical details of many of Smeaton's achievements may be found in: A History of Technology, Vol. IV, ed. Charles Singer and others, Oxford, 1958.
10. Superintendent's Journal, December 1760.
11. Letter from Smeaton, dated 30 June 1760.
12. Superintendent's Journal, 15 June 1760.
13. General minute book, 23 June 1768.
14. Committee minute book, 6 July 1771.
15. These figures have been extracted from the general minutes. They refer to the dividends declared each midsummer.

The author wishes to thank the British Railways Board for permission to consult and quote from the records of the Calder & Hebble Navigation at York.

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TRAIN SERVICES ON CHRISTMAS DAY

The train services on Christmas Day in recent years have been drastically curtailed and it may therefore be interesting to place on record the general position in the first half of the present century. It should be borne in mind that in the nineteenth century trains on Sundays were very few and even long distance trains in many cases stopped at all, or nearly all stations. On the other hand a considerable number of branch lines had a train each way morning and evening. The services were gradually improved in the present century, but many branch line services were withdrawn about 1917 and not resumed. It should also be noted that 26 December, commonly called Boxing Day was not a public holiday until the passing of the Bank Holidays Act 1871.

For about 100 years most railway timetables included a note: "On Christmas Day and Good Friday trains will run as on Sundays" and this was generally the position, but in many cases traffic was heavier than on an ordinary Sunday and additional trains were run.

The final section of the London & Greenwich Railway was opened on 24 December 1838, and it is recorded that a large number of the inhabitants

of Greenwich and neighbouring places travelled on the railway on Christmas Day. Similarly the first section of the District Railway was opened on 24 December 1868 and the line was very well patronized on that day and on Christmas Day.

As far back as any record can be traced the Great Eastern Railway provided one or two trains each way on the morning of Christmas Day on all, or nearly all of its branches which did not normally have a Sunday service, and this practice was continued in a modified form by the London & North Eastern Railway. On the Great Northern, the down main line stopping train, originally the "Parliamentary", was followed to Hitchin by the through carriages for Cambridge, which on Sundays were on the rear of the main train. Both trains were made up to full strength, and there were few, if any, vacant seats.

Prior to electrification London suburban railways observed a "church time" interval of about two hours on Christmas Day and Good Friday as well as on Sundays; this resulted in passengers thronging the stations before and after the interval. On the Richmond line of the North London Railway special trains were run on Christmas Day immediately prior to the last train before church, and prior to the first ordinary train after the church interval. The engines of these trains carried red disks bearing the word "special" in white letters in place of the normal white disks.

London Transport at one time ran full Sunday services on Christmas Day, all stations being open, but on that day in 1963 including B.R. stations served by L.T. trains 87 stations were closed and another 20 stations part of the day.

Finally a word about the staff. On the main lines comparatively few enginemen and guards were needed, but in the London suburban area a considerable number were required for duty. The station staff generally took their normal early or late turn, but if Christmas Day fell on a Sunday the usual Sunday arrangements applied, which meant a few hours at a country station but often sixteen or even seventeen hours at a suburban station. It was not until comparatively recent times that payment was made for duty on Christmas Day, for that purpose it was just a day in the ordinary week's work. From about 1890 most railways gave the wages staff a day's pay (one sixth of the weekly wage) for Sunday but many companies did not pay the clerical staff for Sunday duty until about 1913.

From H. V. BORLEY

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ERRATA

January 1964 Journal, p.18 (Railways of Cornwall, para. 3)
For "principle" read "principal".

RECENT LITERATURE

William J. Skillern

- BULLEID, H.A.V. Master builders of steam. [1963]
(Ian Allan, 35/-)
- The CENTRAL WALES [Railway]. [1963]. (Swansea Railway Circle, 17 Weston Street, Swansea, 1/3; by post, 1/6) Duplicated Typescript.
- The EARLY history of the Metropolitan District and Metropolitan Railways in Wembley. 1963. (Wembley Transport Society, 36 Wentworth Hill, Wembley, Middlesex, 6/6). Duplicated typescript.
- * POWKES, E. H. Railway history and the local historian; [with lists of the records of Yorkshire railways and waterways which are in the York repository of the British Railways Board]. 1963. (East Yorkshire Local History Society, 2 St.Martin's Lane, Micklegate, York, 4/-; by post 4/4)
- LONDON stations: a user's assessment. 1963. (Research Institute for Consumer Affairs, 27 John Adam Street, London W.C.2. 4/-)
- LONDON TRANSPORT posters; with introduction and notes by Harold F. Hutchinson. 1963. (London Transport, 35/-)
- POVEY, R.O.T. The History of the Keighley & Worth Valley Railway. 1963. (Keighley & Worth Valley Railway Preservation Society, 5 Goosecote Lane, Oakworth, Keighley, Yorkshire, 5/-; by post, 5/4)
- PRICE, M.R.C. The Cleobury Mortimer & Ditton Priors Light Railway. 1963. (Oakwood Press, 7/6) (Locomotion Papers No.21)
- The WATERWAYS annual, 1963. (George Godwin Ltd., The Builder House, 4 Catherine Street, Aldwych, London, W.C.2, 5/-)
- WHETMATH, C.F.D. and STUCKEY, Douglas Torrington to Halwill: the North Devon & Cornwall Junction Light Railway and the Marland Light Railway 1963. (Published in association with Oakwood Press, 7/6)

ARTICLE

Inland waterways: some sources for their history, by B.F.Duckham. (In "The Amateur Historian", Vol.6, No. 1, Autumn 1963)

* This item is in the Society's Library.

'From Great Western Railway Officers' Meetings. Paddington, 30.8.1876.

Minute 2764. "It having been found that excursion passengers holding covered carriage tickets have insisted upon travelling second-class, when third-class carriages have been attached to the train, it was agreed that in future on Excursion Bills and Tickets the words 'Third Class' shall be printed in lieu of 'covered carriages'".

CORRESPONDENCE

Sir,- I have recently looked at a copy of Z. Allnutt: Useful & Correct Accounts of the Navigation, of the Rivers & Canals West of London... 2nd ed. 1810. In this Allnutt several times refers to "Brooks' Tables" which apparently gave details of rates, etc. on certain canals. Can anyone direct me to a copy of these tables ?

DAVID H. TEW

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The Severn & Wye Railway

Sir,- Your reviewer, in criticizing this book for its lack of "background" information, adds that this "could be readily culled from a few books, some of which are, in fact, referred to in the notes". Precisely. When an author has an abundance of original material to draw upon, he must still incorporate some which is relatively well known, in order to make the story whole, but it can hardly be essential to his task, to include "background" details which are readily available elsewhere.

The treatment which your reviewer requires is perhaps best exemplified by Mr T.B.Peacock's admirable little essays published soon after the last war, but these did not set out to give full historic accounts of the subjects; they were an experiment in a more discursive style of railway writing; but my experience is, that to produce a full history in that style would result either in a work of gargantuan or impractical proportions, or would lead to the exclusion of a substantial part of the subject material; in fact, in the present instance, much ancillary detail was included in early drafts, but had to be cut out before publication.

I see that, even so, the index lists 22 railway companies and 11 towns outside the Forest, also 124 industrial establishments; I passed the bleached bones of several theses, articles and investigations during my long search, and my work might well have joined them, but for my "blinker determination" !

H. W. PAAR

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Sir,- The following query has been put to me by a postal historian: For many years the mails from Whaley Bridge, Disley, Strines and Marple, on the Cheshire-Derbyshire border, were taken into Manchester for distribution elsewhere. It is known that until about the year 1800, and again from about 1810, they were transported by road, but there is no evidence that road transport was used between those years. As the Peak Forest Canal was opened about 1800, my enquirer thinks it possible that the canal may have been used to transport the mails for a period, and I shall be grateful if anyone can offer any confirmation (or otherwise) of this.

WILLIAM J. SKILLERN

LOCAL GROUP SECRETARIES

LONDON: J.A.Hall, Flat 3, 110 Crouch Hill, London N.8.

NORTH WESTERN: D.G.Rimington, 11 Cherry Tree Walk, Stretford, Lancashire.

NORTH EASTERN: *R.J.Hunter, Granby Lodge, Scarcroft Road, York. (*acting).

WEST MIDLANDS: J.H.Denton, Marchmont House, Church Road, Codsall, Wolverhampton.

EAST MIDLANDS: K.E.Spurge, 31 Elvaston Road, Nottingham.

SOUTH WESTERN: D.Garnett, Pear Tree Cottage, Little Somerford, Near Chippenham.

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BOOK REVIEWS

A REGIONAL HISTORY OF THE RAILWAYS OF GREAT BRITAIN, Vol. 3 - GREATER

LONDON by H.P.White. General Editor: David St. J. Thomas.

Phoenix House, London. 35/-. 227 pp., 44 plates, 18 line diagrams, folding coloured map.

This volume is a companion to the two earlier ones on the West Country and Southern England, Mr White already being known to us as the author of the latter. There has been a spate of books on London's transport lately, but this one endeavours directly to relate the growth of the metropolis to the development of its railways. In this it succeeds well, showing how increasing local train services and a spreading network went hand in hand with a growing suburbia. But expansion was far from even, some railways like the Metropolitan and the L.P.T.B. later lines actually preceding development, compared with the neglect of suburban traffic by the London & North Western and the Midland which kept places like Willesden and West Hampstead outposts for so long. The tightly-packed warring companies who produced the maze south of the river added their own peculiar contribution to London's irregular outline, which for the author's purposes are roughly bounded by Dartford, Orpington, Purley, Kingston, Uxbridge, Watford, Potters Bar, Ongar and Shoeburyness.

This is as much a geography as a history, which is no bad thing (one wishes more were like it). The employment of so many statistics is perhaps inevitable, although we learn much from them, but the introductory chapter might well have contained less and been the better for brevity. The facts of the population explosion are already well known. Otherwise the author's style is terse and to the point, carried to excess in some places where the stranger, or the layman commuter (to whom the 'blurb' commends this book), may find comprehension difficult. The proliferation of economics jargon merely annoys, and decimal mileages like "0.725 mile tunnel" irritate. By and large, though, the new approach to so many complex events, necessarily compressed into a small space, has been well done and is most refreshing.

Unfortunately there are defects in composition. Capital letters for some branch and station names, following earlier volumes, seem pointless

and haphazard, and an otherwise competent index is ruined by use of the first word of an entry as a heading for others having it in common, but lacking any other connexion. "Gas Factory Junction" is followed on the same line by "—— Works Tunnel", which does not help reference. The long column of different entries all commencing with "London" requires considerable sorting out and contains a mistake. There is not even uniformity, the "Greats", "Norths" and "Souths", and so on being indexed separately.

Even more unfortunate, the author's painstaking work is hamstrung by pitifully inadequate maps. Again following earlier practice, details of congested areas are shown in maps in the text, which are so microscopic that a glass is required to sift the multitude of line symbols, two dots and a dash being well-nigh indistinguishable from one having one dot or all dashes. The three-colour folding map is quite deplorable, above all in a volume on London, and has gone to the other extreme in using only three different symbols. Although the greater part of the book naturally deals with events before 1923, this map depicts post-grouping ownerships only and leaves out the central London Transport lines entirely. Even if inclusion of the tubes was impracticable, the District and the Met. could have been shown. Despite most stations being marked, many are not named (again the choice seems arbitrary), making it impossible to locate a good many which are mentioned in the text. An outer demarcation line obviously must be drawn, but an inset showing the Metropolitan beyond Rickmansworth would not have been impossible and would have indicated some consistency. The archaic lettering is both highly unsuitable and clumsily arranged so that it is impossible, for instance, to tell whether Belmont is on the L.M.S. or L.P.T.B. branch to Stanmore. Were the map half as large again with large-scale insets on the back, much more could have been shown. Clear and detailed maps in this series surely are absolutely essential, and we must hope that future volumes will show more thought on this feature.

G. J. B.

RAILWAY HISTORY AND THE LOCAL HISTORIAN by E.H.Fowkes. East Yorkshire
Local History Society, 2 St. Martin's Lane, Micklegate, York.
4/4 post free.

This little volume sets out to whet the appetite of the local historian and although I cannot vouch for its success in that direction I can say that it will certainly whet the appetite of the railway historian.

Countless works have been written about the railway companies, largely from an impersonal point of view, and it is only recently that attention has been directed to the part the railways have played in the social history of the country. Even so the railways were not only the result of such people as Forbes and Fay, Gresley and Churchward, but also of Driver Jim Bloggs and Porter Joe Soap, who were often personalities in their own

right. Consequently a number of the items quoted by Mr Fowkes concern the small man - the man with which the travelling public came into contact and who often played a part in the success of a railway in a particular district.

Mr Fowkes was, when he wrote the book, the Keeper of Records, B.R.B. Archives at York, and it is obvious that the work has the semi-official blessing of the Archives Department as it sets out to quote extracts from items housed therein. Many of the items are scraps in the huge story of our railways - scraps thrown out to tempt the uninitiated into the Archives for serious research. As it is primarily intended for students of Yorkshire history the extracts are confined almost entirely to the largest county but they apply equally well to almost every railway in the country.

The production is good and the centre spread has transformed a mediocre map (in a wartime Railway Magazine) into a useful source of reference.

One or two very minor slips have been noted, probably justified to save confusing the non-railway minded. For instance on p. 15 mention is made of the opening of the Great Northern from London to York, and on p. 31 of the N.E.R. paying the wages of the policeman employed at Kirkby Stephen (actually by the South Durham & Lancashire Union Railway).

K. H.

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CONTRACTORS LOCOMOTIVES G.C.R. by N. Cossons, B.A., with photography by the late S.W.A. Newton: 6½" x 8½", 36 pp., art paper and semi-stiff art covers featuring drawings. Price 5/5 post free from City of Leicester Museums and Art Gallery, New Walk, Leicester.

Some three thousand negatives, work of the late S.W.A. Newton, are held by the Leicester Museums and 24 have been carefully selected for publication in this book. They illustrate locomotives which worked for the several contractors who shared, sectionally, in the building of the Manchester, Sheffield & Lincolnshire Railway's London Extension, Annesley to Marylebone (Metropolitan Railway section exclusive) in the years 1894-98 and the associated High Wycombe route for the Great Central and G.W. & G.C. Railways c.1902-06.

The author pinpoints several operating and mechanical features of interest in his introduction and the notes accompanying the pictures. Pride of place is rightly given to the illustrations and the substantial work of selection, fact-checking, documentation and arrangement is modestly concealed. The production of several supporting drawings is welcome; they emphasize all sorts of intriguing features, such as the depth of the firebox of a little 10-inch Hunslet four-wheeler !

The introductory list of contractors and their sections of line is useful and provides a basis for research. The dates of their work on the G.C.R. and joint line would have been helpful and so would a clear statement with each photograph of the engine's owner on the job in question; this has to be deduced from the accompanying outline of known owners.

Reproduction of the photographs is excellent, apart from the loss of an occasional engine buffer and, regrettably, sometimes one of the men. These Newton photographs are a superb collection, shaming much of our present-day work, and there are many other fine examples in the Leicester collection as yet unpublished - scope for a sequel here. Standard products of the locomotive builders Hudswell Clarke, Hunslet and Manning Wardle of Leeds figure, with charming variations of detail. Amongst less standard variants, it is good to see our old friend of Manchester Ship Canal researches, Manning side tank "Broughton". I am delighted to find Logan and Hemmingway's "22" - photograph and drawing. Well do I recall an octogenarian contracting friend describing, as if yesterday, the departure of this handsome 14-inch 0-6-0 side tank from Sheffield Victoria at 5.30 of a morning with the six or seven coaches of the "Paddy Mail", running proudly on the M.S.L.R. main line for six miles to Beighton, whence other engines took on the train over the temporary tracks to Staveley, Chesterfield and Heath. This was around 1890 when the southward construction which preceded the London Extension proper was in hand.

The Newton subjects are well placed and have atmosphere. The men and boys who figure on them are a study in themselves. Having been privileged to meet many old hands born and brought up on the construction of the Settle & Carlisle, the Ship Canal, and the turn-of-century modernization schemes of the L.& N.W.R., G.W.R and the rest, I am glad to meet so many of their contemporaries on the G.C. job, many of whom doubtless similarly deserve respect for their sound judgements and - thanks be - excellent powers of observance and good memories.

Contractors Locomotives G.C.R. is modest in size and price but a worthy production and to be commended. It is worth noting, too, that the Leicester Museums still have a limited stock of its predecessor, The Last Main Line (1961) which is also built around a selection of Newton pictures. (price 4/10d).

H. D. B.

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A HUNSLET HUNDRED by L.T.C.Rolt, published by David & Charles Ltd.,
39 Strand, Dawlish, and distributed by Macdonald & Co. Ltd.,
Gulf House, 2 Portman Street, W.1. Price 30/-

"The Hunslet Engine Company of Leeds which completes its centenary this year, was founded at a comparatively late period in the history of locomotive building and came into existence at a time when half a lifetime had passed since the Liverpool & Manchester Railway was opened and the

greater part of Britain's complex railway system had already been built and British industry was exporting steam locomotives all over the world".

So runs the commencing paragraph of the Introduction to Mr L.T.C. Rolt's "A Hunslet Hundred" which has, as its sub-title "One Hundred Years of Locomotive Building by the Hunslet Engine Co.".

The book is sponsored primarily by the Hunslet Company themselves as a centenary celebration but railway and locomotive enthusiasts alike will be grateful to them for their generosity in making the book available for public sale.

The city of Leeds has associations with locomotive building dating back to the turn of the eighteenth century and the days of Matthew Murray and at one time there must have been upwards of a round half-dozen firms there all building locomotives in competition with each other. Although not started until 1864, the founders of the Hunslet Engine Company, the Campbell and Alcock families, all had traditions of locomotive building experience and the story of their connexions with locomotive building in Leeds which led to the inauguration of the Hunslet Works is told in a fascinating manner by Mr Rolt in the opening chapter of his book.

Nor was any time lost in getting into the export market, their first "overseas" locomotive being among the first dozen engines completed, and was sent out to Java. In the hundred years which have elapsed since then the company has built locomotives for practically every country in the world. As the author says - "to look through the Hunslet Locomotive Registers is a bewildering and fascinating exercise - they are the raw material of Locomotive History upon which volumes might be written".

In the ensuing chapters of his book, he produces a graphic and well chosen summary, profusely illustrated with photographs, indicative of how the company kept abreast of everything that was latest and newest in the development of locomotive engineering and they were early in the field in the 'thirties when the diesel engine was first envisaged as a source of locomotive hauling power. As a result of this foresight they have been in a very strong position to survive the inevitable demise of the steam locomotive although it is pleasing to note that the company are still in the "steam market" and able and willing to produce one if called upon to do so.

In the 1930s two companies were "taken over", these being Kerr, Stuart & Co. of Stoke-on-Trent in 1930 and the Avonside Engine Company of Bristol in 1934. Individual chapters summarizing the histories of these two firms are a welcome inclusion in the book and, in the case of Kerr, Stuart & Co., the story is told, one imagines for the first time, of the tragic end which befel this company, in the midst of prosperity, almost overnight.

The book is further enhanced with a series of excellently produced plans showing the gradual expansion of the works property at various key points in its history.

Altogether an excellently produced book which will find a welcome place on the bookshelves of all locomotive, and not a few railway, historians.

B.B.

SCOTTISH CLOSED LINES

Will those members who have obtained copies of the Society's publication please note the following amendments:

Line 20: BARRHILL should read BARRMILL

Line 41: Add note VV

Under notes p. 7 add VV: "R.O. 17/7/1933"

Line 42: Delete

Add line 111 A as follows:

LONGTOWN to	11/1861	9/8/1915	—	Gretna
GRETN (3¼)				

DETERMINATION

(From the Railway Times, 25 September, 1841)

RAILWAY TRAVELLING: Monday, a woman about thirty, not remarkable for facial beauty, but with a well-formed person, and lively bustling manner, stepped into the ferry-boat at Yorker, and as the boatman pushed off, inquired whether the railway she saw [the Renfrew & Paisley Railway] would take her to Chatham. Her husband, she said, was at Chatham, and had got the route for Malta, and she wanted the quickest and cheapest passage. All the information she could obtain at the wharf was, that Chatham was in England - of which she was already aware - that the Renfrew Railway extended only to Paisley, where it joined the Ayr line, by which she might get to Ardrossan, and there find a steamer for Liverpool. "Thank ye, gentlemen," she said to several individuals who chose to laugh at her first query, "the Renfrew Railway, then, will take me so far on my journey," and away she went to take a seat in one of the carriages.

Principal Railway Acts of Parliament will be continued in the May edition.

FOR GROUP SECRETARIES SEE PAGE 29