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The National Railway Museum Library and its Collections

BY C. P. ATKINS

The Library of the National Railway Museum is small when compared to its counterparts in certain other National Museums. Nevertheless, it has grown rapidly in its size and scope since its inception in 1975 and a survey of its holdings after precisely 10 years is not inappropriate.

Firstly, it cannot be emphasised too strongly that it is essentially a library and not an archive. The primary records, including staff records, of the former independent railway companies are divided between the Public Record Office at Kew and the Scottish Record Office in Edinburgh as appropriate. The definitive collection of Parliamentary Plans is held at the House of Lords. The National Railway Museum Library, as one would expect, contains a very extensive collection of printed material devoted to railway matters, with particular reference to railways in the British Isles and areas of British influence overseas. To this extent its coverage is distinctly wider than that portrayed by the artifacts displayed in the Museum itself. Serial publications are held in profusion, a particular speciality being those of the now numerous specialist society and study groups which have been formed in recent years for the mutual study of the operations of specific railways and specific aspects of railways (see Appendixes 1 & 2).

Monographs are purchased *selectively* both new and second-hand, including some published in the Far East and Eastern Block countries. Particularly notable is the ever growing number of works devoted to the architectural aspects of railways, and in-depth studies of specific branch lines. It very often appears to be the case that the shorter the line the larger the book, the most extreme case to date being Paul Karau's lavish 176-page study of the 4-mile Henley-on-Thames branch (Wild Swan Publications, 1984). Monographs are catalogued in the NRM Library according to a slight adaptation of George Ottley's system, as employed in his *A Bibliography of British Railway History* (George Allen & Unwin, 1965).

The Collection also contains such indispensable sources of reference as Board of Trade Railway Returns from 1859, BoT Accident Reports from 1858 to date, *Bradshaw's Shareholders' Guide* 1848-1923, and *The Railway Yearbook* from 1899.

An almost complete collection of Railway Clearing House maps and diagram books is held, as is a large collection of railway timetables. This includes public and working timetables, and appendixes to the working timetables, some of which are extremely rare ones covering minor Welsh and Irish lines, not to mention the Manchester & Milford and Lancashire & Derbyshire & East Coast. Quite a number of special traffic notices are held, with an almost complete bound set of Weekly Notices for the Midland Railway from 1886 to 1922, of which your editor has of late made a special study. It should perhaps be mentioned that the railway timetable collections of both the PRO and SRO are considerable, but even if these were pooled with those of the National Railway Museum there would still be major gaps for both large companies and small. The NRM Collection of Bradshaw's timetables is distinctly patchy with strangely large numbers for the 1840s and 1850s (which are extremely fragile) but with none at all for the 1860s, 1870s, and 1880s. There are several for the 1890s, exceedingly few for the 1900-1930 period, and a veritable plethora for the 1930s, 1940s, and 1950s.

There is some genuine archival material. In particular demand are the ten GWR Carriage Registers and the first one hundred GWR Wagon Registers, (the 50

continuation volumes being held at Kew, which houses all surviving official GWR locomotive records). For its part the National Railway Museum holds the comprehensive engine history cards for practically every LMS standard locomotive built, and repair records for most LNER, SR, and Standard BR steam locomotives. Much locomotive test data is available for study, together with all the correspondence files and raw data from the former Rugby Locomotive Testing Station, from its inception in the early 1930s to the cessation of steam locomotive testing there in 1959.

Quite unintentionally, the research resources are particularly strong with respect to the mechanical engineering aspect of railways. The same, regrettably, cannot be said of the civil engineering side. This is, however, partly due to the profound changes which have taken place with regard to locomotive and rolling stock equipment since, say the 1950s. Any official material relating to steam traction, for instance, was obsolete from 1968 and could be released to the Museum, like, for example, the immense collection of mechanical working drawings numbering around 200,000 in all. A detailed account of these by M. Rutherford is to be found in *Railway World* for February 1982. This collection, and the extensive collection of railway posters, original artwork for the same, paintings, prints, and engravings come under the jurisdiction of the Curator of Pictorial and Related Collections, to whom enquiries should be made direct.

Probably the National Railway Museum Library's greatest strength is its ever-growing photographic collection. Commencing in 1975 with 100,000 negatives, mainly glass, entirely of official railway origin and ranging in date from 1866 to 1967, which are listed in Appendix 3, these have since been supplemented by an approximately equal number of negatives, glass and flat film, from private sources. These include the entire railway collections of such household names as M. W. Earley and Pat Ransome Wallis, both of whom were active from the 1920s to the 1970s, the latter being famous for his work overseas. Some 750 standard reference binders of photographs arranged by railway and classified subject are on open access in the Reading Room, and these are supplemented by a further 400 or so albums (some for reference purposes only) which can be called up by consulting a special card catalogue. Copies of photographs from negatives held by the NRM can be ordered, unit costs being currently (January 1986) from £2.10 for wholeplate (8½" by 6½") to £4.85 for 20" by 16", which is the largest that can be supplied. Applications for reproduction must be made in writing, and a small reproduction fee is normally charged. See Appendixes 3 and 4.

The National Railway Museum Library also holds many other private collections of a semi-photographic or non-photographic nature which are the product in some cases of years of assiduous research. One of the first such to be acquired was the Eric Mason Collection—a series of albums and notebooks devoted to Lancashire & Yorkshire Railway locomotives. The late Selwyn Howard Pearce Higgins left a mass of research material, including negatives, relating to such minor enterprises as the Bishop's Castle and Snailbeach District Railways, not to mention obscure locomotive builders. Edward Craven researched the minutiae of early MR and LNWR locomotives, and Charles Williams, a grocer in Crewe, kept a detailed daily record of locomotive happenings at Crewe Works from around 1910 until 1950. R. C. Bond, who rose to great heights in mechanical engineering administration on the LMS and BR, has left much useful material concerning locomotive construction and repair techniques, including his special notebooks dating from the 1920s when he was inspecting new locomotives, among them the original 'Royal Scots', being built in contractors' works for the LMS.

A possibly unique assemblage of railway records are the locomotive and train performance logs from several sources. The *doyen* of such recorders was undoubtedly

the late Cecil J. Allen, but frankly his notebooks containing totally undated logs hardly compare with those of Messrs Clifford, Corbett, Dyson, Griffiths, and Parker, not to mention the mysterious Colonel Myers whose earliest records slightly pre-date World War I. A summary of these collections is given in Appendix 5.

Access to the National Railway Museum Library for purposes of serious research is strictly by prior appointment only, Tuesday-Friday, 1030-1245, 1415-1700. Researchers should first have made a written application for a Reader's Ticket to the NRM at Leeman Road, York YO2 4XJ, on receipt of which appointments may be made by telephone (0904-21261), preferably at least two weeks in advance.

APPENDIX 1—Specialist Railway Society Journals

The Brighton Circular, LB&SCR
Caledonian Railway Association Newsletter and Journal
Cumbrian Railways Circular (FR, M&CR, C&WR)
Forward (GCR)
Great Eastern Journal
Great North Review (GNSR)
Great Northern Railway Society Newsletter
Highland Railway Study Group (details awaited)
Lancashire & Yorkshire Railway Society Newsletter & Journal
LNER Study Group Newsletter
M&GN Circle Bulletin
Midland Railway Society Newsletter
North British Railway Study Group Newsletter
North Eastern Express
Premier News (LNWR)
South Western Circular (LSWR)
Sou' West Journal (G&SWR)
Southern Newsletter
Southern Notebook
Underground/Underground News (London Underground)

APPENDIX 2—Railway Specialist Society Journals

Branch Line News
Bulletin Industrial Railway Society
Continental Railway Journal
Electric Railway Society Journal
Gresley Observer
Industrial Locomotive
Industrial Locomotive Society Journal
Industrial Railway Record
Journal of the Irish Railway Record Society
Journal of the Railway & Canal Historical Society
Journal of the Transport Ticket Society
Live Rail (Southern Electric Group)
Locomotive Club of Great Britain Bulletin
Milepost, Railway Performance Society
The Narrow Gauge
Narrow Gauge Times
Platform Tickets Quarterly
Railwatch (Railway Development Society)
Railway Club Journal
Railway Observer (Railway Correspondence & Travel Society)

Railway Philately
 Railway Print Society Newsletter
 Signalling Record Social Newsletter
 Stephenson Locomotive Society Journal
 The Tunneller

APPENDIX 3—Official Negative Collections in the NRM Collection (November 1985)

<i>Collection</i>	<i>Railways Covered</i>	<i>Period</i>
Bow	NLR	c.1890-1910
Brighton	LB&SCR, SR	c.1900-1957
Crewe	LNWR, LMS	1866-1935
Darlington	NER, LNER, BR	c.1890-1961
Derby	MR, S&DJR, M&GN, LMS, BR	1880-1953
Doncaster	GNR, ECJS, CLC, LNER, BR	1896-1967
Dukinfield	GCR, LNER	c.1910-1940
Earlestown	LNWR	c.1910
Eastleigh	LSWR, SR	1910-1940s
Gateshead (cont'd as Darlington)	NER	c.1885-1910
Gorton	GCR, LNER	c.1900-1930s
Horwich	LYR, LMS, BR	1889-1935, 1950-1965
LMS	LNWR, LMS	1903-1948
Nine Elms (cont'd as Eastleigh)	LSWR	c.1880-1910
Roberts, Charles & Co	—	c.1900-1960
St Rollox	CR (HR, GSWR)	c.1890-1922
Sildon	NER, LNER, BR	c.1910-late 1950s
Stratford	GER, LNER, BR	1890-1952
Wolverton	LMS	1920s-1930s
York	NER, ECJS, LNER, BR	1906-1950

APPENDIX 4—Private Negative Collections in the NRM Collection (December 1985)

*Indicates these collections are not held in their entirety, often having been acquired in association with other collections.

<i>Name</i>	<i>Predominant Subject Matter</i>
Alliez G.	Industrial Locomotives, c.1934-1954
Anonymous	Locomotives/trains on main lines in London area, 1930s-1940s
Barker W. J.	NER locomotives in Leeds area, early 1900s
Beckerlegge W.*	LNWR locomotives, early 1900s
Bedford E. J.	LB&SCR at Lewes, c.1900
Box D. E. & F. E.	Southern Railway (LSW Section) 1930s
Brookman R.*	GWR locomotives, early 1900s
Bruton E. D.	Locomotives in early BR era, 1948-1955
Bruton J. F.	Narrow Gauge railways
Budden T. F.*	Edinburgh Waverley early 1890s
Burt F.	LB&SCR locomotives c.1900-1925

- Cawston A. C. Locomotives on 'Big Four' & BR 1920s-1950
 Chisholm A. J. * British locomotives, early 1900s
 Cowan S. T. Carlisle and Chinley districts, c.1920
 Croughton A. W. * Industrial locomotives, 1923-1957
 Dewhurst P. C. MR locomotives, c.1905, railway locomotive scenes in
 South America, and Jamaica, 1910-1914
 Earley M. W. GWR, 1920s-1950s
 Ellis C. H. 'Big Four' locomotives, 1930s
 England M. D. 'Big Four' locomotives, 1920s-1950s
 Fayle H. * GWR locomotives, 1920s
 Hall A. GWR and SR locomotives, 1920s
 Higgins S. H. P. Minor railways, especially Bishop's Castle and
 Shropshire & Montgomeryshire
 Jones S. Railways in East Anglia, early 1960s
 Laundy C. GNR scenes near London pre-1914
 Leech K. H. * LT&SR locomotives, 1911-1915
 Leitch E. R. BR/WR 1950s-1960s
 Macartney Robbins J. * British locomotives, 1920s-1950s
 Macleod A. B. LB&SCR locomotives, 1919-1922, SR locomotives,
 1920s-1930s, Scottish and Irish locomotives, Isle of
 Wight 1920s.
 McNair A. Scottish locomotives, 1940s-1950s and Rugby
 Locomotive Testing Station 1950s
 Mullett J. P. 'Big Four' locomotives, pre-1939
 Nevitt C. J. A. LMS and GWR locomotives, 1920s-1930s
 Oliver H B NSR stations etc, 1950s
 Patterson Rutherford H. J. SE&CR stations, 1911-1921
 Potter W. J. 'Big Four' locomotives, 1920s-1930s
 Preston T. NER around York, pre-1914
 Ransome-Wallis P. British and Overseas locomotives, (inc. non-steam)
 1920s-1970s
 Russell R. T. Industrial locomotives
 Russell-Smith J. F. Locomotives/trains on BR/WR 1948-1952
 Sands T. B. DNS & MSWJ scenes 1940s-1950s
 Sheppard R. E. Scenes around Nottingham 1950s-mid-1960s
 Smith G. W. LNWR locomotives
 Soole G. H. GWR in the Bristol area, late 1930s, CPR in Rockies,
 c.1936
 Spooner G. S. BR scenes 1950s
 Stephen R. D. & W. D. M. Scottish locomotives (especially NBR, c.1920-1930, also
 Forth Bridge
 Steward F. C. Southern Railway locomotives 1920s
 Swinger P. Industrial Railways
 Teasdale S. E. Main line and industrial railways in North East, 1950s
 Templeton J. Breakdown cranes (in Scotland)
 Tod G. British locomotives, 1890s
 Townley H. * Southern Railway locomotives
 Tripp G. W. Pre-1914 railway scenes, including Ireland
 Watkins D. 'Big Four' locomotives, 1930s
 Williams T. E. BR/WR locomotives, 1948-1978
 Williamson A. G. 'Big Four' locomotives 1930s
 Wilson G. L. Scottish locomotives and HR main line, 1930s-1940s

APPENDIX 5

Miscellaneous Private Collections in NRM Library (November 1985)

*Indicates photographic content, negatives not held.

Allen C. J.	Locomotive performance logs, 1911-
Atkinson F. G. B.	Timetables etc for London electric railways
Bailey D. S.	Track diagrams—hand drawn
Beckett T. *	Isle of Man Railways, photographs and ephemera
Bond R. C.	Memoranda and notebooks of serving senior LMS motive power officer
Burst A. *	Albums of photographs of LSWR, LB&SCR, SE&CR and Southern Railway locomotives
Cartwright L. *	Albums of photographs of BR NE Region signalboxes
Catton C. E. *	Photographs and notes concerning GNR 4-4-2Ts
Chapman A. T. *	Photographs recording career of Station Master, London Victoria, 1943-1957
Clifford G. W. H.	Locomotive performance logs, 1930s-1950s
Corbett S. P. W.	Locomotive performance logs, 1927-1954
Craven E.	Research notes on early MR and LNWR locomotives
Cudworth W. J.	Personal relics of NER Chief Engineer, 1891-1909
Cutler R.	105 albums of locomotive photographs, main line and industrial
Dyson R.	Locomotive performance logs, 1925-1975
Eyles F. H.	Photographs of narrow minimum gauge, and pleasure railways
Fletcher E.	Notes on early LSWR locomotives
Flinders P. G. T.	Notes of a former railway civil engineer
Foster W. H. *	Photographs of the Settle-Carlisle Railway
Foote F.	Photographs of LSWR locomotives
Grasemann C. *	Personal papers and momentos of former Chief Publicity Officer, SR & BR (SR)
Gray D. D.	Notes and records of former senior locomotive draughtsmen at Darlington and Doncaster (c.1904-1954)
Griffiths H. J. J.	Locomotive performance logs 1930s-1960s
Hatchell M. S. *	Photographs of SR and pre-1923 locomotives
Higgins S. H. P.	Research notes on wide range of railway-related topics
Hill I. C. M.	Albums of locomotive photographs, including some by R E Bleasdale
Holcroft H.	Notebooks etc of former assistant to CME of SE&CR SR
Hughes H. C.	SR timetables
Klapper C. F. *	Photographs of wide range of transport topics
Macleod A. B. *	Photographs of Scottish and SR locomotives
Male T. W.	Locomotive observations, mainly GWR, 1926-1962
Mason E. *	Albums of photographs and notebooks reference LYN locomotives
May R. D.	Scrapbooks recording major British railway accidents, 1950-1964
Merry G.	Personal notebooks of LYR/LMS/BR footplateman, period 1912-1960
Milligan A.	Notes on foreign locomotives
Mills R. *	Photographs of MR locomotives arranged in post-1907 number order
Moody G. T.	Railway research notes
Morgan S. T.	Photographs etc of work of former SR civil engineer
Myers ?	Locomotive performance logs, c.1912-1942

Oliver H. B.	Research notes etc reference NSR
Parker W. A.	Locomotive performance logs, 1932-1983
Pilkington J. S.	Papers of a former railway signal engineer
Ransome-Wallis P.*	Papers and photographs pertaining to railway ferries
Reed B.*	Locomotive research notes and locomotive builders photographs
Roxburgh H. W.*	Photographs of CLC system in 1930s
Sands T. B.	Research notes on DNS and MSWJ lines, and certain railways in South Wales
Shuttleworth F. W.	Locomotive photographs, mainly LMS and constituents
Smith E. E.*	Photographs of foreign locomotives and rare books
Taylor J. R. B.*	Albums, etc reference Benguela Railway
Tomlin H. E.	Personal documents of railway freight clerk
Tomlinson J. M.*	Albums of locomotive photographs
Tumball L. D. J.*	Albums reference East Indian Railway, 1920s-1940s
Williams C.	Detailed notebooks (c.100) concerning LNWR locomotives and observations at Crewe, c.1910-1950
Woodcock G.	MS notes on obscure aspects of locomotive building, particularly in the East London area

NB There might at first sight appear to be some curious anomalies. E.g. although the Ransome-Wallis notes and photographs on train ferries are held, the negatives are not, as all his negatives of ships have passed to the National Maritime Museum at Greenwich.

Some Thoughts on the Railways' Competitors in General and Road Transport Competition in Particular

BY THEO BARKER

The various forms of transport have been created and developed not as objects of study for subsequent historians but to make money for their promoters by the carriage of passengers and goods. Transport history, therefore, is primarily concerned with traffic and not merely with descriptions of the building and operation of particular canals or particular railways. There were often competitors bidding for the traffic and, when this was the case, the modal split deserves attention. In the course of this more widely ranging approach, the records of the competitor can often provide valuable evidence about, and insights into, the particular canal or railway or other form of transport which is being studied. Canal historians, for instance, need to take account of what was being carried on competing waterways or, in many cases, by coastal vessel. The archives of these competitors, if they survive, may shed valuable light upon the company being competed against.

Railways, too, powerful though some of them became, had to take competitors into account. Sometimes, and at certain periods, these were other railway companies and in these cases railway historians can take account of them. Often, however, the competition came from water transport. The response of the waterways to the new Liverpool—Manchester railway, for instance resulted in a vast increase in the tonnage carried by water between those two cities between 1830 and 1840. By the early 1840s the Bridgewater Canal alone was carrying considerably more freight than the railway and, surprisingly perhaps, the Mersey & Irwell Navigation almost as much.¹ Later in the century, water competition affected railway companies' freight traffic and takings in many parts of the country and it was confidently asserted that this competition was on the increase. R. J. Irving has pointed out that, even with its area monopoly of railway traffic, the North Eastern had to take the Aire & Calder's competition into account when setting its rates for bulk traffic between Hull and Leeds. The Select Committee of 1872 believed that coastal shipping affected railway freight rates at 60 per cent. of the goods stations in the kingdom. In 1910 Sam Fay claimed that the competition from coastal vessels was still growing:

'A tramp can turn up and take a ship load', he argued. 'He can take it from Glasgow to Southampton and project it inland; he can take it to Bristol and send it to Marlborough It is a competition not only to a port, but inland from that port. It has always been so and it is worse perhaps today than before, and we are constantly having to reduce our rates.'²

To this extent, railway historians need to take continued interest in coastal shipping and inland waterways. When they come to the twentieth century, they need to study the rise of competition from motor transport. It is with this that the present article is concerned.

Road transport increased considerably in the Railway Age. Those coaches and wagons which operated along routes served by the railways were, of course, quickly driven off the roads; but railways did not run everywhere and horse-drawn vehicles continued to operate along routes unserved by the trains. Moreover, the needs of many villages continued to be met by carriers' carts which, according to Alan Everitt, who has made a particular study of the subject, perhaps doubled in number between 1800 and 1860.

'There can be no doubt at all,' he observes, 'that country carriers not only survived the advent of the railway but actually increased in numbers and in activity in the later decades of the nineteenth century. The railway, in fact, offered no real rivalry to their activity. Most villages were in any case without a station, even at the height of the railway boom; but quite apart from this fact, it is abundantly evident that those with stations were just as well served by local carriers as those without.

The reasons are not far to seek. The carrier passed by your door and stopped where you wanted him; the railway did not. The carrier would fetch and carry for you, acting as your shopping agent in the town; the railway could not. The carrier collected the produce from the farms and delivered it direct to the shopkeepers on behalf of the farmers; the railway could not'³

This multitude of carriers' carts—Everitt puts the number at 20,000 to 25,000 in the country as a whole⁴—carried passengers as well as goods. They were a sort of multipurpose form of public transport. In addition, of course, many people had their own private vehicles which ranged from splendid carriages to simple horse-drawn traps; and farm vehicles of all kinds were used to get to market or to travel about in the countryside.

Horse-drawn transport was increasing at an even greater rate in the rapidly growing towns. Here again, the railways played a negligible part outside the largest conurbations in general and London in particular; and even in London the number of journeys by road was growing at a far greater rate (five-fold) than that by rail (less than two-fold) in the last quarter of the nineteenth century.⁵ The horse bus, the horse tram and the many hackneys, private carriages and goods vehicles of all sorts were an increasingly common sight as the nineteenth century wore on.

F. M. L. Thompson, who has attempted the mammoth task of calculating the horse population of Britain at that time, has estimated that, excluding the number of horses used on farms, the total grew from 487,000 in 1811 to 535,000 in 1851 and to 1,766,000 at its peak at the beginning of the present century.⁶ They were costly to run: each consumed the produce of up to five acres of farmland per year and, at the other end of the consumption process, deposited up to 7½ tons of droppings upon the roads and streets.⁷ In the rapidly-growing towns they were becoming an increasing nuisance as well as a source of congestion. In the world as a whole, in parts of which they were even more numerous than in Britain—the United States had over 18 million farm and non-farm horses for a human population of 76 million in 1900, a ratio of about 1:4, compared to Britain's, also counting farm horses, of about 1:11⁸—these large animals were making very considerable demands on resources, especially of oats and hay. Machines using petrol, oil, or coal as sources of energy had a growing attraction.

It was to mechanize this vast array of rural and urban short-distance horse-drawn transport, in much the same way as the railway had mechanized it for medium and long distances earlier in the century, that motor vehicles were first developed. They were never intended at the outset to compete with the railway; on the contrary, at first the railway had everything to gain from short-distance motor transport which improved the road services which fed it with traffic.

At the outset it was by no means clear that the petrol engine was to be the most satisfactory means of mechanizing short-distance transport. The vehicles which Daimler and Benz, working quite independently, managed to move by petrol engine on the roads of south-west Germany 100 years ago, during the summer of 1886, were very primitive and unreliable. These rattletaps found no buyers until the early 1890s and were still a costly challenge to the enthusiast rather than a serviceable substitute for horse-drawn vehicles for more than a decade after that.⁹ The more reliable, more easily driven, cleaner and quieter electric car seemed vastly preferable to 'sitting over an explosion', as an American exponent of electricity put it. Electricity disappointed its advocates, however, because they could not develop a lightweight battery which would give electric vehicles freedom of movement. It succeeded, however, in the form of the inflexible electric tramway supplied by overhead wire. Horse tramways were satisfactorily mechanized in the United States from 1888, and new ones were built there. They spread in Britain from the later 1890s and became the railways' first road transport competitors.

Electric tramway competition was first felt by steam railways on those suburban services in conurbations where, exceptionally, the railways *were* handling relatively short-distance traffic. The North London Railway, for instance, carrying 48 million passengers at its peak at the beginning of the present century, had lost a quarter of them to the new electric trams by 1908. By then the Brighton company was losing 2.75 million suburban passengers per year between London, Croydon, and Sutton; and the other main lines out of London were also losing suburban traffic on a smaller, yet nevertheless significant scale.¹⁰ Similar losses were reported from the provincial conurbations where strong electric tramway competition had developed. The North Eastern Railway, for example, lost more than half its local traffic on

Tyneside; and its total passenger traffic throughout the system fell from 60 million in 1901 to 54.5 million two years later.¹¹ Railway electrification, however, usually regained the lost traffic; but the electric tram, with its frequent stops on the main roads themselves, still had an unanswerable advantage over the electrified railway with its less frequent, and more out-of-the way, station platforms, often reached up flights of steps. The tram gained the growing traffic much of which would otherwise have gone to the train. To that extent the railways were beginning—but only just beginning—to suffer from road transport competition.

Competition of a more serious nature was threatening from another quarter, too. At the beginning of the present century, motor cars—open touring vehicles—and motorised bicycles and tricycles were beginning to appear on Britain's roads in more than penny numbers; and, as they became less unreliable, the market for them grew more rapidly. There were probably about 1,500 petrol-driven vehicles of all sorts in Britain in 1900. During and after 1904, when registration and number plates were introduced and we have more reliable statistics, their numbers were growing fast and more garages were opening to provide repair facilities and petrol. In April 1904 just under 15,000 cars and just over 16,000 motor cycles had been registered in Great Britain and Ireland.¹² By September 1905, only 17 months later, these totals had doubled, to about 30,000 and 38,000 respectively. Of relevance for our present purposes, among the former, 5,000 were licensed for trade purposes and 1,600 of them weighed over two tons unladen. A further 1,000 were licensed as public conveyances, and about 400 of them weighed over two tons.¹³ We must assume that almost all of these vehicles registered for business purposes were replacements for horse-drawn vehicles and, therefore, not in competition with the railways; but even in 1905 this was by no means true of all of them.

There were already significant straws in the wind. In the middle of the 1890s a number of prominent Liverpool figures, including Sir Alfred Jones, the shipowner, concerned about the fate of their port when the new ship canal, then being built, was completed to Manchester, had shown interest in developing mechanized road transport between the two cities after the railway companies had refused to accommodate them by cutting rates and improving services. (The history of the early 1820s was being repeated, but this time with the waterway, not the railway, on the side of change and progress.) Prizes were offered for the development of satisfactory commercial vehicles and trials were held in and about Liverpool in 1898 and 1899, and farther afield, to Manchester and to Blackburn, in 1901. The petrol engine did not perform well—it had not yet been developed for heavy haulage—but steam lorries, built by Thornycroft, Leyland Motors, Coulthard and others, were more successful. In 1902 the Road Carrying Company was formed to use 14 of these vehicles commercially. They operated in the Liverpool area, carrying everything from bananas to pig iron, cotton, and large quantities of petrol, and travelled as far afield as Preston and Blackburn, though very rarely to Manchester. The vehicles, however, were too heavy for the roads, 'the axles broke like carrots' and the enterprise had to be abandoned after about eight months. Other operators, however, were more successful. A cotton waste bleacher at Rawtenstall, for instance, was carrying up to eight tons to Manchester in his steam wagon by early 1905 and he had also made two journeys to Liverpool 54 miles away.¹⁴ This was by no means an unusual example. The chairman of Lancashire County Highways Committee complained of the immense damage these heavy steam lorries were doing to their roads. He testified that in 1904 there had been 2,000 such vehicles passing from Blackburn through Darwen in the direction of Manchester, and more than 1,200 in the following six months. That was between 7 in the morning and 5 o'clock, 'but I know,' he added, 'that a far larger number passes at night'. Other lorries travelled from Blackburn to Preston Docks; 22 had been counted on that

road in a single day.¹⁵ This was clearly traffic that would otherwise have gone by rail.

The motor buses, to which reference has already been made in the 1905 statistics, were, like the other motor vehicles, mainly replacing those drawn by horses. They had still not been developed to the point where they could sustain a reliable service in heavy city traffic—that was not to come until 1909–1910¹⁶—but they could cope along the promenades at seaside towns and the railway companies were finding them useful to provide services from stations such as Penzance or Beverley.¹⁷ Nevertheless, when motor bus services were started between places like Faversham and Canterbury about this time, they must have diverted some traffic from the trains.

The extent to which private (at the time usually called pleasure) motoring, rapidly on the increase as we have seen, was beginning to deprive the railways of traffic is also difficult to guess. Presumably most of the week-end outings in the better weather would not have taken place at all if the new motor had not been available in which to go for 'a spin'. Yet presumably *some* of the new motorists might have taken the train somewhere, perhaps on a special week-end excursion, if they had not gone out by car or motor bicycle instead. Rudyard Kipling, a keen early motorist who lived on the Kent/Sussex border, claimed in 1904 that

'in all cross-country journeys I am from one to four hours quicker than the local train service. On main-line routes I hold my own—in greater comfort than the railway can give me—up to 40 miles.'¹⁸

Most of the lighter vehicles registered for trade purposes in 1904 were replacements for the horse-drawn: delivery vans and the like. Among the first professionals to switch were doctors, who could save time in visiting patients. Less well known perhaps, is the promptness with which commercial travellers, who had often to take (sometimes bulky) samples with them, took to motor vehicles instead of trains. An anonymous salesman living somewhere in the Birmingham area bought a motor cycle in 1903 for £50 and put together a large repair kit in case he should break down. He was contemplating a nearby call at first, when a customer a little farther away telephoned:

My customer made himself busy at his end of the telephone looking up which train I should catch; and upon my mentioning that I should come by motor, he begged me not to do so as the business was too important to risk the delay which a breakdown of any description would cause . . . Much to his surprise I walked into his office within an hour of speaking to him [17 miles away] and I should have been compelled to wait an hour and a half before the first train started.

Indeed, he made a few more calls that afternoon and achieved in half a day what would have taken him a whole day if he had gone by train. He was soon using his motor bicycle to visit customers as far away as Newcastle. The round trip of 500 miles cost him 15 shillings in petrol and oil, a considerable saving on the train fare of £2 1s 8d which could be put towards depreciation on the bicycle.¹⁹

All in all, motor transport, relatively tiny though it still was in terms of numbers of vehicles (only about 100,000 cars, 100,000 motor cycles, 39,000 buses and taxis and 64,000 commercial vehicles of all sorts in 1913), began to slow down the growth of the railway companies' passenger traffic surprisingly early. This had grown from under 800 million to over 1,000 million in 1897 and to 1,160 million in 1902; but it then increased to only 1,200 million by 1906 and was less than 1,300 million in 1912 when the basis of calculation was changed. The railway freight figures were more reassuring: traffic went on growing, from 420 million tons in 1900 to 513 million tons in 1912. But most of this consisted of coal and other minerals:

merchandise traffic, 114 million tons in 1900, fell below that figure during the Edwardian period and returned to it again only in the very prosperous boom years just before 1914.²⁰ Motor transport, already casting its shadow upon the railways by 1905, evidently made headway, with more and better vehicles, during the remaining years before the First World War.

Edwin A. Pratt had much to say about this in the final part of his *History of Inland Transport and Communication*, published in 1912. He drew attention to the growing influence of the motoring organisations, the increasing sums being spent upon road widening and other road improvements as well as upon the tarring of the surfaces to avoid the clouds of dust, especially after the supplementation of local government expenditure by taxation raised on motor vehicles and petrol, distributed by the Road Board, set up in 1910. 'These road improvements', Pratt observed, 'appeal to the motorist, delighting in cross-country journeys, still more than they do to the urban trader, whose road transport does not, generally speaking, extend beyond a certain radius.'²¹ In other words, while better roads may have encouraged passengers to make journeys by car, motor vans and heavier goods vehicles, both steam and petrol driven, which appeared in greater numbers after the raising of the permitted maximum unladen weight in March 1905 from three to five tons, were still replacing horse-drawn carts and vans and not competing with trains.

In almost every class of trade or business [Pratt went on] the commercial motor is being steadily substituted for horsed vehicles. There are large retail houses in London which have each their 'fleets' of up to fifty or sixty motor-vans or lorries. The carrying companies would hardly be able to provide their extensive suburban services of today without road motors. Fishmongers, ice merchants and fruit salesmen, who especially require to have a speedy means of distributing their wares, favour the commercial motor no less than do the managers of evening newspapers. Laundry companies—to whose business a great impetus has been given of late years by the increasing resort to residential flats—find commercial motors of great service in the collections that have to be made on Mondays and Tuesdays and the deliveries effected on Fridays and Saturdays Brewers, mineral-water manufacturers, oil companies, coal merchants, pianoforte makers, brick makers and scores of other traders besides, are all taking to the new form of street or road transport.²²

General hauliers, such as Pickfords and Carter Paterson, though still concentrating upon vast numbers of small urban delivery areas served by horse—Carter Paterson had 800 of them in central London in 1914, each only half a mile square²³—also switched to steam or petrol for regular bulk loads between, for instance, the city depot and places such as Brentford, Fulham, or Kingston.²⁴

Nevertheless, as routes served by faster mechanical transport grew longer, so rail traffic began to suffer. Pratt noted that furniture removers, using 'traction engines and regular road trains' could cover 100 to 150 miles per day, the records down to the autumn of 1911 being 166 miles.²⁵ For less specialised traffic, as G. L. Turnbull has pointed out in his history of Pickfords, the motor's operational range was steadily pushed out to distances of 30 to 40 miles.

Several experiments were undertaken, by other firms as well as Pickfords, with services from London to places like Margate, Maidstone and Brighton. However, the most immediate result was the provision of motorised services to other suburbs of London like Watford, Romford, Woking and Staines. Carter Paterson led the way with its 'Home Counties Express' in 1911 and Pickfords followed with its own, less well known, 'Outer Area Service' a year later. These were highly promising areas of business, convincingly demonstrating the unique qualities of motor transport²⁶

The Post Office's road-borne parcels services, operated with horses from 1904, were later transferred to motors 'as a bargaining weapon to induce the railways to accept lower rates'. Eighteen such motor services were operating from London by 1914 and another 20 in the provinces.²⁷

Pratt concluded that, on the passenger side, while much private car and motor cycle use was additional to journeys which would otherwise have been made by train, the railways were certainly, by 1912, losing many journeys which were being made by road in preference to rail. The railways, however, were responding by offering 'abnormally low excursion or week-end fares' in much the same way as they had started to respond to electric tramway competition by their own electrification. So far as goods traffic was concerned, there had been

an increasing tendency [before 1911] for the delivery of domestic supplies to suburban districts or towns within an ever-expanding radius of London and other leading cities to be effected by road, instead of by rail. The same has been the case in the distribution by wholesale houses of goods to suburban shopkeepers, and also, in the reverse direction, in the sending of market-garden or other produce to central markets. Where the railway companies have really created new suburban districts through the running of specially cheap workmen's trains, it may seem hard upon them that they should be deprived of the goods transport to which such districts gave rise.²⁹

At the same time, the railways were continuing to gain more medium and long-distance traffic as the population and prosperity of the country continued to grow. Their disappointing passenger and merchandise traffic growth was, presumably, to be seen as the fall in the shorter-distance traffic offsetting the gains on the rest of the system. 'Motor vehicles are certain to become still more serious rivals of the railways than they are already,' Pratt predicted, 'but they are not likely to render them obsolete; and, taking the country as a whole, the "bulk of the traffic" may be expected still to go by rail, motor vehicles notwithstanding.'³⁰

By 1913 motor-driven passenger traffic in central London had already reached 94 per cent of the total;³¹ and on seven successive days in July 1911, more than 10,600 motor vehicles had used the Portsmouth Road between 8 a.m. and 8 p.m. according to a traffic census carried out by the Surrey County Council, nearly twice as many as had been counted two years earlier.³² That 85 per cent of *goods* traffic in central London was still horse-drawn in 1913, may be misleading to the extent that a higher proportion of mechanised transport was operating on longer routes into the suburbs and beyond where it was more likely to be winning traffic from the railways on account of its advantages in door-to-door service without intermediate loading and unloading. The new motor buses, too, were able to operate farther out by 1912/1913: from Golders Green to St Albans, for instance, Stockwell to Reigate, Clapham Common to Dorking, and Hounslow to Maidenhead.³³ An Eastbourne motor coach concern ran a six-day excursion to North Wales in 1910 and farther afield, even to John O'Groats, in subsequent years. In 1912 Standerwicks of Blackpool were operating an eight-day tour to London and the South Coast.³⁴

Garages, already quite numerous by 1905 as we have noticed, grew and increased further in number to meet the new demand. Petrol supplies, still in cans, were stepped up rapidly, from 19 m gallons in 1905 to 80 m gallons in 1912.³⁵ In the following year the Royal Automobile Club organised in London an Imperial Motor Transport Conference. Opening it, Lord Crewe, a former Secretary of State for the Colonies and then Secretary of State for India, declared:

... the reign of the horse is, if not yet quite, at any rate pretty nearly, at an end ... Therefore we are engaged in assisting as great a revolution as was brought about by the invention of printing, or the discovery of the applicability

of steam either to railway or to shipping transport, or by the invention of the electric telegraph³⁶

Bold words indeed; but he was not exaggerating. The economic advantages were clearly with the new and developing technology. Motor transport was already past the point which the steam railway had reached in the early 1830s and, like the railway at that time, looked forward to much further growth and development. Motor spirit imports reached 200 m gallons in 1919³⁷ and an international conference on communications and transit, held in the Spring of 1921, heard testimony from all over the world about how the war years had encouraged the growth of motor transport and how the railways had been run down and starved of capital investment. In that year there were in Britain 243,000 motor cars and 373,000 motor cycles (the prewar totals, it should be recalled, were about 100,000 of each), 83,000 buses and taxis (39,000) and 128,000 commercial vehicles (64,000).³⁸ The report from Britain to the international conference mentioned that motor transport had been encouraged by the disposal of war surplus vehicles, improvements in vehicle design and efficiency, 'and, not least, the raising of railway charges both for passengers and for freight, which has considerably extended the competitive capacity of motor transport'. The haulage firms had set up clearing houses and were taking steps to co-ordinate these. Motor bus services had spread. (Larger groupings were formed: Scottish Motor Traction, for instance, dated from 1905 and United Automobile Services from 1912; East Kent, Maidstone & District and Southdown had been created during the war; Eastern Counties and Ribble in 1919, and Thames Valley Traction the next year.³⁹) Motor coach traffic was carried 'over considerable distances'. Much of this was new traffic; but 'a certain amount' was taken from the railways.⁴⁰

Although these were only the beginnings of competition from mechanized road transport, they were obviously well founded and to be taken seriously by the railway companies. Yet the new generation of railway historians, who have shed so much valuable light upon the railways' problems before 1914, discuss these problems purely in railway terms, such as the inflexibility of freight rates in a world of rising prices or the political opposition to closer collaboration between the companies, and overlook these significant stirrings of competition.⁴¹ Jack Simmons does mention it, but sees it in terms of *rural* transport,⁴² not of competition on the outskirts of the great conurbations. In the second volume of his monumental series, published in 1986, he makes the point that, before 1914, motor buses were 'troublesome and unreliable machines' and that there were then relatively few private passenger vehicles in Britain, 200,000 all told. At the same time, he remarks that the Brighton company was already reporting the loss of traffic to private motor vehicles by 1909 while 'in the great cities, as electric trams began to run, the danger stared them [the railway companies] in the face! They were uneasy, but they lacked the statistical equipment to demonstrate what was happening'.⁴³ Yet, as we have seen, the railways' own passenger and merchandise statistics, as well as the visual evidence on the spot, showed that road transport competition was already making itself felt before 1914. As the new technology was further developed, the railway companies—giant powers in the land though they were, the largest of them commanding enormous amounts of capital—would soon have much more to fear from the relatively small, but very enterprising, up-and-coming road transport concerns. Even more remarkable, those who were to frame the 1921 grouping legislation still took the view that the railways continued to occupy the monopolistic position which they had enjoyed in their Victorian heyday.

(To be continued)

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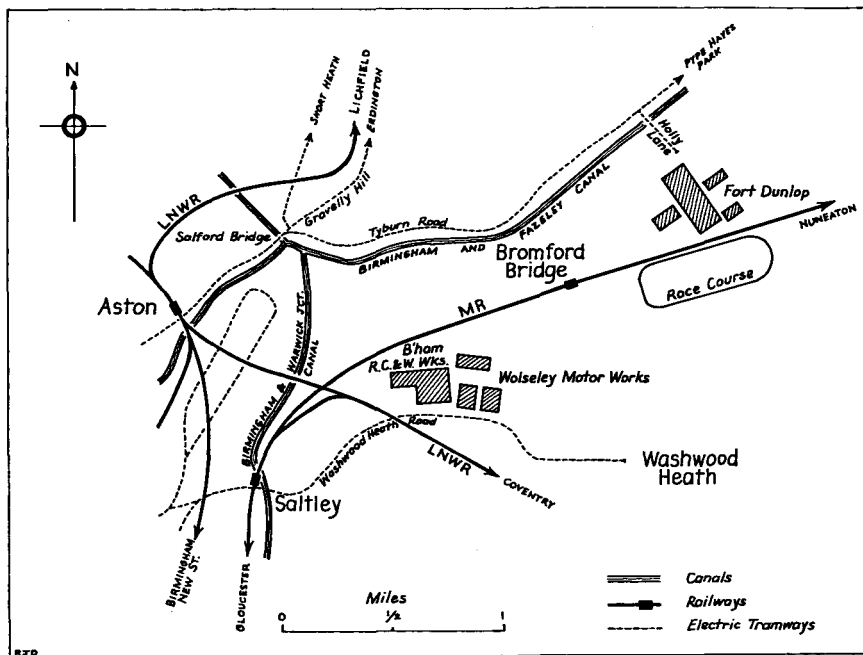
Canal Passenger Services: A Late Flowering

The Fort Dunlop Service of 1919-1921

BY ALAN A JACKSON

In 1916, stimulated by the insatiable demands of war, the Dunlop Rubber Company opened its giant tyre factory at Fort Dunlop.¹ The site chosen was between the River Tame and the Birmingham and Fazeley Canal in what were then the still very rural north eastern outskirts of Birmingham. It was about midway between Bromford Bridge and Castle Bromwich on the Midland line from Birmingham to Water Orton and Nuneaton, with convenient access to neither station. The nearest electric tramway into Birmingham was at Gravelly Hill on the Erdington route about 1½ miles away. Whatever the convenience and economics of the site from other points of view, it was clearly difficult of access for the labour force and there was no housing nearby.

At first the company proposed to use motor buses to bring in its labour,² but it was soon found that war conditions precluded these being obtained in sufficient numbers. There was no doubt considerable difficulty for many in the initial workforce in getting to and from the factory, this inhibiting the orderly expansion of production. Eventually it occurred to someone that use might be made of the canal. A canal boat was hired, covered in, and fitted with seats and a 10 hp engine. Electric light was installed, together with hot water heating, probably the only example of canal boat passenger service enjoying such luxuries. A workers' service, timed to coincide with the shifts at Fort Dunlop, began in April 1919.



By early 1920 four more boats, similarly fitted, had been added to the Dunlop fleet, all bearing the firm's name on their freshly-painted sides. Predictably the 10 hp engines were soon demonstrating their inability to maintain a reasonable speed with a full load and were quickly replaced with 16–20 hp detachable motors and propelling gear which achieved a 20% reduction in journey time. Operations were in charge of W. J. Lockett, a Royal Naval Reserve Chief Petty Officer, who no doubt ensured that proceedings were conducted with proper discipline and precision.

The time taken for the full length journey from Coggins' & Arthur's Wharf (near Aston station) to Fort Dunlop (about 2½ miles) was a generous 35 to 40 minutes to allow for the possibility of meeting laden canal boats coming the other way and for navigation of a very inadequate and shallow section of the canal. Two boats left Aston at 06.10, calling at Gravelly Hill at 06.20 and arriving at Fort Dunlop at 06.50. There were two more at 07.15 (07.25, 07.50), one for office staff from Gravelly Hill only (the picking up point was close to the tramway) at 08.40 (Fort

Dunlop 09.10), two more at 14.10 from Aston (14.20, 14.50) and a last eastbound run at 22.10 (22.20, 22.50) for the night shift. In the homeward direction, departures from Fort Dunlop were at 07.20, 15.20 (2 boats), 17.10 (2 boats), 17.40, 17.50, 18.10, 23.10, and 23.20. A single fare of one old penny was charged from Gravelly Hill, 1½d from Aston, not enough to cover costs, but the running expenses were low and the company had no alternative if it wished to maintain an adequate labour force. The seating capacity was three times that of a contemporary motor bus, the conversion capital cost low. I have not so far traced the date when this unusual form of workers' transport came to an end, but it seems likely that it was rendered superfluous by the extension of the Birmingham Corporation electric tramways from Gravelly Hill (Salford Bridge) along Tyburn Road to Holly Lane on 13 May 1920.³ The terminus of this new tramway, which was on a central reservation in the middle of the widened road, was opposite the end of the main approach road to Fort Dunlop. No doubt CPO Lockett gave up his congenial retirement task with considerable regret. Things were made even easier for the workers from 13 February 1930 when the trams were extended down Holly Lane to the gates of the works.⁴

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The Involvement of Railway Companies in Victorian Prize-Fighting

BY GOULVEN GUILCHER

Pre-Victorian Prize-fighting

Boxing was the most popular sport in ancient Greece. The fighters wore leather gloves which were made gradually harder. Later on they were studded with iron or brass nuggets which allowed the fighters to deliver tremendous blows.

Prize-fighting, that is fighting bare fisted for a purse but with very few specific rules, originated in London. After the long supremacy of James Figg, champion of England from 1719, Jack Brougham, the champion from 1740 to 1750, established a new set of rules which restored the reputation of prize-fighting among the public. Gentleman Jackson, the champion at the turn of the century, is remembered for his successful efforts to recover the support of the higher classes. In 1838 the London Prize Ring Rules were a further attempt to establish the noble art of self-defence as a respectable sport, and they were to remain until the end in the late 1860s except for some minor revision in 1853.

Unfortunately, all these efforts were doomed because during the Victorian era prize-fighting was considered by most respectable people among the then-rising

middle class as a disgusting and brutal sport and as a survival from the darkest ages of mankind. Just like the most brutal popular amusements such as bull-fighting, dog-fighting, or cock-fighting, the respectable classes thought it was soon to disappear and the less said about it the better. Yet over fifty important fights took place between 1837 and 1867 (see Table I). The emergence of steam transport (steamers and railway trains) provided a powerful help to organisers but at the same time the whole nature of prize-fighting was altered.

In the 1820s fights had taken place in the traditional way, in provincial towns with mostly regional spectators, and very often at the end of race-meetings at Epsom, Newton, Egham, or Wolverhampton. People coming from a long distance slept in the neighbouring town during the week preceding the fight and the public walked or took horse-carriages to the site of the fight. During the last thirty years of its existence, prize-fighting became a purely London affair using the facilities provided by the steamers on the Thames and the trains of the metropolitan railway companies. *Bell's Life* had established itself as the organ of pugilism, among other sports, and it was at its headquarters in London that all important decisions were taken concerning the fights.¹ Strong opposition from local magistrates, non-conformists, and rural people was unable to prevent a noticeable revival which culminated in the famous fights of Sayers *v.* Heenan on 17 April, 1860 and King *v.* Heenan on 8 December, 1863.

Transport to the fights

Steamers starting from London were used on at least eight occasions, half of them in the 1840s. In over twenty cases the spectators were taken by train from a London station directly to the site chosen for the fight. The railway appears as the most common means of transport over the whole period. A combination of both, train plus steamer for the end of the trip, was used eleven times between 1857 and 1863. The organisers could control access to the trains or to the steamers, but anyone who got the information on time could start an opposition steamer at reduced fares and follow the official steamer. As the number of opposition steamers grew and caused increasing confusion a better solution had to be devised. The train was much safer in that respect and when it took the would-be spectators to a steamer it constituted a near perfect solution: opposition steamers loaded with roughs or with police forces were then very unlikely to appear and spoil the game.

Preparing for the trip: Prize-fight specials and railway directors

The provision of a means of transport to the fight was a matter of considerable concern for the people at *Bell's Life*. They knew that the owner of the steamer *The Nymph* was always ready to take a party of gentlemen for a trip down the river at a few hours' notice (4 May, 1837; 13 June, 11 October and 13 December, 1843; 10 December, 1845. *The Queen of The Thames* (6 May, 1851), *The Novice* (5 January, 1858) and *The City of Rochester* (21 February, 1860) were also helpful). But when the train gradually emerged as the best solution they were confronted with a new situation. Negotiations had to take place during the week preceding the fight and it was essential that they should be kept secret since prize-fighting was illegal. The most common procedure was to ask for a special train. Normally these were provided at a high price at the request of any individual who wanted to travel along the line in a train of his own without having to follow the timetable or mix with other passengers. The London newspapers, for whom speed was essential, made frequent use of these specials, and railway officials cherish memories of Indian princes or American millionaires ordering one. They were generally made up of engine and tender with one or two carriages, one of them a saloon if available. A

dozen carriages were common on Royal trains for Scotland or Royal Funeral trains. For the Derby or the Saint-Leger rich individuals ordered private specials to carry their friends to the race-course, but the specials run by the companies on those occasions were opened to all providing they paid the high fares. They started later than the regular slower trains and enabled gentlemen who could afford it to have their breakfasts at home without any hurry and to travel in refined company. Company specials were also run on many occasions when a number of travellers were ready to pay extra fares for through or express trains, for races, regattas, shows, military and naval reviews, or the conveyance of transatlantic passengers from their port of arrival to London.

Prize-fighters generally required one long special, in which very often the champion, his challenger, some friends, and some officials sat in a saloon apart from the rest of the crowd, not uncommonly under a disguise at the beginning of the trip. In at least two instances two specials were required: 19 May, 1856 Paddock *v.* Broome on the Eastern Counties Railway, and 17 April, 1860 Sayers *v.* Heenan on the South Eastern Railway, one of the trains including thirty-two carriages. Both trains in 1860 were described as monster special trains. Sometimes the pugilists were accommodated in a regular train preceded by a special. Specials were just the opposite of excursion trains in that fares underwent a considerable increase whereas excursion trains were run at prices well below the normal fare. But prize-fight specials and steamers had one point in common with some excursion trains: the fare included a ticket for the fight just as many excursion tickets included refreshments, a free meal, a visit to a garden, a show, a museum, a monument, or an excursion on a steamer. It was essential to make the spectators pay beforehand, because on the spot the limited number of men available could just check that those standing inside the inner circle close to the ring had paid the extra fee required. In order to discourage uninvited guests they waved long clubs—probably the best way to maintain discipline in a rather disorderly crowd.

Many railway directors were fond of horse-racing—nothing they could be reproached with. The race-weeks taxed the resources of the companies as all the rolling stock was required and men had to work more extra hours than usual. But profits were high, and all the companies did their best to accommodate race-goers. On the contrary, most railway directors were hostile to prize-fights on moral principles and because the profits were neither as regular nor as high. The sport enjoyed a poor reputation. Thieves and pick-pockets took advantage of such a remarkable hunting-ground. This was nothing new to race-goers, but too often the fights ended up in rows or riots. For the mobs of roughs a good fight was an opportunity for more drink and disorder. Supporting one champion was a pretext for assaulting other spectators, the referees, or the opposing champion. Railway directors were respectable people and could not openly deal with disreputable people. The reputation of their companies was at stake. And as prize-fighting was illegal, the Home Office and the Metropolitan Police, together with the county forces and local magistrates, were joining efforts to put an end to that cruel sport. They tried to discourage enthusiasts from setting up their ring, or if they did, the local forces headed by a magistrate stopped the fight.

Among the railway companies it was thought safer to pretend that no director knew about the intentions of the group of gentlemen taking a special train or crowding a regular train to which a large number of carriages had been added by some happy coincidence.

A carefully planned operation

From contemporary reports in newspapers we understand that the departure of a train to a prize-fight was a carefully planned operation. Once a railway company had contracted to offer its services, it had to act in a conspicuous way. A very large crowd gathered outside the station an hour before the departure of the train at about 4 or 5 a.m. All railway policemen were on duty at the gates at that early hour, making sure that no undesirable characters were admitted on the platform. Sometimes the station doors were closed before the departure of the train, as at Shoreditch on 18 April, 1853 for *Orme v. Broome*. For a great fight the ticket offices were as numerous as for the Derby. They generally sold nothing but first and second-class tickets. A driver, a fireman, and a fair number of railway guards or breaksmen were also required for the exclusive use of the train, as well as porters for the organisers, and the hawkers carrying cushions, camp-stools, and many other items including food to be sold on the scene of the fight. Very often a superintendent of the line travelled with the special. Edmund Yates reporting the *King v. Heenan* fight in *Temple Bar* was impressed by the admirable arrangements at the London Bridge station of the SER on 8 December, 1863. He noted that railway policemen and railway officials were twice as numerous as ticket collectors and that they were supplemented by a phalanx of railway porters. He confessed he was not expecting so much order for a lawless trip. Eyewitnesses insist on the contrast between the early hour and the uncommonly busy scene at the station. Thanks to this control, which was exerted very strictly by the companies, rough elements were kept out of the trains and even out of the stations.

Select crowds meant a reduction in the number of people watching the fights. They did not come from the neighbourhood or from a neighbouring town as before, but all directly from London, a distance of fifty to a hundred miles. One thousand passenger-spectators was a maximum, and as far as indications about the number of spectators can be considered as reliable, several trains carried three or four hundred passengers (see Table II). When a train included thirty carriages it carried around eight hundred passengers and often more.

Legal or illegal? Playing at cops and robbers

Strictly speaking, it was perfectly lawful to provide gentlemen with a special. Only the prize-fights were illegal and considered as a breach of the peace. Among the companies helping the organisers, after a few trains provided by a strong supporter of horse-racing, the South Western Railway, in the 1840s, the ECR comes to notice as the regular company in the 1850s. It was succeeded by the SER in the 1860s. Association with prize-fighting could injure the reputation of a company, and although railway directors were often rather dictatorial, it was an issue on which they feared the shareholders' reactions. The ECR was such a clown in the eyes of the public that it had little to lose. So when the directors of the SWR said they wanted to put an end to their co-operation, the organisers turned to the ECR. Its station in London, Bishopsgate, had been built on an infamous site, a den of thieves and criminals. The district of Saint Giles nearby was still a refuge for the underworld.² The company was always willing to offer specials or other transport facilities to prize-fighters, and they do not seem to have received complaints from the authorities. In their difficult financial situation they could not afford to refuse customers at high fares and they knew how to deal with roughs.

The Metropolitan Police did not try to prevent prize-fight trains from starting. They just stood at every station along the line and even between the stations in order to show their firm determination not to allow the fight to take place within their jurisdiction. The police forces on horse-back were described in 1860 by *All The*

Year Round as official scarecrows. Outside these limits the Hampshire Blues on the SWR or the Cambridgeshire police on the ECR could be cheated more easily: they were far less numerous and distances increased between the stations, thus rendering their task and that of the local magistrates far more difficult. County borders were extremely convenient for fights.

On 18 March, 1845 Sir Charles Inglis, Member for Oxford University, had been unsuccessful in introducing a bill to forbid railway companies to carry people to prize-fights. Significantly it was only in July 1868 (after the end of prize-fighting) that O'Loughlen was able to add such a clause as an amendment to the *Regulation of Railways Act (1868)* 31 & 32 Vict. c.119 s.21.³ It reads as follows:

Any railway company that shall knowingly let for hire or otherwise provide any special train for the purpose of conveying parties to or to be present at any prize-fight, or who shall stop any ordinary train to convenience or accommodate any parties attending a prize-fight at any place not an ordinary station on their line shall be liable to a penalty, to be recovered in a summary way before two justices of the county in which such prize-fight shall be held or shall be attempted to be held, of such sum not exceeding five hundred pounds and not less than two hundred pounds.

The last provision was about a very dangerous practice which was obviously illegal and contrary to the regulations of the railways. In many instances trains were stopped between stations, away from the police (17 December, 1850 *Perry v. Paddock* on the SWR; 18 April, 1853 *Broome v. Orme* on the ECR; 18 October, 1853 *Sayers v. Langham*; 5 April, 1859 *Sayers v. Benjamin* on the SER; and twice on 6 November, 1860 *Hurst v. Paddock* on the Great Western Railway). When the passengers had alighted, the train was moved to a siding or to the nearest station, and it came back to collect the spectators after the fight or when the police interfered. Sometimes the fight was interrupted and resumed several times in different places (17 December, 1850 *Tipton v. Paddock* on the SWR; 10 May, 1852 *Orme v. Jones* on the ECR). There are instances on record of a whole party returning to London and starting again in another direction (2 December, 1842 *Perry v. Freeman*; 1 September, 1863 on the GWR then on the SER and by steamer), and in two cases the fight was even resumed on the next day after a new trip, using both train and steamer (21-22 February, 1860 *Travers v. Mace*; 19-20 September, 1860 *Mace v. Brettell*). Life was becoming increasingly difficult.

A clever device was used for *Perry v. Paddock*, on 17 December, 1850: the train took everybody to Hampshire and then came back nicely to Woking Common after the police had left. Another way to run away from the police was to take the train over a disused line (10 May, 1852, *Orme v. Jones* over the old Newmarket line on the ECR). One may guess that in case of accident the inspectors from the Railway Department of the Board of Trade might well have made some devastating remarks about the management of the line! It seems very likely that the organiser was on the engine, contrary to all rules, in order to tell the driver where to go and where to stop. For *Paddock v. Broome*, on 19 May, 1856, the ECR (once more) was very co-operative. It welcomed the organiser—called pilot for the occasion—on the engine of the first special train so that he might give instructions to the driver for taking it to a secluded spot. A second special was following, as if one were not risky enough. Three years earlier the same company had been kind enough to send a pilot engine from Ely to Mildenhall while the special was waiting at the former station. This let the pugilists know that hundreds of people had come to Mildenhall by the parliamentary train. and they chose another site for the fight (18 April, 1853 *Orme v. Broome*).

In May 1856 the organisers wanted to find a railway company for a fight in Kent or Sussex. The local police on the ECR were becoming far too efficient in preventing fights in the neighbourhood of Mildenhall, Cambridge, Brandon, or Huntingdon. Unfortunately, according to one of the organisers 'it was impossible to obtain a special on those lines, as some saints in the directorate of the companies had issued an ukase against such excursions as were not to their own taste or under their own patronage' (Miles, p. 295). So *Paddock v. Browne* on 19 May, 1856 used the facilities of the ECR as usual. The refusal had come from one or two London, Brighton & South Coast Railway directors who 'had considered highly improper to be parties to an encouragement of the fight' (Henning, p. 347). The LBSC and the GWR provided a few trains (*Paker v. Paddock* on 6 November, 1860 27 February, 1844 on the LBSC, and *Hurst v. Paddock* on 6 November, 1860 and *Mace v. Goss* on 1 September, 1863 on the GWR, plus probably another one from the same company in 1858). But they took great precautions in order to control access to the trains, so that their name should not be linked with disorder. As late as 6 November, 1860 'the GWR made no objection to preparing a special, providing the numbers were limited and the company was select' (Henning, pp. 436-8). The Great Northern Railway and its King's Cross station were originally chosen in February 1857 for *Sayers v. Jones*, and handbills were printed accordingly. But at the eleventh hour it was considered too warm a place, and Fenchurch Street Station was used instead. The association of these companies with prize-fighting was restricted to a few occasions, an attitude contrasting with the regular collaboration of the SWR, the ECR and later the SER⁴.

In 1860, after the famous fight between Sayers and Heenan, a very interesting debate took place in Parliament following a question by Lord Lovaine about what the government intended to do in order to discourage the SER from ignoring the authorities, injunctions from local magistrates, and recommendations from the Home Office.⁵ The SWR was given as an example of a company which refused special trains for prize-fights. Lord Lovaine declared that the complicity of the SER was clearly established. When he was a member of the government that company had promised to stop running such specials. And he caused some correspondence between the Home Office and the SER in 1859-60 to be printed in the Parliamentary Papers.⁶ These letters were very embarrassing for the SER. They revealed that although the directors had been caught red-handed on 3 April, 1859 and had stated 'they had taken steps to prevent any facilities being granted in future for the above purposes' (they rather unconvincingly pretended that it was the initiative of a clerk without their own approval), they had provided another special with two engines and thirty-six carriages six months later on 20 September, 1859. There was evidence that the train had been stopped between two stations (Etchingham and Wadhurst) and that both station masters had refused the police access to the company's telegraph during the whole day, pretending that it was occupied.

Smiles, the company's secretary, was bold enough to answer that he was under an obligation to provide a special because the regular train was so crowded. 'When the company advertises trains to run at particular times, they must be prepared to carry all who present themselves' he said, making a very clever use of the famous obligation to carry. Concerning the telegraph he referred to the company's regulations: 'The company's servants are directed to transmit all messages whatever in the order in which they are presented, and any messages tendered by the police would accordingly have been transmitted in due course. . . [unfortunately] there were then 37 messages waiting to be sent off in their respective order at Etchingham . . . the same circumstances prevented the despatch of any messages from Wadhurst.' Such an answer is an indication that the officials of the SER did

not fear any action from the authorities. It must be noted that, contrary to the ECR, the SER was, according to the report about Sayers *v.* Heenan in *The Times* dated 19 April, 1860 'a decorous and dignified company' whose arrangements were highly praised for the fight. The Railway Department of the Board of Trade could have threatened the company with a very strict enforcement of the passenger tax, but there is not the slightest evidence about any action on that respect. According to Miles (p. 463-4) the authorities of various counties around London gave solemn warnings against sinful specials to railway boards in January 1862 for the intended Mace *v.* King fight. As a consequence the railway company which had first accepted to carry the pugilists informed them after second thoughts that it could not do it. But the SER very obligingly provided a train.

Tickets and fares

For the great King *v.* Heenan fight in December 1863 no railway agreed to carry the spectators at first, but finally the SER provided the service at three sovereigns a head on condition that the company should be select. It collected a cool £3,000 which according to E. Yates in *Temple Bar* was well deserved. It was said that profits (not receipts this time) from the special reached £1,000 for Sayers *v.* Heenan on 17 April, 1860. Apart from this example, the price of tickets was generally two guineas first class and one guinea second class (to be shared between the organisers and the company), even as late as 24 May, 1866 for Goss *v.* Mace in spite of increasing difficulties. So Perry *v.* Paddock on 17 December, 1850 was extremely reasonable at 30s and 15s. On the other hand £2-2s irrespective of class for Perry *v.* Sayers on 16 June, 1857 was considered rather extortionate.

We may conclude this article with a note on relics. Some handbills were printed, but the survival of any is doubtful. Posters or advertisements in newspapers were out of the question. We should be glad to hear of tickets for prize-fight specials, the most likely items to be preserved in the hands of collectors today. They were exactly the same size and shape as ordinary return tickets, but as the destination was secret and very often unknown to the organisers themselves, the tickets bore the words 'from London and back'. For King *v.* Heenan on 8 December, 1863 it was printed on red with white stripes.

The late 1860s saw the demise of prize-fighting in Great Britain, and it emigrated to North America. American railway companies such as the Erie Railroad, the Harlem Railroad, or the North Eastern Railroad advertised much more openly, and played an extremely active part in promoting those fights on a much larger scale than anything undertaken in Great Britain. The puritan influence alone cannot account for the very cautious attitude of most English railway companies. It is part of a more general lack of investment in and initiative towards leisure, entertainment, and the tourist trade during the whole nineteenth century.

REFERENCES

- 1 Apart from *Bell's Life* itself and contemporary accounts of fights in *The Times* or in magazines such as *All the Year Round*, *Chamber's Edinburgh Journal*, *Cornhill Magazine*, *Fraser's Magazine*, and *Temple Bar*, the most useful books have been: Thormanby [W. W. Dixon], *Boxers and their Battles*, Everett, 1900; F. W. Henning [editor of *Bell's Life*], *Fights for the Championship*, Licensed Victuallers Gazette, 1902, 2 vols; H. D. Miles, *Pugilistica*, Weldon, 1906
- 2 On Shoreditch see *PP* 1846, XVII, Royal Commission on Metropolitan Termini, QQ. 946, 955-6, 961 and 986-8, and A. A. Jackson, *London's Termini*, Pan Books, 1979, p. 99

- 3 *Hansard* 78 H.C. *Deb.* 3s. 18 March 1845, col. 1145; and 193 H.C. *Deb.* 3s. 24 July 1868, col. 1737
- 4 All the companies took precautions. See Miles, p. 37 for 5 June, 1850 (no third-class carriages); p. 295 for 19 May, 1856 (expensive tickets, strict control at the doors); pp. 330-1 for 18 April, 1853 (station doors closed); p. 471 and 486 for 1 September, 1863 and 24 May, 1866 (expensive tickets). See also Henning p. 418 for 17 April, 1860 (admirable arrangements) p. 436-8 for 6 November, 1860 (limited numbers and select passengers) and p. 467 for 8 December, 1863 (control of access to the station, no roughs). The fear of roughs ruled out taking on extra passengers at various stations on the way to the fight. On 29 September, 1851, however, the ECR special which had started from Bishopsgate with only 100 passengers took the risk of stopping to pick up passengers at various stations on the way to Mildenhall
- 5 *Hansard* 158 H.C. *Deb.* 3s. 15 May 1860, col. 1319-25; see also W. Ewart in *Hansard* 157 H.C. *Deb.* 3s. 20 April, 1860, col. 2051-5. Several petitions had already been presented to Parliament against prize-fighting in 1834, 1849, and 1853). There were no fewer than five petitions in 1860 about the Sayers v. Heenan fight
- 6 *PP* 1860 LXI, 261-3, Breach of the Law, South Eastern Railway Company
- 7 J. R. Bett, 'The Technological Revolution and the Rise of Sport 1850-1900' *Mississippi Valley Historical Review*, XL (1953) pp. 234-7

Table I

A Chronological List of the Most Important Prize-Fights
(1837-1867)

4 May 1837	Langham v. Sparkes	Steamer <i>The Nymph</i> . Back to London, then SWR to Woking.
4 April 1838	Caunt v. Bendigo	Road transport to Doncaster
18 Oct. 1839	Ward v. Bailey	Train from Nine Elms (SWR) to Ditton, then Woking
28 Oct. 1840	Caunt v. Brassey	Train to Newmarket
2 Feb. 1841	Ward v. Caunt	Train to Crockham Common (Hampshire)
9 Feb. 1841	Adams v. Cain	Train to Holcut
2 Dec. 1842	Perry v. Freeman	ECR train to Sawbridgeworth (Herts)
20 Dec. 1842	Perry v. Freeman	Steamer to Cliffe Marshes
13 June 1843	Burke v. Castles	Steamer <i>The Nymph</i> to Erith (Essex)
11 Oct. 1843	Broome v. Mason	Steamer <i>The Nymph</i> to Dartford (Kent)
13 Dec. 1843	Parker v. Perry	Steamer <i>The Nymph</i> to Dartford (Kent)
27 Feb. 1844	Parker v. Perry	LBSC train to Horley (Surrey)
April 1845	Caunt v. Bendigo	?
10 Dec. 1845	Broome v. Rowe	Steamer <i>The Nymph</i> to Green Hythe
18 Dec. 1849	Orme v. Jones	Train to Frimley Green (Surrey) SWR
5 June 1850	Bendigo v. Paddock	ECR train to Mildenhall (Suffolk)
24 Sept. 1850	Jones v. Wade	SER train to Edenbridge (Kent)
17 Dec. 1850	Perry v. Paddock	SWR train from Waterloo. Back to London, then to Woking.
6 May 1851	Orme v. Langham	Steamer <i>Queen of the Thames</i>
29 Sept. 1851	Perry v. Broome	ECR train to Mildenhall
10 May 1852	Orme v. Jones	ECR train to 3 different places, then Chesterford
26 Jan. 1853	Martin v. Sayers	Steamer to Long Reach
18 Apr. 1853	Broome v. Orme	ECR train to Thetford (Norfolk)

18 Oct. 1853	Sayers <i>v.</i> Langham	ECR train to Lakenham near Ely
2 Feb. 1854	Sayers <i>v.</i> Sims	?
2 Feb. 1854	Paddock <i>v.</i> Poulson	ECR train to Mildenhall
14 Feb. 1854	Paddock <i>v.</i> Poulson	ECR train to Mildenhall
26 June 1855	Paddock <i>v.</i> Jones	ECR train to Mildenhall
29 Jan. 1856	Sayers <i>v.</i> Poulson	SER train to Appledore (Kent)
19 May 1856	Broome <i>v.</i> Paddock	ECR train to Manningtree
17 Feb. 1857	Sayers <i>v.</i> Jones	GNR altered to Fenchurch Street Station and steamer to Canvey Island
19 Feb. 1857	Sayers <i>v.</i> Jones	
16 June 1857	Perry <i>v.</i> Sayers	Train to Southend and steamer
22 Sept. 1857	Caunt <i>v.</i> Langham	Train to Southend and steamer (several trains)
5 Jan. 1858	Benjamin <i>v.</i> Sayers	Steamer <i>The Novice</i> to the Isle of Grain
16 June 1858	Sayers <i>v.</i> Paddock	Train and steamer to Canvey Island
21 Sept. 1858	Mace <i>v.</i> Brettle	ECR train and steamer to Shell Haven
25 Jan. 1859	Thomas <i>v.</i> Lynch	SER train to Aldershot, then Surrey
5 Apr. 1859	Sayers <i>v.</i> Benjamin	SER train to Ashford
20 Sept. 1859	Sayers <i>v.</i> Brettle	SER train to Ashford
21 Feb. 1860	Travers <i>v.</i> Mace	Train and <i>City of Rochester</i> steamer to Essex then Kent. Fight interrupted by the police
22 Feb. 1860	Travers <i>v.</i> Mace	Same fight resumed
17 Apr. 1860	Sayers <i>v.</i> Heenan	SER train to Farnborough
19 Sept. 1860	Mace <i>v.</i> Brettle	Train to Oxfordshire (fight interrupted)
20 Sept. 1860	Mace <i>v.</i> Brettle	Train to Southend and steamer to Essex (preceding fight resumed)
6 Nov. 1860	Hurst <i>v.</i> Paddock	GWR train from Paddington to Newbury
27 Nov. 1860	King <i>v.</i> Truckle	Train and steamer to Kent (SER?)
18 June 1861	Mace <i>v.</i> Hurst	Steamer
21 Oct. 1861	King <i>v.</i> Evans	Train to Surrey (SER?)
28 Jan. 1862	Mace <i>v.</i> King	SER train
3 Dec. 1862	King <i>v.</i> Mace	London Tilbury & Southend Railway train from Fenchurch Street station to Thames Haven and steamer
1 Sept. 1863	Mace <i>v.</i> Goss	GWR train from Paddington to Wootton Bassett. Back to London, then SER and steamer
8 Dec. 1863	King <i>v.</i> Heenan	SER train to Wadhurst near Tunbridge Wells
24 May 1866	Goss <i>v.</i> Mace	SER train to Longfield Court (Kent)
23 Apr. 1867	Wormald <i>v.</i> O'Baldwin	SER train

Table II

Number of Spectators carried/Size of Train/Fares.

(The only trains mentioned are those for which data have been collected from the various sources given above)

20 Dec. 1842	Perry <i>v.</i> Freeman	Steamer	400 passengers
10 Dec. 1845	Broome <i>v.</i> Rowe	Steamer	1000 passengers/spectators
5 June 1850	Bendigo <i>v.</i> Paddock	ECR	£2 first class £1 second class
17 Dec. 1850	Perry <i>v.</i> Paddock	SWR	30s first class 15s second class

20 Sept. 1851	Perry <i>v.</i> Broome	ECR	1 special 100 passengers, more collected on the way
18 April 1853	Broome <i>v.</i> Orme	ECR	1 special 16 carriages
18 Oct. 1853	Sayers <i>v.</i> Langham	ECR	1 special 400 passengers
26 June 1855	Paddock <i>v.</i> Jones	ECR	1 special 1000 passengers
19 May 1856	Broome <i>v.</i> Paddock	ECR	2 specials = 600 passengers
16 June 1857	Perry <i>v.</i> Sayers	Train & steamer	250 passengers 2 guineas each
20 Sept. 1859	Sayers <i>v.</i> Brettle	SER	1 special 2 engines and 36 carriages (very full)
17 April 1860	Sayers <i>v.</i> Heenan	SER	2 monster specials = 1200 passengers (one with 32 carriages)
3 Dec. 1862	King <i>v.</i> Mace	LTS + steamer	300 passengers
8 Dec. 1863	King <i>v.</i> Heenan	SER	1 special with 2 engines and 30 crowded carriages
24 May 1866	Goss <i>v.</i> Mace	SER	1 special 400 passengers First class: 2 guineas Second class: £1-10s-6d
23 Apr. 1867	Wormald <i>v.</i> O'Baldwin	SER	1 special 300 passengers

DIMES *v* THE GRAND JUNCTION CANAL COMPANY

BY FRANK A SHARMAN

In May 1836 the good people of Rickmansworth would have been somewhat surprised to see Thomas Wilson, the Bailiff of the Manor of Rickmansworth, walking along part of the towpath of the Grand Junction canal and declaring to anyone who happened to listen that he was seizing the canal on behalf of the Lord of the Manor. In June 1838 they would have been somewhat more surprised to see the sheriff's officer solemnly digging up some turf from the towpath and solemnly handing it over to George Quilton, the Steward of the Manor. That curious event was immediately followed by workmen employed by William Dimes, the Lord of the Manor, erecting a wooden bar on the towpath, which could at any time be swung across it. When they had done this, they threw bricks into the canal, almost blocking it. Then in November 1849 the workmen came back, dug a deep trench right across the towpath and placed a chain across the canal. When, in January 1850, their Lord of the Manor was carted off to prison at the behest of the Grand Junction Canal Company, their interest in these affairs may have prompted them to ask what was going on. Had they made such an inquiry, the answer may well have baffled them, for what they had seen was the visible tip of an iceberg, the great part of which floated in the murky depths of early nineteenth-century law and procedure.

William Dimes, a City solicitor, had acquired the Lordship of the Manor of Rickmansworth at auction in May 1831. The previous Lord of the Manor, William Windale, had apparently got into financial difficulties, raising two lots of money on

the security of the Manor and then finding himself saddled with some, if not all, of the cost of repairing Batchworth Bridge, which crossed the River Colne in Rickmansworth. This liability arose out of certain oddities of the law relating to roads, bridges, and turnpikes—but the matter gets complicated enough without going into that. When Dimes bought the manor he must have known of these liabilities and, doubtless, he thought that he would manage the property better and, with the aid of his expert legal knowledge, make a profit out of it.

Certainly, by the beginning of the nineteenth century it would have needed some legal and business skill to operate a manor. A manor was a unit of land, usually about the same size as a parish but not necessarily co-extensive with one, the freehold of which was owned by the Lord of the Manor. Whether or not a unit of land was a manor, rather than ordinary freehold land, was essentially a matter of how it was customarily regarded. Manors were very different from ordinary freehold land. If a man owned ordinary freehold land he could sell it or lease off all of it, just as we would to-day. But if the freehold he owned was a manor, then he could buy and sell it, just as Windale had sold the Manor of Rickmansworth to Dimes, but his other rights in respect of the land were limited by the rights of the tenants. The tenants of a manor were known as copyholders. This name arose because they did not have title deeds to their land like those of freeholders; their title was recorded in the rolls of the Manor—so they held their land in accordance with a copy of the court roll.

Owning copyhold was not quite like owning freehold. For one thing, you were limited as to what you could do with the land; you could not open mines in it, you could not fell the timber on it—and there might be other restrictions, which would vary from one manor to another, according to the immemorial custom of each manor. The mines and timber were the property of the Lord of the Manor, but these and, maybe, some other similar rights, were all the rights he had over copyhold land. Most importantly, there was a different method by which the title to copyhold land changed hands. A purchaser, or someone entitled to the land under a will, had to go to the manorial court and there have himself enrolled on the court rolls to finalise his entitlement and, of course, to have his title entered in the roll of the court. For any such procedure a fee of some sort was payable to the Lord of the Manor. If the land was not claimed by an heir or purchaser then, after a formal procedure had been gone through, the Lord of the Manor got the land, free of all copyhold rights.

The details of these laws were not only complex and arcane, but variable from one manor to the next; it was into this legal morass that the canal companies had to plunge whenever they were buying the land needed for their works. So, of course, did the railway companies, but, by the time they came on the scene, experience with Dimes and others like him had alerted them to the problems and they took greater care. Gradually, throughout the nineteenth century, copyhold tenure became rarer, as the copyholders 'enfranchised' their land, turning it into freehold in accordance with a number of statutes passed for that purpose. But it was not until 1925 that all copyhold tenure was finally abolished.

In 1793 the first Act for the building of the Grand Junction Canal was passed. Like other such Acts it authorised the canal company to buy land and it provided—as was becoming common in such Acts—a form in which all conveyances to the canal company could be made. These forms of conveyance were intended to provide a much shorter and simpler method of conveying land than could otherwise have been used. But these were relatively early days in the development of such Acts and it was common for the sections of the Acts which dealt with conveyancing matters to be inadequately drafted. The form provided for by the GJC's first Act was

certainly effective to transfer the title to freehold land but was defective in respect of copyhold land. And that was a common enough defect. Indeed, in 1801 the GJC promoted a further Act which, amongst other things, made further provision for the acquisition of copyhold land. It was common for canal (and railway) companies to pass further Acts after their first. The most usual prime reason for doing so was to authorise the raising of further capital but it was common practice to include in such further Acts any other provisions which their own experience, or the experience of others, had indicated as useful. The GJC may, therefore, have discovered from buying copyhold land elsewhere on their line that their first Act was defective in some way; or they may have noticed others meeting similar problems. But even this further provision was inadequate in one respect—it applied only to future purchases and therefore could not apply retrospectively to their purchase of land in the Manor of Rickmansworth.

The GJC duly proceeded to set out the line of its canal, in accordance with the Act. The line of the canal crossed some Rickmansworth land of which the copyholder was one Joseph Skidmore. He signed a conveyance, on the form provided for by the Act, and was paid for his land. But the company was never admitted as tenant of this land—in other words, it never went to the Manorial Court and had its interest entered on the Court Rolls. It seems that neither the GJC nor the Lord of the Manor at the time thought it necessary to do so. They assumed that the GJC had acquired the freehold.

The canal was built and opened and, in due time, Dimes bought the Manor. Almost as soon as Dimes had done so, there was a sequence of events which may have drawn to his attention the potential for making a profit out of the GJC. In 1832 Joseph Skidmore was presented before the Manorial Court for having mined gravel on some of his other land without the permission of the Lord of the Manor. For this, his land was forfeit to Dimes as Lord of the Manor. That may have drawn Dimes's attention to the possibility of making a profit from seizing copyhold land and would certainly have drawn his attention to Joseph Skidmore and his various copyhold properties. In 1835 Skidmore died and his heir, his son, who was a minor at the time, came to Court through his trustee, and asked to be admitted to his father's lands. This was duly done in proper form—he even got back the land which had been forfeited by his father. But the Court rolls are careful to record that Skidmore's trustee was admitted as tenant to all of Skidmore's property 'except such part as now forms part of the Grand Junction Canal'. Dimes had seen a chance of profit.

It occurred to Dimes that it must be the case that the conveyance by which Skidmore had sold his land to the GJC did not make them the freeholders. After all, the Lord of the Manor had not been a party to that conveyance and had received no compensation for loss of his freehold title to that land. How could a copyholder, by his own deed, deprive the Lord of the Manor of his freehold? Further, the GJC could not be copyholders of the land because they had never been admitted as tenants on the court rolls. Therefore the GJC had no title at all to the land on which they had built the canal. They were trespassers and the land in reality belonged to the Lord of the Manor. And, of course, if Dimes owned the land, he could do what he liked with it so as to make it useless as a canal. And to prevent that the GJC would, so he supposed, pay him handsomely.

The first step in the scheme was to ensure that the GJC had as little ground as possible for claiming any title to the land and, at the same time, to seize the land. Dimes therefore arranged for the manorial court to go through the prescribed procedure: it met on three occasions and on each occasion called for claimants to the canal land to come into court and be admitted. There was no provision, in law,

for anyone who might have an interest to be notified of such proclamations, though the GJC's local agents might well have been aware of these proceedings. But they certainly did not go to the court. As a result, after the third proclamation had produced no response, the bailiff, Thomas Wilson, was sent on his walk down the canal formally to seize the land on behalf of the Lord of the Manor.

Having done that, Dimes started proceedings in the ordinary courts to finalise his position. He brought an action before the Hertfordshire Assizes in 1836. Between then and 1852 the dispute between Dimes and the GJC was almost constantly before the courts, eventually reaching the House of Lords and becoming the classic precedent for one of the most important principles of English law.

These court cases fairly quickly decided that Dimes had the freehold of the canal land; but deciding what interest, if any, the GJC had in the land proved more troublesome. Dimes seems to have decided that they had no interest at all and, relying on this assumption, put the bar across the canal and threw bricks in it, pointing out to the GJC that, unless they paid him £5,000, he would block it completely. The GJC's response was to move from the court of law into the courts of equity, where they got, from the Court of Chancery, an injunction prohibiting Dimes from blocking the canal until the matter of the GJC's interest in the land had been settled. They then pursued the matter further in Chancery to establish exactly what their rights were. After several cases in the Court of Chancery, it became clear that the GJC had the right to a copyhold interest in the canal land but that they could not be admitted as the copyhold tenants, for the technical reason that corporations could not be copyholders. It was decided that they were entitled to have Joseph Skidmore's heir entered as copyholder as trustee on their behalf. This point had been reached by 1848.

Unfortunately Dimes did not find that result acceptable. If he admitted a tenant he was, as Lord of the Manor, entitled to certain fees and 'fines', which might have amounted to a few hundred pounds, but nothing approaching the £5,500 which he had been demanding of the canal company for selling them 'his' land. It may be that, at about this time, Dimes decided to give up the struggle, and he went some way towards selling the manor. But that sale went off and Dimes decided to continue the fight. His only avenue left was an appeal to the House of Lords. It was when he was preparing this appeal that he discovered that the judge who had had a large hand in several of the previous cases which had been so unfavourable to Dimes and so favourable to the canal company was himself a shareholder in the GJC. All hell let loose.

The unfortunate judge was no less a dignitary than the Lord Chancellor of Great Britain, Lord Cottenham. Cottenham held ninety-two shares in the company. Of these he held only seventeen in his own right and the rest he held as a trustee, though he was also one of the beneficiaries of the trust. The cases do not make it exactly clear how much of the income he was entitled to. Taking the nearest figures available, and assuming, against Cottenham, that he was the beneficial owner of all ninety-two shares, and that all ninety-two shares were whole shares and not the half shares which the GJC issued, then it is possible to calculate that Cottenham owned about 0.8% of the issued share capital of the company and that the income from the shares would have been about £276 per year. Now that holding, compared with the rest of Cottenham's income, was doubtless very small and, to some extent, justifies his plea that he had forgotten about the shares. But Dimes was sure that if any judge tried any case in which he had any financial interest at all in the success of one of the parties, that judge's decision must be void.

If Cottenham's decisions were void, then that left in place the decisions made by the Vice-Chancellor. Dimes argued that the Vice-Chancellor acted merely as agent

for the Lord Chancellor and his decisions needed confirming by the Lord Chancellor; and that confirmation the Lord Chancellor could not give because he had an interest in the case. Therefore the Vice-Chancellor's decisions were of no effect either. That would mean that all of the cases so far decided in the Court of Chancery were of no effect and all that remained valid was the earliest decision that Dimes owned the freehold.

But Dimes's own argument presented him with a difficulty. How could he appeal against a decision which he claimed was void and which therefore did not count as a decision at all? Dimes decided to petition the Queen, but was persuaded not to pursue that course. Instead he started further Chancery proceedings asking for the Lord Chancellor's decisions to be struck out. The Master of the Rolls was called in to hear the case in place of Cottenham. He advised that the Lord Chancellor's decisions were valid because, despite his interest in the case, he had to hear it as there was no other judge entitled to do so.

It was at this point that Dimes decided to take the matter back into his own hands. He gave notice to GJC that he would treat any one using 'his' part of the canal as a trespasser. And shortly afterwards he started fifteen actions for trespass, one action in respect of each of fifteen boats. The GJC acted swiftly. They immediately applied to the Court of Chancery to commit Dimes to prison for breach of a court injunction, granted nearly eleven years before, prohibiting him from taking any action blocking the canal. The Vice-Chancellor decided that Dimes was in breach of the spirit of this injunction but, despite the GJC's request to him to do so, he refused to commit Dimes to prison. Then Dimes dug the trench and put the chain across the canal. So then the Vice-Chancellor committed him to prison.

Being in prison did not stop Dimes bringing his court actions. After another unsuccessful attempt to get all the Chancery decisions quashed, Dimes eventually managed to get himself freed. He must have been assisted in this by the fact that Cottenham had retired from his position as Lord Chancellor and there was a new Lord Chancellor, Lord Truro. It was one of Truro's first official acts to let Dimes out. Cottenham died within a year. Despite the fact that he had been an ill man when Dimes started his allegations against him, it was widely held at the time that it was Dimes's activities that had caused Cottenham's death.

So Dimes eventually did the only thing left to him and appealed to the House of Lords. In effect their Lordships made two decisions. The first was that all of the Chancery Court's decisions had been right in law and that the GJC was entitled to have a trustee admitted as copyhold tenant on its behalf. The second decision, after taking the unanimous opinion of all the judges of England, was that if a judge had a financial interest in the outcome of a case he was disqualified from hearing it. This principle, that no man may be a judge in his own case, was thus finally decided by the highest court in the land and it has, of course, remained good law ever since. There was still the technical problem of how Dimes could appeal against decisions which he said were void and not therefore decisions at all. Their Lordships simply decided that the decisions were voidable, not void, and the way to avoid them was to appeal against them!

It is strange that it was not until 1844 that any of these matters appears in the minutes of the Committee of Directors of the GJC. One can only assume that up until then the matter had been handled locally or, more probably, by only one of the directors—probably George Mellish. But from there on the course of the litigation is followed in the minutes. Never did the directors appear to contemplate any course of action but to pursue the cases through the Courts, wherever Dimes might lead them. Such negotiations as there had been stopped at an early stage. It was not until the House of Lords had decided in their favour that the company

proposed to do what they should have done in the first place, resolving to buy the enfranchisement of the land—in other words, to buy the freehold from Dimes.

By now, more than twenty-one years after he had first gained possession of the manor, more than sixteen years after he had embarked upon his course of litigation, and after several months in prison, Dimes was growing tired and, maybe, growing old too. He agreed to the enfranchisement. On 1 April 1853 the minutes of the Directors record that 'the Clerk laid upon the table the Deed of Enfranchisement of the copyhold land at Rickmansworth'. It had taken them almost fifty-six years to get a good title to the land.

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The author would like to record his particular thanks to the staff of the Hertfordshire County Record Office.

Thames Barge Registers

BY HUGH J. COMPTON

During the period when the Upper Thames was controlled by the Thames Commissioners very little is known about the full extent of barge working on the river. However barge registers have recently been examined, and the spread of locations for the years 1812 and 1830 is given below, together with those for the year 1795 where known.

	1795	1812 ³	1830 ⁴		1812	1830
London		6				
Staines		1	3			
Windsor		8	8			
Eton			2			
Maidenhead		5	4			
Hedsor		4	1			
Crookham		2				
Marlow		3	11			
Temple		2	1			
Hambleton		1	1			
Henely		7	4			
Marsh		1				
Sonning		1	1			
Caversham		2		Reading	10	21
Pangbourne			5	Burghfield	1	
Whitchurch			1	Aldermaston		2

Wallingford		7	7	Newbury	20	21
Abingdon	8 ¹	14	8	Honeystreet		2
Oxford	10 ¹	32	5	Scend		2
Eynsham			3	Hilperton		4
Bablock Hythe		1		Bath	1	13
Lechlade	4 ²	27	2	Bristol		12
Cirencester	2 ²		1			
Brimscombe Port	33 ²	7	8			
Gloucester			1			

It should be noted that for locations not on the river Thames the Registers only include those craft which traded onto that waterway. In these figures there are some interesting details.

The Thames & Severn canal company in 1795 had 27 craft included in the above figures out of a total of 47 which operated at that time. By 1812 their Thames figure had been reduced to 25, all registered at Lechlade, as a result of their difficulty in finding sufficient traffic for the back working as well as the physical problems in working man/horse hauled barges against the current, which in consequence often produced excessive transit times unacceptable to their customers. By 1830, following the opening of the narrow North Wilts canal in 1819, their fleet had ceased to exist. For fuller details see Humphrey Household's latest work on the Thames & Severn canal.

The Oxford canal company's barge fleet once boasted eleven craft, but by 1812 there was only one barge, *Betsey* of 67 tons, following the completion of the Grand Junction canal's Blisworth tunnel in 1805. This had resulted in the majority of traffic which formerly passed through Oxford to London being diverted via the new broad canal. By 1830 this too had been sold.

On the other hand the Wilts & Berks canal company in 1812 had two barges—*Enterprise* of 106 tons and No. 1 of 25 tons, both located at Abingdon. Even by 1830 they still owned one barge, *Western Lass* of 71 tons. The fact that the Kennet & Avon canal had only been completed towards the end of 1810 may account for the fact that in the 1812 register there is only one barge west of Newbury. The Newbury figure does however include two Market boats, one owned by Thomas Parsons of 58 tons and the other by Frederick Page of 30 tons. From the foregoing it would appear that nearly all traffic for the tidal area of the Thames off the various connecting canals was shifted into barges before proceeding down river.

The 1812 register has over 300 numbers allocated, but there are numerous numbers with no details, so it may well not reflect the total picture. On the other hand the 1830 register would appear to be complete. The 1812 statement also shows six barges, varying between 28 and 52 tons, based in London, which were owned by the Board of Ordnance and presumably operated from their gunpower factory at Waltham Abbey on the river Lee navigation. As this was during the period of the Napoleonic war, there was a great demand for gunpowder, and, furthermore, movement by coastal craft could result in capture by the French.

Names present a considerable problem when trying to identify individual craft, since many are repeated several times. In the 1812 register for instance, there are 4 *Nelsons* and 4 *Endeavours*. In certain cases the same name is used more than once by the same carrier. A further complication is the fact that the allocated number is never the same on both registers, so it is impossible to establish definitely whether the same craft appears on both the 1812 and 1830 registers.

Narrow boats are often considered the lightest craft on waterways, but on the Thames there were two craft of 12 tons, both owned by millers, one at Marsh and

the other at Henley. The spread of weights over the barge fleet in 1812 was considerable, as can be seen from the breakdown given below.

10-19 tons	6 barges	4%	70- 79 tons	33 barges	20%
20-29 tons	6 barges	4%	80- 89 tons	13 barges	8%
30-39 tons	8 barges	5%	90- 99 tons	4 barges	3%
40-49 tons	7 barges	4%	100-109 tons	3 barges	2%
50-59 tons	8 barges	5%	110-119 tons	3 barges	2%
60-69 tons	28 barges	17%	130-139 tons	39 barges	23%

As can be noted, the weights, therefore, fall into two main categories: those over 100 tons which operated up river as far as Oxford on the Thames and Newbury on the Kennet, and the remainder generally suitable for the whole of the Thames as well as the Thames & Severn and Kennet & Avon canals.

The 1830 total shows a marked decrease on the number of barges said to be operating in 1812, but it would seem from examination of the number of boats passing Culham lock on the Thames in January 1844⁵, as given below, that there was a shift away from barges to narrow boats, perhaps reflecting the changed conditions on the upper Thames with diversion of traffic through the North Wilts canal as well as the influence of the railways on the trade to/from London. This swing is also confirmed by examination of the weighing register for 1830 on the Kennet & Avon canal at Hungerford.⁶

		<i>UP</i>		<i>DOWN</i>	
		Barges	Narrow Boats	Barges	Narrow Boats
Loaded		7	19	10	79
Empty		1	55	2	7
		8	74	12	86
TOTALS		82		98	

The 1795 registers not only state the limits over which the barges generally operated, but also include details as to staffing. All the craft using the Thames registered at Lechlade, Cirencester, and Brimscombe Port had a crew of three, whilst those registered at Oxford and Abingdon had a crew of five. There was a 'costbearer', who not only paid the tolls etc, but also acted as steersman, and a boy, who performed errands such as fetching supplies.

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Book Reviews

THE RAILWAY IN TOWN AND COUNTRY 1830-1914. Jack Simmons, 400pp, 15 plans, boards. David & Charles, Newton Abbot, 1986. ISBN 0-7153-8699-9, £15.

In this long-awaited volume Professor Simmons has woven together case-histories and lightning sketches to illustrate the influence of the railway on the development of cities, towns both large and small, and rural communities in England and Wales up to 1914. Not simply a series of descriptions, but a wide-ranging discussion of features as varied as slum clearance and changes in dietary habits, this is a serious but far from dry study, complete with more than forty pages of notes and references and, thanks be, a comprehensive index. Much of the discussion is not completely novel, for readers of regional, company, and branch-line histories will have met some of it before, but not previously has there been so comprehensive a survey, which is here presented in a very readable manner. The expected stories are here, together with others less well known, such as the extent to which the railway reshaped Harrogate and the isolation of Marlborough after coaches ceased to run along the Bath Road.

It seems fair to comment that this is essentially a work of economic history, with topography, which might frequently clarify the discussion, being scarcely mentioned. Little use is made of the wide range of publicity material issued by railway companies themselves: for instance it is unfair to comment on the lack of material about Ashford works when the SR centenary pamphlet of 1947 has been ignored. The Nidd Valley Light Railway was built essentially to aid reservoir construction, and so should not be singled out as an example of the uneconomic cost of rural branches; and the Southwold branch was not unique in being pilloried on picture postcards.

A few omissions seem surprising: no mention of the Festiniog area, nor of developments in connection with military use—so no Aldershot, or Tidworth. The narrow gauge receives scant regard, so the jacket photograph of the Glyn Valley Tramway (a line not mentioned in the text) is misleading.

A lack of illustrations is a disappointment: only 15 maps, several of which are inadequate; where are Hull docks, and where are the named estates at Harrogate? If only there were more plans such as that showing development at Saltburn centred on the station and railway hotel.

Despite such minor reservations this really is a splendid book. It emphasises the diversity of effects on the local community and encourages the reader to pursue individual studies for himself. The publishers have made available a serious study which cannot hope to be 'popular' at a price that compares favourably with Professor Simmons' introductory volume (Leicester University Press, 1978, £12). I trust that sales will encourage the publication of other works of equal value.

DENNIS HADLEY

WORLD CANALS: INLAND NAVIGATION PAST AND PRESENT, Charles Hadfield, 432pp, 129 illustrations, 17 maps. Boards. David & Charles, 1986, ISBN 0-7153-8555-0, £20.

As rightly pointed out in the Preface, it would be impossible within the publisher's limits to cover all known aspects of worldwide inland navigation. Despite this, readers will find a wealth of information on which to base further research if so desired.

Logically, the waterways scene has been divided into the Old World and the New World. Both have since time immemorial used their large river systems for carrying goods and passengers, and as technology advanced so too did the linking of rivers by artificial cuts to form homogenous transportation networks.

The large scale use of inland waterways in the Old World is well known; the background to the present day expansion of waterway usage in the New makes interesting reading. Here the introduction of steam propulsion in the early years of the nineteenth century was an important influence; subsequent development has produced the modern tow boat which is essentially a direct but greatly enlarged application of the 'pusher' principle developed in Britain by W. H. Bartholomew. Here it was rejected in favour of conventional tugging.

The mystery surrounding the origin of the pound lock as we know it receives due consideration, but although a great deal of circumstantial evidence exists nothing really conclusive has so far emerged. It comes as no surprise to learn of the extensive use made of inclines, lifts, etc. to overcome large differences in level, but one of the most intriguing devices—not met with in Britain—must surely be the shaft lock with its attendant economiser ponds.

Illustrations and maps have been well chosen and present adequate, worldwide coverage, but reference to large-scale maps is essential to enable one to grasp details in their true perspective.

It is noted with interest that Canal Societies are now being formed in the United States and Canada, and serious thought given to listing historical data relating to their waterway networks. Redundant canals, too, are being used increasingly for pleasure cruising, an activity that has for long been largely a British preserve.

From the text we see quite plainly that for any form of transport policy to be successful there must be proper integration of *all* forms: road, rail, water and air. Given the will to succeed no problems appear too great, as witness the magnitude of the constructional efforts made to eliminate navigational hazards through the 'Iron Gates' on the Danube.

It is a truly mammoth work, the culmination of many years' research conducted in a professional manner, and one regrets that proof reading has not matched the excellence of the text. To the Author and his band of assistants we are indebted for a book which for the first time gives us worldwide coverage of inland navigation and of the engineering techniques which have over the ages made it all possible.

C. P. WEAVER

EARLY RAILWAYS BETWEEN ABERGAVENNY AND HEREFORD, R. A.
Cook & C. R. Clinker, 96 pp, 21 photo illus., maps and plans, soft covers; RCHS 1984 ISBN 0-901-461-36-9, £5.95.

Whilst the main subject of the book is of the three railway companies, the Llanvihangel, the Grosmont and the Hereford, which were required to complete the 24 miles from Abergavenny to Hereford, a comprehensive potted history of the related transport network is given. The degeneration of the roadways and the construction of the canals linking Brecon with the River Severn are dealt with in the first two short chapters and thus provides an informative background.

The subsequent pages detail the growth, management and demise of the rail link from Abergavenny to Hereford from the inception of the Llanvihangel Railway in 1810 to the final closure of the three independent lines in 1853 by the takeover by and construction of the Newport, Abergavenny and Hereford Railway.

The detail is complex and the casual reader of history may well find himself occasionally losing the thread. This not intended as a criticism of the authors' work as it is hard to see how the sequential layout could be bettered, but it is definitely not for light bedtime reading. Although given in the contents list reference in the text to the detailed maps would be useful.

The introduction makes the point that as much of the official documentation is missing the record is incomplete and there is an apparent underlying frustration throughout at those suppositions that have to be made without conclusive evidence.

Where the parenthetic insertion is used after a quotation it would be useful to include the correction. Sometimes it is obvious and in other cases it is not.

The death of Mr Clinker was of great sadness but this book as an historical compilation, particularly as much of the documentary evidence is now lost, is a credit to him and his co-author, Mr Cook.

ALAN DENTON

TREACY'S ROUTES NORTH, Patrick Whitehouse and John Powell, 192pp, 285 x 223 mm, 245 photographs, boards. David & Charles, 1985. ISBN 0-7153-8739-1, £15.00.

The renowned railway photographer Eric Treacy took some 14,000 pictures. The authors have chosen 245 of them for this book whose themes are the West Coast, Midland, and East Coast main lines from London to Glasgow and Edinburgh—with a few diversions en route. A further short chapter covers the West Highland and Kyle lines and the book concludes with views in relevant engine sheds.

On an assortment of train workings about 80 types of locomotives are represented, the most frequent being Stanier Class 5s, Silver Jubilees, and A3 Pacifics. In time they range from 1937 to 1970, with the 1950s and early 1960s predominating. The text is reasonably brief, but could have been pruned to exclude material not relating to Treacy and his photographs. The table of 1954 locomotive allocations also seems unnecessary.

Treacy chose his locations and subjects with care, a fine portrait often being made even more superb by its background of lineside furniture, grimy urbanity or wild moorland. Reproductions are of a high standard with detailed captions, and the book is a worthy tribute to a well-liked man.

ALLAN BRACKENBURY

ROYAL TRAINS, Patrick Kingston, 192pp, (280 215 mm) many photographs, some in colour, boards. David & Charles, 1985, ISBN 0-7153-8594-1, £15.00

The subject has been covered many times before but this book is different. The author has made royal rail journeys his peculiar interest and passes it on in this book to very good effect. It is a historical work dealing in detail with the railway journeys of the British monarchs from the very first in 1842 to the present day and with some of their overseas cavalcades, notably the South African tour of 1947. To the railway student there is little new from the earlier days, but the descriptions of the use of royal trains are linked to the habits and characters of particular royal personages in a way which adds considerably to the interest. The descriptions of royal rolling stock are comprehensive and detailed and include a satisfying quantity of technical detail to balance the conventional catalogue of extravagant internal decor and furnishings. Descriptions of particular journeys, such as the tour of

Lancashire by George V in 1913 and his visits to Crewe and Swindon are memorable and demonstrate the extraordinary lengths to which the old companies would go to get things right when a member of the Royal family was to be transported in their territory. The illustrations are mainly unfamiliar and fascinating, particularly the older ones. The modern pictures of preserved royal carriages are unexciting through familiarity. Your reviewer found only two inaccuracies. The SER continental royal saloon of 1883 is said in one place to have been built by Cravens of Sheffield, in another at Gorton by the MS&LR. The author does not appear to know that most of the older royal carriages were stored at Craven Arms during the second world war in order to be safe from bombing. But these trivial shortcomings are mentioned only to demonstrate that your reviewer has done his job thoroughly. In summary, one of the best new books in our field in recent years, well researched and well documented.

MARTIN BARNES

PROTOTYPE LOCOMOTIVES, Robert Tufnell, 112 pp, 55 photo illus, many line diagrams, boards. David & Charles, 1985, ISBN 0-7153-8397-3 £9.95

The title of this book is somewhat misleading as the contents are restricted to seventeen basic designs, mainly of exceptional experimental types, most of them being the sole representatives of the respective designs and few of them having any chance of being usefully employed on the various lines which produced them. Hardly prototypes of classes.

Of the 'prototype' classes mentioned as produced for lines in Great Britain from the start of the century, one choice, that of GWR Atlantic class engine No. 40, 'North Star' is unfortunate as this was a four cylinder version of the earlier two cylinder design, scarcely a prototype, more akin to many other railways' improved designs.

The illustrations are good but the text suffers from a number of mistakes, only one or two of which can be regarded as printing errors. The book just misses being a very good production. G. DUDLEY WHITWORTH

THE GREAT WAY WEST, David St John Thomas, 96 pp, 253 x 232 mm, 110 photographs, 12 line block illustrations, 5 pp strip maps, 2 pp gradient profiles, chronology, boards. David & Charles 1985, ISBN 0-946537-15-1. £9.95.

This is the third impression, with extra material, of a book first published in 1975. In an easy-going text with photographs, reproductions of old prints and timetables, station plans, a series of strip maps and gradient profiles, it describes the GWR route from Paddington to Penzance. The author's love of his subject is obvious: it leaps out of almost every page. This is not a book aimed at the serious railway historian; he is well served in this subject by other books, but there is much of considerable interest, particularly the older photographs. A chronology at the end lists opening dates of the various sections of the route.

A sad feature of many recent illustrated books, in the reviewer's opinion, is over-enlargement of photographs which are then spread across the centre of the book. Loss of detail would be avoided by printing them to fill one page, and they would be just as impressive. Five photographs in this book are broken in the middle in this way and the two halves do not always line up exactly. Photographs are not credited; there is simply a list of names at the end with no reference to individual photographs. In contrast to some of the photographs a few pages from timetables are reproduced so small that they can scarcely be read without a lens. But despite these few minor shortcomings this is certainly a book to be enjoyed.

JOHN MARSHALL

WITH THE LNER IN THE TWENTIES, Humphrey Household, 180 pp, 185 photo illustrations and three maps, hard covers. Alan Sutton Publishing Ltd, Gloucester 1985. ISBN 0-86299-226-5 £9.95.

This book is autobiographical, being an account of four and a half years spent by the author on a training scheme with a view to becoming a Traffic Apprentice on the LNER. It adds little to the knowledge of the serious student of railways, and not all of the statements of the author can be relied upon. The book consists of ten chapters, and there are 92 pages of photographs and maps which range from the usual to the very interesting. Most of the latter are from the author's own camera. Regrettably the quality of reproduction of many of the pictures leaves much to be desired.

One of the most informative chapters contains an account of a six months posting as assistant to E. M. Bywell, editor of the LNER magazine and curator of the original Railway Museum collection. During that time Mr Household acted as official photographer at the testing of a Sentinel-Cammell steam railcar between York, Whitby, Scarborough, and York. Next follows a section on Northallerton's milk traffic. Mr Household travelled to some London goods depots and visited the Shildon-Newport electrified line, and he concludes the chapter with an account of his first journey on the West Highland Railway.

Chapter seven is a fascinating one on the early stages of road-rail competition, including adventurous road journeys between Newcastle and London. Perhaps a forecast of what may happen under the new Transport Act. The next chapter is devoted to the Wisbech and Upwell Tramway.

Among his early postings was one to Hull where he took the opportunity to photograph scenes at the docks. The Riverside Quay of 1907, however was NER and not H&B as he implies, and the statement that the former company then owned no docks at Hull is incorrect. The dates he gives for the opening of the docks differ widely from those quoted by Tomlinson.

The bibliography makes no mention of Tomlinson's 'North Eastern Railway' and whilst Dr Parkes' little book on the H&B is listed no reference is made to the more recent two volume history of that company. A. L. BARNETT

CANAL INCLINES & LIFTS, David Tew, 135 pp, 31 plates, boards. Alan Sutton, Gloucester, 1984 0-86299-031-9 £8.95

The means of traversing vertical distances on canals without lockage has hitherto been a much neglected study, probably because of the enormity of research required. But here at last is a very fine survey of inclines and lifts, both in Britain and elsewhere. The author's researches are considerable; for the Shropshire planes he generously acknowledges the 1964 thesis by Roger Tonkinson, but as Assessor of that thesis your reviewer notices that he modestly ignores Tonkinson's indebtedness to *his* work, already noteworthy at that time. There is a wealth of technical information and among it some interesting surprises. We learn that on the very first workable incline, that at Ketley in 1788, Reynolds had laid the railway on a blue brick base. By the time your reviewer first saw it a quarter of a century ago housing estates were encroaching and there was no sign of blue bricks or anything else of note—a pity, for their installation must have been some fifty years before they were in general use, and of great interest to historians as their later availability solved many problems with their durability and load bearing qualities. Plymley is quoted as a source on Ketley, but there is no mention by him of blue bricks; it would be interesting to know more of this important innovation.

At a later period the West Country planes and lifts on the Chard, Grand Western and other canals are particularly well described, while the most recent part of canal history inevitably shifts overseas to the continuing progress in giant lifts, inclines, and even the fascinating water slope at Montech, Britain having done little since Anderton and Foxton. This book is not padded out with thick paper and excessive leading between the lines. Instead it is filled with good factual material and its modest price represents excellent value for money. JOHN DENTON

THE MELTON TO OAKHAM CANAL, David Tew, 126 pp, 66 photo illus, 14 maps & plans, boards. Sycamore Press, Wymondham, Melton Mowbray LE14 2AZ. ISBN 0-905837-29-0, £15

This book goes a lot further than most to satisfy readers of canal books. Some want the engineering, some want company politics, others want plenty of illustrations. They are all here, together with many other aspects of the story of a canal. This fifteen mile stretch linked Oakham with the national waterway network via Melton Mowbray over an area dominated by influential landowners. Some were very helpful—others quite the reverse. The author treats them all with a careful impartiality that is clearly well researched, especially the difficulties with Lord Harborough which came to a head with the battle of Saxby when the canal was ready to sell out to a railway company. Its story makes exciting and amusing reading.

Other difficulties are interestingly chronicled such as the payment to the engineer by a 65 day bill drawn on London which he had to exchange twice to get currency acceptable in Sheffield. The author's first account of the Oakham Canal was published in 1968 and this is an extended version incorporating new research. Inevitably for a line closed over a century ago some photographs show little more than depressions in the ground, but they are no less relevant for that and some parts of the canal still contain clear water. A full double page spread map of the canal is reproduced on the endpapers and is thus far more accessible than maps usually found in books (if, indeed, they are there at all). This is excellent but your reviewer's only criticism in the whole book is the paucity of names on the map. Not even Saxby is mentioned and frequent reference to an Ordnance map was necessary, revealing an unfortunate weakness in an otherwise most commendable publication. JOHN DENTON

ASPECTS OF RAILWAY ARCHITECTURE, Linda Clarke and others, 65 pp, 199 photographs and drawings, soft covers. The Brunel Engineering Centre Trust, Bristol Old Station, Temple Gate, Bristol BS1 6QQ. £2.30 inc. post.

This is a picture book, but not 'just another picture book'. It has been compiled by four experts, not all of whom are architects. It contains about 85 per cent of the photographs and drawings which were displayed at exhibitions held in Bristol, York and London in 1984 to celebrate the 150th anniversary of the Royal Institute of British Architects. The book has sections on stations, engine sheds, signal boxes (whether a modern control panel or a row of old fashioned signal levers are architectural features may be questioned but they are of undoubted interest), goods warehouses, palatial hotels, enginemens' humble barracks, and offices. Several pages are devoted to the works of G. T. Andrews, very appropriate for a York based book, and to I. K. Brunel, who is not usually thought of as an architect. Bristol and York have chapters to themselves.

The illustrations are well chosen and very well reproduced. They are mainly from the collections of British Railways and the National Railway Museum, but also from such well known photographers as Dr W. Fawcett and our own Gordon Biddle. The only very minor criticism your reviewer would make is that no reference is made to the work of London Transport architects who, especially in the inter war years, produced some outstanding modern railway buildings. Excellent value and recommended. A. L. BARNETT

THE OLD GUNPOWDER FACTORY AT GLYN NEATH, T. Pritchard, J. Evans and S. Johnson, 48 pp 240 x 165 mm, 29 photo illus. 5 line drawings, map, soft covers. Merthyr Tydfil & District Naturalists Society 1985. Obtainable from the society at Brynheulog, Cilsanws, Cefn-Coed-y-Cymmer, Merthyr Tydfil, Glamorgan, £2.50.

This book is primarily written to give the history in full detail of the gunpowder works established in 1857 by the Vale of Neath Powder Company, which was later merged into Nobel's Explosive Co. Ltd and finally Imperial Chemical Industries Ltd who closed it down on December 31, 1931. In order to reduce the risk of explosions (which often did occur even so) the works were spread out into many isolated small buildings stretching for almost two miles along the Afon Mellte, or Vale of Neath, north-eastwards from Pontneddfechan, that is north of today's Heads of the Valleys road. These scattered buildings were connected by two miles of narrow gauge horse operated tramroad, the route of which is shown accurately on the double page centre spread map, with all its passing loops, five short branches, a cable worked incline railway, and a canal which paralleled the river for most of the way, leading to the turbine house. There are five brief mentions of the tramway in the text, not as much as one might have wished for, indeed there is far more about the horses than the rolling stock or track, but it is clearly visible in six of the photographs, and the water leat, or what is left of it today, appears in nine pictures. The book, and especially the map, is highly recommended to anybody interested in the surroundings and purpose of a tramroad as well as the line itself.

JOHN GILLHAM

CASTLEMAN'S CORKSCREW, J. G. Cox, 39 pp, 240 x 150 mm, 6 maps, one block & 14 illus, soft covers. City of Southampton, City Record Office, Civic Centre, Southampton. 2nd Edn 1985, £1.40 + 28p postage.

Here is the history of the Southampton and Dorchester Railway 1844-1848. The game of railway politics with the LSWR and the GWR, complicated by the gauge difference, the problems of traversing the New Forest and of finding a way out of Southampton, are all discussed fully. The oft-neglected question of station siting is considered. Captain Moorsom trained the theodolite and S. M. Peto shifted the landscape. The main text is a straight copy of the 1975 edition; then the author could not trace the company's minute book and relied upon press reports and other companies' records. This edition has two pages of notes based upon the minute book, which has since come to hand, referenced to the appropriate text pages. These modest additions constitute a striking indication of thoroughness in the original work.

The reproductions of old maps, although pleasant, do not always facilitate understanding; the illustrations are well chosen. This is an authoritative and well produced book which is very good value for money. HARRY PAAR

HORSES AT WORK, Donald J. Smith, 192 pp, many illustrations, boards.
Patrick Stephens Ltd, Wellingborough, ISBN 0-85059-737-4 £10.95

This is a well-informed, well illustrated, and most interesting book, even to one who has never been particularly enthusiastic about horses. But the author's love of horses is evident and he knows his subject so well that his own enthusiasm imparts itself to the reader. He has obviously done a good deal of extensive research in order to discover the many and varied uses of the horse. This shows in the list of chapters, e.g. State Ceremonial, At the Seaside, On the Farm, In the Army, and Police and Trade, etc. Even advertising—the Lloyds Bank Dark Horse (which your reviewer curses every time he writes a cheque over it) shows that the book can be of interest to other than horse lovers. It is also an uncontroversial book without political or other arguments. But having said that, although the Carlsberg Brewery had a team of horses it was nothing like so well known as that of the nearby Tuborg Brewery with red and green straw hats, so familiar a sight on the streets of Copenhagen. JEOFFRY SPENCE

THE BRISTOL AND SOUTH WALES UNION RAILWAY, John Norris,
32 pp, 5 photo illus, 2 maps, soft covers. RCHS 1985, ISBN 0-901461-38-5
£2.40 + p&xp.

The rail journey between Bristol and South Wales was shortened by the Severn Bridge in 1879 and again by the Severn Tunnel in 1886, but an earlier scheme to avoid the detour via Gloucester utilised a combination of ferry and rail travel. For that purpose the Bristol and South Wales Union Railway Company was incorporated in 1857. An existing ferry had to be improved and various difficulties overcome before the new link could be formally opened on 1 January 1864. The Company was absorbed by the GWR in 1868 and the service ceased with the opening of the Severn tunnel, the route to which from Bristol used part of the Company's line. In this well researched account John Norris describes the ferry services plus early railway schemes as well as notable events in the life of the Company and succeeds in presenting a wealth of detail in a most readable manner.

MICHAEL HALE

WEST SUSSEX WATERWAYS, P. A. L. Vine, 96 pp, 126 illus, 27 maps,
boards. Middleton Press, Midhurst 1985, ISBN 0-906520-24X, £6.95.

West Sussex was not an area of major industry, yet many of its rivers were made navigable, and the ill-fated short-lived London to Portsmouth Canal traversed the county. Pleasure craft still use the lower reaches of the larger rivers, but locks and other man-made features have disappeared or lie in a ruinous state. The book gives a short introduction to each waterway, followed by an often enlightening selection of pictures from earlier days, both before and after navigation ceased, with some more recent views. What makes this book more useful than other picture books is the inclusion of plans of significant features, taken from 19c editions of large scale OS maps. An attractive book, which would have been even more so had the quality of reproduction been consistent. DENNIS HADLEY

A CELEBRATION OF 250 YEARS OF IRELAND'S INLAND WATERWAYS,
Ruth Delany, 200 pp, 55 photo illus, 16 maps & plans, boards. Appletree Press,
7 James Street, South Belfast BT2 8DL, 1986, ISBN 0-86281-129-5, £10.95

The canal system of Ireland commenced with the construction of the Newry Canal in the 1930s. The Newry Canal was built primarily to enable coal mined in the

Tyrone coalfield to be conveyed to Dublin. It thus pre-dated Brindley's work at Worsley, though it was created for much the same purpose.

Mrs Delany has written an admirable account of the history of the Irish inland waterways, which included a much higher proportion of navigable rivers and lakes than did the corresponding system in England. This is the first time that such a history of waterways in the whole of Ireland has appeared in a single volume. It traces the story from the early attempts at making sections of the various rivers navigable, through the construction of the canals, their battle with the emerging railway system, which incidentally involved the acquisition of a canal company by a railway in only one case, their subsequent decline between the wars, and finally the recent resuscitation of a number of them as recreational and tourist amenities.

In a book of 200 pages it is obviously impossible to include a vast amount of minutiae, but the coverage is quite remarkable. The Tralee Ship Canal, about which practically nothing has previously been written, is described and even the tiny Belmullet Canal—surely the smallest isthmian canal—warrants a paragraph. There is a most valuable appendix listing principal details of all the waterways, a good selection of photographs, and a number of very informative maps.

One very small error, the statement on p. 149 that the railways in the Free State merged in 1938 is incorrect. This should read 1924, which year is quoted correctly on p. 141.

All in all an excellent book, highly recommended to all who may be interested in the waterways of our sister island, and reasonably priced. NEIL PITTS

SHORTER REVIEWS

WATERWAY ARCHITECTURE—An Economic Return from Conservation, Published by IWAAC, 122 Cleveland Street, London W1P 5DN, 26 pp, duplicated typescript, line drawings. £1.50.

The latest publication by the IWAAC is this report on waterway architecture. It is not a list of artefacts belonging to the BWB but rather a set of recommendations as to how such artefacts as the Board does possess can best be conserved for posterity. Appendices list organisations concerned with conservation, suggested reading and statutory provisions for conservation. The drawings which cover a representative selection of buildings, bridges, aqueducts etc. are mostly by John Hume.

A HISTORY OF THE TWEED BRIDGES TRUST, W. L. A. McCreeth and B. Arthur. Published by the Trust and obtainable from the authors at 4 Quay Walls, Berwick-upon-Tweed TD15 1HD, £1.25 post free.

The Tweed Bridges Trust was set up in 1884 with responsibility for the three bridges over the river where it forms the boundary between England and Scotland at Coldstream, Norham, and Horncliffe. It has just celebrated its centenary and has produced this little book which includes histories of the three bridges concerned as well as that of the Trust itself. It is of interest that Union Chain bridge at Horncliffe was the first suspension bridge in Britain to carry vehicular traffic and was said to be the longest suspension bridge in the western world before construction of the Menai bridge six years afterwards. All three bridges are illustrated.

EIGHT DECADES OF HEYSHAM-DOUGLAS, 45 pp, card covers. Manx Electric Society 1985. Obtainable from 'Norwood', Brunswick Road, Douglas, Isle of Man, £1 inc. p&p.

A good, well illustrated account of the history of the Midland Railway's harbour at Heysham and the Isle of Man shipping services.

A HISTORY OF GWR GOODS WAGONS, A. G. Atkins, W. Beard, D. J. Hyde & R. Tourret, 224 pp, numerous illustrations. David & Charles 1986, £12.95.

This is a new single volume edition of a work first published in two volumes in 1975/76. It is very largely a reprint but does contain some fresh information and a few new illustrations. There is also a short additional chapter on containers. Besides descriptions of the various types of goods vehicle there are chapters on freight working, telegraphic codes and wagon construction. Shunters' trucks, match trucks and brake vans are all included. A most useful and informative work.

BRITISH RAILWAYS WAGONS, Don Rowland, David & Charles, 192 pp, illus., boards, £16

This book, sub-titled 'The First Half Million' describes the goods wagons built by BR since 1948, mainly up as far as the final vacuum-braked stock, and also containers. It is profusely illustrated with photographs, plans, and elevations of most of the types of vehicle described, whilst appendices give lists of running numbers, dates of construction, etc. All types of vehicles are covered, including brake vans, service vehicles and even diesel brake tenders. There is a brief reference to current private owner wagons.

NAMES & NAMEPLATES OF BRITISH STEAM LOCOMOTIVES—No. 2 GWR & ABSORBED, Gordon Coltas, Heyday Publishing Co., Kingsway House, 83 Crosby Road North, Crosby, Merseyside. 80 pp, illus., card covers, £3.95

The second book in the series on locomotive names and name plates covers those of the GWR. As with the previous book on LMS names it includes only those which were carried by locomotives running on the GWR in post 1922 years, and also takes in the considerable number of named locos built by BR to GWR designs (Castles, Halls, etc). The small number of named engines from the railways absorbed by the GWR is included. The book is very well illustrated and contains a comprehensive index of the names.

Correspondence

Indexing Periodicals etc.

Sir,—I was interested in Dennis Hadley's review of the P. J. Long *Railmag Index* (which I have not yet seen) because over a period of some 48 years I have gradually acquired complete runs of *The Railway Magazine*, *The Railway & Travel Monthly*, and *The Railway World*, as well as numerous other periodicals, newspaper cuttings, etc. Fortunately I decided about 1950 that it would be valuable to maintain a full index of this material and I began to make this on 5" x 3" cards. Whilst it is undoubtedly

a hard taskmaster—one has to be disciplined about keeping it up to date as the new issues pile up relentlessly—its worth has been incalculable. Were I to begin again now I would of course put the entries straight on to computer discs as this offers such enormous time and space savings, but transfer of the many thousands of entries to disc stores at this stage would take more time and patience than I have left to spare for such boring work. Nor could anyone else do it easily as they would find great problems in reading my writing (often minute) on the cards.

I warn anyone thinking of attempting to create a worthwhile index of the periodicals mentioned that they face a gargantuan task. It is first necessary to sit down and think very carefully about one's parameters and what headings and general classifications should be used in addition to proper name and place entries (I have something like 500 *general* headings). Should one index material about (e.g.) freight traffic under that general heading, under the place names concerned, the commodity handled, or under the railway companies handling it, or all of these, cross-referenced (?). I did not do this very methodically and my index is constantly being reshaped, with cards rewritten (introducing possibilities of error). One should have a policy about how branch and other lines are indexed, thus Cheshunt-Lower Edmonton (correct alphabetical order) rather than Lower Edmonton-Cheshunt or Southbury or Churchbury Loop, which is what the author may call it. Again I did not have the sense to do this at the start. Then there is the sheer slog of tracking down and extracting worthwhile material. Every small 'Pertinent Paragraph' or news item needs to be carefully read to ascertain whether it contains anything worth indexing. Many articles have totally useless or misleading titles and need to be read through to make certain their contents are correctly classified. It can also be helpful to note the existence of maps, plans, gradient diagrams, and particularly interesting illustrations. This is what I have tried to do over the years, no doubt with many omissions and errors as the midnight hour approached and passed. Of course, if one sets out merely to list the basic subjects of articles of say half-a-page length or longer and ignores the rest, it will be easier, although much valuable information will be missed. No such index will be ideal for all users; it is best to make one's own, to suit one's tastes and interests. I have no regrets, even if I do curse my own incompetence and laziness occasionally whilst using it! ALAN A. JACKSON

Weedon Bridge

Sir,—In Vol XXVIII, 3 Arthur Jordan asks for sources of a detailed description of this bridge. The one I have noted is in an article on 'Swing and other Opening Bridges' by S. M. Phillp in *The Railway Magazine* March 1907, where in part 2: 'On the London & North Western Railway', he notes:

Another bridge of somewhat less importance is at Weedon, where it formerly carried two main lines of railway over an arm of the canal, but the obstruction to the traffic was found to be too great for it to be allowed to continue, and many years ago, the main line was diverted at heavy cost, and at the present day the bridge only carries a siding over the canal. It is what is known to engineers as a 'rolling' bridge, or drawbridge, in shape somewhat resembling a truncated wedge, and moves sideways on three wheels travelling on rails laid at an angle to the canal, and so balanced that one portion of the bridge overhangs the canal, and rests upon an abutment on the other side. It is actuated by a rack and pinion arrangement, and requires the services of four men to open and close it. The bridge is inter-locked with the adjoining signal cabin. . . .

The article does not unfortunately illustrate this particular bridge, though others are shown. ALAN A. JACKSON

Sir,—Stanley A. Holland appears to be unnecessarily confused regarding the railway bridge over the canal arm leading to Weedon Depot (not Barracks!). Arising from my letter in the *Journal* for November 1984, Stanley Tyson kindly sent me a drawing of the bridge which answered my query as to its construction, although I was never in any doubt regarding its location.

When the London & Birmingham Railway opened in 1838 it crossed the Weedon Depot canal arm on the level. Consequently, to allow barges to pass, the railway bridge was made to be drawn back on to the north bank. This left a yawning gap in the main line! The situation persisted until 1888, when the LNWR realigned the main line to cross the canal arm by a bridge giving clearance for barges. The original main line now became only a siding, although the drawbridge remained in use for shunting purposes and was only finally removed for scrap in the 1950s. The siding line was on the east side of the main line. Regarding the narrow-gauge system within the Depot, this served the eight storehouses on either side of the canal arm and most certainly did cross the canal arm from south to north by a lift bridge. This is clearly shown on earlier OS maps.

The Depot's history covers 180 years during which time there have been many additions, demolitions, and alterations. From being entirely canal served it became entirely railway served and finally only lorry served. No surviving ex-Depot employee's memory will cover such a long period, a fact I have learned from experience during long research into the Depot's history. ARTHUR JORDAN

Eau de C. on the H&B

Sir,—Further to the letter from Michael Robbins (*Journal*, March 1986, p. 317) I certainly remember one type of automatic machine, to be found on railway stations, which supplied eau de cologne. This was a very wide machine incorporating six or eight stacks and corresponding delivery drawers, the contents of each section being indicated by vitreous enamelled plates fastened to the front of the respective stacks. My recollection is that, in addition to chocolate, these multi-drawer machines offered Everton toffee, throat lozenges, cigarettes, matches, and eau de cologne. Incidentally, all sections were designed to accept one penny in the slot, so that the amount of merchandise delivered was adjusted to suit current prices. For example, around 1920 a single cigarette was obtained for 1d, but the small box in which it was delivered was obviously designed to hold two cigarettes, doubtless the quantum of delivery a decade earlier.

With regard to eau de cologne, what is surprising is that these very small portions of such a volatile substance could be stored in these machines for months at a time without appreciable loss. B. S. COOPER

Metric Equivalents

Sir,—I would like to comment on the letter 'Metric Equivalents' in the March *Journal*.

Firstly, by international agreement, this country should be adopting the International System (SI—Système International) of units. This is based on the metric system, but uses only a limited range of the metric units. E.g. the following are not SI units: centimetre, hectare, tonne, minute. Perhaps the R&CHS should issue advice on units to be used in books, etc.

Secondly, I should like to warn of the ease with which gross errors can go uncorrected when using unfamiliar units. I have recently read 'the Dortmund-Ems Canal encounters a fall from Dortmund of about fourteen kilometres. . . .' (page 85, *Canal Inclines and Lifts*, by David Tew). Errors of this magnitude are even more easily overlooked when the units involved are Joules, or Newtons per square Metre. ALAN RICHARDSON



Engraving by J. Resch copied from Albrecht Durer's designs
16th Century

All copy for the November *Journal* should be with the Editor by 4 July 1986 and must conform to the style-sheet published in the November 1981 issue. The top copy should be sent, not a carbon or a photocopy.

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