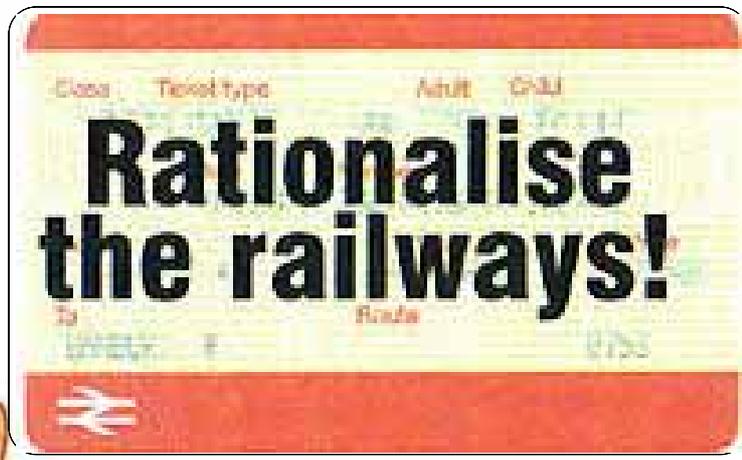


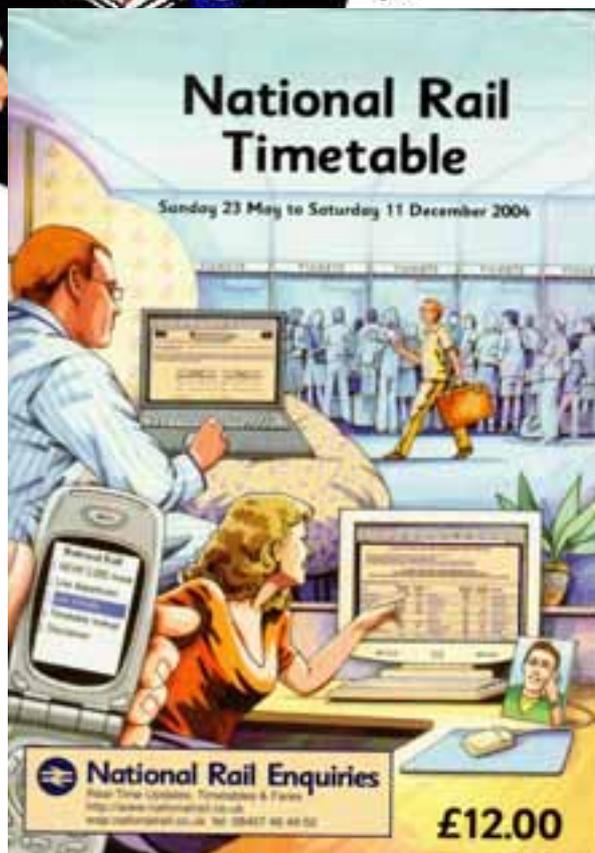
The Times

April 2005

A journal of transport timetable history and analysis



How Maggie and John made the trains run late



Inside: The 4 Guildfords

Timetabling trains in disaggregated railways

Newman's Indian Bradshaw— a relic of the past

Border Hopping on the Murray

The Fat Controller goes missing

**RRP \$2.95
Incl. GST**

The Times

Journal of the Australian Association of Time Table Collectors Inc. (A0043673H)

Print Publication No: 349069/00070, ISSN 0813-6327

April 2005

Issue No. 253 Vol 22 No. 4

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A name is a name is a name is a name.....

*The Editor had a sinking feeling when he published ROSS WILLSON'S list of replicated names. In the manner of these things and in a field of obsessive-compulsive grumpy old men (GOM), it was sure to provoke responses. And so it has proved. One of our non-GOMs, DAVID HENNELL, has had **this** to say about the 4 Guildfords— and many others.*

Just a few thoughts about metropolitan (and other) stations with common names following on from Ross Willson's article in the February 2005 issue of *The Times*:

The various railways' fare structures generally did not allow for through booking for journeys of the type Fairfield to Fairfield via Fairfield. For most systems, through booking from suburban stations to country or interstate destinations, or vice versa, was not permitted unless the suburban station was on the direct line. This was particularly significant in the case of intersystem journeys as many intersystem trains stopped at very few, if any, suburban stations, even in break of gauge days. In the case of Fairfield to Fairfield, one would have booked Fairfield to Melbourne, Melbourne to South Brisbane (later, Roma Street) and finally South Brisbane to Fairfield — despite having already travelled behind Fairfield station. [The Melbourne station would have been Fairfield Park prior to 14th November 1943 so the journey wouldn't have worked before then.]

Genuine intersystem journeys from one suburban station to another suburban station were rather rare. Realistic ones included Hornsby to Ipswich via Wallangarra, Parramatta to Gawler (using the *Silver City Comet* and either the Silverton Tramway² or the local SAR standard gauge trains³) or Fremantle to just about anywhere in the eastern states' capitals where the intersystem train stopped. For many years, Fremantle had the same status as Perth for intersystem journeys and fares were quoted between Fremantle and the other cities.

Journeys between suburban stations in different suburban areas within the same system were quite common. Examples include Northgate to Gordonvale (Queensland), Irymple to Footscray (Victoria), Kalgoorlie to Fremantle (Western Aus-

Station	Capital cities
Albert Park	Adelaide, Melbourne
Albion	Brisbane, Melbourne
Hastings	Adelaide (Glenelg and South Coast Tramway ⁴), Melbourne
Hilton Road	Adelaide (opening name for Hilton), Hobart
Middle Brighton	Adelaide (second name for Hove), Melbourne
North Brighton	Adelaide (first name for Hove), Melbourne
Seven Hills	Brisbane (Belmont ⁵ Tramway), Sydney
Sherwood	Brisbane, Perth (formerly Kingsley)
Showgrounds	Adelaide (not the present temporary Showgrounds Central but the one on the former branch line), Melbourne, Perth (2 sites)
Somerton	Adelaide (Glenelg and South Coast Tramway), Melbourne

tralia) and Maitland to Strathfield (New South Wales), to name but a few.

Killara was never a suburban station in Melbourne. At the time of the withdrawal of the passenger service on the Warburton line on 14th December 1964, the definition of the Melbourne suburban area was 20¼ mi from Melbourne and 28 mi on the Hurstbridge, Lilydale, Upper Ferntree Gully and Frankston lines, also including General Motors (21 mi). This definition meant that the then suburban limit was Mt. Evelyn (27¼ mi) whereas Killara was 34¼ mi from Flinders Street. The first extended definition of the suburban area

after the closure of the Warburton line (on 1st August 1965) did not include Killara either as the boundary station would have been Wandin at 30¼ mi (this is the 32 mi on all lines definition of 26th January 1969) but the 60 km definition of 10th August 1975 would have included Killara as the limit would now have been Woori Yallock at 60 km (37¼ mi)

The stations in the box above have unfortunately been omitted from the list.

A Golf Links stopping place also existed briefly within greater Glenelg in Adelaide. It was replaced by Alison Street in 1912 which in turn

37

EMU BAY RAILWAY COMPANY LIMITED

DOWN

STATIONS		No. 1	No. 3	No. 5
		One Mon. to Sat. Conditional	Mixed Mon. to Sat. Inchange	Mixed Mon. to Fri. Inchange
		a.m.	a.m.	p.m.
11 Burnt	Dep.	445	460	615
12 Bridley	Dep.	525	440	.
13 Hampton	Arr.	.	.	.
14 Luce	Dep.	605	715	730
15 Guildford	Arr.	700	810	.
16 Mt. Dora	Dep.	710	830	825
17 John	Dep.	820	925	930
18 Karri	Arr.	.	.	.
19 Duta	Dep.	.	.	.
20 Korooro	Arr.	900	1005	1010
21 Luce	Dep.	.	1015	1015
22 Roseberg	Arr.	.	1020	1020
		No. 4	No. 2	No. 5

TABLE 7. *Wagon and Locomotive Construction.*

MOBILE TO PREPARE

Wagon and Locomotive Construction

TABLE 7.

FOR COMPLETE SERVICE REFERRED TO HOOVER AND DEARLE SEE TABLE 5.

was replaced by McDonalds in 1913. Whether or not this Golf Links is a genuine station is debatable.

Unfortunately, a few errors have crept into the original list.

- Flemington Bridge and Flemington Racecourse exist in Melbourne but there is no Flemington.
- Golf Links is correct for Melbourne (Willison nowadays) and Adelaide but in Brisbane it was called Golf Club Gates.
- It's Newtown in Sydney but New Town in Hobart. There was also the rather clumsily named New Town (Cooley's) in Hobart but it was renamed South Glenorchy and later Moonah and this avoided the mouthful.
- Bellevue is the Perth station but it was Bellevue Racecourse in Hobart.

Occasionally, there were stations of the same name open concurrently in the same system. One of the better known examples was Normanby (Brisbane and on the isolated Cooktown Railway). Also in Queensland in late 1885 at least,

Greenmount was open on both the Mackay Railway (between Pleystowe and Wollingford but it seems to have had a very short life being closed by 1888) and between Toowoomba and Warwick. 1885 again produced Spring Creek on Queensland's Central Railway and the South Coast line⁶ (Fruitgrove nowadays, I think). I expect that there are other examples around the country.

Victoria had Church Street and Kensington. The two suburban Church Streets were renamed East Richmond and Middle Brighton on 1st January 1867. The Kensingtons are more interesting as the suburban one is well known but the other two were on the Queenscliff line — Kensington was opened at 53½mi on 26th January 1880 and relocated to 52 mi on 1st August 1881. The problem of the names was solved when Kensington (2nd) was renamed Leopold on 1st July 1886.

The Church Streets coexisted for about 6¼ years but this pales into insignificance when compared with the complications associated with the Glenelg lines in Adelaide:

- Glenelg — in addition to the station in Moseley Street for the Glenelg & South Coast Tramway Co., there were two or three (depending on how you look at it) ordinary Glenelg stations. The original one - for the Adelaide, Glenelg & Suburban Railway Co. (*i.e.* the South Terrace line) - was located in Moseley Square (it is also referred to as being in Jetty Road) and was opened on 4th August 1873. The Holdfast Bay Railway Co. opened its line from Adelaide station (*i.e.* the North Terrace line) to a terminus in Victoria Place, this being the southern end of Althorpe Place which it later became, around the corner from Moseley Square on 1st June 1880. (Althorpe Place is the present-day Colley Terrace, well known for its former train stabling sidings.) This new line used the same station facilities as the South Terrace line despite there being no rail connection at their termini. The companies amalgamated to form the Glenelg Railway Co. during November 1881. The SAR, which took over from the new company on 16th December 1899, opened a new Glenelg station in Wigley Reserve at

Revolution in timetabling (3): How Maggie made the trains run late

GEOFF LAMBERT continues our *Hindsight Saga* of timetabling history. *Part A: A failed experiment?*

The railway world has seen many changes—even revolutions—over its two centuries of existence but none have been so dramatic or widespread as those wrought by Margaret Thatcher. The timetable world was simpler before her. Clever men with green eyeshades, sharpened pencils and large sheets of graph paper slaved away in offices to draw up timetables for the trains they could see running outside the window. The *Iron Lady* changed that and we do it her way now. Train Operating Companies exchange PIF files with track owners in a near-endless cycle to come to a common position on schedules. Thatcher started something in Britain that has spread to most of the railway world—only North America holds out. What many of us saw as an unworkable return to the concepts from the dawn of railways has been forced into legislation all over the planet and even enshrined in European Union agreements. Many people do not like it—currently touring Australia is a bitter West End play *The Permanent Way* based on the Thatcher-induced decay of Britain's railways. In a kind of inverse Midas-touch where everything turns to lead, Thatcher's legacy has overturned Mussolini's boast to make the trains run on time. Now all trains run late because the processes of timetable planning have become as fragmented as the industry itself.

This month we examine how it all came about, how it operated and

how it failed. We start with Britain, until the time that the new process fell on its face. Next we will examine Britain's attempted recovery and move to see how other EU countries handled the overturning of two centuries of timetable tradition. This will set the stage for how the revolution overtook the Australian rail industry and its formerly placid timetable world.

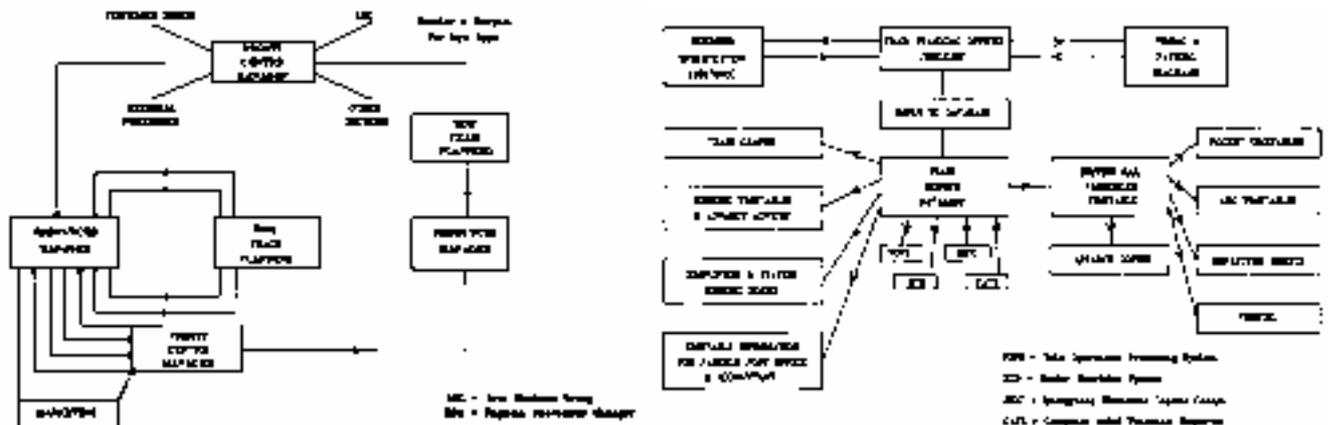
The latter years of timetabling on British Rail

In Part 1 of this series, we examined timetabling tradition by describing how a British railway company timetable was put together 100 years ago. The structure of the railways altered markedly through the Grouping, on into Nationalisation and then into the sectorisation of British Rail. During the 1980s the pace of change quickened with 'Sector Management' being introduced. But train planning in the 1990s had been affected relatively little, with the work undertaken through a regional structure of regional train planning offices matched quite closely with the pre-nationalization railway companies. All traffic flows were allocated to one of five business sectors (*Inter-City, London and South East, Provincial Services, Freight, Parcels*) and, during the 1980s decision making was gradually transferred from the existing functions (operations, civil engineering, etc.) to the Sectors. The final stage of the transition to business management was undertaken

under the banner of '*Organizing for Quality*'. In the new organization which came into effect in 1993, the functions were finally subsumed in the Sectors, with 'management' replaced by 'contracts' (in truth internal agreements).

In the 1980s, the United Kingdom's Competition Commission (CC) held enquiries into various sectors of British Rail and usually included an analysis of the timetabling process in its reports. The diagrams below are taken from the CC's 1989 report and show the processes for the 'Provincial' sector, as the CC saw it. Before restructuring, this process started a little over a year in advance of the commencement date for the timetable with the *Engineering Requirements*: some constraints have to be imposed on the availability of the infrastructure to give time for the engineers to maintain, renew and enhance the network. Typically in the UK this was achieved by allowing engineers access to the track for a limited time each night and for an extended period on weekends.

Within the constraints these imposed, *Business Specifications* were produced. The marketing departments of the internal businesses produced a train service specification on the basis of past performance plus market research to assess demand for rail services. This typically set out the general service pattern required (e.g. a stopping train every 15 minutes, an express



train every hour.)

Railway Train Planning is usually considered in three time horizons: *strategic*, *tactical* and *operational*. In strategic planning, changes to the infrastructure alter capacity and in operational planning the task is taking care of the real-time disruptions that are a feature of transport. In the U.K. tactical planning is known a little confusingly as *long-term planning*. In it, things take place over a timescale where the infrastructure is fixed, but the rolling stock and people can be varied in quantity, quality and intensity. It produces the timetables that are in operation for a number of months, typically between 3 and 12. The other part of tactical planning is known as *short-term planning*, is where changes are made to the long-term plan to cope with supply or demand fluctuations.

Train Planning covers:

- *Timetable planning*: accommodating train services on the railway network, subject to constraints imposed by the physical characteristics of the network and the need to maintain and renew it;
- *Locomotive/rolling stock planning or diagramming*;
- *Train crew planning or diagramming*; and
- *Train crew rostering*.

The last three stages are often known collectively as *resource planning*.

Prior to Privatization, train service specifications were given to the timetable planners and they produced detailed train schedules and drew them by hand onto a timetable graph to assess whether they were mutually compatible. The timetable was complete once all the train schedules had been put on the graph and the graph was 'conflict free'—if there were no external perturbations, no train would be delayed by any other.

A key principle in the unstructured railway was that of '*first on the graph*'. Long-distance passenger InterCity trains were treated as top priority, local services had to fit around them, and freight trains took whatever space was left. This principle simplified the planning task as it reduced the number of permutations that had to be considered. Despite this, considerable complexity still existed. The timetable planning responsibility for British Rail was split across a number of geographic offices, with interface difficulties for the planning of ser-

vices that passed through a number of these.

Bespoke software (*Protim*), evolved over several years by British Rail's computing division, was used widely to support train planning, mainly to document solutions. Little of the development work on automated scheduling undertaken at universities had found its way into production use.

Timetable production

Once the timetable had been finalized, various versions of it were prepared, matched to the needs of different users. In the UK, the *Great Britain National Passenger Railway Timetable* was published twice a year, giving details of all services to be run on the ex-British Railways network, *pocket timetables* were prepared for individual lines, a guide was produced covering long distance services and a variety of internal *working timetables* and *station working booklets* were also produced. Data were also transferred at this point to the various systems that provided computerized timetable information, either for direct Web access or for the use of staff in telephone enquiry bureaux.

Privatization

Of the early English railways, probably only the Stockton and Darlington was run on the principles espoused by Thatcher. Any person could, by paying the charges, put his own horse and carriage on the railway. As a consequence, several competing services were running simultaneously. Congestion was rife and the system was deemed to be unworkable. By the time of the Liverpool and Manchester Railway in 1830, its Act stipulated that the Company must own and operate the railway itself and not allow access by toll-paying outside parties. This principle continued for over 160 years.

Much discussed during the late 1980s, railway privatization became a serious topic on the political agenda in the early 1990s. The driving force behind it was competition. Competition was a type of *four legs good, two legs bad* mantra, which would achieve improvements in services and finances. Above all, **competition** drove the restructuring of the timetable planning process. Although there had been competition of a type in the railway industry in pre-Grouping days, it was of the common end

points/ route-versus-route type. Three companies might compete for the London-Manchester traffic via their timetables (frequency, speed and departure times)—but over three different single-owner routes. The height of end-to-end timetable competition was in the infamous '*Race to the North*' which lasted for only months before the exhausted competitors entered a gentlemen's agreement to withdraw. By then the railways regarded timetable competition as a waste of resources and began to enter into 'pooling arrangements', in which they reduced timetable competition and shared the traffic. A notable example of pooling was the working arrangements that arose out of the 1905 truce between the South Eastern and the London Chatham and Dover Railways—previously the most extreme of the squabblers.

Thatcher's new competition harked all the way back to the Stockton & Darlington, with multiple companies touting for the same traffic over a common track owned by somebody else- and using somebody else's rolling stock. Under Thatcherism, 'Pooling' would be 'collusion' and an 8th deadly sin. The administering Authority's objectives were explicitly framed to focus his attention on achieving this competition. Originally it was foreseen that the system would move quickly to full '*Open Access*', with unbridled competition between operators for train paths in the timetable over all sections of track. This proved hard to implement however and was postponed for 'at least 5 years'—and, apart from the freight operators, has never actually happened.

It was trumpeted that moving from state monopoly to private competition would make the railways more efficient and even profitable, removing the yoke of public subsidy, averaging some three quarters of a billion pounds per annum. While there was some truth to the idea that profit-driven railways are more efficient, it also ignored the contrary facts that Government railways could be profit-makers and private ones loss-makers. In NSW for instance, profit from the Government-owned Railways supported both the hospital and education systems for over half a century. In the land of the free and the home of the brave, private enterprise railroads had made losses on passenger traffic for decades.

Several potential new industry structures were considered, including privatizing British Rail as a single entity, splitting the railway into regional monopolies, selling the newly formed Sectors separately or vertically separating the railway into an infrastructure provider, competing Train Operating Companies (TOCs) and supply companies. The latter option was adopted, with an Act of Parliament becoming law in 1993, and with April Fools Day 1994 set as the date for implementation of phase 1. Railtrack was set up as a separate 'GoCo' (Government Owned Company) responsible for maintenance, renewal and operation of the infrastructure. British Rail was also broken up into 25 Train Operating Units (TOUs), which were later to be turned into franchised private sector TOCs over the next few years, with Railtrack to be floated on the Stock Exchange.

Vertical separation of railways was already a requirement of Directive 91/440 of the European Union and had been implemented in Sweden before the U.K. However, only in Britain was this combined with transfer of the railways to the private sector. In other EU countries, the various components mostly remained Government undertakings. In particular, there is little competition between operators for track access under most EU regimes.

The ultimate structure was far from simple (page 10), with several classes of bodies responsible for operating the railways and several layers of regulation by Government. Most had input into the timetabling process. Furthermore, the structure was tinkered with from the start. Various components went broke, were taken back by Government or merged and new layers of regulation were added.

Licences

Under the Railways Act, licences were required for the operation of railway assets. There were 4 types of licence:

- (a) train operator—which could be a passenger or a freight licence;
- (b) station;
- (c) light maintenance depot; and
- (d) network (Railtrack).

A Train Operating Company's *Passenger Licence* to operate passenger trains was issued by the Rail Regulator and contained clauses and conditions relevant to train

planning and timetabling. These specified how the TOC was to interact in train planning (Condition 12) and that it must publish public timetables of a certain standard (Condition 4). At least that is the way it is now; there is some evidence that initial licences contained specifications on intensity of train services, etc.—but old licences are hard to find.

Railtrack received a *Network Licence* to run trains on the system from the Office of the Rail Regulator. Its Conditions 3 and 9 specified '*Provision of Timetable Information*'—meaning the provision of timetables to the public—and '*Timetabling*'—meaning how Railtrack was to work with TOCs and Freight Operators to produce timetables in general (implying Working Time Tables). Condition 3 was only added as a last-minute change of heart by the Government (see later). Both Condition 3 and 9 were modified from time to time, most recently in 2001; the original versions appear not to be available.

Passenger Franchises

Core of the system was the concept of a competitive *Passenger Franchise*—a term normally taken to mean, a Government granted right to a service provider to use the public property such as a right-of-way. The idea of competition *for* the market, as opposed to competition *in* the market, dates back as far as 1859. Franchises may be exclusive (such as garbage collection where everyone receives garbage collection from the same agency) or nonexclusive (such as telecommunications from multiple carriers). U.K. Passenger Franchises are of the former type. Franchises were let by OPRAF, the *Office of Passenger Rail Franchising*, to run a particular exclusive service over a portion of Railtrack's network. The requirements of each Franchise were set out by OPRAF; they were mostly the existing service requirements then being operated by the newly-fragmented TOUs. Potential franchisees could bid for a service frequency higher than the minimum specified in the requirements and presumably this was reflected in the price they asked, but it does not seem to have played a role in the awarding of franchises. Franchises were awarded on the basis of the lowest bids for the subsidy required by the franchisees to meet the costs of the planned timetable. No one expected that franchises would be

immediately profitable—they would still need to be subsidized by OPRAF—but it was confidently planned that this need would dwindle with time, eventually becoming a 'dividend' to OPRAF. Competition for the first franchises was fierce—there were 160 expressions of interest for the first 8. A selection of these were invited to make a formal bid and, via a multi-step process, were eventually whittled down to a winner. Franchise Agreements do not seem to be as freely available as other documentation in this complex world and ever since OPRAF was replaced by the Strategic Rail Authority, all of its documentation, including the first franchises, seems to have vanished utterly.

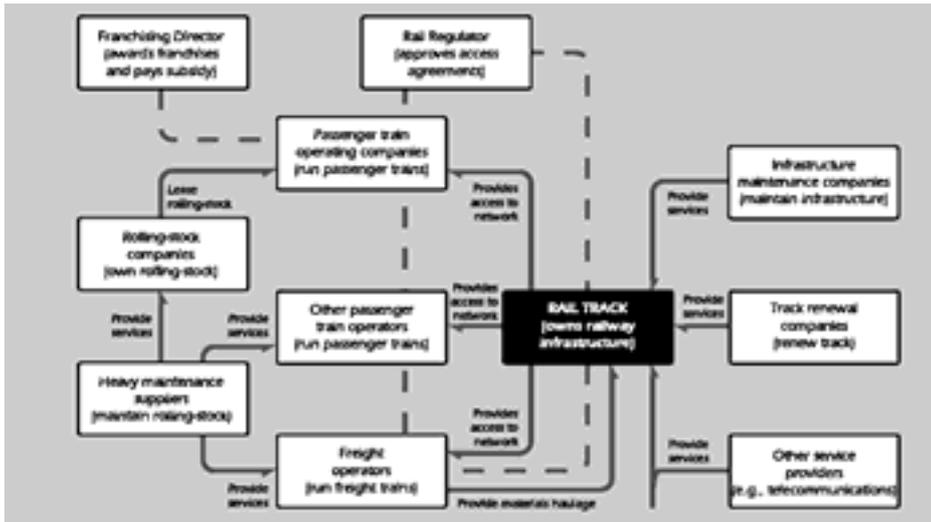
Though it was the franchise that a TOC purchased from OPRAF and not a timetable, the franchise did contain considerable timetabling requirements, in particular *The Public Service Requirement* or *PSR*. The PSR detailed the minimum services which the franchisee was required to provide. Although not a timetable, it set out the minimum service standards to be provided in the franchisee's timetable. The details varied from franchise to franchise and included matters such as:

- (a) frequency of trains;
- (b) stations to be served;
- (c) maximum journey times;
- (d) first and last trains;
- (e) weekend services;
- (f) through services; and
- (g) load factors and/or peak train capacity.

The franchise operator's obligations relating to the quality of the rail service it provided were derived from 3 sources:

- (a) a schedule to the franchise agreement which set out the PSR for the TOC as required by OPRAF;
- (b) additional commitments to specific service enhancements over and above the PSR which the franchisee included in its tender and became committed as a result of their inclusion in the *Franchise Plan*; and
- (c) a requirement on operators to survey customer satisfaction with quality of service and the requirement which could be imposed on them to take remedial action if satisfaction fell below benchmark levels.

Performance of the franchise operator against the PSR was moni-



tored by OPRAF which established three stages of intervention in the case of shortfall, culminating in default of the franchise agreement.

Passenger Service Track Access Contracts

Once a TOC had acquired a Franchise from OPRAF, it then had to enter into a *Track Access Contract* (aka Agreement) with Railtrack, to firm up the service and timetable requirements to which it had committed itself in its Franchise. This was where the fine print of the timetable requirements were to be found. Like early franchises, the initial Track Access Contracts are hard to uncover, what follows is based on the situation some 8 years later. Typically a Track Access Contract (which could be 150-200 pages long) made provision for timetabling matters in several sections, but the bulk of the matter was in its '*Schedule 5*' (there were 12 Schedules in a typical agreement), which expanded greatly upon the timetabling matters in a TOC's Franchise, going so far as to define the term 'Days of the week' and the symbols to be used for them.

Freight Service Track Access Agreements

There was no such a thing as a Freight Franchise, but rail freight operators had to have a licence to run trains and they had to enter into a Track Access Contract. As with a Passenger Contract, Schedule 5 of the Freight Contract set out in great detail the timetabling process, the operators' rights to freight train timetable slots and the process for bidding for them.

The implications for timetabling

In 1993 it became apparent to British Rail that privatization was actu-

ally going to happen and preparations began. A committee known as the *Timetable Planning Strategic Development Group* had been in existence for some time, with responsibilities for improving the quality and effectiveness of train planning. It was made up of staff responsible for train planning and those who could be regarded as the 'customers' of the train planners—those responsible for producing the business specifications and accepting the output of the process. The work already undertaken to understand the weaknesses of the existing process was put together with an assessment of the needs of the privatized railway to produce a synopsis of the key issues to be addressed. It was accepted that the process would be inflexible and time consuming, more so with privatization when the TOCs inherited services from the TOUs and began to compete and innovate.

The group that developed the proposals understood that the revised process was considerably more demanding than the old one. They concluded that 'extensive information systems support' would be required but that, given an immediate start, this could be delivered in time. Funding was sanctioned and by late 1993 the systems division of British Rail had set about developing a package to enable data transfer between the train operators

The chosen method of privatization was to have a significant impact. It was a 'given' for the new train planning process that it should accommodate competition effectively. This implied that the process should be fair and it should be confidential. There could no longer be train operators who had rights to be 'first on the graph'; neither

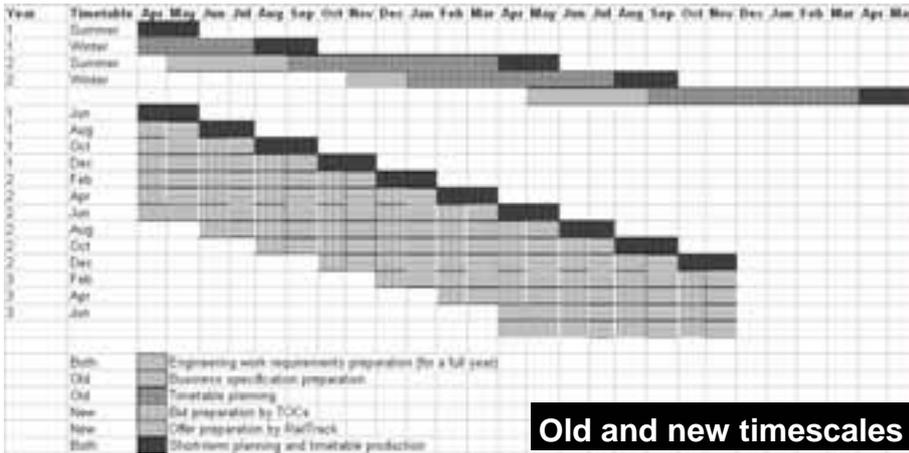
could there be discussion between operators in advance of their 'bidding' for access. It was even suggested that such discussions would amount to collusion and contravene competition law.

It was anticipated that the private sector would demand great flexibility, with frequent service changes to match with perceived demand and to deal with competitive threats. Major timetable changes had previously been restricted to once per year or, if really essential, twice per year. It was anticipated that this would be wholly inadequate for the private sector and that something more akin to the bus industry would be required, with an opportunity to amend timetables every few weeks. Finally it was anticipated that the new processes would have to be documented in contractual terms because the new structure of separate legal entities would require a process that was clear, precise and enforceable.

The new process endeavoured to address these anticipations. Tasks were allocated to the train operators or Railtrack on the basis of the best fit with their overall responsibilities and interests. The key feature of the process was that, partly because of joint interest in this stage of the process but also to minimize the number of staff that Railtrack had to employ, the timetabling element of the train planning process would be split between train operators and Railtrack.

A number of train planning documents were produced by the various bodies. Important was the *Railtrack Access Conditions* document, whose Section D set out in detail the timing and logistics of timetabling. This manual, although it was meant to cover all future eventualities was frequently revised. Often Section D appeared with multiple versions each with different specifications for each future timetable cycle. Sometimes this was a result of edicts imposed from above and sometimes it was the result of RailTrack trying new processes on a 'suck it and see' basis.

Just as important were the *Rules of the Route* (RotR) and the *Rules of the Plan* (RotP) documents. The former was mostly concerned with the Engineering Requirements, particularly the upcoming year's works possession and occupation schedules. The *Rules of the Plan* was produced in RailTrack Re-



Old and new timescales

gional volumes, which mostly specified running times, dwell times, recovery times, gradients, speed limits, timing headways, signal-box opening hours, and similar allowances on a line-by-line and rolling-stock basis. The Rules of the Plan was the basic skeleton, which the TOCs would flesh out with their timetable bids. It was, in many ways, like the old WTT Appendices- although these also continued to exist in great volume and profusion. A *National Rules of the Plan* was later also produced. It was in effect a 'how-to' guide book to the way the timetable planning process was supposed to work. Both RotP and RotR were to be reviewed and re-issued for every new timetable period, i.e. initially every 2 months. This was later cut back to twice per year and later still cut back to an annual issue. In addition, Railtrack was to supply each TOC with the most recent Working Timetable in hard-copy or electronic form, suitably modified according to the current RotR and RotP.

Constructing the timetable

Each train operator was required to take all this guff and produce from it a detailed timetable for its own services. There was no specification as to how they were to do this (by hand, by computer, graphical or tabular?) nor any means of assuring that the product would be of standard form or even of acceptable quality. As it transpired many TOCs were found wanting in both areas. The resultant problems with train planning software are discussed later, but one of the main early hurdles was the incompatibility of the different packages used by RailTrack and the TOCs. RailTrack used an evolutionary version of BR's former in-house package *Protim*, whereas the TOCs used (if any at all) a variety of commercially available products

which were then in a very crude stage.

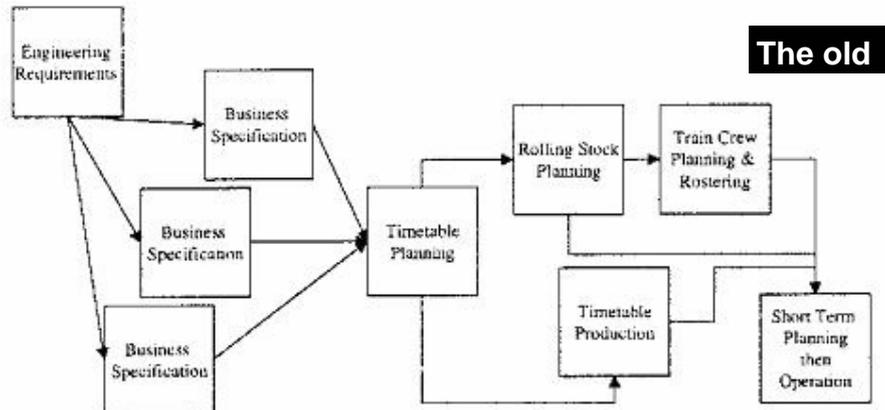
The resultant *Bids* that came out of these packages would be transmitted electronically to Railtrack who would overlay them in *Protim* and deal with any conflicts by '*flexing*' those trains to run a few minutes earlier or later to achieve a '*conflict free*' timetable. It was not clear then, and it is less clear now, what a bid actually was. Certainly it does not seem to have been a bid in the sense of an auction bid; there was not an element of bidding by offering a higher price involved, as now happens on some European systems.

Where necessary revised times would be '*offered back*' to the train operators for them to respond to.

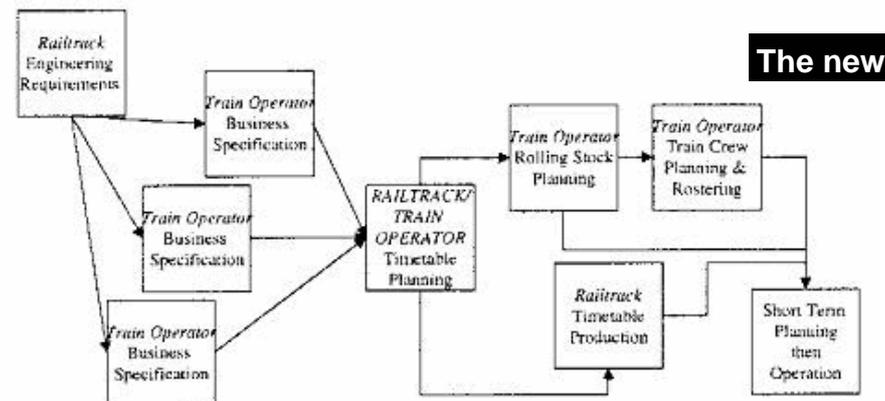
This bid and offer process would be repeated a further four times, with the timetable gradually being refined over this period, as TOCs accepted the offers made or rejected the offer and '*rebid*'. New bids could also be accepted, but an operator would run the risk of all the available capacity having been used up. There would be six timetables per year, with each of the timetables having five '*iterations*' or '*cycles*' of bid and offer. Each cycle consisted of a bid period and an offer period (definitions for these things formed part of the fine print of the documentation). Thus every TOC would be working on 5 quite possibly different cycles simultaneously. The identity of bidders would be kept secret until the timetable was published. To achieve an overall process length of 1 year, the bid and offer periods would be restricted to 4 weeks each.

A comparison of the time scales and stages for the new and old processes is shown above left.

RailTrack was, broadly speaking, geographically divided into 'Zones' according to the old British Rail regions which, again broadly speaking, had been formed out of the 'Big Four' post-Grouping companies. The Train Operating Companies, on the other hand, were geographically divided along lines



The old



The new

similar to those existing pre-Grouping (see *'Ghosts in the Timetables'*, The Times, Oct. 2001) with the extra complication that each TOC was supposed to assume in part the role of only one of the of the BR Passenger Sectors- *Main Line, Regional Railways, or Network Southeast*. This tri-level approach caused administration difficulties (not least in timetabling) and has led to suggestions of making TOC franchises more congruent with RailTrack (Network Rail) Zone boundaries. RailTrack Working Timetables not only adhered to the old regional structure, they retained the pre-Grouping subdivision of that structure that had persisted over nearly 5 decades of Nationalisation. There were, by the early 1990s nearly 50 separate WTT volumes for 6 separate regions.

Although most of the competition in the privatized system was **for** a Franchise rather than **between** Franchises for timetable paths, there was necessarily an element of the latter in the timetabling process. It had been like that in the Sectorised BR in any case. Rail-track had to juggle competition for track paths without prejudice or prioritization.

Timetabling was never really a simple process, but in the privatized world of 1996 it descended into a kind of antechamber of Hell. Whatever one may say about this, we cannot say that we do not have a map to this Hell—rather the reverse is true. Specifications and policies for timetables arise from the Strategic Rail Authority, the Office of the Rail Regulator, the Competition Commission, the House of Commons, Network Rail, the Train Operating Companies and the Transport Users Consultative Councils. The paperwork is overwhelming, is constantly revised and replaced- and is expensive. But it is at least open. Because of 'competition' anyone who might like to run a train on Network Rail's system—you or I—must have access to all the necessary documentation, which runs into hundreds, if not thousands of documents freely available on various websites.

The National Timetable

The old private companies and later the British Rail Regions published their own regional timetables but for 133 years there was only one national timetable—

Bradshaw. When Bradshaw ceased publication in 1961 there was at first no replacement National Timetable- only BR's Regional timetables. In 1974 BR stepped into the breach and began producing its own, which quickly became as much a national institution as had Bradshaw (see *For Freedom*, in next month's The Times).

The Ian Allan magazine *Modern Railways* led the charge against Thatcher's privatization and one of its major concerns was the fate of the National Timetable. The Minister for Transport in London told the magazine 'It will be up to operators to produce timetable information, since it will be in their interest to do so.' Although the original White Paper that presaged Privatization referred to RailTrack being responsible for timetable production it was later explained that this only referred to the Working Timetables. The Minister for Public Transport later confirmed that a National Timetable would be 'unnecessary'. When *Modern Railways* needed RailTrack about this, it responded by implying it was up to the Rail Regulator to decide whether a National Timetable was necessary. At the time of the new Railways Act, Government media releases implied that there would be one and the BBC was led to assert that such a timetable was to exist. When it was pointed out by *Modern Railways* that it was mistaken, the Beeb threatened to expose the truth unless the Ministry of Transport 'came clean'. This led to a change of heart, resulting in the Secretary of State promising

that Railtrack's licence would now contain clauses requiring it to produce a National Passenger Timetable. Without public pressure it would probably never have materialized.

Since British Rail days, the National Timetable has been organised on a different basis to everything else. In a preface it describes its own layout thus: *'Tables start with the north Bank of the Thames and radiate anti-clockwise around London as far as the south bank...with non-London routes being placed close to the London-based routes. Once used to this layout, required tables can usually be found with relative ease.'* Each of the tables referred to was numbered, these numbers and the contents of the tables more or less remained constant over the years, as a further aid for the reader. This meant, of course that on Privatization each table was liable to carry a wild jumble of Train Operator names. There was no facility to search for trains according to one's preferred TOC.

Although the TOCs were not obliged to produce coherent and compatible timetables, most eventually settled down to doing so, some even deigning to display the train times of TOCs with whom they shared the track. Mostly TOC timetables were route-based leaflets and booklets, although some companies issued 'system' books.

In the first year of privatization there were 2 Freight Access Agreements, and 25 passenger franchises. The 25 geographically and



CE214 WEEKDAYS

**DEANSGATE TO MANCHESTER AIRPORT,
BUXTON, CREWE AND STOKE-ON-TRENT**

1 hour 30 Section per

	2104	2148	1-51	2-40	4-21	2-31	2-58	1-30	2-20	2-32	2-12
UP											
TRAFFORD PARK EAST JN											
DEANSGATE		10 12	10 19								
DEANSGATE		10 13	10 17								
MANCHESTER OXFORD ROAD		10 14	10 18								
MANCHESTER OXFORD ROAD		10 16	10 20								
MANCHESTER PICCADILLY		10 18	10 22								
MANCHESTER PICCADILLY		10 20	10 24								
MANCHESTER AIRPORT		10 22	10 26								
STOKE-ON-TRENT											
BUXTON											
CREWE											

Page 214 from the Winter Edition 1996/97 Working Timetable for Rail-track's Northwest Zone, Section CE

GLAZEBROOK AND TRAFFORD PARK TO CREWE

Train No		4003	4061	4461	4064	4004	4196	4409	6931
Details									
From									
UP									
PL		Somerset M.C.T	Wempley Euro Frt	Wempley Euro Frt	Green Thames Rtd	Somerset M.C.T	Talbot F.C.T	Wempley Euro Frt	Cardif Tide I.C
Timing Locat		D	E	E	E	D	E	E	D
		MO	TSX	TD	MD	MSX	SE	SE	MSX
			▲	▲				▲	□
Train Operator		FL	RD	RD	FL	FL	FL	RD	EWS
GLAZEBROOK B.T.P.	Dep	1							
Glazebrook L&L Jn & Sops	Air	2							
	Dep	3							
	Dep	4							
TRAFFORD PARK EURO TERM	Dep	5	18.25	18.25				21.00	
TRAFFORD PARK F.L.T.	Dep	6			18.32		20.32		
TRAFFORD PARK SDO'S	Dep	7							21.15
Trafford Park L&L Jn	Dep	8	17.58	18.28	18.28	18.28	20.08	21.07	21.18
	Dep	9	18.00	18.30	18.30	18.30	20.10	21.07	21.20
Combridge Jn	Dep	10	18.00	18.30	18.30	18.30	20.10	21.07	21.22
	Dep	11							
Ormskirk Lane Jn	Dep	12							
	Dep	13							
Manchester	Dep	14	18.04	18.30	18.30	18.40	19.20	21.06	21.24
	Dep	15	18.05	18.30	18.30	18.40	19.20	21.06	21.24
Manchester Oxford Road	Dep	16	18.05	18.30	18.30	18.40	19.20	21.06	21.24
	Dep	17	18.05	18.30	18.30	18.40	19.20	21.06	21.24
MANCHESTER PICCADILLY	Dep	18	18.05	18.30	18.30	18.40	19.20	21.06	21.24
	Dep	19	18.05	18.30	18.30	18.40	19.20	21.06	21.24
	Dep	20	18.05	18.30	18.30	18.40	19.20	21.06	21.24
Ashton Jn	Dep	21	18.05	18.30	18.30	18.40	19.20	21.06	21.24
	Dep	22	18.05	18.30	18.30	18.40	19.20	21.06	21.24
Lungreth Down Goods Loop	Dep	23	18.05	18.30	18.30	18.40	19.20	21.06	21.24
	Dep	24	18.05	18.30	18.30	18.40	19.20	21.06	21.24
Sage Lane Jn	Dep	25	18.12	18.40	18.40	18.48	19.48	21.17	21.38
	Dep	26	FL	FL	FL	FL	FL	FL	FL
	Dep	27							
Heaton North Jn	Dep	28							
	Dep	29							
	Dep	30							
STOCKPORT	Dep	31							
	Dep	32							
	Dep	33							
	Dep	34							
	Dep	35							
	Dep	36							
	Dep	37							
Edgeley Jn No2	Dep	38							
	Dep	39							
Edgeley Jn No1	Dep	40	18.19			18.47	20.56	21.24	21.47
	Dep	41							
	Dep	42							
	Dep	43							
	Dep	44							
	Dep	45							
	Dep	46							
Ashton Road	Dep	47							
	Dep	48							
	Dep	49							
Chester HOME	Dep	50	18.22			18.54	20.59	21.27	21.46
	Dep	51	RD						
	Dep	52							
Heald Green	Dep	53		18.47	18.47	18.50			
	Dep	54							
Heald Green South Jn	Dep	55		18.48	18.48	18.50			
	Dep	56		1	1	1			
Wilmshurst	Dep	57	18.29	18.55	18.55	19.05	19.58	21.03	21.31
	Dep	58	[1]	[1]	[1]	[1]	[1]	[1]	[1]
Ardley Edge	Dep	59	18.37	18.54	18.58	19.07	20.07	21.07	21.34
	Dep	60	[1]	[1]	[1]	[1]	[1]	[1]	[1]
	Dep	61							
Northwich South Jn	Dep	62							
Northwich (Brush Sp)	Dep	63							
Northwich	Dep	64							
Sandbach Hayn Chemical	Dep	65	18.41	19.08	19.08	19.17	20.16	21.21	21.50
	Dep	66	FL					FL	22.07
	Dep	67	[2]	[2]	[2]	[2](1)		[2](1)	[2]
Crewe Sydney Lodge	Dep	68	18.37	19.18	19.18	19.28	20.27	21.26	22.01
	Dep	69	FL	FL	FL	FL	FL	FL	FL
	Dep	70							
CREWE SALOP GOODS JN	Dep	71	18.36	19.20	19.20	19.30	20.28	21.28	22.06
CREWE	Dep	72							

are contained within the winter period. Focusing on customer information priorities, some train operators and Railtrack train planners sought to include the vast majority of changes in the bid and offer process (rather than dealing with them later as was more generally the practice). Poor-quality bids were delivered late by these train operators due to lack of time to prepare them; Railtrack in turn had insufficient time or resources to return adequate offers. Preparation of the public timetable documentation was therefore only partially complete when it had to go to press and the scale of the inaccuracies was known to only a few junior staff. Lack of management information meant that Railtrack headquarters only knew about the scale of the problems when a damage limitation exercise was all that could be hoped for—the passenger timetable was already on sale and the only way forward was to provide an extensive supplement to provide corrections. For 2 weeks the national press was full of articles highlighting the difficulties.

Hugh Bailey, MP for York had this to say about the resulting National Timetable in Parliament:

'Railtrack's relationships with the train operating companies were graphically illustrated last autumn by the pathetic pantomime of the publication of BR's winter timetable, which was found to be so riddled with errors that Railtrack was forced to print a 400-page revision. That was a classic failure by Railtrack and it is important to the debate because the timetable is the core document in Railtrack's business. The timetable is enormously important to passengers, who are having difficulty working out when trains will run because of that fiasco. If Railtrack cannot specify train movements correctly in its timetable, it cannot bill the train operating companies correctly.

'As the timetable is central to Railtrack's business, the regulator takes an interest in how it is prepared. The regulator has produced track access conditions requiring Railtrack to publish six times a year a timetable—upon which the public timetable is based—for those working in the industry. Linked with the six editions of the working timetable are three consultation and bidding rounds for the train operating companies. As required by the regulator, they receive a draft timetable and they

may then bid for changes to it. As Railtrack is completely unable to run the system properly, the Rail Regulator has been forced to reduce Railtrack's obligation temporarily from six working timetables per year with three bidding rounds to two timetables per year with two bidding rounds. He describes that as an interim measure. However, if one refers to page 31 of the prospectus, one can see that Railtrack believes that it will never manage to meet the Rail Regulator's timetabling conditions. Therefore, it intends to ask for the interim measure to become permanent.'

But did it make the trains run late?—a word of caution is necessary. Although the newspaper headlines really did refer to a 'timetable crisis', there is little in the performance statistics to suggest that train running in 1995-1996 was any worse in the years before or immediately thereafter. This is a serious problem for the man who wrote the headline and introductory paragraphs of this article—me. After the Hatfield accident in 2000 performance *certainly* drastically declined, but there is not much sign of it until then.

What went wrong?

First, the range of issues to be addressed by the introduction of the new process was overambitious and contradictory. It was overambitious when it is considered that despite a considerable amount of management attention, only modest timetable process change had been achieved over many decades. In addition, there was not the management time available due to the scale of the overall restructuring task. It was contradictory because of its trade off on staffing levels; it was decided that no additional staff would be employed as a result of restructuring and, in some areas, staff were even allowed to retire early. A further problem that caused strain was that while the process had been set up to facilitate competition, the government required almost as an afterthought that 'network benefits' (the ability to use a number of different train operator's services efficiently to complete a journey) should be protected. So, on the one hand the process had to be confidential so that competitive advantage could be maintained and, on the other had, sharing of proposals was necessary to ensure that travellers needing to use the services of several train operators would get good

quality journeys. It was argued that the split of responsibilities between Railtrack and the train operators worked against the development of efficient integrated resource plans: the total train planning problem was no longer any one organization's responsibility.

Second, there were substantial problems with the Train Planning software which was complex. The work and computer time associated with mapping the infrastructure and overlaying the characteristics and constraints of the rolling stock and personnel that run the services was greater than people realised. The old BR system was barely up to the task, but what was now required was a step change in the functionality provided. Most critically, the software now had to be capable of supporting the 'bid and offer' process by passing detailed train schedule information backwards and forwards between TOCs and Railtrack. Although this requirement was understood and the work was put in hand in late 1993 to develop the necessary software, a working version was not ready in time. The other 'new' task that the bid and offer process demanded was the assessment of changes made by the other party. Railtrack's planners needed to know, down to the smallest detail, if train operators had amended their bids; similarly the train operators needed to know what changes Railtrack or other train operators had made. This requirement became known as 'version comparison', and it was added to the specification in late 1994. After various problems along the way, some of which reached the specialist computing press and national papers, this functionality finally came into partial use only in 1996. This functionality eliminated much of the additional work caused by the split of responsibilities between Railtrack and the train operators, but did nothing to reduce or automate the workload to allow for the fact that the new process also required the ability to turn round bids and offers in 4 weeks rather than as previously.

Mr Bailey spoke also of this in the House of Commons:

'Railtrack has found that a fragmented railway—with many different, competing companies reaching agreements and billing each other for services—is much more difficult to organise and to operate than the

vertically integrated, single national railway that existed under the BR system.

'At the heart of Railtrack's business is the computer system into which the train operating companies enter bids for train paths and by which Railtrack bills companies for the paths that they use. That computer system is ready to crash: it cannot meet the Rail Regulator's requirements for 18 bidding rounds a year and six working timetables. Railtrack intends to ask the Rail Regulator to reduce the 18 bidding rounds to four, as that is all that it can cope with. It also wants to reduce the number of working timetables from six to two.

'The old system BR operated was relatively simple: the Protim software system managed train paths in each of the eight BR regions. As the operation of the rail system is much more complicated nowadays, Railtrack has contracted a computer software company, SEMA, to design a new software system to run its computerised heart. The system is called A-Plan. Railtrack has spent about £10 million on it, but it does not work. As a result, Railtrack has been forced to go to the regulator and say, "The bidding process that you have specified cannot be met. We must change to a much simpler system not temporarily, but permanently". Page 32 of the prospectus states: "*In producing each working timetable, information is transferred between Railtrack and the train operators, usually on paper.*" It is transferred in that way because Railtrack's computer system cannot perform the task electronically. The prospectus continues: "*New computer systems which will allow more data to be transferred on electronic media within Railtrack and between Railtrack and the train operators are currently being developed and tested.*"

Third, there was a lack of formal 'process analysis' (the documentation and assessment of a process

in terms of its inputs, outputs and flows, physical and information), which would almost certainly have revealed that the software was substantially under-specified to meet the needs of the revised process and would have raised serious questions about the operability of the process. Process analysis could and should have been undertaken before sign off of the new process. Urgency to meet preordained dates in the privatization process appears to be one reason; a belief in the practicability of rapidly delivering new software to support the new process was another; a third was a belief that train planners were/are as a breed pessimists and that their views (negative as they were to the new process) should therefore be discounted.

Fourth, the lack of process analysis led inevitably to a lack of procedures, documentation and training at the time when the substantial changes and the formality of new industry structure required this.

Conclusions

The train planning process evolved slowly up until 1994, at which point substantial changes were made in an attempt to accommodate the policy objectives and revised structure imposed on the UK railway industry by the Conservative Government. A lack of clarity in the government's policy objectives created substantial difficulties in the development of new processes. Was the introduction of competition really that important? To what extent was integration of services to provide the best overall package of services to customers to be encouraged over 'competition'? As pointed out earlier, a form of 'cooperative competition' had existed in the privately-run railway industry over a century before and it was generally held to be successful in producing the timetables the passengers wanted.

Coordination is inherent in the timetabling process, which in practical terms is impossible to repli-

cate through market mechanisms. While Margaret Thatcher might object in principle to a rejection of market forces in this area, practical experience in working a competition-orientated process suggested that train planning was not easily adapted to work within a competitive environment. The Stockton and Darlington had found that out as long ago as 1825.

Some problems with the process took time to emerge. The Passenger Service Requirements, while providing some protection against service reductions, have partially 'ossified' the timetable. While this has perhaps kept the train planning task to more manageable proportions, questions have been asked as to whether it produces the optimum timetable. The continued use of British Rail internal revenue allocation system (ORCATS) to divide revenue between the passenger train operators also appeared to interfere with the train planning process—with trains being planned to catch revenue from ORCATS rather than to best meet customer needs.

Acknowledgement

The article has drawn very heavily on an academic paper on the early history of the timetabling process:

1. Watson, R., The effect of railway privatisation on train planning: a case study of the U.K., *Transport Reviews*, 21 (2001) 181-193

Part of the text has been taken from it. All opinions expressed in the current article are those of the author and not of Dr Watson.

Postscript: It came to the author's attention that a precedent for the UK privatized railway had been set in Alaska in the 1930s, when the Alaskan Government bought the Seward Peninsula Railway and leased it to one and all to run their own trains—some of which were hauled by dogs ('Pupmobiles'). Luckily this precedent did not catch on in the U.K.

Interstate bus service anomaly

CHRIS BROWNBILL writes, with news of some peculiarities in a South Australian bus timetable.

Many "Times" readers will be familiar with the historic anomalies in bus scheduling fomented by the co-existence of State-based regulation of passenger road transport and the constitutional freedom of interstate trade. In at least Victoria and South Australia there have been examples of intra-state services operated under the guise of inter-state services thereby avoiding regulation from State Government.

I had always considered these to be a historic anomaly of academic interest and now consigned to the dustbin of history. However, when browsing the website of Coorong Coaches, I chanced upon a very curious timetable. <http://www.bussa.com.au/timetables/coorong.html>

The current web timetable for Coorong's daily bus service from Lameroo to Murray Bridge and return is headed "Lameroo to Murray Bridge via Murrayville", despite Murrayville being somewhat East of Lameroo, further from Murray Bridge and indeed over the State border in Victoria. Furthermore, the timings show that the bus in fact starts its journey in Murrayville at 6:10am, then gets to Pinnaroo at 6:30am, Lameroo at 7:00am and terminating at Pine Park at 9:00am. This schedule suggests that the bus in fact travels from Murrayville to Murray Bridge via Lameroo. Closer inspection reveals that the timing point at Murrayville is actually quoted in Central time (not Eastern time), and is annotated with an asterisk decoded as "stop serviced by booking only". A conditional stop at the terminus!

It is unlikely to be a misprint because the reverse timetable

has all the same attributes in the appropriate sequence.

So, what can this mean? This timetable has all the hallmarks of a domestic SA timetable masquerading as an interstate timetable. The Murrayville extension seems to be designed

not to attract custom - its a conditional stop, its not advertised in local time and the route is not advertised as being the "Murrayville" route. Could it possibly be a modern-day example of constitutional farnarking to over-ride SA's State transport regulations?



Telephone (08) 8571 1208
www.coorongcoaches.com
 Times are accurate at time of printing.
 Please check with your ticket seller for most recent times & routes.

Please note: Coorong Coaches do not operate any services on public holidays

Using a concession ticket?
 See the 2005 South Australian Government approved concession cards

Lameroo to Murray Bridge via Murrayville		Murray Bridge to Lameroo via Murrayville	
	Daily AM		Daily PM
Pick up only from Pine Park to Tailem Bend			
Murrayville*	6:10		
Pinnaroo	6:30	Pine Park	3:25
Parilla	6:45	Unity College	3:30
Lameroo	7:00	Tailem Bend	-
Pick up & set down from Sherlock to Murrayville			
Parrakie*	7:25	Sherlock	4:10
Geranium	7:30	Peake	4:20
Jabuk	7:40	Jabuk	4:30
Peake	7:50	Geranium	4:40
Sherlock	8:05	Parrakie*	4:45
Set down only from Tailem Bend to Pine Park			
Tailem Bend	-	Lameroo	5:10
Unity College	8:45	Parilla	5:25
Pine Park	9:00	Pinnaroo	5:40
		Murrayville*	6:00
<small>* Stops serviced by booking only.</small>		<small>* Stops serviced by booking only.</small>	

Tintinara to Murray Bridge		Murray Bridge to Tintinara	
	Thur AM		Thur PM
Pick up only from Pine Park to Tailem Bend			
Tintinara	8:30	Pine Park	2:30
Culburra	8:40	Tailem Bend	2:50
Coonalpyn	8:50		
Ki Ki*	9:00	Pick up & set down from Cooke Plains to Tintinara	
Yumali*	9:05	Cooke Plains*	3:00
Coomandook	9:10	Coomandook	3:10
Cooke Plains*	9:20	Yumali*	3:15
Set down only from Tailem Bend to Pine Park			
Tailem Bend	9:30	Ki Ki*	3:20
Pine Park	9:50	Coonalpyn	3:30
		Culburra	3:40
		Tintinara	3:50
<small>*Stops Serviced by booking only</small>		<small>*Stops Serviced by booking only</small>	

Karoonda to Murray Bridge		Murray Bridge to Karoonda	
	Fri AM		Fri PM
Karoonda	9:00	Pick up only from Murray Bridge to Tailem Bend	
Wynarka	9:15	Murray Bridge	2:30
Set down only from Tailem Bend to Murray Bridge			
Tailem Bend	9:43	Tailem Bend	2:55
Murray Bridge	10:07	Pick up & set down from Wynarka to Karoonda	
		Wynarka	3:20
		Karoonda	3:35
<small>Karoonda service does not operate on public holidays</small>		<small>Karoonda service does not operate on public holidays</small>	
<small>* Murrayville by booking only. (S.A. time).</small>		<small>* Murrayville by booking only. (S.A. time).</small>	

Page last updated on February 25, 2005

Newman's Indian Bradshaw— a relic from the past

In my Oxford Dictionary "Bradshaw" still rates as a genuine word— a proper noun describing a very particular object—which mostly no longer exists. VICTOR ISAACS reviews a timetable still going strong on the sub-continent, but which has vanished everywhere else.

Bradshaw lives! Sadly, the great British timetable compilation ceased publication in May 1961. The name became a synonym for other railway timetable compilations in other parts of the once British Empire. Victoria's long-running *Bradshaw's Guide* ceased in August 1942 (see the Times December 2004, pages 12-16). The New South Welsh and New Zealand *Bradshaws* were very short-lived in the nineteenth century. But, in the great gem of the former Empire, the name Bradshaw survives.

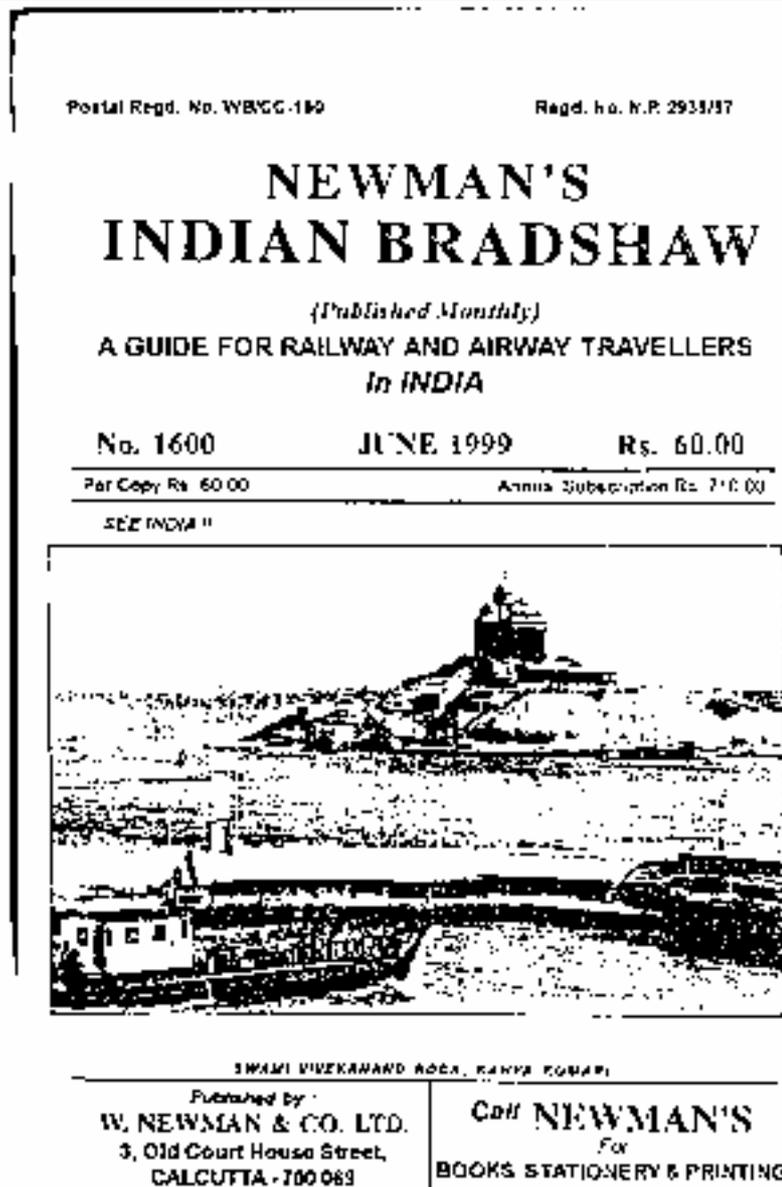
The need for an *Indian Bradshaw* possibly derives from the fact that each of the Zones of the huge Indian Railways publishes its own timetable – usually in multiple editions of Hindi, English and however many local languages are required. These show the times of trains in the other Zonal railways only to the extent of summaries of through trains. For a detailed description of Indian Zonal Railway timetables, see The Times, September 1986, pages 2-7.

There is also the *Trains At A Glance* timetable published for the Central Railway Board. This is a smart and clearly presented volume, but again is only a summary of the main trains.

Newman's Indian Bradshaw is the only Indian timetable attempting to show all trains, other than suburban services. (A caution: This review is based on a copy of June 1999 - the latest available to me).

Newman's Indian Bradshaw commenced publication in 1866 and is now monthly. It is entirely in English, and uses the 24 hour clock.

It commences with details of passenger fares and a comprehensive index. The main part comprises timetables for each Zone. These commence with an index, a listing of through carriages, and special information such as supplementary charges and locations of that useful Indian railway institution, the station retiring rooms. The



Cover of a relatively recent Newman's Indian Bradshaw, with its fussy olde-worlde style, not so different from the 19th Century.

timetables for each Zone follow.

Newman's Indian Bradshaw concludes with timetables of Railway Buses, and Indian Airways and Air India services, and a list of tourist attractions.

Printing and paper quality are adequate (a change from earlier edi-

tions), but binding is still deficient. There is no map (unlike the timetable books published by each of the Zonal Railways). There are 418 pages – showing skill at fitting the huge Indian railway system into this size. The overall impression is of a somewhat outdated and cheaply printed production. Advertising rates are given, but in fact

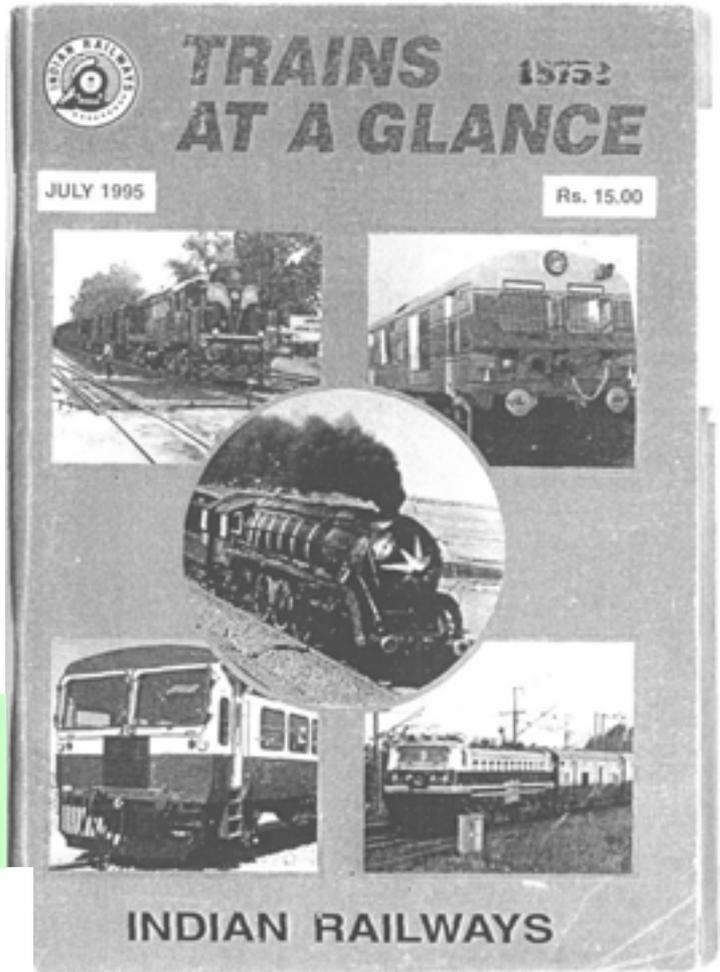
there are no advertisements in the review edition. I wonder if this gives an indication of circulation, or lack of it.

The Newman Company also publishes twice yearly an *Abstract Timetable*, apparently based on the abstract table in the main edition. This is possibly to compete with *Trains At A Glance*. Both of these summary timetables have full-cover gloss covers. *Trains At A Glance* (July 1995) shows a variety of Indian trains, with pride of place a streamlined steam locomotive, whereas Newman's *Abstract Timetable's* cover (April 1999) is of a few small tourist shots plus a dreary picture of a train. Both of these timetable compilations have a few advertisements.

All of these Indian timetables are most interesting artefacts for timetable collectors giving vivid impressions of this great Railway system, but Newman's Indian Bradshaw is especially full of interest. This is partly because of the huge number of trains in it, and partly because of its old-fashioned appearance.

Editor's note: There is yet another Indian timetable (page 22) in an Indian railway atlas... to be reviewed next month.

Right: The national 'Trains at Glance' timetable.
Below: Table from an Indian Bradshaw. It has no table numbers.
Below right: Numbered table from 'Trains at a Glance'



DOWN PARS — JABALPUR — ALLAHABAD (Broad Gauge) — Contd.

Train No.	Class	From	To	Days	Time
12137	DL	Pars	Jabalpur	Mon	10:00
12138	DL	Jabalpur	Pars	Tue	10:00
12139	DL	Pars	Jabalpur	Wed	10:00
12140	DL	Jabalpur	Pars	Thu	10:00
12141	DL	Pars	Jabalpur	Fri	10:00
12142	DL	Jabalpur	Pars	Sat	10:00
12143	DL	Pars	Jabalpur	Sun	10:00
12144	DL	Jabalpur	Pars	Mon	10:00
12145	DL	Pars	Jabalpur	Tue	10:00
12146	DL	Jabalpur	Pars	Wed	10:00
12147	DL	Pars	Jabalpur	Thu	10:00
12148	DL	Jabalpur	Pars	Fri	10:00
12149	DL	Pars	Jabalpur	Sat	10:00
12150	DL	Jabalpur	Pars	Sun	10:00

FROM HOWRAH — DHANBAD — PATNA — VARANASI — ALLAHABAD — KANPUR — DELHI B G

Train No.	Class	From	To	Days	Time
12151	DL	Howrah	Dhanbad	Mon	10:00
12152	DL	Dhanbad	Howrah	Tue	10:00
12153	DL	Howrah	Dhanbad	Wed	10:00
12154	DL	Dhanbad	Howrah	Thu	10:00
12155	DL	Howrah	Dhanbad	Fri	10:00
12156	DL	Dhanbad	Howrah	Sat	10:00
12157	DL	Howrah	Dhanbad	Sun	10:00
12158	DL	Dhanbad	Howrah	Mon	10:00
12159	DL	Howrah	Dhanbad	Tue	10:00
12160	DL	Dhanbad	Howrah	Wed	10:00
12161	DL	Howrah	Dhanbad	Thu	10:00
12162	DL	Dhanbad	Howrah	Fri	10:00
12163	DL	Howrah	Dhanbad	Sat	10:00
12164	DL	Dhanbad	Howrah	Sun	10:00

Timetable Oddity #85— Where's the Fat Controller?

There is always an April Fool's Day joke in *The Times* (haven't you noticed?), but this is not it. This is a genuine timetable issued on April Fool's Day 2004 for a *Thomas the Tank Engine* special, on Victoria's Puffing Billy Railway. It came to the editor from a contributor, who had scribbled his author's notes on the other side.

Most preserved railways feel the need to run 'Thomas Days': and Puffing Billy is no exception, even with a name already redolent of children's bedtime tales. But Puffing Billy is a real railway too—mostly as a result of its slow metamorphosis from Government ownership. The vestiges of its VR history can be seen in its practice of issuing 'S', or *Special Train Notices*, a practice which goes back to the late nineteenth Century.

The one below is numbered 33, so Puffing Billy seems to issue about 130 of them per year. This is hardly surprising given the extent and variety of services. Here, the

Thomas 'S-notice' notice lists no fewer than 10 trains commencing from 4 different locations and finishing at 4 different locations— as complicated as a NSW CityRail job. The trains all have numbers and, in true VR tradition, they have a idiosyncratic numbering system— here all are odd numbers, because they are all Down trains.

Where is Thomas?—and where is the Fat Controller? I think Thomas must be No 9 or No. 11, don't you? The Fat Controller, alas, is nowhere to be seen. His name probably appears at the bottom of the last page. I'm no Thomas expert (heaven forbid), but I suspect that services on the Isle of Sodor were never as regular as this... Readers more familiar with Thomas may like to comment.

As the title of the late Ted Down's book indicates, Puffing Billy trains were slow— *Speed Limit 20*. That's no push-over though. Once a year Puffing Billy runs another day of specials— *The Great Train Race*,

where the target of over 2,000 misbegotten fools is to race Billy from Belgrave to Emerald— he over his gentle steel track— they over what seems like twice the distance of back-breaking hills. Sometimes runners have tried to nobble the train by greasing the rails, but this is not viewed with approval. The 'S-notice' below shows a Belgrave-Emerald time of some 55 minutes and, in *The Great Train Race, Puffing Billy* usually betters this by a minute or two, coming in ahead of 95% of the runners. The Editor tried and failed— but only just. Mrs Editor reports that Billy's driver is obliged to run to the finishing line too and she swears she saw the Fat Controller puffing up the track to collect his timing slip in the 2003 race. I wonder if he has to paste it into the train's *Statement of Train Running*. Being a VR descendant, *Puffing Billy* would be sure to use one. There'd be an S-notice too. I'd like to see that.

S.033/2004
PUFFING BILLY RAILWAY
S.033/2004

Office: The Operator's Mess
4 Apr 2004

BELGRAVE - QEMBROOK
SUNDAY 4TH APRIL, 2004

OPERATION OF SERVICE TRAINS & THOMAS TRAIN

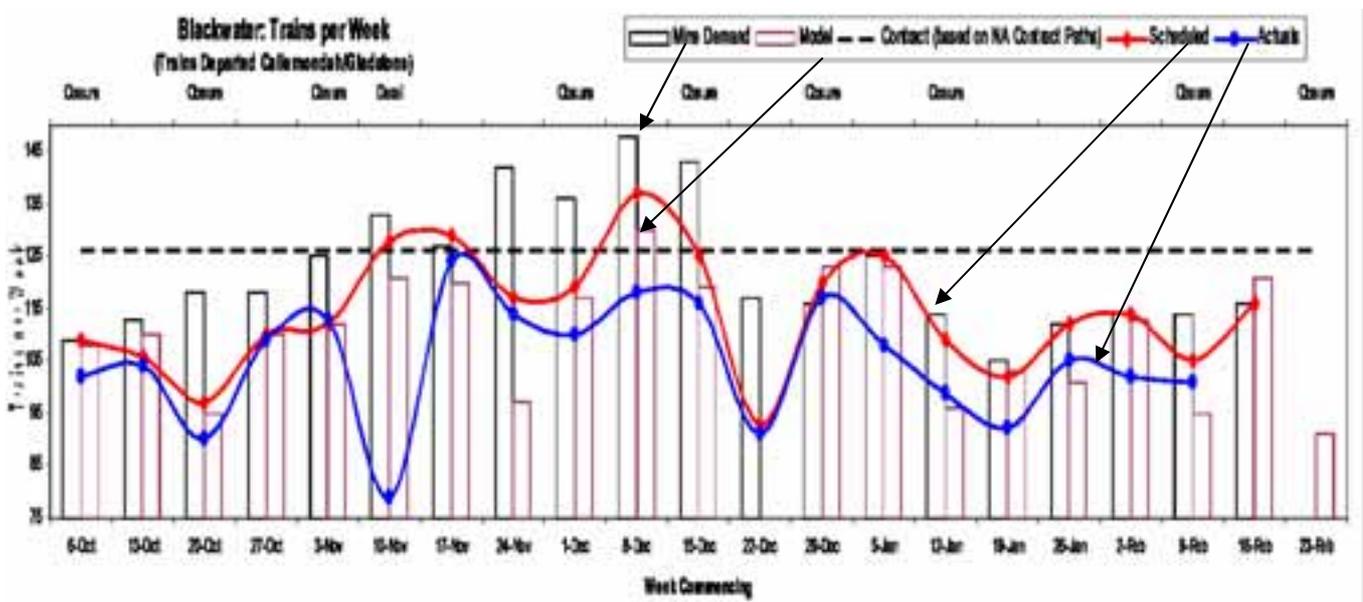
On the above date the timetable consists of the following services. There is a service scheduled to leave Emerald for Belgrave at 10.00am. This is a special service and is not included in the above timetable. The train is operated by the Puffing Billy Railway.

TRAIN	1	2	3	4	5	6	7	8	9	10
	Belgrave	Emerald								
1.00	08.00	08.15	08.30	08.45	09.00	09.15	09.30	09.45	10.00	10.15
1.01	08.15	08.30	08.45	09.00	09.15	09.30	09.45	10.00	10.15	10.30
1.02	08.30	08.45	09.00	09.15	09.30	09.45	10.00	10.15	10.30	10.45
1.03	08.45	09.00	09.15	09.30	09.45	10.00	10.15	10.30	10.45	11.00
1.04	09.00	09.15	09.30	09.45	10.00	10.15	10.30	10.45	11.00	11.15
1.05	09.15	09.30	09.45	10.00	10.15	10.30	10.45	11.00	11.15	11.30
1.06	09.30	09.45	10.00	10.15	10.30	10.45	11.00	11.15	11.30	11.45
1.07	09.45	10.00	10.15	10.30	10.45	11.00	11.15	11.30	11.45	12.00
1.08	10.00	10.15	10.30	10.45	11.00	11.15	11.30	11.45	12.00	12.15
1.09	10.15	10.30	10.45	11.00	11.15	11.30	11.45	12.00	12.15	12.30
1.10	10.30	10.45	11.00	11.15	11.30	11.45	12.00	12.15	12.30	12.45
1.11	10.45	11.00	11.15	11.30	11.45	12.00	12.15	12.30	12.45	13.00
1.12	11.00	11.15	11.30	11.45	12.00	12.15	12.30	12.45	13.00	13.15
1.13	11.15	11.30	11.45	12.00	12.15	12.30	12.45	13.00	13.15	13.30
1.14	11.30	11.45	12.00	12.15	12.30	12.45	13.00	13.15	13.30	13.45
1.15	11.45	12.00	12.15	12.30	12.45	13.00	13.15	13.30	13.45	14.00
1.16	12.00	12.15	12.30	12.45	13.00	13.15	13.30	13.45	14.00	14.15
1.17	12.15	12.30	12.45	13.00	13.15	13.30	13.45	14.00	14.15	14.30
1.18	12.30	12.45	13.00	13.15	13.30	13.45	14.00	14.15	14.30	14.45
1.19	12.45	13.00	13.15	13.30	13.45	14.00	14.15	14.30	14.45	15.00
1.20	13.00	13.15	13.30	13.45	14.00	14.15	14.30	14.45	15.00	15.15
1.21	13.15	13.30	13.45	14.00	14.15	14.30	14.45	15.00	15.15	15.30
1.22	13.30	13.45	14.00	14.15	14.30	14.45	15.00	15.15	15.30	15.45
1.23	13.45	14.00	14.15	14.30	14.45	15.00	15.15	15.30	15.45	16.00
1.24	14.00	14.15	14.30	14.45	15.00	15.15	15.30	15.45	16.00	16.15
1.25	14.15	14.30	14.45	15.00	15.15	15.30	15.45	16.00	16.15	16.30
1.26	14.30	14.45	15.00	15.15	15.30	15.45	16.00	16.15	16.30	16.45
1.27	14.45	15.00	15.15	15.30	15.45	16.00	16.15	16.30	16.45	17.00
1.28	15.00	15.15	15.30	15.45	16.00	16.15	16.30	16.45	17.00	17.15
1.29	15.15	15.30	15.45	16.00	16.15	16.30	16.45	17.00	17.15	17.30
1.30	15.30	15.45	16.00	16.15	16.30	16.45	17.00	17.15	17.30	17.45
1.31	15.45	16.00	16.15	16.30	16.45	17.00	17.15	17.30	17.45	18.00
1.32	16.00	16.15	16.30	16.45	17.00	17.15	17.30	17.45	18.00	18.15
1.33	16.15	16.30	16.45	17.00	17.15	17.30	17.45	18.00	18.15	18.30
1.34	16.30	16.45	17.00	17.15	17.30	17.45	18.00	18.15	18.30	18.45
1.35	16.45	17.00	17.15	17.30	17.45	18.00	18.15	18.30	18.45	19.00
1.36	17.00	17.15	17.30	17.45	18.00	18.15	18.30	18.45	19.00	19.15
1.37	17.15	17.30	17.45	18.00	18.15	18.30	18.45	19.00	19.15	19.30
1.38	17.30	17.45	18.00	18.15	18.30	18.45	19.00	19.15	19.30	19.45
1.39	17.45	18.00	18.15	18.30	18.45	19.00	19.15	19.30	19.45	20.00
1.40	18.00	18.15	18.30	18.45	19.00	19.15	19.30	19.45	20.00	20.15
1.41	18.15	18.30	18.45	19.00	19.15	19.30	19.45	20.00	20.15	20.30
1.42	18.30	18.45	19.00	19.15	19.30	19.45	20.00	20.15	20.30	20.45
1.43	18.45	19.00	19.15	19.30	19.45	20.00	20.15	20.30	20.45	21.00
1.44	19.00	19.15	19.30	19.45	20.00	20.15	20.30	20.45	21.00	21.15
1.45	19.15	19.30	19.45	20.00	20.15	20.30	20.45	21.00	21.15	21.30
1.46	19.30	19.45	20.00	20.15	20.30	20.45	21.00	21.15	21.30	21.45
1.47	19.45	20.00	20.15	20.30	20.45	21.00	21.15	21.30	21.45	22.00
1.48	20.00	20.15	20.30	20.45	21.00	21.15	21.30	21.45	22.00	22.15
1.49	20.15	20.30	20.45	21.00	21.15	21.30	21.45	22.00	22.15	22.30
1.50	20.30	20.45	21.00	21.15	21.30	21.45	22.00	22.15	22.30	22.45
1.51	20.45	21.00	21.15	21.30	21.45	22.00	22.15	22.30	22.45	23.00
1.52	21.00	21.15	21.30	21.45	22.00	22.15	22.30	22.45	23.00	23.15
1.53	21.15	21.30	21.45	22.00	22.15	22.30	22.45	23.00	23.15	23.30
1.54	21.30	21.45	22.00	22.15	22.30	22.45	23.00	23.15	23.30	23.45
1.55	21.45	22.00	22.15	22.30	22.45	23.00	23.15	23.30	23.45	24.00
1.56	22.00	22.15	22.30	22.45	23.00	23.15	23.30	23.45	24.00	24.15
1.57	22.15	22.30	22.45	23.00	23.15	23.30	23.45	24.00	24.15	24.30
1.58	22.30	22.45	23.00	23.15	23.30	23.45	24.00	24.15	24.30	24.45
1.59	22.45	23.00	23.15	23.30	23.45	24.00	24.15	24.30	24.45	25.00
1.60	23.00	23.15	23.30	23.45	24.00	24.15	24.30	24.45	25.00	25.15
1.61	23.15	23.30	23.45	24.00	24.15	24.30	24.45	25.00	25.15	25.30
1.62	23.30	23.45	24.00	24.15	24.30	24.45	25.00	25.15	25.30	25.45
1.63	23.45	24.00	24.15	24.30	24.45	25.00	25.15	25.30	25.45	26.00
1.64	24.00	24.15	24.30	24.45	25.00	25.15	25.30	25.45	26.00	26.15
1.65	24.15	24.30	24.45	25.00	25.15	25.30	25.45	26.00	26.15	26.30
1.66	24.30	24.45	25.00	25.15	25.30	25.45	26.00	26.15	26.30	26.45
1.67	24.45	25.00	25.15	25.30	25.45	26.00	26.15	26.30	26.45	27.00
1.68	25.00	25.15	25.30	25.45	26.00	26.15	26.30	26.45	27.00	27.15
1.69	25.15	25.30	25.45	26.00	26.15	26.30	26.45	27.00	27.15	27.30
1.70	25.30	25.45	26.00	26.15	26.30	26.45	27.00	27.15	27.30	27.45
1.71	25.45	26.00	26.15	26.30	26.45	27.00	27.15	27.30	27.45	28.00
1.72	26.00	26.15	26.30	26.45	27.00	27.15	27.30	27.45	28.00	28.15
1.73	26.15	26.30	26.45	27.00	27.15	27.30	27.45	28.00	28.15	28.30
1.74	26.30	26.45	27.00	27.15	27.30	27.45	28.00	28.15	28.30	28.45
1.75	26.45	27.00	27.15	27.30	27.45	28.00	28.15	28.30	28.45	29.00
1.76	27.00	27.15	27.30	27.45	28.00	28.15	28.30	28.45	29.00	29.15
1.77	27.15	27.30	27.45	28.00	28.15	28.30	28.45	29.00	29.15	29.30
1.78	27.30	27.45	28.00	28.15	28.30	28.45	29.00	29.15	29.30	29.45
1.79	27.45	28.00	28.15	28.30	28.45	29.00	29.15	29.30	29.45	30.00
1.80	28.00	28.15	28.30	28.45	29.00	29.15	29.30	29.45	30.00	30.15
1.81	28.15	28.30	28.45	29.00	29.15	29.30	29.45	30.00	30.15	30.30
1.82	28.30	28.45	29.00	29.15	29.30	29.45	30.00	30.15	30.30	30.45
1.83	28.45	29.00	29.15	29.30	29.45	30.00	30.15	30.30	30.45	31.00
1.84	29.00	29.15	29.30	29.45	30.00	30.15	30.30	30.45	31.00	31.15
1.85	29.15	29.30	29.4							

Graphic Insight #85

Our Timetabling Revolution series implies that companies who buy from the 'one-stop timetable shop' may not always use what they buy. In Queensland, it's definitely true.

Here is an interesting chart, quite relevant to our current articles *Revolution in Timetabling*. It represents several measures of weekly train traffic on QR's Blackwater coal lines and it comes from a regular QR report series published on the web at <http://www.networkaccess.qr.com.au/downloads/reports/reports.asp>. Shown are the number of trains *contracted* by QR, the number of trains *ordered* by the coal companies, the number of trains *modelled* by QR, the number eventually *scheduled* and the number that actually *ran* in that week. We should note at the outset that this is one of those 'Gee-Whiz' graphs— the origin of the vertical axis is well below the bottom of the page, so the roller-coaster effect is more apparent than real. Nevertheless there are quite marked differences between the various measures. That the companies purchase more train slots than they actually use is obvious. The reason for it is probably the very variable nature of output, ship-loading processes and the schedules of the export ships. In 2005, the latter two aspects are causing a lot of problems and making front-page news in the major daily newspapers- "Ports Choking!".



"Mine Demand" is the number of trains initially requested by the ports for that week (i.e. Customer Orders).
 "Model" is the number of trains achieved in a simulation, using the "Contract Trains" demand profile.
 "Contract" is the number of coal trains for which NA is contracted to provide paths, based on the "Transitional Agreement" between QRNA and QR Coal.
 "Scheduled" represent the number of coal services scheduled by NA for the week (i.e. Agreed Orders).
 "Actuals" represent the total number of coal services actually achieved for the week.
 Note: The actual performance on 10 November was affected by a major derailment.



Photo by Matt English, courtesy Railway Digest