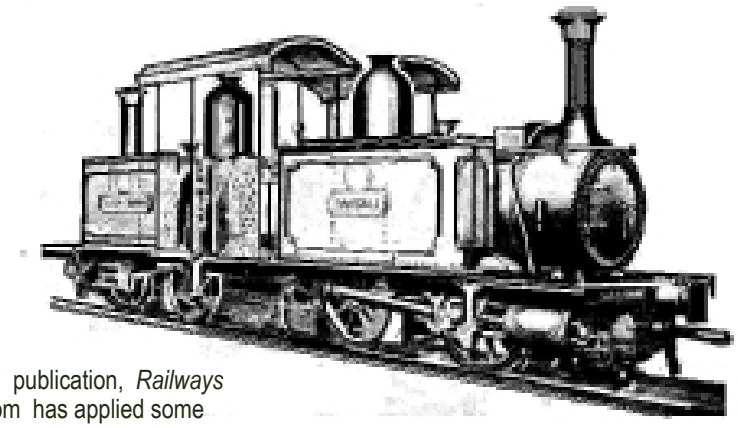


A FAIRLIE ENGINE

The illustration is from Fairlie's 1872 publication, *Railways Or No Railways,* to which our art room has applied some enhancement.

CHAPTER 7

ROBERT FAIRLIE AND HIS DOUBLE ENGINES

1867 was the year that Abraham Fitzgibbon departed Queensland and Captain Bagot swung the vote in favour of the narrow gauge in the South Australian Legislative Council.

In the two decades that followed, the Australian colonies would sort themselves into two camps. There were the narrow-gauge colonies and the ones that weren't.

Each colony had its own particular story to tell.

VICTORIA

Victoria had made an early start with several companies commencing private railways. The Melbourne and Hobson's Bay railway was opened in 1854, thus establishing Victoria as having the first steam railway in Australia. There were some lines close to Melbourne, but it was the lines to the goldfields that are of particular interest.

The line to Sandhurst (Bendigo) was opened in 1859. The line to Geelong (1857) was followed by a line that junctioned at North Geelong to reach Ballarat in 1862. These lines were built like the railways of England, with substantial buildings, magnificent stone viaducts, and double track. But one by one, they encountered financial difficulty and were taken over by the Government. In this period of rapid expansion the last line was the extension of the single-track line from Sandhurst to Echuca in 1864.

There was agitation for railways in other parts of the colony and local railway committees sprouted. Editors of the rural newspapers joined the call. Towards the end of the 1860s there were three regions that offered the best potential for development. To the west there was Ararat and beyond, with mention of future extension to Hamilton, Portland and into South Australia.

the north-east, possibly to Beechworth. Surveys for these lines were underway. It was the last of these that was the one railway that was commenced in the late 1860s. It would terminate at Wodonga, and when it was completed, it sat rather impatiently for the next ten years, awaiting the invitation to enter New South Wales. If the protagonists for the narrow gauge had a win with the railway to Wodonga it was likely that those projected for Gippsland and Western Victoria would continue the same way.

The railway committees and newspaper editors were eager recipients of journals like the *Engineer* and the *Railway Times*, and even the *Times* of London. They were well informed of the narrow gauge and the fact that more miles of railway could be built for the same amount spent on the old broad-gauge lines. They did not need substantial masonry buildings or stone viaducts. Timber was plentiful and could be used for bridges and viaducts. The members of Parliament were under pressure, not only to deliver a railway but to do it at the lowest price – and that meant narrow gauge.

But they did not have an Abraham Fitzgibbon or a Captain Bagot who could champion their calls. The Engineer-in-Chief in Victoria was Thomas Higinbotham and he was not convinced about the advantage of the narrow gauge. In September 1869, Higinbotham had completed the survey for the north-east line, and was coming under increasing attack regarding his insistence that the line be built to the broad gauge. One of his arguments was that this railway was probably destined to be the connection to New South Wales, and would therefore have to carry trains at a good speed. Narrow-gauge railways were slower.

In November 1869, the Parliament engaged the services of Mr William Elsdon, who was the engineer for the Melbourne and Hobsons Bay Railway, to prepare a report. This required him to visit England, Europe, Russia and the United States of America. His report was dated 29 April 1871. The report was not in favour of the 3 ft 6 in narrow gauge, but he did support the 4 ft 8½ in gauge, given that he expected the north-east railway would ultimately connect with the NSW system.

Thomas Higinbotham provided a supplementary report, making comments on Elsdon's report. By this time 14 engines had been ordered for the north-east line, and work was underway on the first section. To change the gauge to the 3 ft 6 in would involve a delay and cost.

But the issue that definitely put the end to the narrow-gauge plan for the north-east railway was that it would have involved a break-of-gauge at Essendon. The railway to Essendon, opened in 1860, had been one of Melbourne's early private railway failures. It was three miles in length from the Essendon Junction. The track was not in good condition when the Government had purchased the line in 1867 but it had been selected as the starting point for the north-east line.

By this time the newspaper editors and local railway committees had a champion. Robert Fairlie, the Scottish engineer, whose name had been associated withe three double-engines, built for Sir Charles Fox.

Fairlie was able to quote figures such as relative costs of competing gauges. But Higinbotham disagreed. The savings were much less than the amount Fairlie had claimed. After receipt of Elsdon's report and Higinbotham's supplementary report the Parliament appointed a Select Committee.The Select Committee appointed by the Victorian Parliament reported on 1 August 1871. Of Robert Fairlie and his system it said:

> The Fairlie system of railway is scarcely entitled to the designation of a system, inasmuch as it is simply the adaptation of engine and carriages on the bogie principle.

And on the matter or gauges:

> It appears from the evidence submitted that a narrower gauge than the one adopted in Victoria would be more economical both in the construction of the permanent way and the rolling stock. But as to the expediency of constructing any new lines on a narrower gauge… and the inconvenience and risk that would result from a break of gauge, the balance of the evidence taken before your Committee is opposed to any immediate change on the main trunk lines.

Robert Lee, in Railways of Victoria has written of Guilford Molesworth, who was the Director General of the Ceylon Government Railways. Molesworth was opposed to railway systems having multiple gauges and provided supporting information to Higinbotham and also to John Whitton, who was Engineer-in-Chief in New South Wales.

The Select Committee that reported in 1871 did not have the final word. Still the newspapers and the railway committees were calling for narrow-gauge lines. In 1872 Fairlie produced a book which dealt in length with the advantages of the narrow gauge railways and expanded on his 'system of narrow-gauge railways'. Even the *Times* of London was impressed.

In Victoria in November 1873, the north-east line to Wodonga was completed. There would be no entertaining of the 3 ft 6 in gauge for the lines to Ararat or Sale.

Sir Charles Fox, who had been the main protagonist of the narrow gauge in Queensland, moved on, first with a project in Canada. He had subsequently channeled his energies into the Cape Colony and Rhodesia (now Zimbabwe) where an extensive railway network of 3 ft 6 in gauge was developed. That left an opportunity to fill the need in Australia and this is where Fairlie stepped in.

IN THE BACK OF ERIC HARDING'S BOOK THERE IS A LARGE FOLDED MAP. He has used the same colour coding as Sir Harold Clapp used in his maps (Chapter 20). The 3 ft 6 in narrow gauge is shown in red. Of particular interest in this map is the the line from Kingston to Naracoorte in South Australia's South-East which is shown as red. Harding was certainly up to date with hIs data. The last narrow-gauge working over that line was in 1959.

Whereas Sir Charles Fox had confined himself to the 3 ft 6 in gauge, Fairlie was not tied himself to a particular gauge. In India he took advice from four 'prominent engineers' of whom three favoured 2 ft 9 in, and the fourth favoured 3 ft 6 in. He then took the average (although by what mathematics we dont know) and pronounced 3 ft 3 in as the right gauge for India. He then advised that a railway of 2 ft 9 in was cheaper to build than the 3 ft 6 in.

His choice of the 2 ft 9 in gauge is a mystery. It doesn't seem to have made an appearance anywhere else in the world. So too, the identity, qualifications and experience of those four engineers. It seemed that what Fairlie was preaching was what the masses wanted to hear. It would have been a brave soul who chose to quetion the veracity of the Fairlie's science.

About 1869, Fairlie engaed an engineer, Daniel Climie, of South Yarra as his Victorian agent. Over the next four years Fairlie and Climie sent a steady flow of correspondence to newspapers and railway committees where-ever they saw an opportunity. The rhetoric was always one of self-promotion and Fairlie's letters were never short.

Fairlie's interest in narrow gauge railways had initially been fired by the Ffestiniog railway in Wales. This was for transporting slate to Portmadoc, a distance of 13¼ miles. The railway was 1 ft 11½ in gauge and was worked by horses. There were some very tight curves that made it unsuitable for a conventional locomotive.

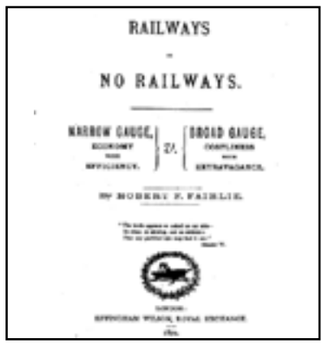
Fairlie had taken a patent with his double-engine in 1864. Early attempts with locomotives on the Ffestiniog railway were not greatly successful but in 1870 his Little Wonder was gaining some attention and his business prospects were looking better. The advantage that the narrow gauge had over wider gauges was that it could cope with tighter curves and that meant that the narrow gauge railway could hug the contour of the land, whereas the broad gauge railway needed tunnels, viaducts and major earthworks, which came at considerable cost.

The problem for Fairlie was that many of the Victorian railways were across country that did not require tight curves. The only proven advantage of the narrow-gauge railway in this situation was smaller sleepers, and that is where the cost difference between broad-gauge railways and narrow-gauge railways worked in Higinbotham's favour. It seemed that Fairlie needed to have a battery of advantages, and by 1872 he could quote six advantages of the narrow gauge, but some of them were different wordings of the same thing.

One of them was 'dead weight'. The engine and its trucks were loading that brought no revenue. It was dead weight. It was the space in the trucks that earned the money. Fairlie claimed that broad gauge engines and trucks weighed more, and thus carried more dead weight. Against this was that broad gauge trucks could carry more goods.

SOUTH AUSTRALIA

The climate for the protagonists of the narrow gauge was easier in South Australia where Captain Bagot's experimental 3 ft 6 in gauge Port Wakefield Tramway was under construction. The next railway Bill to come before the South Australian Parliament was the Bill for the railway from Lacepede Bay. This would be another horse tramway and was across fairly level country, from Kingston to Narracoorte in the South-East of the colony. Captain Bagot's term in the Legislative Council had run its course in 1869. He was then 78. Mr Arthur Lindsay, Member for Encounter Bay,


RAILWAYS
OR
NO RAILWAYS.
NARROW GAUGE,
VS.
BROAD GAUGE,
BY ROBERT F. FAIRLIE.

THE TITLE PAGE OF FAIRLIE'S BOOK. It is presently available as a facsimile edition. Given that we now know more about Fairlie's methods of promoting his cause there is little in it of scientific merit.

was another member of Parliament who had an opinion on railway matters and quickly filled the void left by Captain Bagot's departure. Lindsay was opposed to the narrow gauge. Fairlie kept his nose out of South Australia. Perhaps he had observed that Captain Bagot had things moving in the right direction. Arthur Lindsay tackled the fallacy of the 'dead weight.

The people of South Australia had a choice regarding their sources of information. There was the South Australian Register, that had been the colony's first newspaper. It was fiercely independent. The other source of opinion was the Advertiser, that was more conservative and inclined to support government policy. For the student of South Australian history, the editorial content of the South Australian Register has generally been considered to offer a well-balanced perspective.

It comes as a surprise to read the comments of the editor of the South Australian Register, 23 September 1871. The tone of the editorial indicates just how far opinion had shifted in South Australia, away from the broad gauge. There were country towns who were eagerly awaiting their local railway and those who were advocating against the narrow gauge were seen as obstructing progress.

Referring to Mr Lindsay:

> That Hon. member has made railways his study for many years and will not believe that anyone else knows anything about them….hence although he has something to say on the subject is worth the hearing, that it is so overladen with extraneous matter, and so mixed up with impracticable notions, that there is no pleasure and very little profit in listening to his reiterated expositions.
>
> The two main questions which occupied the attention in committee the House were the gauge and the total cost of the line… during the last three or four years, and the old arguments in favour of the broad gauge and against the possibility of cheapening the narrow gauge, have been so completely met by modern inventions, and by recent experience, that it is astonishing to see anyone who has really studied the question, not merely standing forward as the champion of exploded fallacies, but even claiming on that higher ground to be a champion of the higher truth. The House, however, declined to be carried away by the old-fashioned theories, and decided to make the line of a 3 ft 6 in gauge, anticipating therin probably by only a few hours to decision by the Victorian legislature on the same subject.

The South Australian Engineer-in-Chief, Henry Mais had been initially opposed the narrow gauge when it was first advocated by Captain Bagot. By 1870 he was accepting that it had some advantages.

* The following is from Arthur Lindsay's obituary in the South Australian Register, 11 May 1895:
Mr Lindsay was most persistent in his advocay…
His condemnation of the break of gauge was vehement and unceasing.