"My 1846 advice to the colonies said nothing about railway gauges, but since I am here - Stupid colonials – didn't want to have two gauges in one station - so they added a third, and to add insult to injury they did it at GLADSTONE!! Greg Judd cartoon.

CHAPTER 3

THE ORIGIN OF THE IRISH BROAD GAUGE IN AUSTRALIA.

Who was to blame?

Does it matter?

Yes, but no, and I shall go on to explain.

Harding squarely lays the blame with Francis Webb Wentworth Sheilds, the first Engineer of the Sydney Railway Company. Note the spelling. He is often spelt 'Shields,' which appears to be incorrect. Harding describes him as 'the culprit'. My first mission is to absolve Sheilds as the culprit. That deals with the 'Yes' part of my response to the question.

In the following pages I have reconstructed the chain of events that have resulted in the discord between the Stephenson gauge and the Irish gauge in Australia.

But it is not individuals that we should be looking at, but jurisdictions.

There were four jurisdictions that were players in this saga. There were the colonies of South Australia and Victoria. There was the Colonial Office in Downing Street. Finally, there was New South Wales, which at the time this was all happening, was a Legislative Council, reporting to Governor General, FitzRoy. Of the two smaller colonies, Victoria and South Australia, it can be fairly said that they could do no more than watch a situation unfolding and were destined to become the recipients of the resultant break-of-gauge some decades down the track.

There seem to have been some occasions when the Colonial Office in Downing Street 'took its eye off the ball' but it was the Colony of New South Wales that acted as if the other colonies did not exist and was wholly responsible for this.

That was a happy consequence for New South Wales. The 4 ft 8½ in gauge was ultimately chosen to be the standard gauge for Australia. New South Wales, for practical purposes, had no non-conforming track to convert and thus, was sitting rather smugly. I suggest that we are overdue to receive some acknowledgment by New South Wales, of their doing that has put the two other jurisdictions at a disadvantage. But otherwise I don't think anything else will change. And that addresses the 'No' part of my response.

This has left Victoria and, to a lesser extent, South Australia, to carry the burden of a non-conforming railway gauge and all the costs and inefficiencies that go with it. Western Australia and Queensland have also carried some of the burden.

ABOVE. The background to this cartoon is that in 1846 Prime Minister, William Gladstone was concerned about the unregulated expansion of railways in England, and recommended to the colonies that they develop some regulations. There have been some who have written on the subject of gauges who have stated that this included regulation about railway gauges. It was not. The town of Gladstone in South Australia takes its name from the illustrious Prime Minister. It was originally a narrow-gauge station. In 1927 there was a broad-gauge connection and in 1970 it became a three-gauge yard with the addition of standard-gauge track. There is a photograph of the complex trackwork on page 18. The broad-gauge and narrow-gauge lines have since been disonnected.

The data that I present is extensive. I have presented it in chronological order, which gives the reader the opportunity to grasp the significance of situations where a party acted with haste and could not have grasped the issues of concern. At other times there was inexplicable delay.

The 3 ft 6 in narrow gauge is another story, and there were some notable individuals who emerged as culprits. That is for other chapters (Chapters 4 & 6).

1853 was the year when the planning and approvals all went wrong. 1855 was the year when the non-conforming railway gauges became reality. There followed nearly three decades during which the people of the eastern Australian colonies basked in a sort of railway Utopia where the dreaded break-of-gauge was yet to materialise.

Here are the relevant events that led up to 1855. The items in red were significant.

1825 27 September Stockton to Darlington Railway, 4 ft 8½ in. Regarding the gauge, Hunter Davies states that:

> Some contemporary documents about the Stockton and Darlington, and the Liverpool – Manchester which followed suit state the width as being 4 ft 8 in. Yet later on, it was measured and found to be 4 ft 8½ in. No one knows where that extra half inch crept in.

1830 15 September Opening of Manchester Railway 4 ft 8½ in (Stewien - references in brackets are listed on the last page of this chapter).

c1831 Newcastle Coal and Copper Company pit line 4 ft 1 ½ in ***(Sydney Morning Herald*, 23 July 1856).** That one reference appears to be the only documented evidence of this gauge. It appeared in an item describing the conversion of the railway to the standard gauge. That would make 1856 the year of Australia's first gauge conversion.

We may speculate on the origin of this gauge. There is no evidence of this gauge existing in England. The likely explanation is that a mine manager stretched his arms out and declared that to be the distance between the rails. From an ergonomic perspective this is a comfortable arm stretch for an individual. To do a similar stretch for 4 ft 8½ in is a struggle.

This gauge is very close to the mid-point between the Stephenson standard gauge and the 3 ft 6 in narrow gauge, now known as the Anglo-Cape. The mid-point is 4 ft 1¼ in. If we were to follow Brunel's example and add a quarter inch to allow locomotives on curves then this is at the mid-point. (see last page of this chapter regarding Brunel and the Great Western Railway).

Admittedly the following point is taking conjecture to the extreme, but suppose this uniquely Australian gauge had been adopted by the colonies in the 1850s, would it have met the needs of heavy and fast trains in the 21st century, yet have allowed a greater degree of curvature in mountainous country, and thus, been a deterrent to the fashion for the 3 ft 6 in gauge in the 1860s and 1870s? Des Smith believes this gauge would have worked. His comments are on page 41.

Make e rails this wide.

The origin of the 4 ft 1½ in gauge in Australia. It is speculated that the coal miners who came from Wales did not have a ruler and had not brought a gauge in their luggage. Cartoon by Greg Judd.

1833 March Isambard Kingdom Brunel appointed as engineer to the Great Western Railway (GWR) (Stewien).

1835 27 May Parliament passed the Great Western Railway Bill. It did not specify a gauge. It is noted that the Parliament had earlier passed the London and Southampton Railway Act which did not contain a reference to gauge, and Brunel, successfully made the case for a precedent on the Great Western Railway (Awdry).

1835 31 August Royal Assent to the Great Western Railway Act (Awdry).

1835 17 September The opening of the London and Birmingham Railway, 4 ft 8½ in gauge (Awdry).

1835 29 October GWR Directors approve the broad gauge. Brunel had nominated the gauge to be 7 ft. He subsequently added the quarter inch to accommodate curves (Awdry). Brunel did not, at that time, specify a basis for arriving at that figure.

1836 28 December Proclamation of South Australia as a Province (Combe).

1838 4 June First section of GWR open from Paddington to Maidenhead (Awdry).

1838 15 August A report by Brunel to the Directors of the Great Western Railway outlining his reasons (amongst other matters) for selecting the 7 ft gauge. (Sekon).

1840s Railway mania in England with the rise, and eventual fall, of George Hudson. To use modern-day parlance, Hudson was running a massive Ponzi scheme (Hunter Davies).

1842 30 July South Australia achieves a degree of self-determination (Combe).

1843 Ireland adopts the 5 ft 3 in gauge after examination of the various gauges in use in Ireland at the time. Their decision was also influenced by the advice of the Stephensons that if they were designing a railway system again they would go a little wider, somewhere between 5 ft and 5 ft 6 in, although it is not clear whether they actually specified the 5 ft 3 in gauge. The 'how' and 'why' of the Irish broad gauge remains a mystery. The 'who' is generally accepted as General Pasley. Chapter 5 describes the origin of the 5 ft 3 in gauge in further detail.

1844 Gloucester becomes the first problem break-of-gauge station when the Great Western Railway's 7 ft 0¼ in gauge encountered the 4 ft 8½ in gauge. There is mention of prior minor gauge conflict locations (Awdry).

1845 25 June Richard Cobden moved in the House of Commons for a Commission to report on railway gauges (Awdry).

1845 23 December Lord Stanley resigned as Secretary of State for War and Colonies (*Australian Dictionary of Biography*).

1846 Gladstone sent advice to the colonies regarding need for legislation relating to railways in the colonies. It has been stated by some who have written on the topic of railway gauge in Australia that this communication by Gladstone included reference to railway gauge. There is no mention of gauge (Mills Appendix 2). The background to this appears to have been that in 1844 Gladstone had wanted some sort of state control which had happened in some European countries such as Belgium. It was the absence of any regulation in England that had facilitated George Hudson's schemes.

> There was one publication…that didn't engage in the current mania for share tipping. That was *The Times.* They began to thunder, as Gladstone had tried in vain a couple of years earlier that railway speculation would finally bankrupt the country. It pointed out that the capital to be invested in railways in 1846, £132 million, was equal to the total value of British annual exports and greater than the whole public revenue. (Hunter Davies).

1846 6 June Gauge Commission Report submitted to Parliament and was debated in both Houses for two months (Stewien). At that time there were 274 miles of broad gauge railway in England and 1,901 miles of narrow gauge. The Commission noted the greater speed and safety of the broad gauge, but it was the 4 ft 8½ in that had the advantage. There were less miles of broad gauge to convert than the 4 ft 8½ in. It was cheaper and easier to convert a broad-gauge line to the narrower gauge.

> Having break-of-gauge stations was regarded as being intolerable. Despite attempts there had been no successful method of transfer at break-of-gauge locations that was quick and economical (Awdry).

1846 2 August Arrival of Sir Charles FitzRoy in Sydney. He would replace Sir George Gipps as Governor. FitzRoy was appointed as the 'Governor General' with the intention that he had some function in the affairs of the other colonies however that did not happen.

1846 Grey (Lord Howick) was given the position of the Colonial Office (*Australian Dictionary of Biography).*

1846 18 August Railway Regulation (Gauge) Act became law in England (Stewien)(Awdry).

> Future railways in England would be built to a gauge of 4 ft 8½ in, and in Ireland to a gauge of 5 ft 3 in. Exception allowed if a new railway would create a break-of-gauge.
>
> Existing broad gauge railways (7ft 0¼ in) were to be converted as opportunity presented.
>
> Severe penalties were prescribed for non-compliance.

1848 Hunter Davies described the year thus:

> A year of great turmoil in England and Europe…a year of disaster for England and Europe generally. There was a massive trade depression, the potato crop had failed in Ireland, cotton was short from America, the repeal of the corn laws had brought in cheap foreign corn which was bankrupting English farmers, banks were collapsing and shares were tumbling. In Europe, of course it was the year of the revolutions. Hudson, and all his railway speculators were being blamed for most of the ills of the home economy… Lord George Brett, the new leader of the Conservatives resigned and with him went Hudson's chief Parliamentary ally. Disraeli took over even though he had occasionally been a visitor (to Hudson).

1848 15 June Establishment of Sydney Railway Company (SRC) with Charles Cowper as President and Manager. Cowper was a Member of the Legislative Council. He was Premier of NSW from 1856. There were six directors, four of whom were Members of the Legislative Council (Hagarty 43-656).

1848 30 June Secretary of State for Colonies (Grey) despatch (received by the *Trafalgar* 24 October 1848).

> I have communicated with the Commissioners of Railways in order to ascertain the width of gauge which might be best suited for general adoption and I have been informed that in their opinion, the most desirable gauge would be that which has been prescribed by the Act 9 and 10 Victoria Cap: 57 for railways in England, and which is the width of 4 ft 8½ in.
>
> That gauge has already been adopted in the rules framed by the Government of South Australia. A copy if this letter was sent to Cowper on 1 November 1848. (Harding's book has this in full).

1848 15 July A report in the ***Adelaide Observer*** was to the effect that Legislative Council had formalised the 4ft 8½ gauge in statutes in South Australia.

1849 29 January Francis Sheilds (note the spelling) appointed as Engineer of the Sydney Railway Company (Hagarty 43-656).

1850 19 February Adelaide City and Port Railway Act (Stewien).

1850 10 May In a report to the Directors of the Sydney Railway Company, Sheilds indicated a preference for a gauge wider than 4 ft. 8½ but did not specify a particular gauge. The Directors asked Shields for supporting information (Mills).

1850 21 May Sheilds sent a letter to the Directors – it was the first time there was mention of the 5 ft 3 in gauge (Mills).

1850 22 May Yes – next day! Cowper wrote to Deas Thompson, the Colonial Secretary, (Mills).

> The Directors having for some time had their attention turned to this important question, and bestowed upon it very grave consideration feel so fully the force of what is urged by Mr Sheilds that they are prepared to act upon the view taken by that gentleman, a course which they venture to hope will be approved by the Colonial Government.

1850 3 July Turning of first sod of the Sydney Railway Company, ceremoniously performed in the presence of Sir Charles FitzRoy (ARHS *Bulletin* Vol 44 No.667 April 1993).

1850 12 July Grey (Colonial Office) to Sir Henry Young, Governor of South Australia stating preference for the 5 ft 3 in gauge **(Adelaide Observer 30 August 1851**).

> I have sanctioned this change of plan on the conviction derived from your despatches that the notice which Sir Charles FitzRoy reports that he has made to you of his intended application for the modification would reach you in sufficient time to prevent any inconvenience arising from the adoption of conflicting arrangements in the two colonies.

1851 7 June The day when the people of Adelaide opened their morning copy of the ***South Australian Register*** to the news of gold at Bathurst.

1851 1 July Victoria became a separate colony, having previously been identified as the Port Phillip district of NSW and LaTrobe became Lieutenant-Governor. Almost simultaneously gold was discovered in Victoria.

1851 25 October South Australian Legislative Council provides for 5 ft 3 in for Adelaide City and Port Railway.

1852 21 February Grey left office of Secretary of State for War and Colonies. He was replaced by Sir John Pakington.

> Grey was grievously disappointed by the failure of his federation plan, and used the powers of the Crown to save as much of it as he could. In 1851 when FitzRoy was appointed Governor-General of all Her Majesty's Australian possessions, Grey hoped that he would assist free trade and co-ordinate the policies of the colonial governments on matters of common concern, such as railway gauges. FitzRoy did neither. (*Australian Dictionary of Biography).*

1852 24 June Bill to establish gauge of 5 ft 3 in introduced in NSW.

1852 9 July James Wallace arrived in Sydney and immediately took up position with the Sydney Railway Company (Mills).

1852 26 July Progress report on works of the Southern Tramway from Goolwa to Port Elliot. It is reported that work had commenced in 1851. The progress report included the following (Stewien).

> Portion of the tramroad between the iron store and the jetty had been completed. Two wagons were on the line taking loads to the jetty, of up to 3 tons at a time, under the control of brakes.

1852 28 July P & O steamer *Chusan* with the first mail by steamer to arrive in the Australian colonies after a voyage via Capetown of 74 days to Melbourne. P & O then provided a monthly mail steamer service. Thus, there could be a delay of about 7 or 8 months from the sending of a despatch to receiving a response. The monthly mail steamers were disrupted in 1854 due to the Crimean war.

1852 8 September Wallace recommended to SRC to abandon the 5 ft 3 in and revert to 4 ft 8½ in. He submitted three reasons:

> Narrow gauge locomotives are no longer inferior to broad gauge locomotives in terms of their power generating capacity.(Mills).
>
> The market for disposing of 5 ft 3 in rolling stock has narrowed. Supply has exceeded demand and disposal has incurred a negative premium of 20-30%.
>
> The 4 ft 8½ in gauge has become the de facto standard.

1852 10 September Two days later! SRC Board met and considered the above (Mills).

1852 24 September Wallace's papers circulated to Members of Legislative Council (Mills). There is nothing in the newspaper reports of the proceedings of the Legislative Council for the remainder of 1852 to indicate that the gauge matter had been formally discussed.

1852 11 November **The *Empire*,** first instalment of a series of ten articles published. 'The Economy of Railways in Australia.' The *Empire* was established by Henry Parkes. He must have sniffed a change of direction.

From the *Empire* (previous page).

> Guage (sic JLW). On this subject little need be said as the guage adopted for all lines in Australia has been fixed at a uniform width between the rails of 5 feet 3 inches, being the same as enacted for Ireland. This guage being intermediate between the narrow guage (4 feet 8½ inches, and the wide guage (7 feet) was considered better adapted for general traffic.

1852 27 December Act to authorise a loan to the Sydney Railway Company, in return for which the Government would appoint 3 of the 7 Directors. (Mills, who states that as a consequence, the SRC had effectively become controlled by the Government).

1852 28 December Sir John Pakington of the Colonial Office replaced by the Duke of Newcastle who remained in office to 17 June 1854. Therefore, the Duke of Newcastle was the one who prevailed at the time of transgression by NSW, although there is no evidence that he failed in any way that contributed to the outcome.

1853 12 January Half-yearly meeting of SRC at which the matter of the loan was formalised. But there is not a hint of a mention about the gauge.

1853 20 January Melbourne and Hobson Bay Railway first railway to be approved for Victoria. (Harrigan 1962).

1853 January Benjamin Herschel Babbage appointed as engineer of the Adelaide City and Port Railway. Babbage had trained under Brunel (Stewien).

1853 2 February NSW Colonial Secretary wrote to Colonial Secretary of Victoria (Mills).

However, it appears that the word had slipped over the border ahead of the official communication, as on 23 January as Mr Alfred R C Harrison, engineer for the Melbourne, Mount Alexander and Murray Railway Company has written a detailed report that acknowledged the superiority of the 5 ft 3 in gauge, but has advocated the 4 ft 8½ in for the sake of the best interests for the future (Harding reproduces a large part of the text).

1853 8 February NSW to the Colonial Secretary of SA (Stewien). (Mills makes no mention of this.)

1853 4 March Directors of the Sydney Railway Company sent indent for locomotives, rails and carriages. (Reported on 13 July 1853 in the ***Empire.***)

This was the point where the gauge problem could have been saved and the three colonies could have merrily proceeded with the 5 ft 3 in gauge. But from here the fate was sealed.

1853 8 March La Trobe responded that he would not sanction the change at that time but would seek opinion from the companies that had committed to building the railways in Victoria. (Mills)

1853 7 April The *Chusan* sailed from Melbourne with orders for locomotives and rolling stock for the Melbourne and Hobson's Bay Railway.

It is at this point that we must stop and consider the opinion of Mills (page 193) who summarises:

> It was not the case that Victorian railway companies had placed orders for locomotives and rolling stock at 5 ft 3 in before the Victorian decision to choose this gauge. Nor is it correct that those companies and their engineers, unanimously supported the choice of 5 ft 3 in. The record states that they did not. The record states that La Trobe decided on a gauge of 5 ft 3 in for Victoria before companies placed orders for equipment.

Mills then goes on to conclude 'that La Trobe's choice between 4 ft 8½ in and 5 ft 3 in was unconstrained. It was *his* choice of 5 ft 3 in that originated Australia's mixed gauge system'.

On this last point I disagree with Mills. The ask of LaTrobe had been to change the *status quo,* in that the 5 ft 3 in had been prescribed. LaTrobe was acting responsibly in not immediately falling into line. He was correct in seeking the information from the railway companies.

1853 23 May The Colonial Secretary of South Australia, Hon Boyle T Finniss, regarding the advice previously received from New South Wales, sought opinion from the Undertakers of the City Adelaide and Port Railway who requested a report from Babbage. Four days later Babbage submitted his report in favour of South Australia continuing with the 5 ft 3 in gauge (Stewien).

1853 31 May A Draft Bill was sent from FitzRoy to the Colonial Secretary. Mills says this was 21 February but I believe that is incorrect.

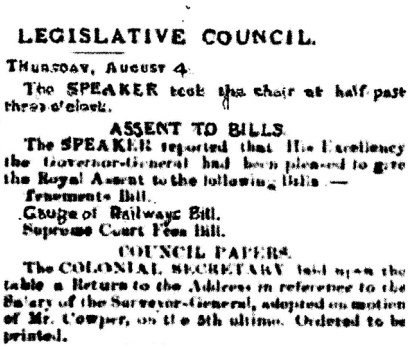
1853 ? The Colonial Office in London had 'become aware' of the proposal to revert to the 4 ft 8½ in gauge and had referred the matter to the Railway Board in England.

1853 6 July Bill read in the NSW Legislative Council.

1853 28 July LaTrobe wrote to FitzRoy, advising that he had sought reports from the Railway Companies in Victoria, and they would not support the reversion to the 4 ft 8½ in gauge.

1853 29 July Colonial Secretary speaking of objects of the Bill ***(Sydney Morning Herald)***.

> The Colonial Secretary, speaking of the objects proposed in the Gauge of Railway Bill, when the measure was before the Council on the 6th instant, stated it to be his intention to communicate with the several Governors of Australia, recommending them to adopt a similar measure, so that when these colonies could be connected by a general system of railroads, which he believed would be much sooner than was generally supposed, the greatest amount of practical convenience should be attained - meaning the convenience of having one gauge for all the colonies.



LEGISLATIVE COUNCIL.

THURSDAY, AUGUST 4.

The SPEAKER took the chair at half past three o'clock.

ASSENT TO BILLS.

The SPEAKER reported that His Excellency the Governor-General had been pleased to give the Royal Assent to the following Bills:—

Tenements Bill.
Gauge of Railways Bill.
Supreme Court Fees Bill.

COUNCIL PAPERS.

The COLONIAL SECRETARY laid upon the table a Return to the Address in reference to the Salary of the Surveyor-General, adopted on motion of Mr. Cowper, on the 8th ultimo. Ordered to be printed.

1853 4 August. FitzRoy did not wait for comment from the Colonial Office and proceeded to mandate an Act proclaiming the 4 ft 8½ in gauge NSW. (***Empire*, 5 August.)**

It is timely to look further at FitzRoy. The following are key points from the *Australian Dictionary of Biography*. That entry was written in 1966 by John M Ward.

> On 31 July 1847 Grey wrote to FitzRoy that he proposed to separate the Port Phillip District from New South Wales and make it a new colony, Victoria, with representative government on the New South Wales pattern. The same form of government would be granted to Van Diemen's Land and South Australia. To watch over the common interests of the four colonies Grey proposed to establish a federal legislature… FitzRoy himself had recommended, in September 1846, that some superior functionary should be appointed in Australia with power to veto any act of an Australian legislature… He did not, however, tell Grey plainly that all his proposals were unsatisfactory to New South Wales because they ignored the colonists demands for reform and were no more than an attempt to apply in Australia, a model constitution that Grey and Stephen had planned unsuccessfully for New Zealand…
>
> Goldfelds management concerned FitzRoy as Governor-General as well as Governor. He had the power to visit the other colonies, except Western Australia, and take over the governments, thereby he could solve intercolonial problems. He also had a wide discretion to advise the Lieutenant- Governors of the other colonies on matters of common interest… as he had no intercolonial executive, he had little encouragement to overcome a strong natural inclination to avoid trouble by doing nothing…
>
> He was clearly indifferent to imperial orders when in 1853-54 he missed the last official chance of avoiding the break-of-gauge problem of the New South Wales and Victoria railways…preoccupation with New South Wales, where he was greatly interested in railway construction and helped the Sydney Railway Co to obtain loans, clouded his judgement…
>
> ignored the warnings sent to him about the gauge problem by both Gladstone and Grey…
>
> After Grey left the Colonial Office, FitzRoy had no encouragement to be an effective Governor-General.

Comment. The Act that would have allowed FitzRoy to have the power to intervene in affairs of South Australia was entitled 'Better Government of Her Majesty's Australian Colonies' which arrived on the *Ascendant* on 15 January 1851, but it was initially lost. It was later found within a dirty linen bag! It proposed, amongst other things, a new Legislative Council. There were some amendments and finally the elections were held on 3 July. There were 16 elected members and 8 appointed members. This was within days of Victoria becoming a separate colony and was about the time of gold discoveries in New South Wales and Victoria. Combe (page 31) states:

> In the opinion of Governor Young, the vagueness which characterised the discussions on a new constitution in the previous session of November and the variances in the report of the 1852 Select Committee, and in the counter project of some of the members composing it, showed the expediency of being prepared with some specific plan of action clearly embodied in a Bill to be initiated by the local government.

Further comment regarding FitzRoy is by Pike (pages 438-9).

> The next cause for obstinate objection was the elevation of the Governor of New South Wales to be Governor-in-Chief of the Australian colonies. George Grey's successor in South Australia since 1845 had been Lieutenant Governors, a 'slight' not much noticed until FitzRoy's appointment as Governor General in 1851.

Pike then proceeds to quote Stevenson, who at various times in the fledgeling colony had been Clerk of the Court, editor of the *South Australian Register and Colonial Gazette*, Justice of the Peace, Protector of Aborigines, Registrar of Shipping, Agent for Lloyds, Postmaster and Customs Officer.

> We can deal with men of a halfpenny a glass calibre like Governor Young… One nincompoop is enough - two would drive even the tame people of South Australia to madness and resistance.

Pike then adds:

> The opposition in the (Legislative) Council clamoured to know the extent of FitzRoy's powers and demanded to see the official correspondence on the subject. Even when the Governor General's powers proved purely nominal the jealous guardians of South Australia's perfect independence refused to pay any attendance to the precedents and practices of adjoining colonies.

Fitzroy or FitzRoy?
The *Australian Dictionary of Biography* says FitzRoy.

In summary, the Colonial Government in South Australia had no desire to be part of Grey's federal scheme, but FitzRoy was evidently of the belief that he had authority in matters relating to South Australia.

1853 4 August. In 1887, the Annual Report of the South Australian Commissioner of Public Works, Hon Alfred Catt, included a section that gave a history, to that year, of the South Australian Railways. As it was an official document for presentation to Parliament, we could expect it to have been well researched and authoritative. But there remains the possibility that facts had become muddled with the passage of time.

> One alteration made in the Act of 1853 had such an important bearing on the future of railways in South Australia that it deserves special notice. The gauge fixed by the Act of 1850 was 4 ft 8½ in, but on the recommendation of the Select Committee in 1853 was changed to 5 ft 3 in and as we are now suffering severely in consequence, a few words on the reasons of the change may not be out of place. In 1846 an Imperial Act was passed for regulating the gauge of railways in England, fixing the gauge for passenger lines at 4 ft 8½ for England (with the exception of the Great Western Railway 7 ft system), and 5 ft 3 in for Ireland. Under these circumstances the Imperial Government recommended the Australian Colonies to adopt the 5 ft 3 in gauge…… Victoria had decided to adopt.
>
> And when the Select Committee on the Port Railway, 1853, examined the engineer of the line, Mr Babbage on the advisableness of following the example of New South Wales he recommended the 5'3" gauge because Victoria had decided to adopt it….but there is little doubt that had Victoria been appealed to she would have seen the wisdom of having a uniform gauge throughout the colonies, and had that been the case it is hardly likely that Queensland would have adopted a gauge different from all the other colonies, and thus all the trouble and expense of two gauges would have been spared to this colony.

1853 27 October Report by the Select Committee to the Legislative Council of Victoria. (Harding) and ***(Argus*, 11 November 1853.)** This Select Committee had been appointed on 29 September by the Legislative Council. There is also mention of correspondence of 31 August from LaTrobe ***(Argus*, 30 September).**

> Two of the Railway Companies also now actually carrying out their works, have already forwarded extensive orders for rolling stock…however, it appears that without due inquiry into the views and intentions of this colony, the Government of New South Wales have rescinded their former decision.
>
> Your committee therefore suggest to the honourable House, the propriety of presenting an address to His Excellency the Lieutenant-Governor, praying his Excellency to call the attention of the Secretary of State for the Colonies to the enactment passed by the Legislature of New South Wales, for altering the gauge of railways from five feet three inches to four feet eight and a half inches, and respectfully request that Royal Assent may be withheld from that Act…

FITZROY. *The Picturesque Atlas of Australasia, 1888.*

> In closing this report your committee feel that they cannot too strongly deprecate the making of railways with various gauges, when the Governments of these colonies, by unanimity of action, might establish and perpetuate a uniformity of gauge and thereby obviate the numerous evils incident to a want of uniformity in the railway communications of a country.

1853 19 November La Trobe appealed to the Colonial Office in Downing Street to disallow the change of gauge in NSW (Harding).

1853 26 November There is the suspicion that Victoria had drawn this to the attention of South Australia. There followed an attempt within the South Australian Legislative Council to lobby the Colonial Office to disallow the move by NSW. The proposal by South Australia lapsed as it was deemed inappropriate for one colony to interfere in the matters of another (*The Adelaide Times*).

1853 19 December A report by the SA Colonial Architect was that 6 miles of the tramroad from Goolwa to Port Elliot was continuous and goods were being carried. Whilst the report did not mention gauge, it should be noted that this tramway was built to the 5 ft 3 in gauge (Stewien).

1854 24 January Order sent for locomotives and other items for Adelaide City and Port Railway (Stewien - who comments that the mail delivery to London was 114 days). We can speculate that the NSW dispatch to Downing Street was aboard the same vessel.

1854 18 May Official opening date of operation of Goolwa Tramway.

1854 15 July NSW to Downing Street for Royal Assent. Grey did not but referred the matter back to FitzRoy. Grey asked that FitzRoy review the matter 'for the sake of the neighbouring colonies'.(Harding). **But FitzRoy did not.**

1854 12 September Official opening of the Melbourne and Hobsons Bay Railway 5 ft 3 in gauge. Australia's first steam-operated public railway (Harrigan).

1854 2 December NSW Government Act set up a Board to undertake construction of railways in NSW. This Board had the power to extend the SRC line beyond Parramatta and to purchase the SRC line (Hagarty 46-690).

1855 20 January Sir Charles FitzRoy ends term as Governor General and Sir William Denison, is the new Governor General. Singleton advises that Sir William Denison subsequently devised a scheme to build 4,000 miles of tram roads to be operated by horses in New South Wales. *(Australian Dictionary of Biography re John Whitton).*

1855 11 July Guage (sic) of Railways Repeal Bill introduced to NSW.

> The Colonial Secretary moved that the Bill be read a first time. The Attorney-General seconded the motion. After a trifling discussion the Bill was read a first time. ***(People's Advocator and New South Wales Vindicator, 14 July).***

1855 14 August The Act of 1852 that mandated the 5 ft 3 in gauge was simply repealed (by Sir William Denison). It was considered unnecessary to have any statutory provision for the 4 ft 8½ in gauge as the Government now had control (Hagarty 46-695).

1855 3 September The Sydney Railway Company ceased to exist (Hagarty 46-695).

1855 26 September Opening of Sydney railway (*ARHS Bulletin* 44-667). There have been claims that the Adelaide City and Port Railway was the first Government owned and operated railway in the British Empire. It was trumped by the Sydney Railway which had been a government enterprise for just 3 weeks when it was opened. But that title rightfully belongs to the Goolwa to Port Elliot line. Hence the Sydney Railway should be regarded as the first Government owned steam railway.

1856 21 April Adelaide and Port Adelaide Railway open (Stewien).

1857 January John Whitton advocated conversion of Sydney railway to 5 ft 3 in gauge. Whitton had commenced with the Sydney Railway as Engineer-in-Chief in 1856.

GREG JUDD CARTOON. This has been inspired by an Oliphant cartoon in Harding's book, that depicted a more portly Sheilds and carried the caption ***Make it wide Begorrah!*** There is one image in existence of Sheilds of which Greg has captured his features well.

I invited input from Des Smith on the 4 ft 1½ in.

Should we laugh at the 'four foot one and a half'?

No. We should not. If, way back at the beginning of railways in this country, all the colonies had adopted it, then it would have worked. That is not to say it would be the best. With the benefit of knowing what had happened I belong to the school of thought that the Irish had it right, and the 5 foot 3 would have been optimum.

But No again, I would not run double stack at full speed on it. I was always a soft touch for the Operation Branch in the auctions when they wanted an extra ton of axle load or a few more inches of height. Railway engineering is not an exact science regarding such matters. Double stack works on standard gauge with enough margin for safety, but I don't think the 7 inches less would be stable enough. So I could possibly be persuaded to try it with reservation and not at full speed.

As to curves, the 4 ft 1½ in gauge on a 6 chain radius curve would be equivalent to 3 ft 6 in on 5 chain curves but such sharp curves on a mainline must be taken as the last resort rather than the automatic choice. The fact that Fitzgibbon used them does not mean that they were essential or the best choice. There have been other new railways built over the range in Queensland in the last 60 years. I'm sure the curvature was not as sharp.

By the way, I would absolutely refuse to allow double stack on 4 ft 1½ in gauge on 6 chain curves.

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BROAD, NARROW AND STANDARD

Some pictures from my collection.

Top. South Australian Railways broad-gauge Rx class crossing the bridge over the River Light near Kapunda.

Centre. South Australian Railways narrow-gauge T class at Hawker.

Lower. The (standard-gauge) *Ghan* at Darwin.

THERE'S NO PERFECT GAUGE

It would have been much simpler if there had been a mathematical equation and everyone agreed that it gave a precise figure that was consistent everywhere in world. Then we would have a universal international standard gauge and we could stop bickering about railway gauges and get on with running efficient railways.

Most agree that if it existed it would be somewhere between 5 feet (about 1500 mm) and 6 feet about 1800 mm). The Queenslanders may disagree and the Tasmanians would probably second that motion. Over in the West they would probably abstain from voting and in New South Wales we could expect to hear voices calling for an amendment to go a bit less.

Norway was the first country to have a 3 ft 6 in (1067 mm) railway in 1862. There are no longer any 3 ft 6 in mainlines in Norway.

At the other end of the scale I K Brunel, the engineer of the Great Western Railway (GWR), went to 7 feet and with good reasons. But in the period up to 1846, when England outlawed any other gauge than the 4 ft 8½ in, there was no constraint on the gauge of a new railway and there were many new gauges, but none copied the GWR example. Brunel reasoned that there was a wealthy population to justify the expense of building a high speed 7 foot (2140 mm) mainline from Paddington to Bristol.

But the rest of England, which was revelling in the escape from the old coach travel, was happy to be travelling at whatever speed George and Robert Stephenson could manage with their engines and narrower track. The undoing of the GWR was that when the crunch came in 1846, there were only 274 miles of the GWR gauge and 1901 miles of the Stephenson gauge. Charles Darwin and his theory of natural selection was still a couple of decades away but it was the natural selection of railway gauges that prevailed. It was cheaper and quicker to convert broad gauge to the Stephenson gauge than to push the rails further apart.

In Ireland they went as wide as 6 ft 2 in but quickly decided that was too wide. In San Francisco, when they started planning the Bay Area Rapid Transit (BART), they disregarded the 4 ft 8½ in, that is standard in the US, and chose the 5 ft 6 in gauge.

Russia and the nations in its circle of influence operate to 5 ft gauge (1524 mm). Spain and Portugal operate to variations of 5 ft 6 in gauge. In Spain and Portugal it is 1668 mm and called the Iberian gauge. In the 19th century those two nations had colonial outposts and thus, we find large networks in India, Pakistan and South America operating to the 5 ft 6in gauge. But that is a few mm more than the gauge operating in those old countries. That is the widest gauge in general usage and is 1676 mm and known as the Indian gauge.