



Climax locomotive No.1694 coming into Tyers Junction from West Tyers (on the Ten Acre Block branch). This shows the locomotive with the original riveted smoke box.

Photo: W Saxton, courtesy Mike McCarthy

Steam locomotives on Victorian timber tramways

by Frank Stamford

The fifth of August 2009 marks the 60th anniversary of the closure of Victoria's last steam-operated timber tramway. On 5 August 1949 Climax locomotive No.1649 brought the last load of sawn timber from Tyers Junction to Collins Siding on the 2ft 6in gauge Tyers Valley Tramway.

Climax locomotive 1649 went into service 21 years earlier, having been bought new by the Forests Commission Victoria (FCV), after a debacle with a locally built geared locomotive. The Tyers Valley Tramway had been constructed by the FCV in 1926-27 at the request of local sawmillers. Much of the work in constructing the steel-railed tramway was undertaken by the sawmillers themselves, but the project was managed and financed by the FCV, who specified the standards for the construction of the tramway. Those standards were high in comparison to most timber tramways, and were based on the standards of Victorian Railways 2ft 6in gauge lines, but with lighter rails, less or no ballast, and with sharper curves (80ft radius in one location).

The tramway was steam operated for the section from Collins Siding (on the VR's 2ft 6in gauge Walhalla railway) to Tyers Junction (6¾ miles). At Tyers Junction, the tramway split, with one branch terminating at Growlers Creek, 13½ miles from Collins Siding, and the other at Ten Acre Block, 8¾ miles from Collins Siding. These branches were normally operated by TACL rail tractors rather than the Climax locomotive.

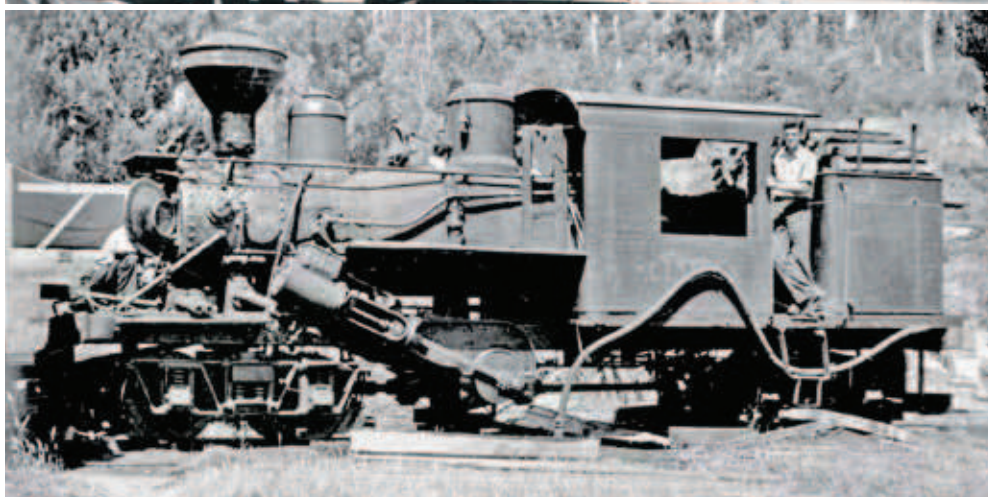
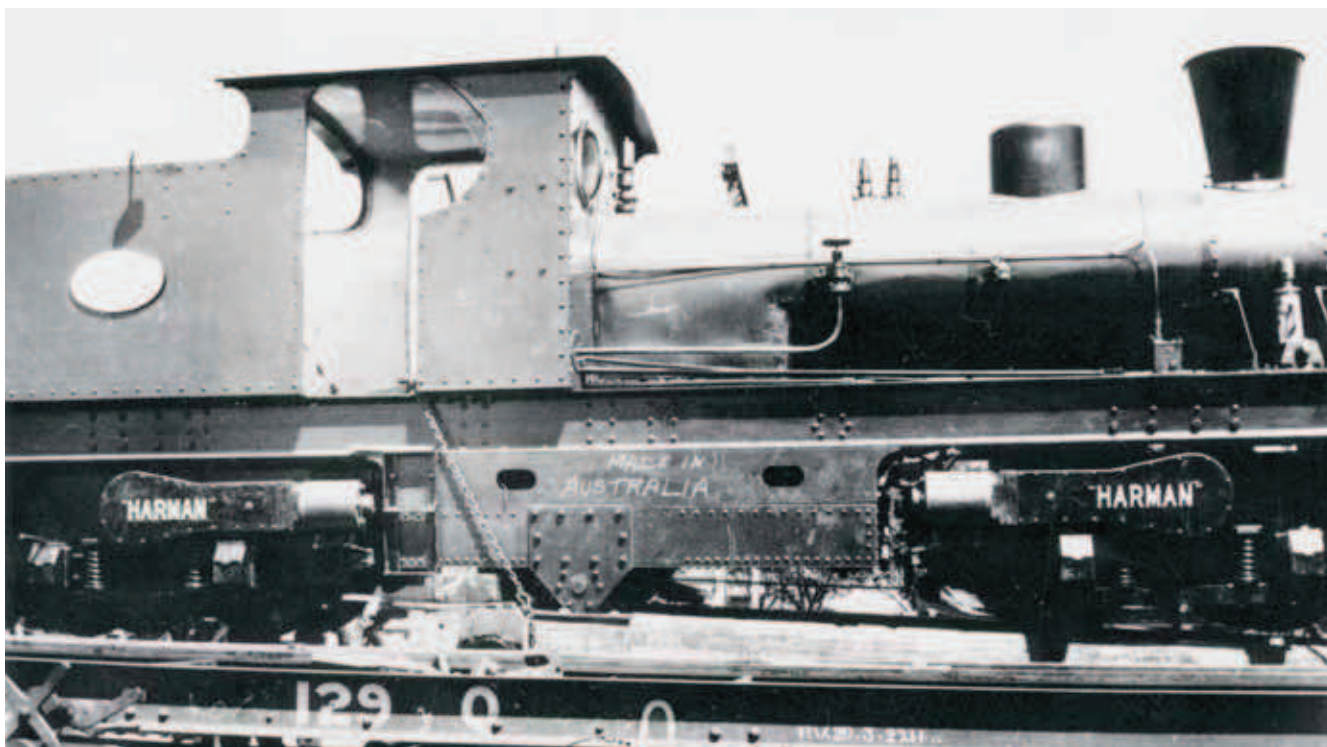
The provision of locomotives was a problem for the FCV. No suitable second-hand locomotives were available, and the most appropriate new ones were made in the USA. At that time, government policy favoured the purchase of locally made equipment or failing that, equipment made in the United Kingdom.

As a result, the FCV was required to call tenders for a locomotive. They received a tender from the Melbourne firm of Alfred Harman, which the FCV was obliged to accept against its better judgement, as the only suitable alternative choices came from the USA.

The Harman locomotive proved to be the most expensive, over-engineered failure amongst the 53 locomotives believed to have run on Victorian timber tramways. Part of the design was based on the use of Harman's successful logging winches in the power bogies, but there were too many novel features in the design, resulting in an excessive number of faults.

With the failure of the Harman, in April 1928 the FCV placed an order with the Climax Manufacturing Co., USA for a 'B' class Climax locomotive. It arrived in Melbourne in August 1928, was assembled at the VR's Newport workshops, and delivered to Collins Siding on 5 September 1928. One of the reasons for the failure of the Harman may have been that the FCV made a mistake in the specifications, for they specified a locomotive weighing 16 to 18 tons. The Harman exceeded this weight, and when ordering the Climax the FCV specified a 25 ton locomotive.¹

The success and failure of the two steam locomotives used on the Tyers Valley Tramway was typical of the mixed fortunes with the steam locomotive used on Victorian timber tramways. The working environment for these locomotives



The Harman geared locomotive on a 5ft 3in gauge flat wagon ready for transport to Moe. Photo: LRRSA Archives □ Climax locomotive No.1694 at Tyers Junction in the 1930s. Photo: Forests Commission Victoria □ No.1694 leaving Tyers Junction with a load of sawn timber bound for Collins Siding, in the late 1940s. This shows the locomotive with the new welded smokebox which was made by the FCV. Photo: AP Wymond, courtesy Mike McCarthy



was very demanding, the grades were steep, the curves sharp, the track usually rough and often appalling. Most owners of sawmills and tramways had limited finances and maintenance facilities, and limited availability of maintenance expertise.

What the sawmill owners lacked in finances or formal knowledge was often compensated for with a willingness to innovate or experiment with what they had available. As a result, the 53 locomotives varied from the sublime to the ridiculous.

Thirteen were one-off designs, made either in the sawmill's own workshop, or by an engineering firm with no experience in building steam locomotives. Five of these (including the Harman) did not get past the testing stage; what is more amazing is that eight performed sufficiently well to put in at least a few years service, and in some cases over 10 years service.

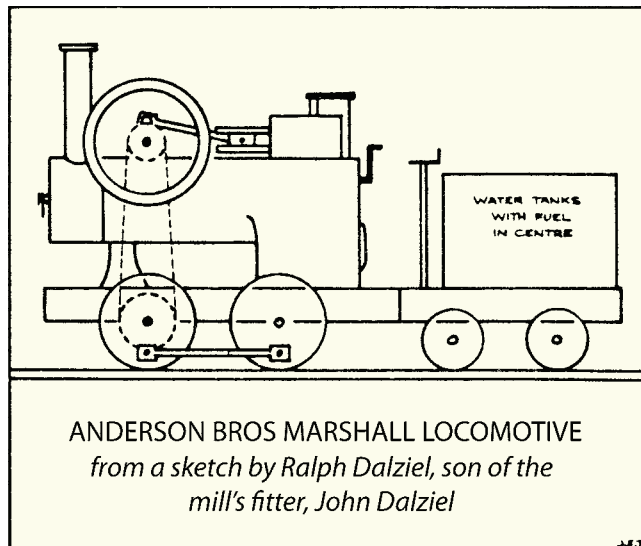
The pioneers

The first tramway known to have used steam locomotives was that of Anderson Brothers, running from Dean, via Barkstead, to Korweinguboorra in the Wombat Forest, south of Daylesford. The tramway was about 5ft 3in gauge, using iron-strapped wooden rails. Andersons had been using tramways for 10 years when in 1873 they decided to try a locomotive. It was constructed by the mill's fitter, Mr John Dalziel, using a Garrett traction or portable engine as a basis.

Perhaps surprisingly – in view of the subsequent results with home made locomotives – it worked! So much so that Andersons obtained a second locomotive, this time built by the Union Foundry in Ballarat. Apparently a Marshall traction or portable engine was used as a base, and the locomotive was described by a newspaper reporter as *'having a double 8 inch cylinder with 14½ inch stroke ... on top of the boiler ... to allow its working by chain gear'*. The locomotive had four coupled wheels, with a chain running from the front axle to a drive shaft on top of the boiler. It also worked satisfactorily. The two locomotives remained in use on Andersons' tramway – which was 23 km long – until 1886 when the Andersons left the sawmilling business.²

One of the reasons these locomotives were successful was probably that the Wombat Forest was less rugged and mountainous than most of the forest areas that were later developed.

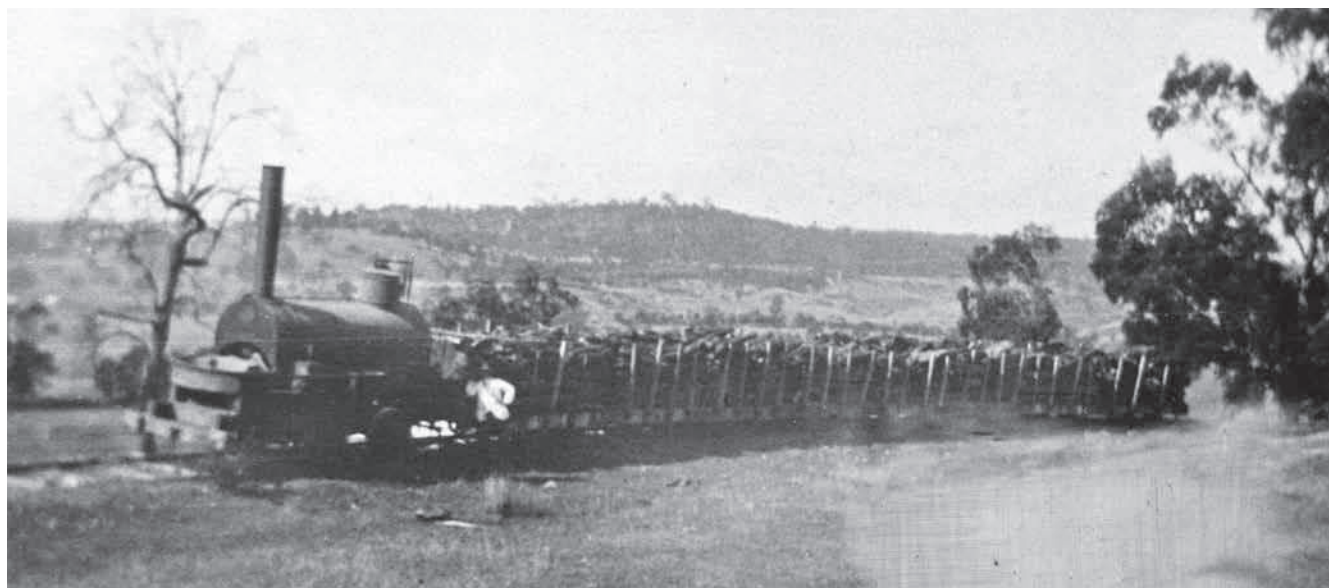
The next timber tramway locomotive was another traction engine conversion, this time for the 3ft gauge Victoria Steam



Sawmill tramway at Warragul. This was built by the mill's owner, Edwin Biggs, using flanged tramway wheels in place of the original wheels. It is not clear how successful this locomotive was. There are no subsequent newspaper references to its operation, and the Victorian Steam Sawmill closed in 1890. In 1884 Biggs' son, Frederick, is reported to be using an engine to haul timber from his mill at Bloomfield, (now Nilma) station. It may have been the same unit, possibly running as a traction engine again, as it was having a disruptive effect on the local horses.³

The next known attempt to use steam locomotives was at Garfield, on the main Gippsland railway, where in 1885 William Brisbane, one of the principal shareholders in the Cannibal Creek Sawmilling Company, tried a locomotive in October 1885. The only thing known of it is that, to quote Brisbane it would *'not answer when going around the curves'*. It was reported that a second engine *'made on a different principle'* was under construction, but nothing further was recorded of it. The rails of this tramway were wooden, of 4½ inch square section.⁴

In 1886 the Longwarry Sawmilling Company had considerably more success with a 3 ft gauge vertical-boilered locomotive that they had built by the Melbourne engineering firm of Lugton & Sons. It was capable of hauling 30 tons



The first locomotive on David Mitchell's firewood tramway at Lilydale. It had geared drive to its four wheels, and was constructed around 1890, but by whom is not known.

Photo: Collection of A. (Sandy) Ross, Lilydale Historical Society



Climax locomotive No.1694 draws water from Hotel Creek, about half-way between Tyers Junction and Collins Siding.

Photo: W Saxton, courtesy Mike McCarthy

at 8 mph on wooden rails, and in so doing met its design specifications. It hauled the daily output of sawn timber from the Company's Labertouche Creek and Gypsy Creek mills to Longwarry railway station, running two trips daily, but was limited to 4 mph due to the unstable wooden track. It is not known how long the locomotive was used, but the company became insolvent in 1893 and ceased operations.⁵

In 1886 at Apollo Bay the Barham River Timber Company was being established, with a 3ft 6in gauge tramway. A small locomotive was being used in the construction, and it was intended to use a locomotive on the completed tramway, but

the most active promoter of the project was drowned whilst unloading some machinery, and the company never reached its full potential. The locomotive was taken away before the sawmill went into operation. Nothing is known of its identity but it must have been small, as it had to be unloaded from a ship in the open bay and lightered ashore.⁶

Little is known of a four-wheel geared locomotive which was used by David Mitchell on a tramway on his Cave Hill estate at Lilydale, which supplied firewood to his lime works. Photographs show that it was obviously home made (possibly by a Melbourne engineering company) and indicate that



Climax locomotive 1694 at the Tyers Junction loco shed early one morning in 1947, with the cab filled with firewood ready for the day's work.

Photo: Norm Wadeson collection

the gauge was probably 3ft 6in. Mitchell was planning to use steam in 1885, and the locomotive was probably in use in 1890 and definitely in use in 1893, by which time the tramway was three miles long. Newspaper references also tell us that Mitchell was rebuilding and extending his tramway between 1907 and 1910 along the valley of the Olinda Creek, beyond the estate boundaries. It would have been at this time the gauge was changed to 4ft 8½ in, and an ex-Bendigo Phoenix tram motor obtained to work it. This worked successfully until around 1929 when the tramway was taken out of service.⁷

To be continued...

End Notes

1. Wadeson, NE; 'The Tyers Valley Tramway', *ARHS Bulletin*, No.255, January 1959. Stuckey, EG; 'The Harman Geared Locomotive', *Light Railways* No.42 Summer 1972-73, pp.13-19. Stuckey, EG; 'Climax Locomotive 1694', *Light Railways* No.49 Spring 1974, pp.11-18.
2. Houghton, Norm; *Timber and Gold*, LRRSA 1980; pp.21-23 & 28
3. McCarthy, Mike; *Settlers and Sawmillers*, LRRSA 1993, p.87 & 107
4. McCarthy, Mike; *Settlers and Sawmillers*, LRRSA 1993, p.26
5. McCarthy, Mike; *Settlers and Sawmillers*, LRRSA 1993, p.39
6. Details provided by Norm Houghton
7. Details provided by Phil Rickard, and are based on contemporary newspaper reports and records in the Victorian Public Records Office. Alger, Ralph; 'Reminiscences of the Cave Hill Tramway', *Light Railways* No.111, pp.3-14

Victoria's steam operated timber and firewood tramways

Tramway	Gauge	Period of steam operation									
		1870	1880	1890	1900	1910	1920	1930	1940	1950	
Andersons' — Dean — Korweinguboora	c.5ft 3in		█								
Victoria Steam Sawmill — Warragul	3ft		█								
Cannibal Creek Sawmilling Co. — Garfield	3ft			█							
Longwarry Sawmill Co. — Longwarry	3ft			█							
Barham River Timber Co. — Apollo Bay	3ft 6in			█							
David Mitchell — Lilydale	c.3ft 6in 4ft 8½in			█	█						
Cropley Bros — Darnum — Ellinbank	3ft			█	█						
Mason & Co. — Port Welshpool	3ft			█							
Australian Seasoned Timber Co. — Wandong	3ft 6in				█						
Sanderson & Grant — Forrest	3ft 6in				█	█	█				
W.W. Gunn — Crossover	3ft 6in				█	█	█	█			
John F. Anderson — Warburton	3ft				█						
North Long Tunnel Gold Mining Co. — Walhalla	2ft 6in				█	█					
Mclvor Timber & Firewood Co. — Tooborac	5ft 3in				█	█	█				
Penrose & Oddy — Mitchellstown	3ft				█						
Cuming, Smith & Co. — Britannia Creek	3ft				█	█					
Hayden Bros — Barwon Downs	3ft 6in				█	█					
Warburton Steam Tramway — Warburton	3ft				█	█	█	█			
Goodwood T. & T. Co. — Port Albert	2ft				█	█					
Henry & Sons — Forrest	3ft 6in				█	█	█	█			
Rubicon Lumber & Tramway Co. — Alexandra	2ft				█	█	█	█			
Victorian Powell Wood Process — Powelltown	3ft				█	█	█	█	█		
Higg's Mill — Whittlesea — Pheasant Creek	3ft					█	█				
Loch Valley Timber Co. — Noojee	3ft 6in						█	█			
Goodwood Timber & Tramway Co. — Noojee	3ft 6in						█	█	█		
Elphinstone Redgum Sawmilling Co.	3ft 6in						█	█			
EAC Russell — Gembrook	3ft						█	█	█		
JE Ezard — Big Pats Creek	3ft						█	█			
Richard's — Big Pats Creek	3ft						█	█			
Forests Commission — Tyers Valley	2ft 6in						█	█	█	█	
JE Ezard — Erica	3ft								█	█	

Line thickness equals estimated number of locomotives (from 1 to 6)