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Australia's Magazine of Industrial & Narrow Gauge Railways



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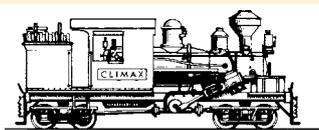
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Imperial to metric conversions:

1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metres
1 mile	1.60 kilometres
1 ton	1.01 tonnes
1 pound (lb)	0.454 kilogram
1 acre	0.4 hectare
1 horsepower (hp)	746 Watts
1 gallon	4.536 litres
1 cubic yard	0.765 cubic metres
1 super foot	0.00236 cubic metre
(sawn timber)	



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Editorial

Do you ever feel that you need more involvement than just reading of light railway subjects with the two-monthly edition of *Light Railways* magazine? There are many ways that you can get more of a 'fix' than just by reading this magazine.

Each of the State groups of the Society conduct tours of areas with light railway interest. In this edition there are two reports from very interesting, and by all reports, very successful tours undertaken by Society members – one to the Gold Coast light rail and the other to Captains Flat in NSW. There is also a report on the opening of the Milang light rail centre that was attended by many members

If you are not a fitness fanatic and prefer to sit at home and read all about it, there are two options – the Yahoo Group and the Society Facebook page.

The Yahoo Group is a discussion forum with over 400 members that discuss a wide range of light railway topics and often circulate photos, maps and extracts from Trove that are of general interest. If you are interested in joining and participating, go to the Society website and follow the instructions.

The Society also has a Facebook page with lots of information on what is happening in the light railway world. It is intended to make this page more prominent as time goes on.

So, if you have not had a look, or are not a member already, give it a try.

Richard Warwick

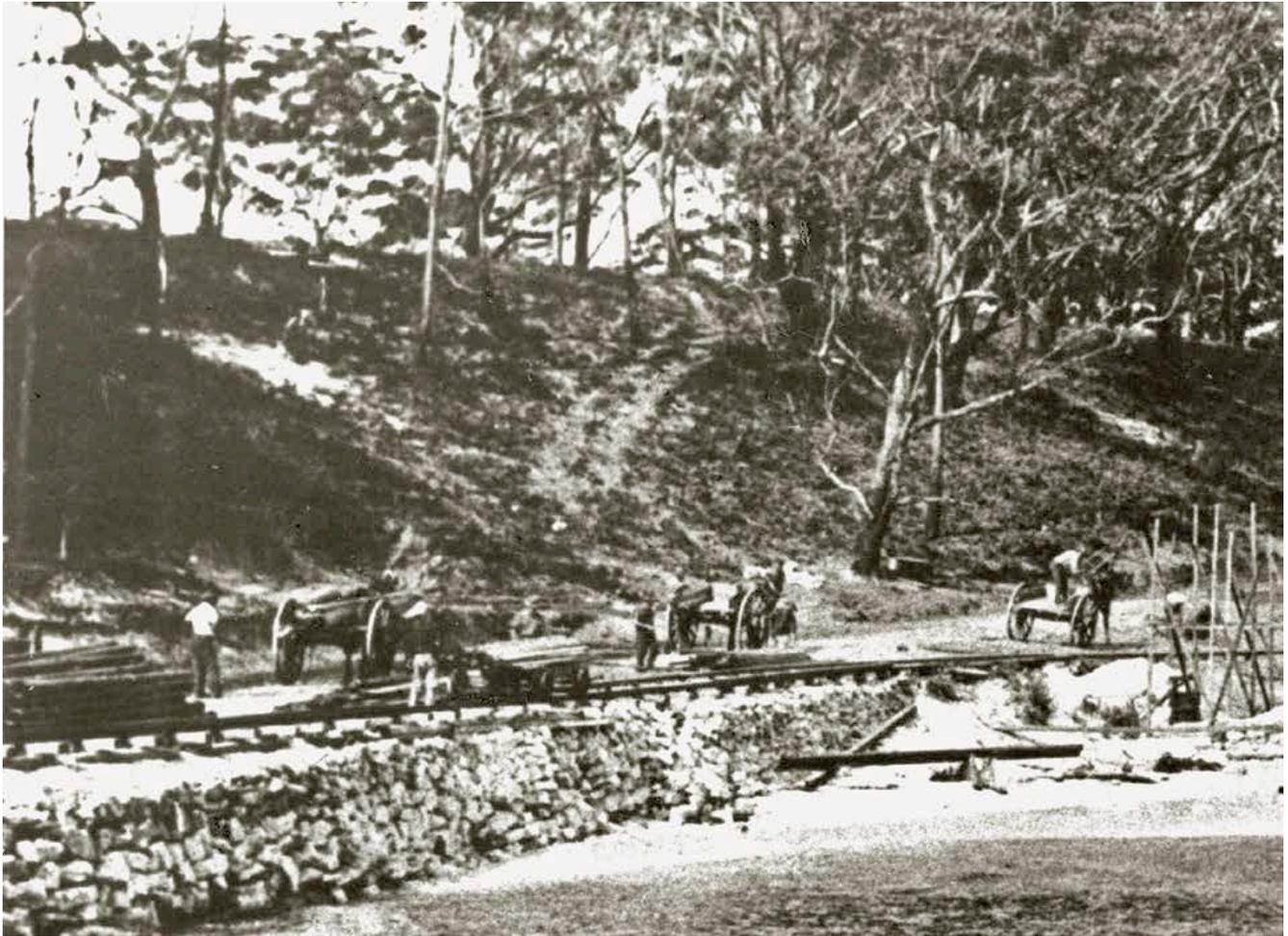
Front Cover: Ready to depart its namesake town on 11 August with sugar bins for Macknade Mill is Clyde 0-6-0DH Lucinda (65-436 of 1965). Photo: Christopher Hart

The Light Railway Research Society of Australia Inc. was formed in 1961 and caters for those interested in all facets of industrial, private, tourist and narrow gauge railways in this country and its offshore territories, past and present.

Members are actively involved in researching light railways in libraries and archives, interviewing knowledgeable first-hand participants and undertaking field work at industrial sites and in forests.

Light Railways is the official publication of the Society. All articles and illustrations in this publication remain the copyright of the author and publisher. Material submitted is subject to editing, and publication is at the discretion of the Editor.

Articles, letters and photographs of historical and current interest are welcome. Contributions should be



Seawall under construction. Date unknown.

Source: HMAS Creswell Historical Collection

The HMAS Creswell Breakwater Tramway, Jervis Bay Territory¹

by Dr Peter Crabb

The Royal Australian Naval College (RANC), also known as HMAS *Creswell* since 1958, has an idyllic location on the south-west shores of Jervis Bay, surrounded by the Booderee National Park and coastal waters that are part of the Park and also of the New South Wales Jervis Bay Marine Park.² It is located in the Jervis Bay Territory, a territory of the Commonwealth of Australia, forming the southern boundary of Jervis Bay. The land was acquired under the Jervis Bay Territory Acceptance Act 1915. In many respects, the naval facility is totally out of place, the consequence of political decisions made many years ago, in the early years of Federation. These stories and other parts of the College's history are told elsewhere,³ but there is one part of the history that has received very little attention.

Background

When construction began in 1912 it was a very isolated place, and from the start communications with the site were very difficult. The nearest town, Nowra, was 35 km away and the nearest railway station Bomaderry, north of the Shoalhaven River and 3 km beyond Nowra. All supplies and just about all construction materials had to be carried by bullock dray along

what was little more than a winding track from Bomaderry or brought in by sea, initially being landed on the beach at Captain's Point.

However, for two important features of the College, namely the site's protective seawall and the breakwater, materials were available very close to hand. Their construction were major undertakings for the Commonwealth's relatively new Department of Works, and responsibility as supervising engineer for the task was given to Mr H A Blomfield, who had previously worked for the New South Wales Department of Public Works on the construction of breakwaters at Port Kembla and at Crookhaven, at the mouth of the Shoalhaven River.⁴ The resident engineer was Mr A E Thomas. With these appointments, work was underway by the middle of 1912.

One may ask why a seawall and breakwater would be needed in one of the largest natural harbours on the Australian coast, but as will be shown, it can be a very stormy bay with few locations that are naturally safe for vessels to anchor.

The original plans were for a seawall to protect the College's shoreline facilities and a 270 feet long breakwater, incorporating a small offshore island. During construction, there were subsequent extensions of 100 feet and 205 feet, giving a total length of 575 feet.⁵ Very early in the work, Blomfield proposed a further 400 feet extension of the breakwater then under construction and an additional one 1000 feet long to provide a small harbour of 35 acres.

The reason which I have for bringing this under your notice again is the particularly severe gale which has visited Jervis Bay during the last four days. It was fortunate that I happened to come here on Tuesday last, as, on that night and also on Wednesday, I was able

to observe the seas which rolled into the bay from the effect of the gale and which were particularly high. Old residents tell us that they have never before noticed seas so high between Captain's Point and Plantation Point. The waves at Captain's Point were more than 6 feet above high water spring tide, and on Tuesday night displaced a couple of piles at the outer end of our jetty, and on Wednesday bodily removed 40 feet of jetty. The rollers swept around the island with great force, and were up to the height of the inner jetty and boat landing. From the appearance of the sea, it seems that 270ft of breakwater added on to the end of the island will not afford nearly as much shelter as will be required at the landing; that is, if still water is wanted when a heavy sea is running outside.⁶

In spite of Blomfield's personal experience of the weather and sea conditions that can occur within Jervis Bay, his proposals were not accepted.

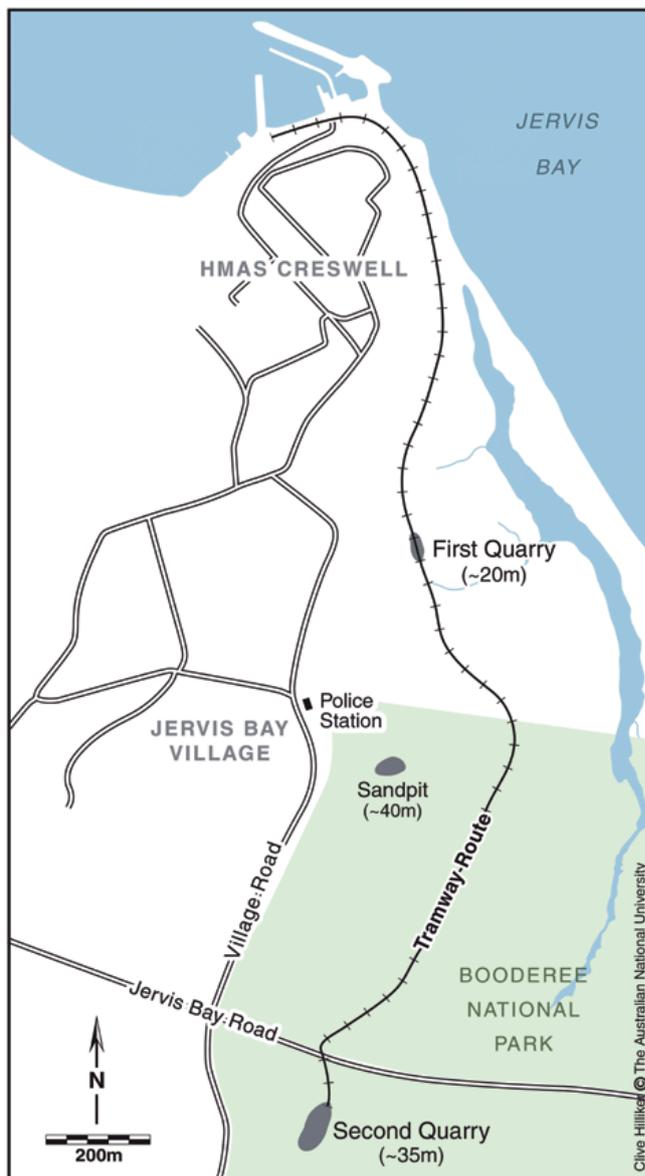
Building the breakwater

The breakwater was built using rock obtained from two quarries, one on College land, the other close by. On Blomfield's recommendation, the task of operating the quarry was given to Mr. J Mason, who had been in charge of the Nowra Quarry that had supplied stone for the breakwater at Crookhaven Heads; some of the workforce and equipment from the Nowra Quarry moved with him, as well as a crane from Crookhaven Heads.⁷ Initially, stone from the quarry was used for "ballasting and fixing" the tramway that was to carry the stone to the Breakwater.⁸

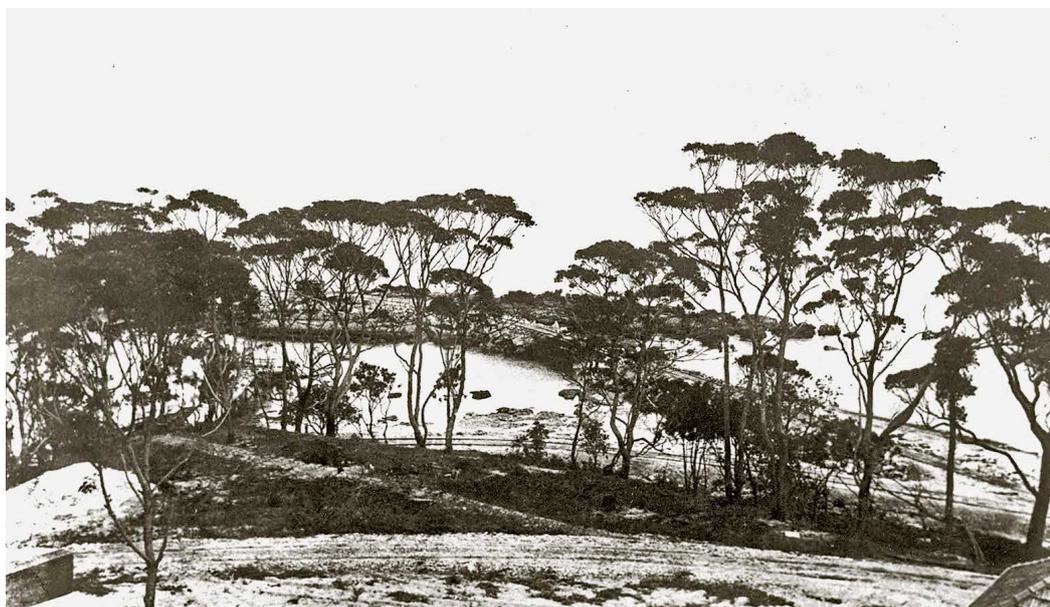
By the middle of 1913, after some delays due to funding issues,⁹ construction of the seawall and breakwater were well underway:

The Quarry as opened up is turning out a much better class of stone than anticipated, and which is perfectly suitable for the work it is intended for. The Breakwater and Seawall are being carried on simultaneously as the material which is unsuitable for Breakwater can be used for the Seawall work.¹⁰

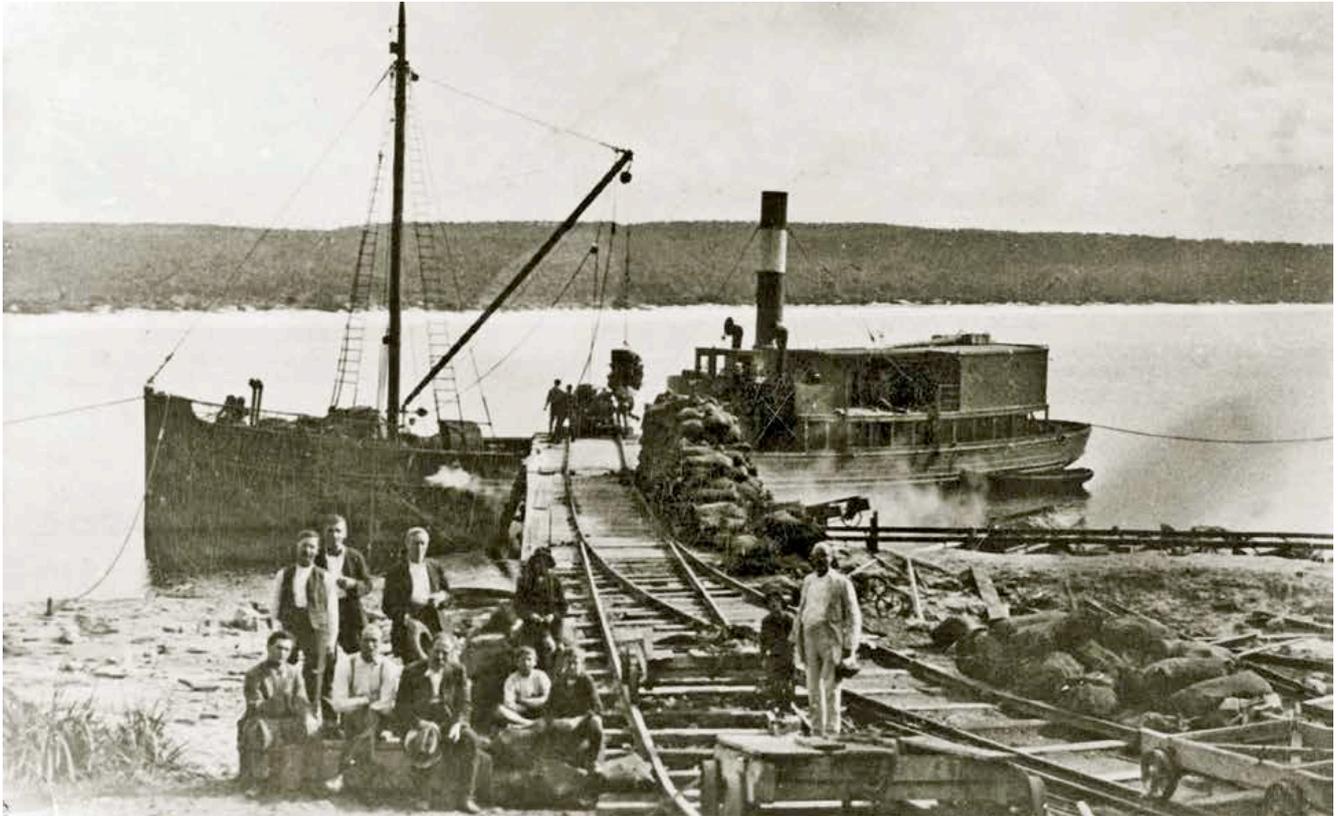
By mid-December 1913, work on the breakwater and seawall had clearly proceeded rapidly.¹¹ Beyond the island, construction was much slower, as the increasing depth of water meant that more stone was required for each lineal unit of length. By early 1915, work had been completed to 285 feet beyond the island.¹² However, with less than a quarter of the stone quarried being of use, and approval having been given for a 100 feet extension of the breakwater, another source of stone was clearly needed.¹³



With the opening of a second quarry, about half a mile inland from the first one, work continued, despite the fact that the Commander of the College was not happy with the angle of the breakwater from the shore or its length; his



An early view of the Breakwater and enclosed harbour, with tramway to breakwater and jetty. Date unknown. Source: HMAS Creswell Historical Collection



A coastal steamer unloading coal at the College Jetty, showing tramway tracks and trolleys. The vessel has not been positively identified. Date not known.
Source: HMAS Creswell Historical Collection

complaints had no more success in changing the situation than Blomfield had had in 1913.¹⁴ The 1916 College Report stated that the breakwater “had been extended to a length of 570 feet and now requires finishing off, it being in the rough state at present”.

The Report also stated:

The breakwater forms a very snug harbour for HMAS “Franklin”, motor boats, and other boats attached to the College. It also affords fair protection to ship jetty, bathing-place and boat shed for at times when heavy weather is experienced outside the heads, a sea runs across the bay and sweeps over the breakwater, inside which is smooth water.¹⁵

The breakwater was completed in early 1917.¹⁶ From the mainland to the outer end of the island, the causeway was 556 feet long; the length of the breakwater proper was 575 feet. Some years later the total cost of the breakwater and seawall was put at £19,148 much larger than that given in a 1917 report.¹⁸ Apart from the cost of the ‘Travelling crane’ used in the construction (an amount of £658), no other costs were given. In spite of the very detailed accounts of the costs of the construction and fitting out of the College, the breakwater was limited to a one-line item. This may be due to the fact that in 1934, it was stated that “Most of the financial records dealing with the Royal Naval College, Jervis Bay, have been destroyed”.¹⁹

Some contemporary documents suggest that a further extension to the breakwater may have been under consideration. A memorandum from the Superintendent of Works, dated 16 January 1917 stated:

The Breakwater is now practically complete, the length being 575 feet and the sides made secure. I am putting off the workmen, as the work is finished, until further instructions are received concerning the proposed extension of Breakwater and completion of the Sea-wall.²⁰

Nothing came of the proposed extensions.

The tramway

Throughout the construction period, the rock was moved from the quarries on a standard (4 ft 8½ in) gauge tramway. It was initially about a mile long, being laid from the quarry to the breakwater, along the sea front to the seawall sites, to the breakwater, and also to the jetty, which was built by June 1913.²¹ The first rails that were laid came from Crookhaven, though in mid-December 1912 Blomfield reported that “we are still 800 feet short of tramway lengths to reach the quarry ... and recommended that purchase be made from the [NSW] Railway Department in accordance with their offer”.²²

Initially, the stone was carried on the tramway in horse-drawn tipping trolleys, generally using two horses.²³

One of the sights of the College during its early days was the way in which the horses employed on the breakwater towed the tip trollies loaded with masses of rock into position, jumping aside as the trolley ran forward to tip its load into position.²⁴

A report in late 1913 indicated that “The cost of the sandstone at the present time, dumped in the Breakwater is 3/10d. per ton inclusive of all charges”.²⁵ In response to this, the Director General of Works wrote to the Resident Engineer: “I would like you to let me know whether you would consider that the cost per ton of stone cannot be reduced by using steam traction, together with the cost of obtaining a small contractor’s locomotive or small steam tram from Sydney”.²⁶ In response, the Resident Engineer, W Jeffrey, stated that he had considered the matter, but did not believe it could be justified financially, in terms of the cost of a standard gauge locomotive or converting the track to a narrow gauge and buying a much smaller locomotive, with all the additional equipment that would be needed.

If the steam traction had been adopted at first, the costs would have been reduced, and even now, if it is intended to extend the Breakwater across the Bay, as proposed, it would certainly warrant the expense of converting our present system into that of steam traction, but not if it is only to be taken 270 feet beyond the island.²⁷

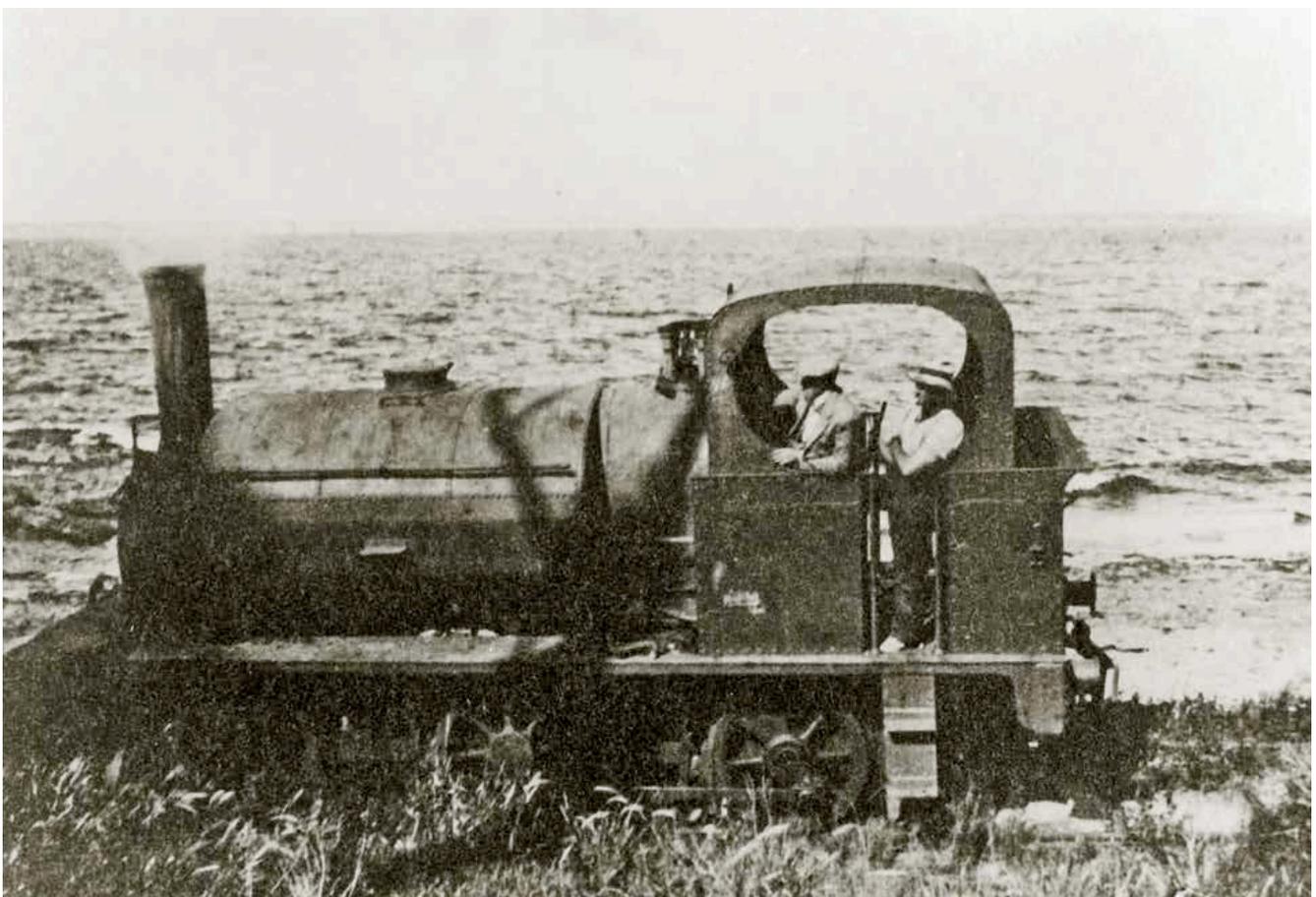


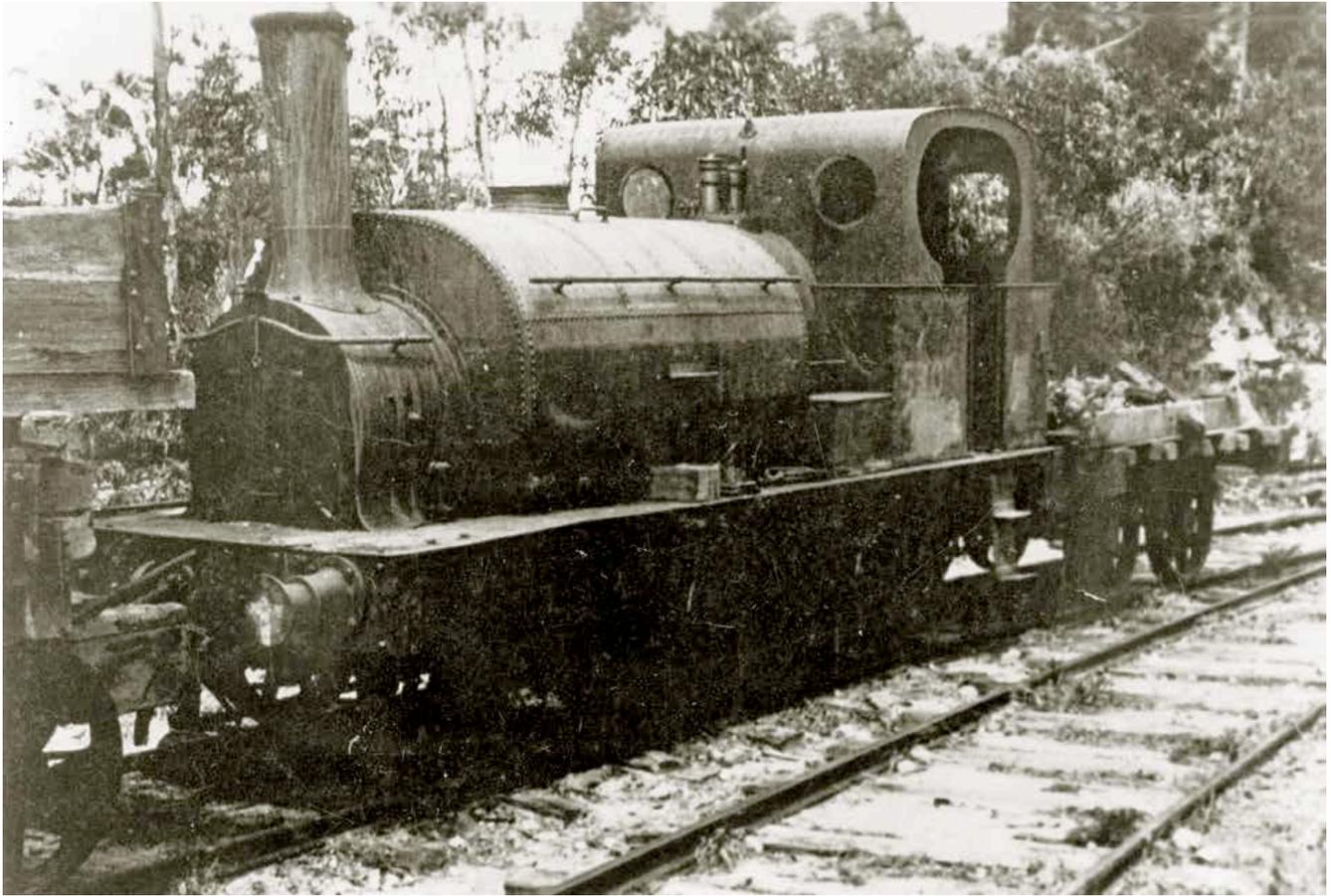
Above: The second quarry, with rail lines, a trolley, and possibly locomotive 530. Date unknown. The photograph has been enhanced as much as possible.

Source: HMAS Creswell Historical Collection

Below: Locomotive 530 travelling along the shore of Jervis Bay. Date unknown.

Source: HMAS Creswell Historical Collection





Locomotive 530, with trolley at rear. Date unknown.

Source: HMAS Creswell Historical Collection

Further, in response to an enquiry the New South Wales Government Railways [NSWGR] indicated that there was no tram motor or small locomotive for hire or sale.²⁸

The second quarry and steam traction

Work on opening up the second quarry and extending the tramway was clearly underway in early 1915.²⁹ However, it was too far from the breakwater for horse-drawn haulage of the stone.³⁰ Further, its altitude was over 50 feet higher than the first quarry, which would have added to the difficulties of horse-drawn haulage.³¹ So, the situation with regard to steam traction had to change and a small locomotive had to be acquired. A second request for a “tram or light locomotive” received a much more favourable response from the New South Wales Government Secretary for Railways, a light locomotive being available for hire at “twenty shillings per day for first month and sixteen shillings and eight pence per day afterwards”.³² However, it appears that a locomotive was actually purchased rather than hired,³³ though no indication of the cost of the locomotive has been found, even though the matter was raised in a memo by the Director-General of Works.³⁴ After this, things must have moved very quickly:

The railway line from the quarry to the breakwater is almost completed, and soon the locomotive will be in use hauling stone, which is of a particularly hard and flinty nature, most suitable for the purpose. This means that there will be increased employment for some time for a good number of labourers.³⁵

The locomotive was a small 0-6-0 saddle tank, purchased from the NSWGR and it began work in early August 1915. A history of the RANC notes that as well as hauling stone for the breakwater, “Cadets occasionally fired up ‘530’ for a joyride”.³⁶ Originally numbered P128, it was one of three identical locomotives built in 1879 by the Vulcan Foundry in

Newton-le-Willows in England for the NSWGR. At different times between 1892 and 1910, all three operated on the short branch line between Yass Township and Yass Junction on the main Sydney-Melbourne line. P128, renumbered 530 in 1897, worked the tramway from 1901 to 1910.³⁷ What happened to the locomotive between 1910 and 1915 is not known, nor has anything been found about how it made its way to Jervis Bay.

The breakwater today

As indicated in the introduction, Jervis Bay can be an area of very rough water, with erosion of the coast and shoreline facilities one of the consequences. In numerous Reports of Proceedings at the College prepared by the Commanding Officer, there are references to such damage: for example, “Sea surge has seriously undermined the Support craft slipway” and erosion of some of the retaining wall.³⁸ In 1971, there were requests to re-open the old quarry to provide rock to repair the breakwater. This was rejected, as the site was by then part of the Jervis Bay Nature Reserve, though there was no objection to using the first quarry site, which was within the College grounds.³⁹ In the winter of 1974 there was severe storm damage to the breakwater, the repairs with “harder stone obtained from the Kiama district” costing close to \$60,000.⁴⁰

But nothing was like 21 to 23 June 1975, when heavy rain and gale force winds resulted in significant flooding and damage along the Shoalhaven’s coastal areas.⁴¹ As the Commanding Officer wrote,

The College was buffeted by one of the most severe storms ever experienced in this area on Saturday 21 June. A heavy swell accompanied the high winds producing a pounding surf estimated at 20 to 25 feet high. This, exacerbated by spring tides with high water at 1835, caused extensive damage at the waterfront including the sinking of the College yacht, CALLALA.



Above: A view of the storm damage to the College Breakwater, June 1975.

Source: HMAS Creswell Historical Collection

Below: The Royal Australian Naval College Breakwater, with some of the College buildings, 2010.

Source: HMAS Creswell Historical Collection





***Above:** Remains of tramway tracks before removal to the Museum, November, 2012.
Source: Ailsa Chittick, Collections Curator, HMAS Creswell Historical Collection*
***Left:** Location of first quarry and route of tramway, April, 2014.
Source: Lieutenant Commander David Jones, RANR, HMAS Creswell Historical Collection*

Following temporary repairs, the major reconstruction of the Breakwater was a costly undertaking, over \$300,000. The Commanding Officer's report of 30 April 1976, provided a salutary warning (as well as suggesting that Blomfield had been right after all).

The newly repaired breakwater was subjected to heavy wave action on Thursday and Friday 4 and 5 March [1976]. Fortunately, although the waves were breaking over the structure, similar to the storm in June 1975, they were less frequent. Minor settling took place and the concrete topping to the breakwater was breached in two places.

The damage was easily repaired. However, should intense heavy wave action reoccur, some damage to the structure can be expected.⁴²

Today, with the rebuilding the breakwater is much bigger and more substantial than the original one.

What remains of the tramway?

Not surprisingly, there is not a lot to be seen today of what was an important part of the construction of the Royal Australian Naval College. Most of the route is very evident and can be easily walked, certainly to the site of the first quarry (though the HMAS *Creswell* site is not open to the public).

The continuation of the route to the second quarry was broken in 1970, when a new road was built to Murrays Beach which was to have been the site for Australia's first nuclear power station. The sections of the route close to this road and between it and the quarry are overgrown, but it is possible to walk into the site of the second quarry.

The rails and trollies survived for some years, but no doubt



The remains of locomotive 530 awaiting further restoration at the Yass Town Railway Museum, December 9, 2012. Important parts missing are the stovepipe chimney, the circular saddle tank, and the rounded cabin and roof. Source: Peter Crabb

became too dangerous to be left around when most of the College facilities became a holiday resort in the 1930s.⁴³

After laying for years corroding in the salt air, the rails and trollies from the quarry and breakwater are being gathered up and shipped away as ‘scrap’. There will be a tidy load when it is all finally assembled.⁴⁴

Some of the rails have survived and been recovered, and are now on display in the Museum at HMAS *Creswell*.

What of 530 (or P128)? On completion, responsibility for the breakwater and ownership of the equipment used in its construction, including the locomotive were transferred to the Department of the Navy.⁴⁵ When it left Jervis Bay, where it went and for how long, are not known, but at some date, it was sold to the Kalingo Colliery near Cessnock in the Hunter Valley, where it appears to have ended its working life by 1938. Over time, various parts of the locomotive were removed for scrap, though some components (including side rods and brake rigging) are reportedly in the Dorriggo Steam Railway & Museum.⁴⁶ In 1983, the remains of the locomotive were moved from an overgrown siding at Kalingo to the Richmond Vale Railway Museum, near Kurri Kurri in the Hunter Valley. Then, in September 1992 they were moved again, this time to the Yass Town Railway Museum, much closer to Jervis Bay. By chance, the boiler of P129 was discovered a few years later at a saw mill in Moss Vale. It was purchased in 2000, and later fitted to P128.⁴⁷ Further restoration work is needed and merited, but nothing has been done to the locomotive

between the author’s visits in December 2012, and November 2015. It has only gathered more rust. Unfortunately, the task is beyond the financial and other resources of the dedicated but very small group of volunteers.

At the time 530 started work at Jervis Bay, a local newspaper observed, “The first Commonwealth owned railway engine began drawing from the quarry to the breakwater last week. She’s no ‘Flying Dutchman’.”⁴⁸ If this claim is correct and it was the first locomotive owned by the Commonwealth of Australia, there can be no better reason for its restoration.

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1. Acknowledgements. For access to materials, appreciation is expressed to the National Archives of Australia (NAA) (Canberra Reading Room); HMAS *Creswell* Historical Collection (Ailsa Chittick, Curator, and David Jones); National Library of Australia; and the Australian War Memorial. Thanks for the location map are due to Clive Hilliker (Fenner School of Environment and Society, Australian National University).
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The three members of the 127 Class (Nos 127-129) were built by Vulcan Foundry, Newton-le-Willows, England (B/Nos 833-835 of 1879) and delivered to the NSW Government Railways for use on the Richmond branch, west of Sydney, where the traffic had outgrown the capabilities of the three small Manning Wardle 0-6-OST 29 Class locomotives. Later, they saw use on the Sans Souci, Camden and Yass tramways. In 1891 they became the P(127) Class, and in 1897 they were all renumbered, with P128 becoming 530. This image is thought to date from around that period. In 1915, 530 was sold to the Commonwealth Government for use at Jervis Bay.

Photo: NJ Thorpe Collection ARHSnsw Railway Resource Centre 023168



A front-end view of the 'mystery frame' or assembly, as it lay upside in a paddock about 250 metres from the former Raminea Mill site. It had been moved there during a clean-up of the mill precinct; it is understood that many other mill artefacts were disposed of elsewhere during the clean-up. Note the cranked stringers, and the large (120 mm dia) tow-ball which, in the normal (inverted) orientation, apparently sat into a housing in the ex-Byers bogie, thus providing The Caterpillar's with leading articulated support. Photo: JS Clennett Sept 2016

A forensic examination of a dead caterpillar

by Scott Clennett

In my book *Engaging the Giants*, there is a discussion about the various locomotives that appeared over the years at the old Raminea Mill on the Esperance River in Tasmania's Southern Forests.¹ This was necessarily fairly brief, so it was not surprising that it might raise some questions. However, one particular question came right out of left field, a not unusual experience for those involved in historical research. And it literally *was* from left field, in the form of a mechanical assembly sitting in a paddock on the left-hand side of Stennings Road, Raminea, and about 250 metres away from the old mill site. The questioner was Alis Wood, a researcher involved in a documentary project to mark the upcoming 150th birthday of the *May Queen*, perhaps the most famous of the old Hobart trading ketches, or 'barges' as they were known in the vernacular of the past.² Of course, Raminea was effectively the home port for this ketch for well over a hundred years.³

The following discussion covers an investigation into just what was this unique assembly; where had it come from, how did it arrive in the paddock, and did it relate to the Raminea Mill anyway? It also takes in some other issues that came up during the investigation, and that, but for space limitations, could also perhaps have been covered in more detail in the book.

Traction on the Raminea system.

The Raminea tramway developed in two main stages, as did the mill itself. The first was related to the original Andrewartha mill, founded in 1871. It was of 4 ft 6 in nominal gauge with timber rails, and its only power was the horse. It crossed the Esperance River three times in the first two kilometres. By 1883, and after a series of damaging floods, gales and bushfires, Andrewartha had sold out to Henry Chesterman & Co., which pressed on with the original system, but after two more serious floods, in 1885 and 1889, this early system was abandoned. Chestermans then embarked on constructing a new, 3 ft 6 in gauge, generally steel-railed system, running up the northern side of the Esperance River, and not crossing it until it was about 4 km from the mill. This second system was, in itself, developed in three stages: the first running up that river, then turning northwards up Wobbly Creek, for a total distance of about 11km from the mill, reaching there in about 1914; the second branching off the first before it got to Wobbly Creek, and running off to the west, across the Raminea Plains into the foothills of Adamsons Peak (1930s); and the third from near the confluence of Wobbly Creek and the Esperance River, and running up that river for about another 5½ km. This last operated from the late 1930s until major floods in June 1954 put paid to the tramway once and for all, and thus effectively to the tramways of the Southern Forests.

Mechanisation was slow to arrive in the Raminea bush. The first sign was the appearance in 1899 of a steam log-hauler from Andrew Byers of Hobart, but the horses were not given a reprieve from working the tramway until March 1912 when a unique Hobart-built steam locomotive, also from Andrew Byers,



Left: The last parts of the Esperance River tram were built in 1949. Here, the gang is building a waterway crossing by laying down logs as stringers, and topping them with sleepers. John Casey, who is the man standing on the nearest sleeper, told that longitudinal continuity of the stringers was achieved by scarf-jointing one to the next. Note the lightness of the rails: some rail from Raminea that was measured by the writer in 2003 was of 30 lb/yd (15 kg/metre), and while some heavier rail may have been used at times, it is unlikely that much if any exceeded 40lb/yd (20 kg/metre). The identities of the other two men is unknown, but the person almost out of picture on the right was one of the photographer's children. This is one of only three photographs of The Caterpillar known to the writer - and one of those shows it on its side! At least it sits upright here on completed track in the background. It was during these construction works, on a steeper part of the track, that the second capsized of the locomotive occurred, curing John Casey of wanting to drive it anymore. Photo Cyril McCoy, 1949, courtesy John Casey

Below: Like many of the locomotives that appeared in the Tasmanian forests over the years, The Byers was a strange beast, perhaps springing from the concepts of North American lumber locomotives such as the Shay and the Climax, with their two powered bogies, driven via special gearing, giving good articulation, and powerful but slow traction on crudely built, steep, and often curvy track. The Byers also had two four wheeled bogies but this photo only shows the rear bogie, the other is obscured by the scrap timber, but note the wheel linkage rod; these were replaced with chain linkages in the re-incarnation as the Caterpillar's powered trailing bogie, evidence the holes in the otherwise spoke-less wheels in other photographs. This photo dates from about 1930, and shows the locomotive outside its shed with Paddy Casey as driver, and Harry Stennings standing; (the dog was 'Kluga'!). It was taken about 18 years after the one on page 90 of Engaging the Giants, which was published in the Weekly Courier when the locomotive was new, and which showed it fitted with a crude spark arrester.

Photographer unknown, annotated copy courtesy John Casey



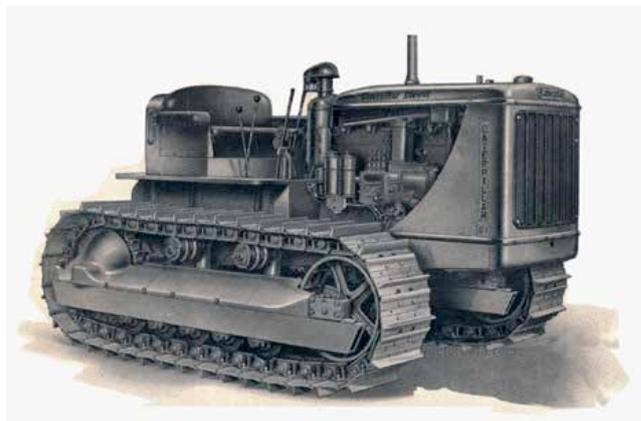
arrived to take over.⁴ This unit, known as *The Byers*, had two articulated four-wheeled powered bogies, and continued as the workhorse on the system until 1939. On withdrawal, its steam engine was taken off elsewhere, but the frame and bogies were put aside at the mill.

The *Byers*' replacement was a petrol powered locomotive, also built in Hobart, by the local firm of Russell Allport & Co., soon being well christened as the rattly *Jingle Bells*.

Then, in the mid-1940s, old parts of the *Byers* were used to create the next eccentric locomotive, powered by a Caterpillar D7 engine.⁵ This was described in the book as having ... a leading bogie, but only a single rear axle. However, it was also provided with a trailing powered bogie, being the leading bogie under the first log, and connected to the power drive of the engine via a drive shaft.

This leading bogie, and the trailing powered bogie had both come from the old *Byers*. It is the anatomy of this locomotive, inevitably dubbed *The Caterpillar*, that makes up the major part of this article.

Unfortunately, there seems to be a dearth of photographs of *The Caterpillar*, but I had a very poor copy of one that had apparently been taken when the unit was quite new. Nevertheless, this photo perhaps showed another good reason for the locomotive to be called *The Caterpillar*, with its prominent head and an articulated body including four close-spaced trailing log-bogies, stringing together a total of eleven wheelsets/(or 22 legs?).



The D7 Caterpillar tractor first appeared in 1938. This 1940 model was of a type that was adapted for war service for US Forces, and appeared in Australia in the latter part of WW2. Many were subsequently sold off as 'Army Surplus', and were used throughout the country.

www.TractorData.com

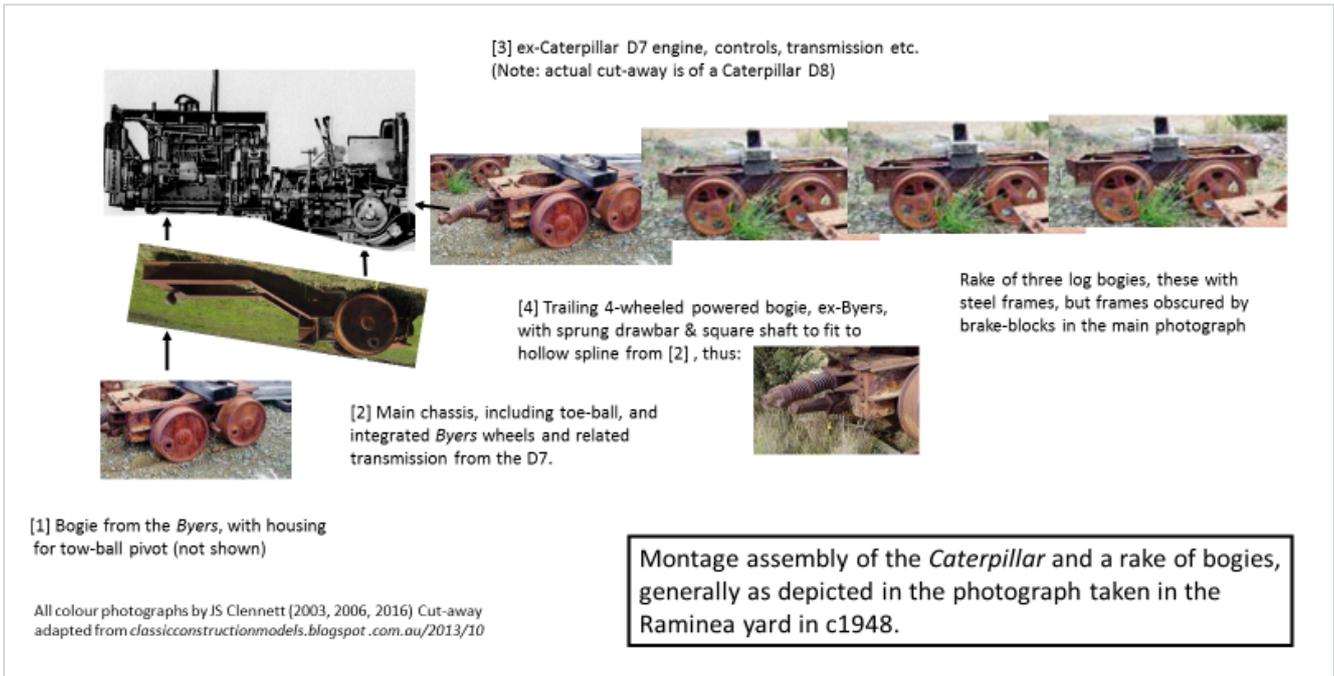
The discovery of the assembly in the left field.

In mid-August 2016, Alis Wood rang me seeking identification of an old 'bogie' lying in a paddock on the left-hand side of Stennings Road. She thought it might be part of old *Jingle Bells*, but I said I thought that unlikely, as its remains are beside the Esperance River, well inland from the mill. *Jingle Bells* had



This photograph of the Caterpillar and its rake of log bogies, taken in the Raminea Mill yard in the late 1940s, was provided by John Casey, and annotated with the names of four of the five people shown: a young Jim Casey is standing on the 'footplate' of the locomotive, with an elderly Ben Careless standing on the ground. The children sitting on the log bogie are Helen and Tom McCoy, but the identity of the girl sitting in the Caterpillar by Jim Casey's left hand is not known. The photographer was Cyril McCoy, the children's father and the local schoolteacher. The crank in the left-hand side stringer of the chassis, although somewhat indistinct, can be seen directly under Jim Casey's feet, while the wheels of the leading bogie, and of the chassis itself are quite clear. The trailing powered bogie is beside Ben Careless, with its rear wheel being obscured by his legs. Note the wooden brake blocks on the log-bogies' wheels and the square-sectioned shafts protruding from between those wheels, apparently mechanism to apply these brakes. It is probable the frames of these bogies, hidden by the brake blocks, were of steel, as shown in other photos. It is quite obvious why the Caterpillar was thought to be top heavy.

Photo by Cyril McCoy c1948, courtesy John Casey



This montage is made up of photos taken of various components of the 'Caterpillar' and its log bogies over the last ten years or so, put together in the same general orientation as the photograph taken in the yard of the Raminea Mill. The photos were taken without a mind for their use in the montage, with the one of the old assembly even necessarily being taken with it upside down. Further, the one of the cutaway Caterpillar tractor is that of a D8, and not of a D7. Consequently, the individual shots are of significantly varying perspectives, making for a fairly crude result, but it is trusted that it provides a reasonable comparison with that original yard photo.

JS Clennett November 2016

been abandoned there after being used in the dismantling of the tramway following the 1954 floods (*EtG* page 95, and map 8)⁶, and this was well after the demise of *The Caterpillar*.

After I agreed to look into it, Alis emailed me several photos she had taken of the unit from over the road-boundary fence – she had apparently been concerned about a horse in the paddock itself. Unfortunately, the unit was partly obscured in the photos by growth that had been inconveniently ignored by the horse. Further, the unit was upside down. Nevertheless, after studying the old poor-quality photo, it was reasonably clear that the 'bogie' was part of the old locomotive's 'single rear axle' assembly mentioned above. The main points of initial evidence were the two cranked side stringers to the frame, and the wheels.

I emailed Alis re this provisional conclusion, but of course that was not the end of it – curiosity had been aroused; there were distinct symptoms of a field-visit coming on!

And so, a week or so later, down to Raminea and Dover to find the assembly, and to talk with John Casey, who, as a young man in the 1940s, had driven *The Caterpillar* on the tramway. As noted below, he had also managed to capsize it, twice! Apparently, it was notoriously unstable – from photographs it certainly appears to be quite top-heavy.

With the help of a sketch map from Alis, the assembly was quickly located and photographed, also from outside the fence; but a close-up look really meant getting access into the paddock itself. But where was the horse?

After a few local enquiries, the property owner was located, and he kindly allowed me in.

No sign of the horse!

And so, I got some more photographs, but unfortunately by now it had started raining – time for a hasty retreat; 'hasty' in that it was clear afterwards that perhaps the offending growth should have been pulled back, or cut, to get better photos, and that some time measuring up the assembly would have been well spent. Always wiser after the event!

A visit to John Casey

Leaving Raminea, I visited John Casey at his home in Dover. As he had not seen the assembly (at least not in the paddock, although he would have seen it over sixty years ago), he could not make much comment.

However, he did come up with a number of old family photographs from the mill, some of which are reproduced here. Amongst these was the one of *The Caterpillar* in the mill yard, (and a much better copy too!), endorsed with the names of the photographer, and of four of the five persons pictured.

A close study of this showed the cranked left-side stringer of the assembly, it being an integral part of the framing carrying the old D7 engine, its seat, and perhaps some of its original bodywork. It also showed the two ex-Byers bogies, one being the support bogie for the front end of the assembly, the other, partly obscured, being the powered bogie that would be the leader in the first log-wagon. Another photo, of the capsized *Caterpillar*, also shows this cranked left-side stringer.

In short, the assembly, when originally fitted with the D7 engine, its controls, seat and other associated parts had been the major component of the *Caterpillar's* prime mover.

The photo shows that first four wheelsets (and, by deduction, the fifth, being the one obscured by the man standing beside the assembly, but shown in other photographs) are clearly from the Byers, evidenced by their geometry and linkage holes. While this implies that the old eight-wheeled Byers perhaps had at least ten wheels, it should be noted that extra wheelsets had apparently been supplied at some stage.

Putting this all together

To put this into perspective, it is concluded that *The Caterpillar* was made up of four major components:

(Note that the references [1] etc correspond with those in the accompanying montage)

[1] A leading four-wheeled bogie that had had its origins in the Byers, but which was possibly unpowered in this

locomotive. This provided the front support for the main locomotive assembly [2] through a simple pivot arrangement comprising a housing for an inverted large tow-ball. This tow-ball is shown in photographs as being welded onto the subject assembly.

[2] The subject assembly, carrying an ex-Caterpillar D7 engine etc [3], with cranked stringers supported at the front end by [1], as above, and at the back end by a single powered wheelset. The nature and size of the bevel gearing and differential arrangement to this wheelset, as shown in the photographs, suggests that these, too, had probably been part of the D7.

[3] The D7 engine, its controls, seat and other associated parts, fitted onto the subject assembly [2], driving the powered single wheelset, and through a linkage from its power drive, a trailing powered bogie, being the first bogie of the first log wagon [4] behind the locomotive.

[4] This trailing four-wheeled powered bogie, connected to [3] by a sprung drawbar, and driven via a square hollow spline and shaft, allowing for controlled longitudinal movements, and thus reducing any shock loads to either component in the overall locomotive assembly. There are some photographs of this bogie, one with one of the other log bogies in the background, on pages 94 & 212 of *Engaging the Giants*, and in *Light Railways* No 211, page 23.⁷ Both publications also include a schedule of wheelsets recorded in the Southern Forests that give some details of those in these bogies (pages 210 and 20 respectively).

A crude montage diagram has been developed to match all the units shown in the Raminea yard photograph, using various photographs taken over several years, and a cutaway but edited drawing of a Caterpillar tractor. Of course, these photos were taken without a mind to create this montage, so they do not have matching perspectives, nor are they other-than crudely scaled. Further, the assembly photograph has had to be inverted to put it in the right orientation, and the only cutaway drawing of a Caterpillar tractor found on the Internet was of a D8, considerably larger than a D7, requiring some significant down-scaling.

Nevertheless, it is trusted that the reader can follow this montage, crude though it is, and, by comparison with the photograph of the whole train taken at the mill in the 1940s, agree that the assembly was indeed an integral part of the old *Caterpillar*.

A return visit

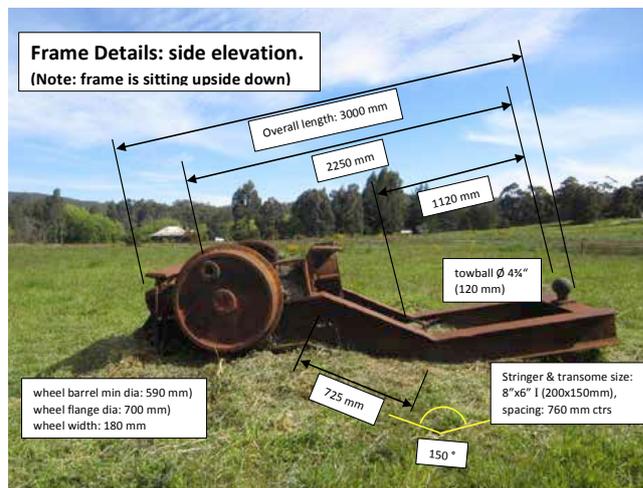
I revisited Raminea in late October 2016 as part of a more extensive field trip. This time the grass around the assembly had been cut back (courtesy of Kylie Clark), the day was brilliant, and I got some much better photos, particularly one that provided a much better option to invert for use in the montage. I am indebted to Kylie, and to John Careless who was so helpful on my visit several weeks earlier.

I was also able to get some basic dimensions, which I have incorporated into photographs of the assembly.

More on John Casey

Nowadays, John Casey is in his mid-eighties, and lives with his wife in retirement at Dover.

He has vivid memories of his time at Raminea, from when he started as a fourteen-year old in 1945 (“at five bob a day, paid by a money-order that ... you had to give to your mother, and that was the last you saw of it”), working in a two-man fettling gang on the last line of the Raminea tramway, the one up the Esperance River, and, at least from time to time, capsizing *The Caterpillar*!



On a return visit to Stennings Road in October 2016, the old assembly had been cleared of surrounding growth, facilitating better photography, and the measuring of its main dimensions, as recorded here. The old mill site was about 250 metres away in the general area between the assembly and the house in the background.

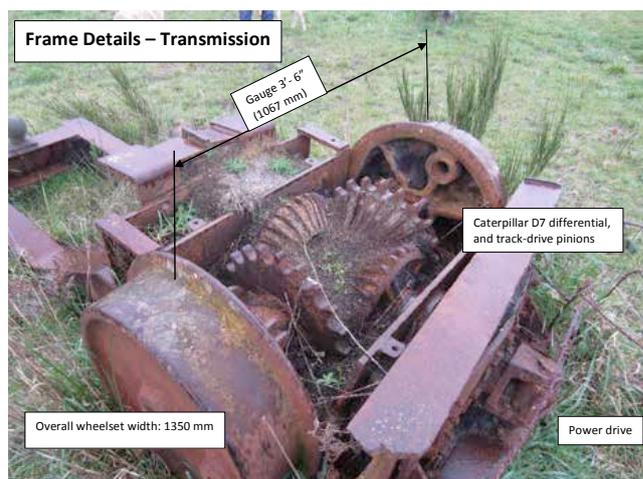
Photo: JS Clennett Oct 2016

He took over the mill management in c1960, and was charged by Doug Chesterman with rebuilding part of the mill. Later, he left to work a bush contract supplying cord-wood to a local pulp mill, but was to return to manage the mill in 1970, seeing its sale in 1973, and its fatal fire in June 1974.

In an interview on ABC Radio in Tasmania in July 2016⁸, John related his story of the times when *The Caterpillar* (or the ‘tractor’ as he probably correctly called it) capsized under him:

The first time was up near “ ... Casey’s Road ... and she got away, and I bailed out. She just - swussssh - and away she went. I had to dive off because she had these logs and a wire coming along behind... I dived behind a stump and she crashed over on the corner. (I decided) ... she’s going without John, he’s not going with her.”

And the second time “ ..was on the other side of the hill ... it was too steep ... we were building the railway ... it was blowing a living gale ... I was taking a load of poles up and a dry celery-top jig-stick sort of thing fell down across the rail, and I sung out to them to shift it because once you start, you’ve got to keep going. And they were all laughing because it nearly hit ... my off-sider, old Ben Careless. ...



This annotated close-up of the rear of the assembly shows the workings of the drive of *The Caterpillar*, and their general relationship to the drive to the trailing powered bogie that had come from *The Byers*. It can be reasonably surmised that the bevel gearing and differential arrangement had been part of the *Caterpillar* D7, the wheels being fitted to the drive axles.

Photo: JS Clennett Sept 2016

... The tractor went over it and away it went, straight down into the Esperance River, load of logs and all; and that's where it stopped. That finished me of log hauling."

John explained that the tramway sections were not known by their mileage points, but by their nicknames. He ran through these in order recently again for me, being for the second time (the first was in October 2003), but he was too quick for me to write them all down. Fortunately, in his interview on ABC Radio, he had run through them, at speed! But I have an audio copy of that interview, and I could start/pause it enough to get it all down, hopefully without error:

From the Mill: *Bakers Road, Brigg's Straight, Slippery Chute, Crooked Tree, Red Cutting, Tombstone Track, Stoner's Track, Smokey Bill, Byers Bend, Puzzle Gully, Dry Bridge, Wet Bridge, Sandpit, Tombstone Track, Black Fish, Crooked Straight, Swing Bridge, Grassy, The Parakeets, and The Checkrails.*

(He explained that the *Crooked Straight* was a fairly long straight section that had a habit of buckling in hot weather.)

As far as is known, all of these nicknames are all in the right order, but one or two may be back to front, and perhaps he should be forgiven for repeating *Tombstone Track*.

Not bad for an elderly man to run through, 'off-pat', 62 years after the tramway's demise.

References

1. *Engaging the Giants*, Scott Clennett, LRRSA 2016, pages 93-95
2. Alis Wood is a researcher with The Old Ship's Company of Hobart, and was working on a documentary about the *May Queen* with Chris Wisbey, the presenter of the *Sunday Show*, a weekly magazine-type program on the ABC's

- Local Radio 936 in Hobart and ABC Northern Tasmania. Chris had played an interview that he had recorded with me about the book on its release in early July 2016, as well as another with John Casey, who with his brother, the late Jim Casey, had started work at Raminea as very young teenagers in the mid-1940s.
3. The *May Queen* was launched at Franklin on the Huon River in June 1867. In 1873, she was purchased by Henry Chesterman, and, but for the period 1924 to 1940, was owned by Chesterman & Co. until 1973, mainly carrying timber from Chesterman-related mills, initially from Hastings and Garden Island Creek, and later from Raminea and Lune River. Along with other assets of Chesterman & Co., she then passed into the hands of a consortium of local timber companies on condition she be preserved. On this basis, her ownership was transferred to IXL Timber (Jones & Co.), and she sailed her last commercial trip on January 3, 1974, at the age of 107½ years. In 1976, the first of two stages of restoration began by the Marine Board of Hobart, followed from 1997 by more extensive restoration, by *Friends of the May Queen*, later under the banner of the more formal *May Queen Pty Ltd* as trustees. She undertook her last formal duties as the flagship of the Sandy Bay Regatta on 16 January 2004. Today she is on permanent display afloat in Hobart's Constitution Dock, and celebrates the sesquicentenary of her launching on 5 June 2017. (Précis summary of Appendix 7, sv *May Queen, a Grand Survivor*, R Kerrison & R Johnson, 2014, Forty South Publishing, 2014.)
4. *Weekly Courier (Launceston Examiner)* 29 May 1913
5. The Caterpillar D7 tractor was originally produced as an agricultural machine in 1938, but it was adapted for military service in the war years as the D7 4T, including very often being fitted with bulldozer blades. Many of these tractors came to Australia, and some were sold off as War Surplus equipment. (*Antique Caterpillar Machinery Owners Club*: www.acmoc.org (forum))
6. Unfortunately, the actual location of the mill and the immediately local tramways are somewhat misleading on Map 8. The mill was situated about 250 metres north-west of where shown, the Andrewartha tram first crossed the river more or less adjacent to that location, and there was a line that ran from the mill to the Esperance River wharf down to the east.
7. *Old wheelsets and their stories*, *Light Railways* No 211, Feb 2010, page 23 (bottom)
8. ABC Local Radio 936 Hobart, and ABC Northern Tasmania, *Sunday Program* with Chris Wisbey, Sunday 3 July 2016

Right: The Caterpillar capsized at least twice. This photo was taken after one of those accidents, with the unit lying on its right side. John Casey is standing on the superstructure with the stick, while the two girls are his sister Pat Casey (L), and her friend Emma Dale. The girls are standing on the cranked left-side frame stringer. The leading bogie wheels, and that of the mystery assembly are evident.

Photographer unknown, courtesy John Casey



Cookbundoon Slate Quarry, Towrang, NSW

by Gary Barker

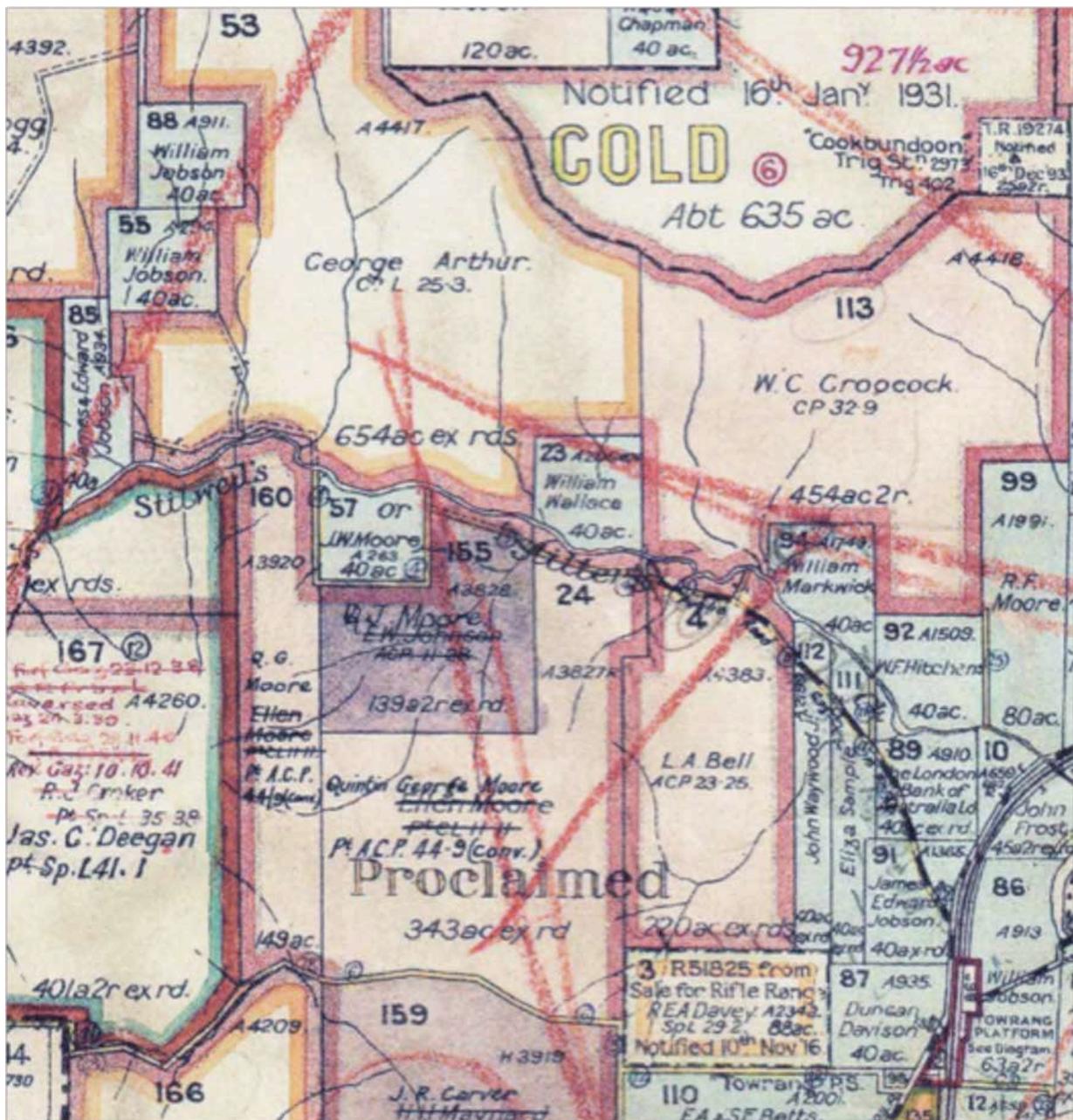
The Cookbundoon Slate Company was mentioned in LR 244 on page 16, in regard to a private NSW Act of Parliament (19 December 1881) to construct a tramway from its quarries to the Great Southern Railway. John Shoebridge¹ in his earlier work on NSW Acts indicated that the tramway was unlikely to have been constructed.

As a follow up to the research work on the legislation article, the author and Goulburn photo-journalist Leon Oberg visited the locality in July 2015. This involved examining the remains of two stations on the railway, and following the

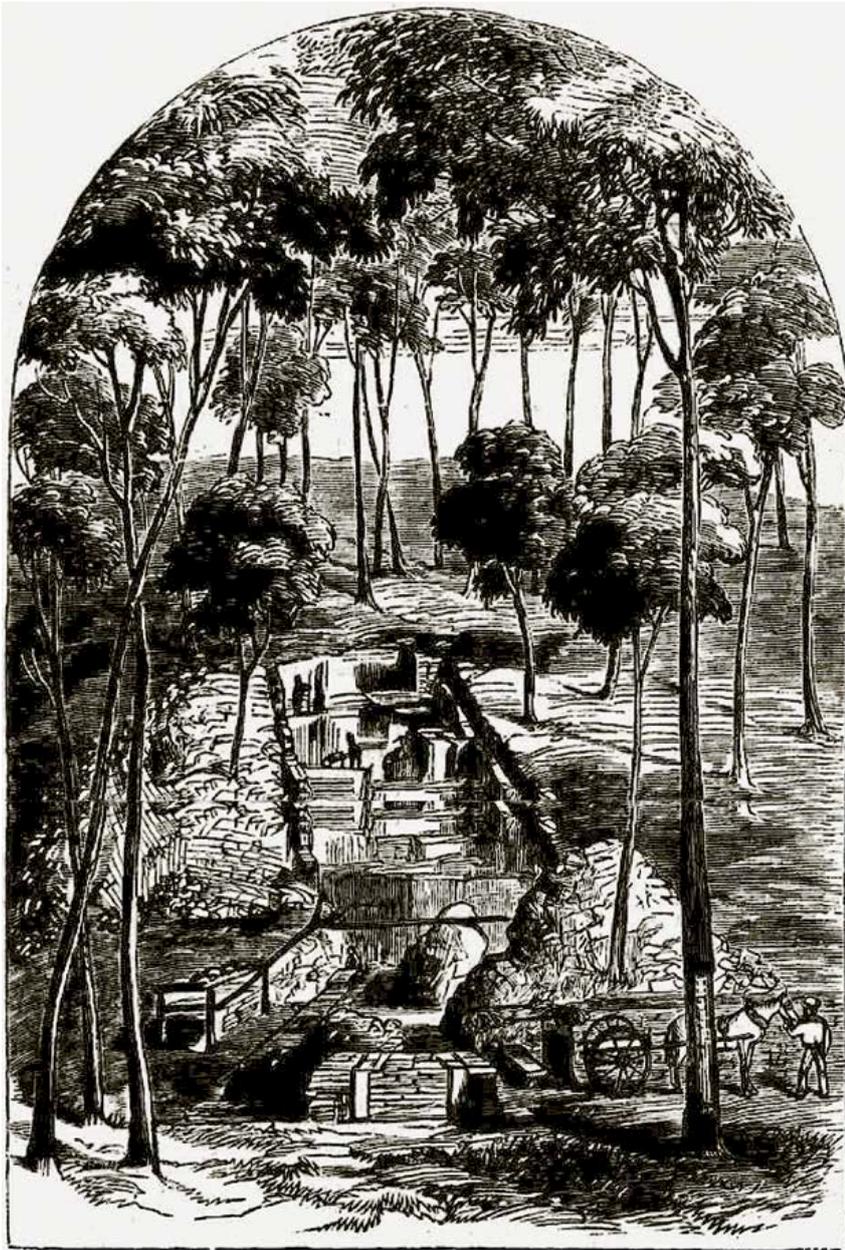
possible route of a tramway through to the now closed slate quarry, approximately five kilometres north-west of Towrang.

Over its life the quarry operated intermittently, was closed more than it was open, passing through a number of operators and eventually ceasing in the early part of the first decade of the 21st century. This article concentrates on the period from the mid 1860s to the 1890s, when there was mention of a tramway.

William Jobson, who opened the slate quarry was born in the Goulburn district circa 1834, the son of convict John Jobson. William was a farmer, land holder, speculator, prospector and miner, well connected with the higher echelons of Goulburn society, including politicians, mayors, businessmen and the legal fraternity. Although the exact date of Jobson's discovery of the slate is not known, it was probably in the mid 1860s. He first leased and subsequently purchased Portions 55 and 88, each of 40 acres, where the slate quarry was developed.



Portion of the Parish of Norrong,² County of Argyle, Land District of Goulburn showing Jobson's Portions 55 and 88 at top left. Also note Stilwells Creek to the south of Jobson's portions (flows to the south east), Portion 57 (40 acres fronting the creek, owned by J.W. Moore) and the route in black (Arthurs Road) starting near Portion 57 and paralleling the creek on the south side to Towrang Platform. Jobson also owned Portion 86 (to the east of the platform) where he established a brick works.



Left: A sketch of the multi level quarry face, circa 1875, in full operation, viewed from Jobson's three roomed house. On the top face, at centre left, a worker is using a hand operated rock drill, while on the next face down his colleague has a wheelbarrow load of slate. At bottom right a man is leading a horse and dray, while the tramway is at bottom left – a worker is pushing a loaded trolley along the tramway that leads to the steam plant (not shown).

Sydney Mail 27 November 1875, supplement p.4.

However, Jobson struggled on and to gain publicity for a further share venture must have asked a colleague to write a letter. This was published⁶ in August 1876 where an un-named writer described what he observed. Essentially, after alighting at Mannafield rail platform (1 km south of the present village of Towrang) he followed Greenwich Park Road to the north where he found a pile of slate flagging near the siding to the railway (at Towrang) 'put in for transmitting the product to market'.

He then went along the newly cut track recently used by teams (drays) to deliver slate [now Arthurs Road]. 'Creeks are bridged and boggy places corduroyed'. After two miles 'one could discern one or more steam engines working'. There he found a 'small town of approximately six houses and great activity'.

He mentions 'a three roomed house built entirely of slate; one part used as a store, fronting the east with a cleared space of 10 acres grassed land and commands an entire view of whole of the works'. There was 'a tramroad running up an incline of

The first mention of the quarry in the press was in June 1873,³ stating that slate quarries were being developed, the slate rock bed was '1 mile long by 0.5 mile wide', reaching an elevation of 600 feet. The 'supply was inexhaustible', and could be 'readily and cheaply worked'. The gradients were suitable for a tramway from the quarry to railway, and ended by recommending that the Government should meet the proprietors, as 'Sydney could be paved with slate flagging'. The wording in places was purposely speculative, as Jobson and his colleagues needed to raise funds through a share float.

Jobson continued to work the quarry as a private venture, but still lobbied the NSW government for assistance. In October 1874⁴ the Minister for Public Works visited the quarry and by 1875 the government had installed a short dead end siding on the Up Side of the railway, at what later became Towrang station (now closed). Jobson improved the road (now known as Arthurs Road) to transport the slate in a horse drawn cart to the siding. However, Jobson needed capital and in March 1875⁵ attempted to raise £25,000 in 25,000 shares at £1 each. This failed and later that year, Jobson must have been cash-strapped as George Martyr of Goulburn was appointed agent for the sale of produce from the quarry, and was prepared to enter into contracts.

some 60 degrees [sic]; which was walked up to an immense face of slate'. He also mentions that the land was first leased, but now purchased; three wells had been sunk to supply feed for engines; that the quarry was reasonably equipped with two steam engines of six and eight horsepower cutting slate with circular saws and travelling tables, along with a revolving table 12/13 feet in diameter propelled by a machine worked by four horses, and used for polishing. He also refers to the need for a tramway: 'after the tramway is laid down from the railway to quarry'.

This letter is a very good description of the operation for the researcher. It indicates that the tramway to the railway had not been constructed, but there was a tramway in the quarry which has never been mentioned before. The impossibly steep gradient of 60° is an error and probably should be 'a tramroad running up incline of some 60 yards'.

The only known pictorial view of the quarry in the nineteenth century appeared in November 1875⁷ as a sketch, nine months before the letter was published. The sketch was re-examined and enlarged; at bottom left the artist has drawn a length of tramway with a man pushing a trolley loaded with slate away from the face. This confirmed that there was a tramway in the quarry.

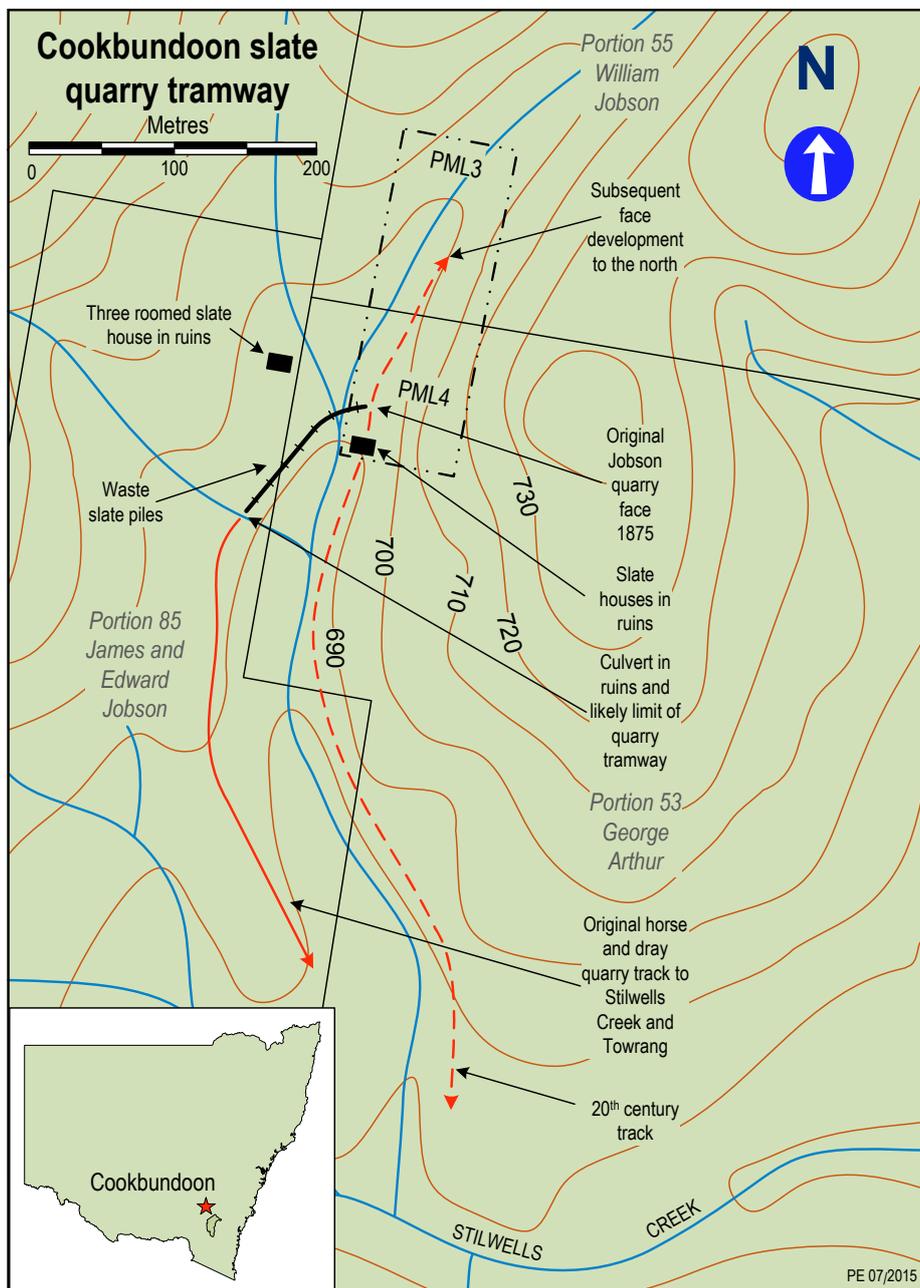
Jobson's persistence with the share venture was eventually successful, but only to a limited degree. On 8 June 1881 the first shareholder meeting of the Cookbundoon Slate Quarries Company was held, chaired by Mr Myers MP.⁸ The requisite number of shares [2 000 at £1 each] was applied for and the company was declared founded. The reality was that the Company wanted to raise £25,000, but elected to proceed on less than a tenth of this amount. It then successfully applied for the Act of Parliament to approve the construction of tramway from the railway to the quarry, and achieved this in December 1881.

By February 1882 the route of the tramway was marked on the ground, but then a major problem arose. In a letter to a newspaper⁹ in the following month 'Carrick' sought advice on obtaining compensation from the Cookbundoon Slate Quarry Company in regard to a tramway that was marked through his 40 acre property, close to the quarry, and about to be constructed. He mentions that the marked line cuts the entire water frontage [Stilwells Creek] from his home and runs through cleared ground. The response from the newspaper was that 'he will receive ample compensation'.

This was probably the final blow for a financially challenged slate company, and there is no mention of the Cookbundoon tramway after this time. In 1888 Jobson tried to sue the Cookbundoon Slate Company, and in 1890 was declared bankrupt, 12 years prior to his death. The Slate Company was a financial failure and the investors ended up with worthless shares.

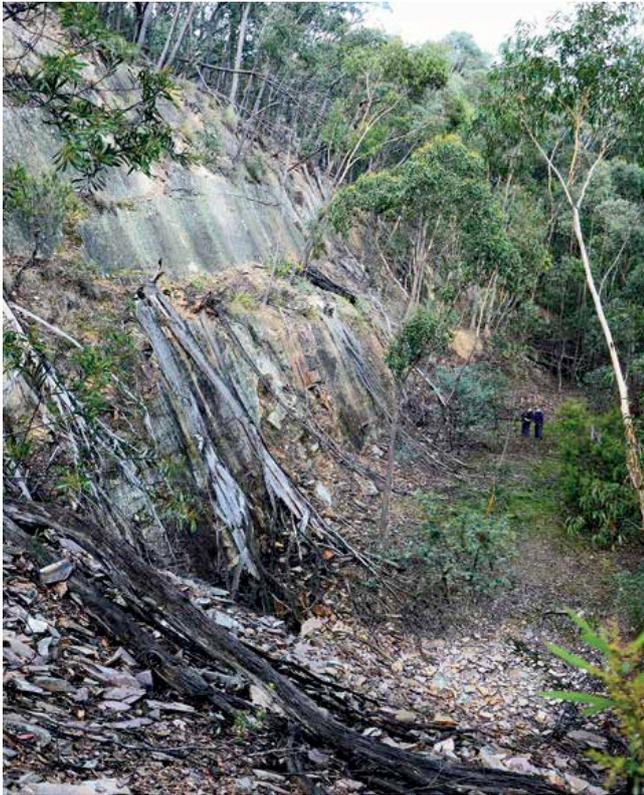
By studying the Parish Map and March 1882 letter it is possible to identify 'Carrick', the reluctant land owner. Originally, Jobson had constructed his cart way from Towrang to the quarry across many land portions owned by others, but it stopped on the eastern side of Portion 57, which is 40 acres and has creek frontage. Jobson's only option for a right of way was to use the surveyed, but unlikely constructed, government road on the east, south and western sides of Portion 57, owned by J W Moore. Carrick was the next railway station/locality on the Sydney side of Towrang with most of the land there owned by the Moore family. J W Moore or one of his relatives used Carrick as a pseudonym when writing the letter to the *Australian Town and Country Journal*. It is probable that Jobson and Moore were in conflict for a long time, with the Slate Company hoping that the Act of Parliament would give them the right to cross Moore's land. The Act did, but not for free.

The research indicated that the railway – quarry tramway construction was unlikely. However, it was decided to confirm with a field reconnaissance. Two separate trips were conducted, the first one looking for tramway remains starting



at Mannafield, then to Towrang and along Arthurs Road to Portion 57. At the site of the long closed Mannafield Platform (GR 609 561¹⁰) there was no evidence of a tramway and as the government had already constructed a slate siding at Towrang circa 1875, why Mannafield was mentioned in the 1881 Act as the end point for the tramway is not known. Moving north to Towrang (GR 612 574¹¹), the slate siding has been removed, as have the station buildings. While there were no 'piles of slate flagging' its use in many of the surrounding buildings is quite obvious. Again there was no evidence of a tramway. The alignment of Arthurs Road generally follows contours but does have some steep falling and rising gradients over gullies, making it unsuitable for a tramway. The generally flat land between Arthurs Road and Stilwells Creek was checked in a number of locations and again there was no evidence of any form of alignment. The old government road around three sides of Portion 57 was driven – it is steep and rough and would have been a challenge for a horse with loaded cart; more confirmation of total faith in the Act to gain compulsory access. The tramway route may have been pegged in 1882, but was definitely not constructed.

The Cookbundoon Quarry (GR 587 603¹²) is located on private property that is also a nature reserve, and was listed



Looking south at Jobson's original face; the height can be gauged from the two people standing on the quarry floor (centre right), where the tramway originated.
Photo: Leon Oberg

on NSW Mining Leases PML 3 and 4. The face has been fenced in parts and there are still many mounds of loose slate; accordingly, it should not be entered without permission. The landowner granted permission for a site inspection and arranged a local guide to escort us. After fording Stilwells Creek, the country opened out and, apart from tree growth, no people or machinery, the isolated 'small town' was exactly as described by the writer of the August 1876 letter. The face that Jobson opened, and was later sketched, is at the south end of the quarry, which was later extended to the north by others over a period of 130 years. The remains of the worker's cottages were found, as was the three room house, all constructed from slate. There are no remains of the short quarry tramway, but its path was obvious and was followed in a south-westerly direction to an old culvert, adjacent to some waste piles of slate. The path then widened indicating that this was the route used by the horse and drays to Stilwells Creek

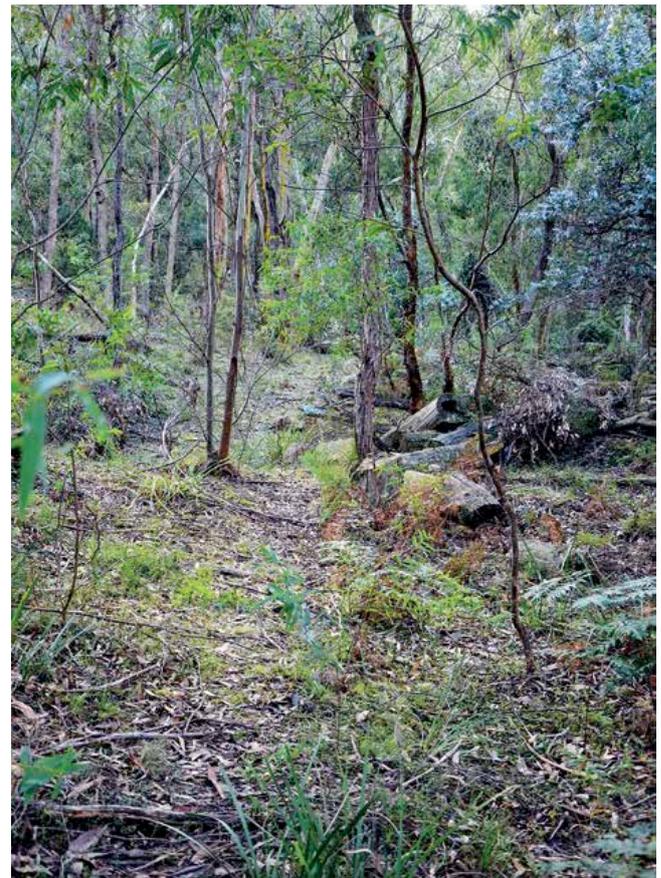


and Towrang. The sizeable trees in the small valley could have been used to produce timber rails for the tramway to save money, but this cannot be confirmed.

The Cookbundoon Slate Company and/or others never constructed the tramway approved under the 1881 NSW Act of Parliament, but prior to the Company's formation William Jobson and others did construct a short, manually operated tramway to move slate from the face to the works at the quarry. The gauge is not known. While significant time and effort was required with the research and fieldwork, it was well worthwhile resulting in these findings. In closing, I acknowledge the National Library of Australia's Trove website and thank Leon Oberg for all his assistance, photographs and collegial approach; the landowner and local tour guide (purposely not named), and Peter Evans for producing the site map.

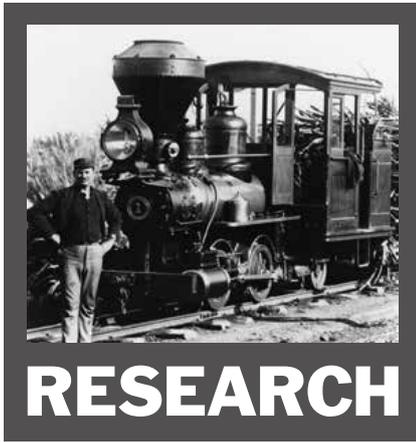
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7. *Sydney Mail*, 27/11/1875, Supplement, page 4 Report & Sketch.
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10. TOWRANG 8828-1S Topographic Map 1:25 000
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12. Ibid



Above: Looking south west on the now overgrown path of the quarry tramway, that is discernible running between the two saplings in the centre of the view.
Photo: Leon Oberg

Left: Part of the remains of the slate house ruins (workers' cottages) and at upper, centre right is the remains of the three bedroom house that Jobson used as his office and store. The closeness of the quarry face and alignment of the quarry tramway to the worker's cottages can be noted on the site map.
Photo: Leon Oberg



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The Use of Vertical Aerial Imagery in Light Railway Field Research

by Ian Barnes

Introduction

We use many tools in light railway field research, including maps, newspaper articles, photos, field evidence, even recollections from those who were on site at the time. One form of relatively persistent record, particularly in field research, is the aerial photograph. It is valuable because it is a visual record fixed in time. Depending on quality, the photograph is readily digested by the viewer, even many years later.

Aerial Photographs

Aerial photographs have been around since photographers first ascended in balloons in the mid 1850s. Such photos have been used extensively for military purposes and it is no coincidence that the technology of aerial photography development went hand in hand with significant military interest in their use at warfare.

Aerial photographs come in two forms – oblique and vertical. Oblique photographs are taken at an angle to the subject neither parallel nor at right angles. They are usually singular and record an individual scene, such as a structure (building, dam etc).

Vertical Aerial Photography (VAP) is taken flying parallel to the ground surface. The photographs are part of a series captured at set intervals along predetermined parallel flight paths. Collectively, such photos can cover a large area, often between 100 hectares and 10,000 square kilometres.

The regular timing of each exposure is designed to give an overlap of photos, usually 60% between photos and at least 10% between flight paths. The overlap enables subsequent viewing to obtain a stereoscopic view (see later) which, due to its three dimensional nature, significantly improves the interpretation of the photographs. Each project is described by a Key Diagram, a map showing each flight line, called a Run, and some photograph numbers along each Run. These are plotted on a basic map showing some

known geographical features so that the viewer can estimate over which point the photographs have been taken.

It is the VAP captured over large areas and which is still generally available which is of greatest interest to light railway researchers, using the oldest and highest quality photos.

Generally, paper based maps are produced from VAP, thus Australia's record began to rapidly accumulate in the 1930s with the mapping of large areas of the country. There was another jump in the 1940s when national security at the time, especially along the coastline, demanded improved mapping over strategic areas.

The initial projects of the early 1940s, despite their relatively poor quality and limited coverage, are valuable because they are the very first images most likely to capture the field evidence we are looking for. They are especially valuable to timber tramway specialists because such tramways were often coastal, where the VAP was usually taken, and field evidence can still be seen. Some tramways, for example the Langley Vale tramway at Cooperook on the mid north coast of NSW, were even still operating at the time.

The Value of VAP

We are all familiar with paper based maps and their use in guiding us to field features we want to investigate. Sometimes the feature, such as a railway bridge or "abandoned railway" is explicitly symbolised on the map, especially older maps, but often we are searching for other clues such as embankments or structure foundations. And that is the disadvantage of maps. As valuable as they are, maps are only an interpretation of a small part of the world by a map maker. In the interpretative process some features, detail, relevance and importance can be either be lost or, worse, mistaken. Sometimes the map is so busy with symbols and labels that some features cannot be shown.

So it makes sense to go back to the raw images. Depending on our interpretative abilities, we may pick up extra relevant information. Within limits of scale and image quality, VAP is a true record of the land surface within a defined geographical area and such images are potentially a valuable tool for field investigation. The disadvantages are:

- Inadequate scale (over 1:25,000 is of little use)
- Inadequate clarity (low resolution, poor optics, poor processing)
- Vegetative cover on areas of interest (depending on the type of vegetation, only large earthworks or bridging for example may be visible)
- Season and time of day flown affect shadowing of features and either help or hinder interpretation
- Potentially high cost (see Sourcing VAP)

These are issues which need to be examined before considering use.

Interpreting the Photography

Interpreting VAP is commonly called Aerial Photo Interpretation (API). API is a skill usually built up over many years but, with care, even the novice can use it to good effect.

Most of the photographs available are black and white. We use our eyes to scan an object, detect change in data across the image and then our brain, drawing on previous experiences, quickly concludes what the object is, or isn't, and we make a judgement on its significance. This is the interpretative process. Location, size, shape, shadow, tone, texture, pattern, height/depth and situation are all important interpretative factors. Even if we don't recognise the object from our previous experiences, by using the photography in the field, we can "ground truth" the object, a powerful process in field research.

Light railway field researchers can use VAP to identify railway formations or to verify existing mapping. Across a series of photographs the entire railway operation of the time can be viewed, providing clues as to the context and purpose of the industry being examined.

A resource being exploited will exhibit an expected geographical pattern. For example, timber, ore, sand or gravel will be transported by rail to a processing or transshipping point and this is most likely to be evident on the photography. There may be branch lines to various resource points, especially for a landscape scale resource such as timber, which might not otherwise be known from existing mapping, such enterprises often having short term, temporary lines.

VAP may also be useful for temporal mapping. A series of photo projects taken over time may reveal development of the eventual railway system, not otherwise known from a single map record.

If searching a locality for a rumoured light railway, a scan of photography before going to the field is very useful for two reasons. Firstly, it will narrow down where to search by looking for clues such as the remains of a bridge over a waterway, formations showing up in steep country, abandoned buildings in odd places etc. Even the horizontal and vertical (if using stereovision, see below) alignment will give us a clue as to whether we are looking at a road or a railway formation; roads wiggle all over the place with sharp ups and downs, railways have perfect arcs and slow grades.

Secondly, a scan of the photos can tell us where not to look because if we cannot see evidence of a railway, at least not at the time or immediately before the photos were taken, this will steer us into field searching areas with better potential. Although most of us use maps as an essential part of our field navigation, in the hands of an experienced API person, VAP is also a powerful navigation tool simply because, as reasoned above, it has actual (not symbolised) field information, within it.

Interpreting VAP

At the simplest level we can use a single photograph in the hand. This is using photos in their "plain" form, similar to reading a map. With a magnification instrument in hand, depending on photo scale and resolution, we will improve our recognition of the captured features.

One photograph and a magnifying glass may be all that is needed to cover the area in question and yield the information sought. But there is an even more revealing way to use VAP – by viewing

paired photographs through a stereoscope. Using a stereoscope the interpreter can see height relief, i.e. 3D perception. Ridges and valleys become more apparent, steep areas and cliff lines can be identified, railway formation grades can be appreciated, building and other structure heights can be assessed. thus the interpretative process is greatly enhanced.

Providing the interpreter has been blessed at birth with stereovision capability (not everyone has it), seeing the photography in 3D requires three things:

- Photos captured with overlap
- A stereoscope - an optical instrument. They come in all sizes but relatively cheap pocket stereoscopes are still available from scientific instrument suppliers
- An experienced interpreter accomplished in the art of using overlapping photographs in "stereo" form.

For many researchers, obtaining the three ingredients to successful stereo interpretation will be difficult but with some effort the first is available (see Sourcing VAP), the second can be purchased, but the third is, sadly, diminishing in availability. Finding an experienced stereo photo interpreter will need some winking out by the light railway researcher.

Until late last century every Australian public land manager or map producer – government lands, mapping, forestry or national parks departments – had their own in house or accessible aerial photo interpreters. Some private entities such as geological exploration

companies also employed interpreters. This quickly changed when broadscale affordable digital remote sensing, and the resulting large scale map products, became readily available.

Sourcing VAP

In sourcing photos, the best place to start is the Australian Government's Geoscience Australia web page <http://www.ga.gov.au/flight-diagrams/>. This interactive site describes almost all VAP taken over continental and island Australia back to 1928. After you select a 250,000 scale map sheet, photo projects are listed. By selecting a project you will see a copy of the original flight diagram – the Runs and sample Photo Numbers – on a basic background map.

Unfortunately the centre of each photograph (its Principal Point) is not accurately mapped so having grid references to guide you may not be enough. Unless you know exactly where a particular photograph was taken you may need to obtain more photographs than you originally estimated. As with most sources described below, purchasing options are available but be prepared for some significant costs.

Not all projects are listed on the Geoscience web site. For example, big forestry department projects of the 1960s in high quality black & white, 1:15,840 scale photography does not appear. To access these, the researcher may have to pursue State Government archives or foster a relationship with individual land management agencies, predominantly in regional centres, still carrying historical libraries.

These are the State archive links:

NSW—http://spatialservices.finance.nsw.gov.au/mapping_and_imagery/aerial_imagery (only the latest imagery for most areas)

South Australia—<http://www.environment.sa.gov.au/Science/mapland/aerial-photography>

Victoria—<http://delwp.vic.gov.au/parks-forests-and-crown-land/spatial-data-and-resources/imagery-and-elevation/aerial-photography>

Western Australia <https://www0.landgate.wa.gov.au/maps-and-imagery/imagery/aerial-photography/aerial>

Queensland <https://www.business.qld.gov.au/business/support-tools-grants/services/mapping-data-imagery/imagery/aerial-photography>

Tasmania <http://dpiw.tas.gov.au/land-tasmania/aerial-photography>

Some archives are more specific in their collection

Universities e.g. Melbourne—<http://unimelb.libguides.com/c.php?g=402933&p=2741720>

Private e.g. Photomapping—<http://www.photomapping.com.au/historic-imagery>

Libraries e.g. The National Library—<https://www.nla.gov.au/research-guides/aerial-photographs>

Vertical Aerial Digital Imagery

Following rapid development in the 1980s and 1990s the digital age in vertical aerial imagery has well and truly arrived. In theory there is little difference between modern digital remote sensing and traditional vertical aerial photography. They both capture and store spectral response across a systematic array of data points (digital is precisely gridded, photography is an array of silver halide crystals). Nevertheless, digital imagery has largely replaced the aeroplane based chemically processed photographic product.

Most of us are familiar with satellite imagery such as Landsat and Spot images, weather maps and Google Earth. General satellite imagery is of coarse resolution with the best being around 1m x 1m but more commonly 5m x 5m or greater. However, higher resolutions are readily available. For example, the best Google Earth scanning at the moment provides on ground resolution of between 10cm over cities and 2.5 m over inland unpopulated areas.

High resolution airborne digital imagery is now increasingly available to view free of charge on the internet through State Government online map viewers:

NSW—<https://maps.six.nsw.gov.au/>

Victoria—<http://api.maps.vic.gov.au/fullscreen.php>

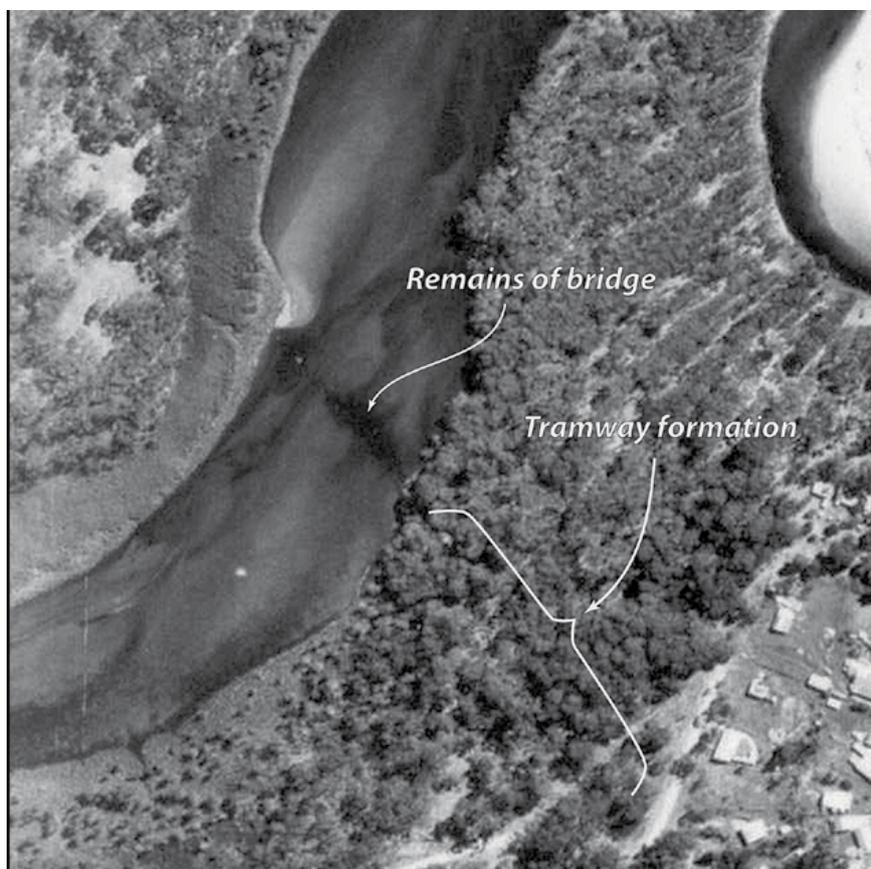
South Australia—<http://location.sa.gov.au/viewer/>

Western Australia—<https://www.landgate.wa.gov.au/bmvf/app/mapviewer/>

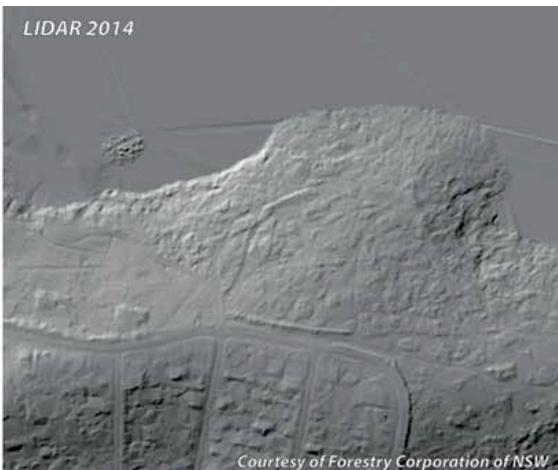
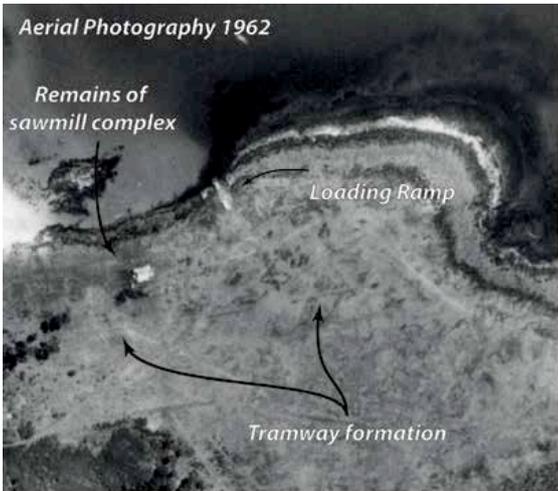
Tasmania—<http://maps.thelist.tas.gov.au/listmap/app/list/map>

The Value of Digital Imagery

Has digital imagery replaced VAP? The answer is both yes and no.



A 1962 aerial photograph at Willunga Lake, near Bawley Point on the NSW south coast. The tramway features labelled were detected by photograph interpretation of the high quality stereo pair and then checked in the field.



The case for VAP:

- Airborne digital imagery is rarely available in stereoscopic overlap. Where overlap is available, expensive computer, screen and viewing glasses are required to see the imagery in 3D.
- Airborne digital imagery can match VAP for resolution (0.3 x 0.3m) but generally it isn't of sufficient quality. You need to check out the product you are using.
- A limitation of digital imagery for historical research is that it is a contemporary record. Only the surviving remnants from many years ago will be revealed.

The case for digital imagery:

- Reasonable quality digital imagery is readily available across the entire globe and is often free, even recent imagery.
- The imagery is easy to use and can be zoomed in quickly to points of interest.
- For the field researcher, such products are very useful for geographical context and for reconciling the image's clues with remaining field evidence.
- New products are becoming available to light railway researchers, especially in non-spectral data.

The Future of Digital Imagery

Of great future potential is a particular LIDAR (Light Detecting and Ranging) product¹. LIDAR analysis can ignore the vegetation layer and this is very useful in non-arid landscapes where vegetation otherwise hides ground evidence from the interpreter.

A high resolution monochrome image of the ground layer can be built from raw LIDAR data. A resolution of 1m x 1m will be fine enough to show most variations to the natural folds of the earth, including old earthworks such as railway formations and mine shafts. Currently, LIDAR is not generally available to the public but a wily researcher may be able to liaise with institutions which carry such data sets in their libraries. East coast local governments are a good place to start.

Summary

Vertical aerial photographs, especially of old age, are a significant tool for the light railway researcher. The older the images and the higher the scale and resolution of the images, the more likely it is that the interpreter will detect, and make sense of, time susceptible remaining historical field evidence.

Left: These images show Bawley Point, on the NSW south coast. In 1890-1920 this was the site of a horse drawn tramway terminus with associated sawmill and ship loading site. Each image displays the relative merits of the historical image technologies now available to field researchers.

Photographs can be viewed individually but a significant increase in interpretation yield will come from their use stereoscopically. The difficulty is in accessing the quantity of photos required and finding experienced stereoscopic interpreters. Large quantities of digital images are increasingly free and easily available. They are useful to the light railway researcher and new products are constantly becoming available.

When looking for evidence of old railway lines in forested areas, the field researcher's best tool will be LIDAR. It will show subtle changes in topography and, when combined with the rules for building rail lines (low grades, large curves), the route is often detectable even in heavily forested areas. The rail line infrastructure may be gone but, unless recent development has occurred, or there had been little earthworks, the topography of the railway usually remains and is still visible. And that is what keeps light railway hunters, hunting.

Acknowledgements

The generous assistance of aerial imagery experts Ken Boer and Rob Lees is gratefully acknowledged.

Ian Barnes

Ian Barnes is a retired professional forester. For 40 years he worked in forests along the NSW east coast and used aerial photographs extensively for bush navigation, forest mapping and logging road design.

Pursuing his long term interest in timber tramways he sourced old photo sets, searched for light railway formations and has been able to field check many of his findings². The railways he has mapped include the Long Creek tramway near Kyogle, Hewetsons Tramway near Urbenville, Crossmaglen/Bonville tramway near Coffs Harbour, the Longworth line near Kendall, the Kennedys Mountain/Forbes Creek line near Wauchope, and he was the first to produce a map of much of the Langley line near Taree.

He is a long time member of the LRRSA and is currently field researching the timber tramways of the south coast of NSW.

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2. *Light Railways*, 236 *Angourie and Ilarwill Quarries, Clarence River, NSW*, p28 and *Green Cape lighthouse tramway, Eden, NSW*, p30



Industrial Railway NEWS

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Special thanks to contributors to the *Sugar Cane Trains/Navvy Pics 2ft Facebook page.*

QUEENSLAND

BUNDABERG SUGAR LTD, Bingera Mill

(see LR 251 p.23)

610 mm gauge

The following sightings of EM Baldwin B-B DH locomotives were made on the rail system during November. *Bucca* (6104.1 8.75 of 1975) at Lourigans Loop and Tantitha Road on 22 November. *Bucca* is based at the site of the dismantled Fairymead Mill. *Miara* (8988.1 6.80 of 1980) at Johannesens Loop near Meadowvale on 22 November. *Delan* (5800.3 7.75 of 1975) working the Bucca line on 23 November. Additionally, Com-Eng 0-6-0DH *Invicta* (A1513 of 1956 rebuilt Bundaberg Foundry 2001) was seen in the compound at the Wallaville depot on 8 December.

Scott Jesser 11/16; John Browning 12/16

BUNDABERG SUGAR LTD, Millaquin Mill

(LR 250 p.36)

610 mm gauge

The following sightings of EM Baldwin B-B DH locomotives were made on the rail system during November. *Calavos* (4983.1 7.73 of 1973) at Kirbys Road on 15 November. *Vulcan* (5317.1 11.73 of 1973) on the Seaview and Elliot Heads lines on 15 November. *Barolin* (6456.1 11.75) at Heidkes Road on 15 November and at the mill on 23 November. *Fairydale* (10048.1 6.82 of 1982) at the mill on 2 November, Grange Road and McGills Road on 16 November and Bargara Road on 18 November. On 23 November, *Calavos* was seen with a slightly bent cab and this was apparently the result of an altercation with a harvester. The Burnett Heads Road at Qunaba was closed on 7 December for a level crossing upgrade.

Dale Thomas 11/16; Scott Jesser 11/16; Troy Goodhew 11/16; Ray Miller 11/16; myPolice Bundaberg website 4/12/2016

ISIS CENTRAL SUGAR MILL CO LTD

(see LR 252 p.25)

610 mm gauge

A truck and a cane train collided at a level crossing in North Isis on 7 November.

7 News Wide Bay 7/11/2016

MACKAY SUGAR LTD, Mackay mills

(see LR 252 p.25)

610 mm gauge

A former Queensland Railways turntable still in situ at Langdon or Kungurri and now owned by Mackay Sugar, was removed in July. It had to be removed for road safety reasons and may be placed on display near Marian Mill.

Daniel Dutton 7/16; Peter Jenkinson 11/16

MSF SUGAR LTD, Mulgrave Mill

(see LR 252 p.25)

610 mm gauge

The Redlynch line through what was the grounds of Hambledon Mill at Edmonton is being deviated a little to the east to accommodate road modifications

in the area. Seen at this site on 12 December were Com-Eng 0-6-0DM 5 (A1005 of 1955) and the Plasser Australia KMX-12T tamping machine (432 of 1997). Clyde 0-6-0DH locomotives 18 *Barron* (64-379 of 1964) and 19 Redlynch (65-435 of 1965) are to be set up for back to back multiple-unit operation and fitted with RSU remote control gear. Both locomotives are having frame extensions to make them the same length as a Com-Eng locomotive and will probably be fitted with Mercedes Benz motors driving through Allison transmissions. They will work the Redlynch area. Luke Horniblow 12/16; John Charleton 12/16

MSF SUGAR LTD, South Johnstone Mill

(see LR 252 p.26)

610 mm gauge

Hockey 6 wheeled brakewagon 4 (built in 1982) sees occasional use with EM Baldwin B-B DH 32 *Liverpool* (10385.1 8.82 of 1982), standing in for South Johnstone bogie brakewagon 6 (built in 1990) whenever it has a problem. Clyde 0-6-0DH 2 (55-56 of 1955) returned to service in mid-November



Top: Bingera Mill's Walkers B-B DH Kolan (633 of 1969 rebuilt Bundaberg Foundry 1996) on the Splitters Creek bridge on 24 November. Photo: Scott Jesser **Above:** Bingera Mill's EM Baldwin B-B DH Miara (8988.1 6.80 of 1980) at Johannesens Loop near Meadowvale on 22 November. Photo: Scott Jesser



and is now mated up with Clyde 0-6-ODH 3 (56-90 of 1956). Com-Eng 0-6-ODM 27 (A 157111 of 1975) has been receiving an external revamp in the navy shed and also been fitted with the cab that was removed from Com-Eng 0-6-ODH 8 (AA1543 of 1960) early in 2016. The intention is to reapply its Innisfail Tramway identity of DL20 *Pin Gin* while still carrying the present day mill number. A molassos tanker collided with EM Baldwin B-B DH 25 (6470.1 1.76 of 1976) on a road within the mill grounds on 9 December. Michael Caruso 10/16; Bill Horton 10/16; Jason Sou 11/16; 12/16

**WILMAR SUGAR (HERBERT) PTY LTD,
Herbert River Mills**

(see LR 252 p.28)
610 mm gauge

A man broke into the signal cabin at Ingham Station on 30 October and threw the catchpoints against an oncoming train from Victoria Mill. Walkers B-B DH *Herbert II* (612 of 1969 rebuilt Walkers 1993) and a number of empty cane bins were derailed. EM Baldwin B-B DH *Darwin* (6171.1 9.75 of 1975) and Clyde 4 wheeled brakewagon *BVAN 4* (CQ3426 of 1975) remained at Victoria Mill from mid October to 24 December when they went back to Macknade Mill. Victoria Mill's Clyde 0-6-ODH *Perth* (69-682 of 1969) and Macknade Mill's EM Baldwin B-B DH 19 (7070.3 4.77 of 1977) with EM Baldwin 6 wheeled brakewagon *BVAN 2* (7065.5 6.77 of 1977) were exchanged on 26 November then swapped back the next day. Clyde 0-6-ODH *Lucinda* (65-436 of 1965) which had been on loan to Macknade Mill for most of this year's crushing, returned to Victoria Mill on 13 December. Clyde 0-6-ODH 16 (DHI.1 of 1954) has been out of use this year owing to a protracted final drive rebuild. It made a brief return to service on 14 December when the final drive failed after just a few hours work. Hudswell Clarke 0-6-0 *Homebush* (1067 of 1914)



Top: EM Baldwin B-B DH *Fairydale* (10048.1 6.82 of 1982) crosses McGills Road bridge along the River line near Millaquin Mill on 16 November. Photo: Ray Miller **Centre:** At Millaquin Mill on 23 November, EM Baldwin B-B DH *Calavos* (4983.1 7.73 of 1973) shows evidence of an encounter with a cane harvester. Photo: Scott Jesser **Above:** On 23 November, Isis Mill Walkers B-B DH 1 (602 of 1969 rebuilt Walkers 1991) heads out on the double track section up towards Cordalba. Photo: Scott Jesser



was not used at the Victoria Mill Social Club Christmas party this year as the mill was still crushing.
 Editor 10/16; 11/16, 12/16; myPolice Queensland Police News website 30/10/2016

**WILMAR SUGAR (INVICTA) PTY LTD,
 Invicta Mill, Giru**

(see LR 252 p.28)
 610 mm gauge

The Plasser Australia KMX-06-16 tamping machine (133 of 1978) was seen at Kalamia Mill on 2 December and has been swapped for Kalamia Mill's Tamper 4375626SVT-JW tamping machine (562 of 1976) which was seen on the Invicta system on the same day. One hundred new bins have been built at Kalamia Mill for Invicta Mill during 2016. Very little cane is being grown in the Dalbeg area now with the cane being replaced by Sandalwood tree plantations planted by a company called TFS. Possibly, the line beyond Millaroo to Dalbeg, a distance of approximately 20 kilometres, will not be used next year.

Scott Jesser 12/16; Luke Horniblow 12/16

**WILMAR SUGAR (KALAMIA) PTY LTD,
 Kalamia Mill**

(see LR 251 p.25)
 610 mm gauge

EM Baldwin B-B DH *Norham* (5383.1 7.74 of 1974) is the locomotive regularly used to load Aurizon molasses tankers at the mill and was observed performing such duties on 2 December. Prior to this year, the mill locomotive used to pick the tankers up from exchange sidings in Ayr but now Aurizon runs combined sugar and molasses trains all the way to the mill, leaving the mill locomotive to perform just the loading duties. Invicta Mill's Plasser Australia KMX-06-16 tamping machine (133 of 1978) was seen at this mill on 2 December and has been swapped for Kalamia's Tamper 4375626SVT-JW tamping machine (562 of 1976)



Top: Farleigh Mill multi-unit Clyde 0-6-ODH locomotives Palmyra (63-273 of 1963) and Pleystowe (64-321 of 1964) at Costellos 6 on 19 December. Photo: Scott Jesser
Centre: On 6 November after waiting at Braemeadows for a procession of trains to pass through on the busy inter-mill line between Victoria and Macknade mills, the latter mill's Clyde 0-6-ODH 11 (65-383 of 1965) finally gets to pull out of Robinos siding. Photo: Luke Horniblow. **Above:** Invicta Mill's Walkers B-B DH Rita Island (625 of 1969 rebuilt Goninan Mackay 1996) at Expedition Pass Creek between Millaroo and Dalbeg on 2 December. Photo: Luke Horniblow

which was seen on the Invicta system on the same day. Kalamia Mill has been building new bins for the other Burdekin mills during 2016 including one hundred for Invicta and seventy or eighty for Pioneer. Some of the newly built bins for Pioneer were seen here on 2 December.
Luke Hornibow 12/16

WILMAR SUGAR PTY LTD, Pioneer Mill, Brandon

(see LR 250 p.40)
1067 mm gauge
Seventy or eighty new bins have been built at Kalamia Mill for Pioneer Mill during 2016.
Luke Horniblow 12/16

WILMAR SUGAR (PLANE CREEK) PTY LTD, Plane Creek Mill, Sarina

(see LR 252 p.28)
610 mm gauge
Walkers B-B DH locomotives 2 *Karlo* (630 of 1969 rebuilt Bundaberg Foundry 1995) and 1 *Allan Page* (594 of 1968 rebuilt Bundaberg Foundry 1995) were seen double heading out of Karloo on 9 December. They had on a load of 126 full bins with Anderson Rea bogie brakewagon 2 (built in 1995) trailing. On the same day, the Plasser KMX-08 tamping machine (415 of 1995) was seen at Mt Christian. This location coincidentally, was the scene of a derailment on 6 November which caused the line to be closed for 11 hours. Another derailment on the main line south, this time near Koumala on 24 November and involving Walkers B-B DH 3 *Koumala* (651 of 1970 rebuilt Bundaberg Foundry 1995) along with 10 empty bins, caused the line to be closed for 12 hours. From 2 December, Clyde 0-6-0DH D1 (56-101 of 1956) was in use hauling cane from the end of the Plane Creek line. A bridge on this line is not suitable for locomotive use so D1 is road hauled beyond the bridge and stationed there for the period the cane is being cut. The full bins are propelled across the bridge for collection by a locomotive on the mill side and vice versa for the empties.
Daily Mercury 7/11/2016, 25/11/2016; Luke Axiak 12/16; John Browning 12/16

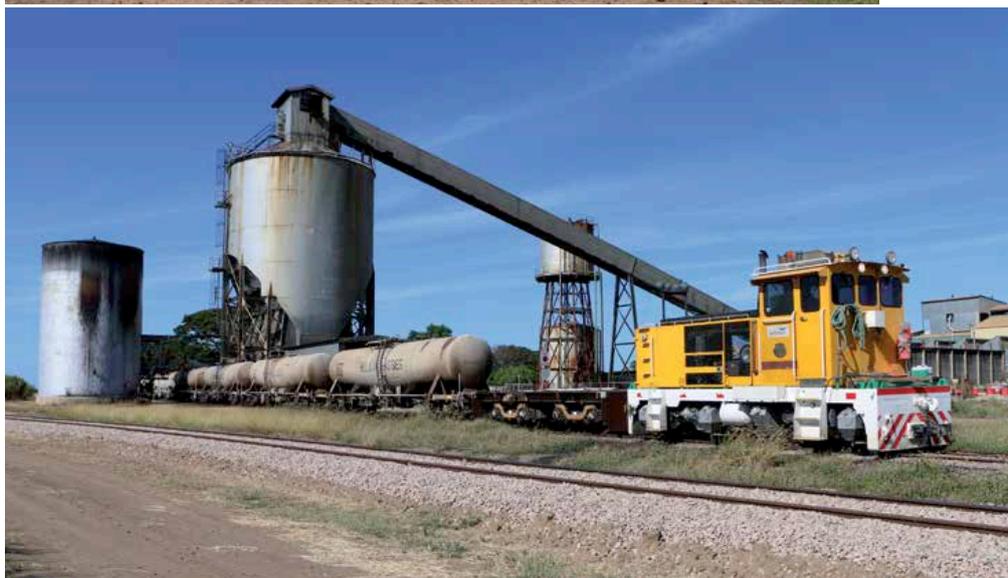
WILMAR SUGAR (PROSERPINE) PTY LTD, Proserpine Mill

(see LR 252 p.29)
610 mm gauge
Com-Eng 0-6-0DH *Oakenden* (FB3169 of 1963) was still on loan from Invicta Mill in December and was expected to remain there until the crushing finished. It is referred to as 5 for traffic purposes. Clyde 0-6-0DH 7 (65-442 of 1965) was spotted with red and white headstock stripes on 18 December with these replacing the previous yellow and black stripes.
Tom Badger 12/16; Scott Jesser 12/16

NEW SOUTH WALES

GOULBURN RAIL HERITAGE CENTRE, Goulburn

1435 mm gauge
Walkers B-B DH locos 7319 (678 of 1972), 7322 (684 of 1972) and 7333 (695 of 1972) were seen



Top: Invicta Mill's Walkers B-B DH Cromarty (708 of 1973 rebuilt Bundaberg Foundry 1996) on its way to Millaroo at Cornford Lookout with the Burdekin River in the background on 27 October. Photo: Jamali Labelak **Centre:** Kalamia Mill Com-Eng 0-6-0DH Chiverton (C1030 of 1958) at Brandon 3 siding on 14 November. Photo: Luke Horniblow. **Above:** Kalamia Mill's EM Baldwin B-B DH Norham (5383.1 7.74 of 1974) loads Aurizon molasses tankers at the mill on 2 December. Photo: Luke Horniblow



Top: Com-Eng O-6-ODH Oakenden (FB3169 of 1963) overhauls a parallel running Pacific National train limited by a speed restriction at Foxdale north of Proserpine Mill on 7 December. Photo: Tom Badger
Centre: Proserpine Mill EM Baldwin B-B DH 10 (9816.1 10.81 of 1981) makes a dramatic sight as it kicks up the dust at Tyree Road on the Cannon Valley line on 17 November. Photo: Tom Badger.
Above: Graced by some of the last semaphore signals in use in NSW, South Maitland Railways O&K 4wDH 32 (26263 of 1963) is ready to commence commissioning trials within the confines of East Greta Junction on 27 October. Photo: Robert Driver

stored here for K & H Ainsworth Engineering Pty Ltd of Goulburn on 9 and 11 December. Brendan Winkler 12/16; Dieseldon Trevena 12/16

K & H AINSWORTH ENGINEERING PTY LTD, Goulburn

(see LR 252 p.29)

1435 mm gauge

This firm's name was incorrectly quoted in LR 252 and the correct name is as above. The Walkers B-B DH locos 7319 (678 of 1972), 7322 (684 of 1972) and 7333 (695 of 1972) acquired from Manildra, Shoalhaven Starches at Bomaderry were to be moved to Goulburn during November and were sighted stored at Goulburn Roundhouse on 9 and 11 December. One more Walkers B-B DH locomotive has been acquired from The Manildra Group and this would appear to be Manildra Flour Mills Pty Ltd 7340 (702 of 1972) from the Narrandera flour mill which was seen with its windows covered over at Narrandera Station late in November.

Peter Neve 11/16; Thomas Bulic 11/16; Brendan Winkler 12/16; Dieseldon Trevena 12/16

MANILDRA FLOUR MILLS PTY LTD, Narrandera

(see LR 247 p.22)

1435 mm gauge

Walkers B-B DH 7340 (702 of 1972) appears to have been acquired by K & H Ainsworth Engineering Pty Ltd of Goulburn and was seen with its windows covered over at Narrandera Station late in November.

Peter Neve 11/16; Thomas Bulic 11/16

MANILDRA, SHOALHAVEN STARCHES PTY LTD, Bomaderry

(see LR 252 p.29)

1435 mm gauge

The Walkers B-B DH locos 7319 (678 of 1972), 7322 (684 of 1972) and 7333 (695 of 1972) acquired by K & H Ainsworth Engineering Pty Ltd of Goulburn had been transported to storage at the Goulburn Roundhouse by 9 December.

Brendan Winkler 12/16

SOUTH MAITLAND RAILWAYS PTY LTD, East Greta Junction

(see LR 244 p.24)

1435 mm gauge

SMR has acquired two veteran diesel hydraulic shunting locomotives, purchased from the Lend Lease group and delivered to East Greta Junction on 17 August 2016. These are Orenstein & Koppel model MB7N 4wDH locomotives 26263 and 26266 of 1963. Weighing 26 tonnes, this model is powered by a Deutz air cooled 8 cylinder engine rated at 170 HP with 147 HP available for traction. Maximum speed is 32 km/hr. The two locomotives were imported from Malaysia and in 2007 were used for track laying on the Drayton colliery branch at Antiene on the main northern line. In 2009 the units were acquired by Abigroup (since absorbed into Lend Lease) for track construction at the Kooragang coal export terminal. About June 2011, 26263

was repainted at Abigroup's Mount Kuring-Gai depot, and had been out of use since then. At the time of purchase, both locomotives were stored on blocks at Abigroup's Rutherford depot in Maitland.

Following necessary mechanical refurbishment, 26263 has been finished in green and carries road number SMR 32, reviving the numerical sequence that has been static since the arrival of 2-8-2T steam locomotive 31 in January 1926, surely something of a record. 26266 is in poor condition and will be used for spares. For certification purposes 32 is classified as a Track Machine, and will be used initially for shunting coal hoppers at the Bradken wagon repair facility (former SMR workshop). Bradken and the track maintenance contractor LS Rail based at East Greta Junction, will also have use of the locomotive as required and arrangements are in place for LS Rail to service the unit and assist with crew training. Longer term plans are for 32 to be used on main line ballast haulage.

Robert Driver 11/16, 12/16

VICTORIA

AGL HYDRO PARTNERSHIP, Bogong Creek

(see LR 222 p.25)

914 mm gauge

A quick visit on 6 December 2016 to the Bogong Creek railhead found only one locomotive at the depot – Motor Rail 'Simplex' 4wDM 7366 of 1939. As the shed was open and no one in attendance (though their motor vehicle was) it is presumed the other two locos, Ruston & Hornsby 4wDM 296070 of 1950 and a Maximove, were out on the line.

Phil Rickard 12/16

AGL HYDRO PARTNERSHIP, Bogong Village

(see LR 211 p.14)

762 mm gauge

The building of AGL's Bogong power station was detailed by Simon Moorhead in *Light Railways* 211 of February 2010; the actual construction

being done by McConnell Dowell. Two sites were involved – the actual power station site on Lake Guy and the headrace access tunnel. At the power station site, the actual station is now buried below a mountain of spoil and has been revegetated. However, at the headrace access tunnel where the tunnel boring machine entered the mountain, all rail track outside the portal is still in place though abandoned. Readers may wish to compare the photos in LR 211 with that taken recently.

Phil Rickard 12/16

OVERSEAS

FIJI SUGAR CORPORATION

(see LR 252 p.29)

610 mm gauge

The cyclone damaged road/rail bridge over the Raki Raki River at Penang Mill is to be replaced by a new structure. Construction is expected to extend from April to October of 2017.

John Browning visited Fiji in October and his report follows which updates the one of 2014.

In general terms over the last two years there has been little deterioration in the rail transport situation. However, although the steady attrition of locomotives at Lautoka and Rarawai mills on the main island of Viti Levu may have slowed, it has not ceased. Tropical cyclone Winston in February 2016 had a major destructive impact on the cane crop on Viti Levu so the crushing tonnage at these two mills is significantly down this season. At the same time the percentage of cane transported by rail at these mills has dipped below the 30% mark. The future of the small Penang Mill at Rakiraki was uncertain before the cyclone. The damage it sustained meant that it did not crush in the 2016 season and all cane was transported by road to Rarawai Mill.

The future of the Penang Mill is still uncertain. Before the cyclone it had been planned to make it into a juice mill. A number of proposals have now been put forward, the most ambitious being

a new mill on the current site, with the suitably upgraded existing rail infrastructure a key feature. Meanwhile two of the three operable locomotives at Penang have been transferred elsewhere, and some mill machinery has also been removed.

By contrast, Labasa mill on the second island, Vanua Levu, was little affected by the cyclone. The crop was quite good and rail transport is running at 40%. No locomotives have been taken out of use here since 2014, and another from Penang Mill which had been in the workshops there since 2014, was added to the operating roster. It appears that energetic mill management and a succession of capable and committed Transport Engineers has made a real impact at Labasa. Hopefully similar results will begin to be seen at Lautoka and Rarawai before too long.

Rail transport of cane to the mill is at no cost to the grower. Road transport attracts a 70% subsidy from the mill on fuel costs. The high proportion of cane transported by road relieves the rail system from what would probably be an impossible burden, but in turn becomes a reason why investment in rail is limited.

Machine harvesting is beginning to make a small impact. It will increase as the labour supply for the strenuous task of cutting cane continues to shrink. There are currently no arrangements for chopped cane to be transported by rail. To transport chopped cane by rail would not only require new (or suitably modified) rolling stock to be available, but a much brisker method of rail operation would have to be adopted. This is a key issue for the future of rail transport as chopped cane should be crushed within 24 hours of harvesting to avoid chemical deterioration. Trains will only be able to run faster if the track is improved. Currently the lack of suitable siding capacity at most delivery points slows down operations considerably. Only a strategic approach will allow the potentially efficient rail system to be adapted to the oncoming new circumstances.

Lautoka Mill

Currently operating with seven main line locomotives and two in the yard; 1277 cane trucks. About 29% of cane transported by rail this season.

Since 2014, the 'rotten row' of locomotives has been shifted to the empty yard and added to, with the addition of Clyde Engineering 0-6-0DH locomotives 14 (68-655 of 1968) and 15 *Oscar* (56-91 of 1956 rebuilt Ontrak 2434-2 of 2009). 15 is officially 'awaiting repairs'. Meanwhile Clyde 0-6-0DH 10 (65-437 of 1965) is in the shed, completely stripped. Only one Simplex Mechanical Handling U Series 4wDH loco, 14 (122U136 of 1973), is now operating, in the empty yard. 13 (122U135 of 1973) and 15 (122U156 of 1975) are somewhat dismembered in the shed. EM Baldwin 0-6-0DH 16 (6/1257.1 7.65 of 1965) is in the shed, awaiting engine parts.

Transferred to Rarawai Mill this year was Clyde 0-6-0DH 23 *Howie* (59-202 of 1959 rebuilt Ontrak 2434-1 of 2008), while Hunslet 6wDH 21 (9273



General view of the Bogong Creek raceline tramway depot on 6 December with the Motor Rail 'Simplex' 4wDM (7366 of 1939) inside. The 'garden shed on wheels' is the mobile crew room. Photo Phil Rickard

of 1987) was transferred from Rarawai and is officially Lautoka 18, although this number is not carried. Transferred from Penang Mill was Diema 4wDH 10 (5172 of 1991), which is in use in the full yard.

Working out of the mill:

13 <i>Chilli</i>	0-6-ODH	EM Baldwin	9442.1	4.81	1981
		rebuilt Ontrak	2435-1		2009
(18) 21	6wDH	Hunslet	9273		1987
24 <i>Brandy</i>	0-6-ODH	Clyde	57-140		1957
		rebuilt Ontrak	2435-3		2012

Working out of Navo:

11	0-6-ODH	Clyde	65-432		1965
12	0-6-ODH	Clyde	65-431		1965
20	0-6-ODH	EM Baldwin	3406.1	7.70	1970
21	0-6-ODH	Clyde	57-159		1957

11 and 12 work cane towards the mill while 20 and 21 work on the longer runs to the south.

Since 2014, two locomotives have been repainted. Number 12 has been painted in an approximation of the Ontrak blue colour scheme applied to number 13. Number 16 has been painted the conventional FSC grey and yellow with flouro orange trimmings and red and black headstock dazzle stripes.

Three navy diesel linecars were in operation. Only number 122 carries its number. It is normally based at Navo and was under repair at the mill. The one previously based at Taverau (125) has been transferred to the mill, and the others work from Natova (123) and Lomowai (121). The Lomowai depot replaces the now closed Cuvu depot. The Clyde Queensland petrol linecar at Natova (124) is awaiting parts there. A substantial new road/rail bridge has been built on the main line at Lomowai.

Rarawai Mill, Ba

This mill appeared to have six active main line locomotives and two in the yard. There are 1300 cane trucks but only 1000 were in use in 2016 because of the small crop. 26% of cane has been transported by rail this season. In addition

about 800 tons of cane per day is transported by road from the Penang Mill area.

This mill was badly affected by the cyclone. Clyde 0-6-ODH 27 (56-113 of 1956) has joined the collection of dumped locomotives here, although the Transport Engineer hopes to rebuild it. The Diema 4wDH 25 (5170 of 1991), which sat in the shed for many years, was transferred to Penang for spare parts in 2015.

The active locomotives at the mill are as follows:

8 <i>Bozley</i>	0-6-ODH	Clyde	62-271		1962
		rebuilt Ontrak	2435-2		2011
9	0-6-ODH	Clyde	64-378		1964
		repairs			
10	0-6-ODH	Clyde	64-384		1964
17	4wDH	EM Baldwin	5060.1	9.73	1973
		weighbridge			
23 <i>Howie</i>	0-6-ODH	Clyde	59202		1959
		rebuilt Ontrak	2434-1		2008
24	0-6-ODH	Baguley-Drewry	3773		1983
		empty yard			
28	0-6-ODH	Clyde	55-66		1955
		spare			
56 <i>Hinkler</i>	0-6-ODH	Clyde	56-89		1956

Number 28 has been fitted with the cab from 6 (Clyde 0-6-ODH 57-157 of 1957).

Based at Tavua are:

22	6wDH	HE	9274		1987
60	0-6-ODH	Clyde	60-219		1960

The mill based diesel linecar was out of use in the yard. The Tavua diesel linecar was not seen operating. A derelict linecar is located near the sugar loader at the mill and has a Simplex brake column and brake wheel.

Displayed at the mill entrance, Fowler 0-6-2T 10 (11458 1908) is kept in very good condition. Its tender is now preserved nearby at the Ba Civic Museum.

Penang Mill, Rakiraki

There has been severe cyclone damage to the mill and to the district generally. The locoshed

was deroofed. The timber road/rail bridge outside the mill is badly twisted. It only survived the flooding associated with the cyclone by virtue of the strength of the tramline rails. There is no rail transport this year and two locomotives have been transferred elsewhere, but the 320 trucks remain on site.

In the remains of the shed are:

3	4wDH	EM Baldwin	5060.2	9.73	1973
		awaiting repairs			since 2015
9	0-6-ODH	Baguley-Drewry	3772		1983
25	4wDH	Diema	5170		1991
		spare parts			

Baguley 0-6-ODM 8 (2727 of 1964) still survives dumped in the yard. Hudswell Clarke 0-6-0 1658 of 1935, plinthed in the mill yard, has been repainted.

Labasa Mill

Has eight locomotives in use on the main line and two in the yard. The rail system here appears to be working quite well. 653,353 tons of cane were crushed this season with more than 250,000 tons transported by rail.

Clyde 0-6-ODH 58-191 of 1958 was transferred from Penang Mill in 2016 and soon put to work. It carries its old number 21, but is officially designated 18.

The EM Baldwin 4wDH yard locos have exchanged duties since 2014, with 4 on the weighbridge and 5 in the empty yard. The precise identity of these locomotives is unknown but they were rebuilt at Labasa in 1980 and are among the six tunnelling locomotives built to EM Baldwin serial 3229 in 1969-70.

Clyde 0-6-ODH 10 (64-320 of 1964) is a shell outside the loco shed. EM Baldwin 0-6-ODH 12 (5995.1 1.76 of 1976) is awaiting engine repairs. All other locomotives were active on the main line as follows:

8	0-6-ODH	Clyde	DHI.8		1955
9	0-6-ODH	Clyde	62-270		1962
11	0-6-ODH	Clyde	64-319		1964
14	0-6-ODH	EMB	4413.3	9.72	1972
16 <i>Damo</i>	0-6-ODH	Clyde	65-441		1965
		rebuilt IBS			2013
17	0-6-ODH	Clyde	DHI.6		1954
(18) 21	0-6-ODH	Clyde	58-191		1958
21	0-6-ODH	Clyde	64-385		1964

17 has been repainted in mill colours, but 16 retains the yellow and black livery it arrived in from Queensland.

Three diesel linecars are in use for track maintenance. Number 1 is based at Wainikoro, Number 3 at Nagigi, and an unnumbered one at Waiqele.

John Fowler 0-6-2TT 10992 of 1907 is still displayed near the mill entrance. Its tender incorporates the truncated chassis of John Fowler 0-4-2ST 4788 of 1884. A clean-up and repaint is overdue.

A substantial new road/rail bridge has built at the end of the Bucaisau branch, but it appeared not to have been put into use at the time of the visit as currently there appears to be no track in use beyond the bridge itself.



Owing to inadequate siding infrastructure amongst other things, overlanding of empty cane trucks has become common practice in Fiji and in this scene on 20 October, Labasa Mill Clyde 0-6-ODH 9 (62-270 of 1962) stands by while tractors yank their shares of trucks out of its rake of empties at Vuliaki. Photo: John Browning

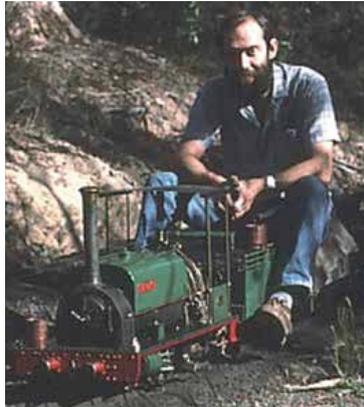
Raymond James Gardiner: 4 October 1953 – 24 December 2016

It is with great sadness to learn of the tragic death of Ray Gardiner while on a visit to Thailand during December, 2016. Ray became a member of the LRRSA in the early 1970s. He was a regular attendee at the NSW Division meetings in Sydney; the evening's entertainment was quite often sourced from Ray's extensive slide and movie collection of overseas subjects of main line railway or industrial railway interest.

Ray traveled extensively – from Europe to Africa, India to Asia, the America's and China. One of the more exotic countries that he visited in his pursuit of the steam locomotive was Cuba, the remnants of the sugar cane railways were playing out their last years of service on that island.

Ray studiously amassed an impressive collection of research material about the locomotives of Indonesia, particularly the sugar cane and palm oil plantation rail systems. He visited many of the sugar and palm oil mills, garnering information and photographs from company records stored away in old and dusty office filing cabinets.

Ray was in regular and prolific communication with fellow researchers in Germany, UK, the Netherlands and Indonesia, sometimes travelling to visit them in person and discussing railway or non-railway matters 'over a beer or two.'



Ray's interests extended out into other spheres such as model engineering; he was a member of the Galston Society in northern Sydney. His other interests included steam traction engines, portables and steam boats. He was a regular visitor to the annual Echuca Steam Rally in Victoria, traveling there by XPT and connecting bus link from Wagga Wagga in NSW.

The Menangle Steam Rally in Sydney with its 2ft gauge railway was also on his list of rallies to visit.

Ray's profession was a train driver, working for NSW Trains at the Eveleigh Depot in Sydney. He was made redundant at his previous place of employment, Clark Equipment at Asquith, which was close to home, so his father insisted he get another job, and he quickly grabbed the chance. He was among the very top senior driver's at that depot with nearly 38 years' seniority. In his early career he worked on diesel locomotives but latterly only drove Interurban electric trains and Endeavour rail motors to the outer reaches of the network.

Raymond James Gardiner will be sadly missed by his very many friends, workmates, LRRSA members and his numerous overseas research contacts. He was a true gentleman, jovial and considerate and will be a great loss to the industrial railway research fraternity, his friends and his family.

Ross Mainwaring

Tour report of the Gold Coast Light Rail Tram Depot 2 December 2016

On Friday 2 December 2016, sixteen members and friends had a tour inspection of the Gold Coast Light Rail tram network and workshops, a most interesting place to visit. The tour guide gave information on the workshop and there were several questions asked by the group during the tour.

The Gold Coast Light Rail operates with a 4.00 am first tram from the Depot to Broadbeach and then eight trams running a seven minute service all day, with the last tram returning to the depot by 1.00 am. The three hour gap between services is for maintenance of the tracks and overhead.

After the visit seven members were invited by Richard Youl to view his 1:42 scale trams on his 60 mm garden tramway, running some very nice models of Sydney tram cars and water and works wagons.

On the way along Smith St. a popular road between the M1 and Southport, the extension from University Hospital to Helensvale QR Station is making progress for the next stage of the Light Rail.

Bob Gough
SEQ Convener



Tour Group members at the Gold Coast Light Rail Depot.

Photo: Bob Gough

Captains Flat Tour 29 October 2016

LRRSA members and friends travelled to Captains Flat where Lake George Mines Ltd mined a lead-zinc-copper deposit from 1939 to 1962. This was a re-run of the successful tour held in April.

After lunch in the town park at Captains Flat the group inspected the abandoned railway station and yard precinct, which has been thoughtfully provided with gravel walkways by the John Holland group whose control the line now comes under. The station's concrete name board still has the original spelling of the town – with an apostrophe 'S'. Most of the track remains in place although the last goods train departed in 1968.

Next an inspection was made of the 2ft gauge steam tramway, built in 1897, which runs north to south high up along the side of the hill to the west of town. Many wooden sleepers remain as does some timbers of the curved trestle bridge over Forsters Creek which was on the way to the copper smelter on Jerangle Hill at that end of the valley. A 0-6-0T Krauss loco worked this line for a few short years.

The tour group then walked around the western side of the hill, skirting the spectacular Keatings Collapse, to inspect the site of the mine's mill and flotation plant where there was still evidence of the 20in gauge railway which served the mine both on the surface and underground.

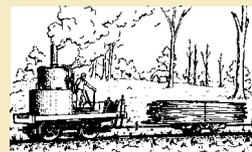
Everyone enjoyed an entertaining day of exploration and photography, the afternoon sun making for perfect light.

Ross Mainwaring

Right: Tour members stand at the 20in gauge railway points, set in concrete, outside the long gone workshop building at Lake George Mines mill site. The rail track behind the photographer proceeds a few hundred metres to other workshop facilities and the mine's adit level on the northern end of the hill.

Below: Members and friends stand beneath the station name board at Captains Flat railway station.

Photos: Ross Mainwaring



LRRSA NEWS MEETINGS

ADELAIDE: "SA Light Railway Centre at Milang"

We will discuss the opening of the SA Light Railway Centre at Milang. News of light rail matters will be welcome from any member. Intending participants would be well advised to contact Les Howard on 8278 3082 or by email lfhoward@tpg.com.au, since accommodation is limited.

Location: 1 Kindergarten Drive, Hawthorndene.

Date: Thursday 2 February 2017 at 7.30 pm

BRISBANE: "Show and tell evening"

The meeting will include a "show & tell" segment and Bob Gough will also be showing some of his collection of slides dating back to the 1960s.

Location: BCC Library, 107 Orange Grove Road, Coopers Plains.

Date: Friday 17 February 2017 at 7:30pm

MELBOURNE: "Torrumbarry Weir Tramways"

The SR&WSC made extensive use of tramways for the construction of the Torrumbarry Weir and Lock on the Murray River between 1919 and 1923. This included a 11.6 km, two-foot gauge line to bring materials from the Torrumbarry Weir Siding on the Cohuna railway. Two steam locomotives were deployed to operate the connection to the railway and also to bring sand and firewood to the works site. The tramway operations at the associated gravel site at Carisbrook will also be described. Mike McCarthy will be presenting the results of his research into this most interesting subject.

Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.

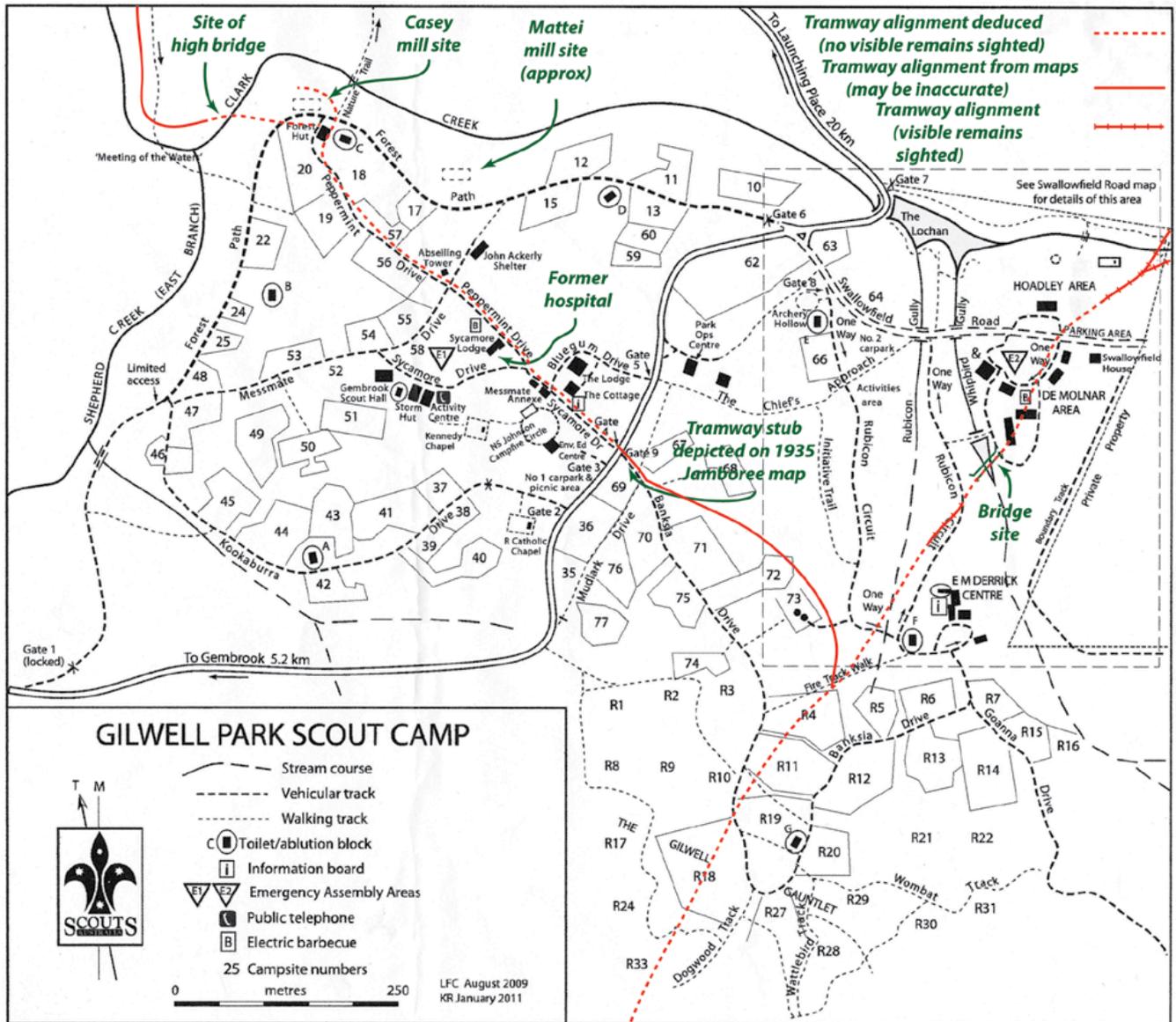
Date: Thursday 9 February 2017 at 8:00 pm

SYDNEY: "Industrial Tramways of Kangaroo Island"

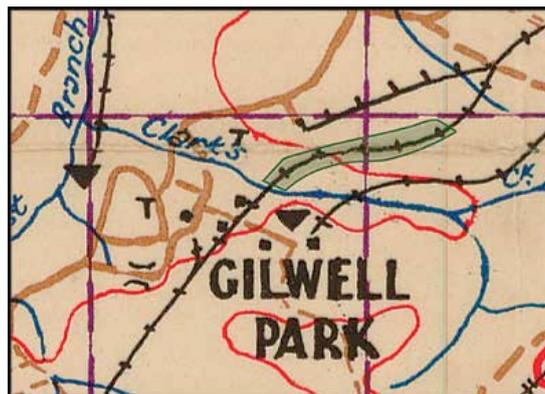
Jeff Moonie will be presenting a photographic evening encompassing the many and varied industrial tramways of Kangaroo Island, South Australia. Narrow gauge tramways served a salt works, a eucalyptus distillery, tourist line, jetty tram and an incline accessing a lighthouse. Jeff was unable to present this talk at the last meeting as advertised.

NOTE NEW LOCATION: The meetings have returned for 2017 to **Woodstock Community Centre, Church St, Burwood**. Free Council car park behind building (entry via Fitzroy St) or easy street parking nearby. Only 10 minutes easy walk from Burwood railway station.

Date: Wednesday 22 February 2017 at 7:30pm



it doing so, we have dismissed this theory. It is highly probable that there was a track of some sort along this route servicing Mattei's mill prior to the construction of the tramway. Mattei's mill sat only about 100 metres or so east of Casey's but had gone by the time Casey erected his mill. No evidence of Mattei's mill is visible today. The first piece of evidence for our conclusion is an excerpt from "The Story of Gilwell in Victoria" by WD Kennedy D.C.C. which states "One line ran through the training ground, and was still in use. Others ran from the old mill site, near the junction of Clarke's and Sheppard's Creeks, through what is now the hospital paddock to Gembrook, and another carried over a high bridge across Sheppard's Creek, ran down the valley of the Sheppard's". (The hospital was the building now shown on the map as Sycamore Lodge.) Our second piece of evidence is shown on the 1935 Jamboree map which shows the stub of a branch line heading in the direction that we consider the route to have taken. A hand drawn 1934 map from the March 1938 issue of Victorian Scout also shows a remaining section of track heading in the same direction.



We might also mention, at this point, that the high bridge (near the "meeting of the waters") was destroyed by fire in January 1932. In all of our investigations we have placed a great deal of reliance on the 1934 hand drawn map of Gilwell and the 1935 Jamboree hike map as they were drawn at a time when significant evidence, if not the actual track, was still in place. Our next area of investigation was the Training Ground and the neighbouring "Swallowfield" property which proved to have significantly more visible evidence than the first area examined.

A quick inspection by Kevin Fowler and Mike McCarthy revealed a faint contour in the extreme North-East corner of the training ground which is obviously all that is left of the original track formation. Reference to the hand drawn 1934 map showed this contour was where the main line curved to the right, entered the "Swallowfield" property and then turned to the left on the Gilwell side of the mill, crossing Clark Creek on a large trestle bridge, before heading north toward Tomahawk creek. On further site inspection by Mike McCarthy, Phil Rickard, Colin Harvey and Kevin Fowler in December 2016 it seems a more likely proposition that the main line headed in a North-East direction, from the corner of the training ground, over Clark Creek, and that the curve into Swallowfield was actually the branch line to the Russell mill. The track formation on the other side of Clark Creek is still quite evident and can be followed for quite a distance toward Tomahawk Creek. On following this depression in the other direction, we could ascertain the approximate direction that the tramway took which led us virtually straight



In the North-East corner of the training ground can be found the alignment of Russell's tramway. Highly eroded over the years it can be difficult to see in bright sunlight. This view shows the junction point of the tramways to the Tomahawk Creek mill to the left (north) and the Swallowfield mill to the right (east). It also shows the southern abutment of the high trestle bridge that once crossed Clark Creek at this point. Ground indentation suggests the possible location of a base log for a trestle. The formation has been digitally highlight in this image.

Photo: K Fowler



The alignment of the tramway to the Tomahawk Creek mill can easily be followed along the west side of the gully running north from Gilwell Park. Unfortunately, the ease of passage is largely due to it having been bulldozed at some point. Nevertheless, it remains a pleasant walk although the 1 in 14 grade can mean hard going in hot weather.

Photo: K Fowler

through the Delacombe hall, within Gilwell Park, and over the creek on the other side. A search of the Gilwell archives produced a photograph of a trestle bridge marked "bridge behind Russell Troop Hall". On inspection of the area on the other side of Whipbird Gully we could, using the photo and comparing it with the contour of the land ascertain approximately where the bridge was located. We think this was quite close to

the current site of the dam. The 1934 map also shows the approximate site of this bridge. From there the tramway was deduced to have followed the contours of the gully before heading South West towards Gembrook having been joined by the tramway from the Casey mill area somewhere along the current Banksia Drive. we can get a lot more precise than this) The formation on the other side of Clark Creek

(in "Swallowfield") runs for about 1.5 kilometres before it is interrupted by private property. Scout hiking parties used this tramway as a hiking path from Gilwell to Russell's Tomahawk Creek mill. The wooden tramways made excellent walking tracks as the space between the sleepers was packed tightly with timber to enable easier footing for the horses.

The other investigative work we undertook was the Russell sawmill on "Swallowfield ", the remains of which, are now completely gone. We know where it was, and we have deduced that a tramway left the mill and joined the main line after entering the training ground but the only remaining relics from that time are the old homestead, which has been altered greatly over time, an iron shed which is still standing, and the original dam nearby which fed the homestead and the mill.

Our investigations commencing nearly 100 years after the first track was laid necessarily involved some deduction based on probability, particularly seeing that nearly all who were around at the time are deceased. However, the great assistance of Mike McCarthy who, in researching his book some years ago, interviewed some of these people, made our task a little easier. Most of the physical evidence has long since rotted away but we can be reasonably satisfied that with what evidence we have been able to find, and some logical deduction, we have got the story pretty well correct.

Thanks to Philip Abela of "Swallowfield" who kindly let us wander over his property.

Kevin Fowler

LRRSA ONLINE DISCUSSION GROUP

Have you joined the LRRSA's email discussion group yet?

See: <http://au.groups.yahoo.com/group/LRRSA/>



Heritage & Tourist NEWS

News items should be sent to heritagetourist@lrrsa.org.au Digital photographs for possible inclusion should be sent direct to Richard Warwick at editor@lrrsa.org.au including the name of the location, the name of the photographer and the date of the photograph.

QUEENSLAND

ATHERTON-HERBERTON HISTORIC RAILWAY INC., Herberton

1067 mm gauge

The group restoring Peckett 0-4-0ST locomotive B/No.1069 (ex-Mount Morgan Mines No.4 and Mount Isa Mines No.1) has put a great deal of time and effort in removing the rust from the Peckett main frame, then undercoating and painting it, only to find out that the paint suppliers had supplied the wrong paint, as it would not set. After many months of trying to fix the problem with the local supplier, the Railway had a visit from its technical department based in Cairns and were subsequently advised that restorers were using the wrong type of paint and it would most likely fade within about 12 to 18 months. Unfortunately, they could not supply a solution either. The Railway has now been given some professional advice from a local spray painter and now the process of painstakingly removing all the paint is underway. The only way to do this is to wire brush it off back to bare metal which will take some time to complete. The main frame has been turned over so that the wire brushing can start and new rust preventative, undercoat and then final coat applied.

The eccentrics have now been machined and are ready to be fitted, and new high tensile studs have been made and are in storage ready for final fitting. New taps are being made locally to suit the washout plugs and a new mud door is being sourced from the UK. The remaining pallet of parts is due to arrive from Brisbane very shortly and this will allow restorers to see what they have and what they have not got.

The cylinders will have to go out to be machined and sleeved. The piston rings will have to be made and the piston rod machined. The new smoke box has now been manufactured. The boiler has been checked with the newly acquired electronic thickness tester and it has come up to specifications. The restoration of the 1903 timber frame carriage, BL769, is progressing

at a very good pace. The aisle side has had all the timber framing upgraded and ready for paint with a lot of new uprights being installed on the seating side of the carriage. This will allow every seat to have its own window so all passengers can enjoy the views that can be taken along the interesting landscape.

A lot of construction work has taken place at Herberton, Wongabel and Platypus Park Station, all part of the home of the Atherton Herberton Historic Railway. This has slowed railway line maintenance down because management has to move personnel around all jobs.

Workers are also looking at ways to build a cover over the Village platform in readiness for the steam train arrival. The Railway is hopeful of securing funding for this work through a tourism grant as they expect that an increase in passengers once steam operations commence. Newsletter, Issue 3, November 2016

FRIENDS OF ARCHER PARK STATION AND STEAM TRAM MUSEUM INC. Rockhampton

1067 mm gauge

The Purrey Steam Tram had its last operational day on 27 November. The coverings over the tubes and boiler will now be removed and some preparation work done in readiness for the annual boiler maintenance and inspection. If all maintenance work is completed the tram will be ready to operate again in late January 2017.

A raft of other maintenance items has been compiled for the tram and the Billard Loco tractor to be done over the shutdown period. The repacking of the tram boiler indicator lever has been successful with no water or steam leaks visible. The warning horns on the tram failed to operate recently and when inspected, it was found that the wiring to the horns and the revolving lights was faulty. The Rockhampton Regional Council fitter has replaced all wiring with a heavier duty cable and all are now working. *Tram Tracks* Volume 10, number 6, December 2016

NEW SOUTH WALES

ILLAWARRA LIGHT RAILWAY MUSEUM SOCIETY

100 Years of Kiama Locomotive 1596/1917

On Sunday 12 March 2017 the ILRMS of Albion Park will celebrate 100 years of steam locomotive 1596/1917 built by Davenport Locomotive Co., Davenport, Iowa USA. The locomotive was named *Kiama* by the ILRMS, due to it having worked in Kiama. Over the past 12 month a new saddle tank has been constructed, and other restoration works completed to celebrate the 100 years history of the locomotive.

The locomotive's history (as noted by ILRMS historian the late Ken McCarthy ILRMS historian and published in the ILRMS Museum Guide of 1999), is that the locomotive was involved with the construction of the Cordeaux Dam under the banner of PWD 65 from 1917 to 1926. It was then used by Menangle Sand Co. to haul sand from the Nepean River beds to the Menangle station yard for the construction of the Sydney Harbour Bridge.

It was purchased by Quarries Limited, Kiama and used on the Kiama tramways from 1936 to 1941 when the tramway operations at Kiama closed. After the tramway's closure the locomotive was inspected in 1943 by the Corrimall Colliery and it was found that the locomotive was not suitable for the Corrimall operations. It was then placed in the Kiama locomotive shed from 1956 on static display on the site that is now the Brighton Hotel. The locomotive was then delivered to the Parramatta Park Steam Tram Museum, and was transferred to the Goulburn Wier Museum in 1967, where it was operated in steam. The locomotive was purchased by the ILRMS in 1977 from Goulburn and placed in steam at Albion Park where it has gone through many stages of repairs. These have included a new cab constructed in 1988, a boiler rebuild in 1992, and as noted above, a new water tank constructed during 2015/2016. The event planned for 12 March will be a day of celebrations to mark the locomotive's achievements over the last 100 years.

Brad Johns, ILRMS

VICTORIA

TOTALLY FUN, Lincoln Causeway, Wodonga

457mm gauge (LRN74, 76, 113)

This location has changed its name a number of times over the years and does not seem to have been mentioned in LR or LRN for over twenty years. When first noted (LRN 74, Feb 1990) it was operating as Aussieland Adventure Park and was thought to have opened in November 1989. In January 1990 the late Ray Graf visited and found an 18-inch gauge railway around the 2 hectare property with trains hauled by No.5 Jumbuk, an 0-4-0PM. By February 1994 that venture had ceased and conversion started to a new business, Harvey's Fish Farm, which was officially opened in May 1996 by the then Deputy Prime Minister, Tim Fischer, though the train (at least) had been running since the previous December. By 2006 the business was trading as Harvey's Fish and Fun Park and in 2008 as Harvey's Fun Park. Following several years of closure, and unable to find a buyer, the business was re-opened by the Harvey family in 2012, solely as an amusement park.

The fun park re-opened as 'Totally Fun' in January 2016, closed for the winter and opened again at the start of December. A visit was made on 10 December and found the original locomotive, No.5 Jumbuk, operating trains every hour, on the hour. A charge of \$2 is levied for each trip, extra to the fun park admittance price. Jumbuk carries a DJ's [Denys Steinhauser] works plate, with a builder's date of 1988. A bogie toast-rack carriage with seating for ten, and lettered "North East Tramlines" was being hauled. No other rolling stock was seen except for a four-wheeled miniature version of a Victorian Railways' 'GY' open truck. The two-road shed doors were closed and presumably contained another carriage – advertisements show the locomotive hauling two carriages. Our driver stopped the train during each run to enable farm animals to be hand-fed; clearly they know the

sound of the locomotive's horn as they amble up whenever the train appears. The friendly driver was not exactly a mine of information – he didn't even know the railway's gauge! The circuit of track is 440 metres in length and has a rather crude 'tunnel' with a resident spider, and a bridge over the mini-golf. There are two stations – Redfin Flat, the main station and Castle View, a non-stopping place. The property is beside the Murray and the track runs to within 20m of the NSW border. An ABN search indicates that Totally Fun Pty Ltd has Harvey family connections.

Phil Rickard 12/2016

PUFFING BILLY RAILWAY, Belgrave

762 mm guage

On Sunday 9 October, due to extreme winds, the Gembrook train was cut short at Lakeside; the Lunch train did not run nor did the second shuttle to Lakeside. On the following two days, the Gembrook train was again cut short at Lakeside due to trees awaiting removal from the track and problems with flashing light signals at Cockatoo and Gembrook.

On Friday 14/10, a large transfer train ran to Gembrook in the late afternoon to place locomotives and cars there for the first of the 'Day Out With Thomas' days at the new location of Gembrook over the succeeding two days. Locomotives and cars returned on Sunday afternoon. This pattern was repeated on other such weekends.

On Thursday 27 October, the first formalised 18 car double-headed train worked the 10.30 am service from Belgrave to Menzies Creek. One loco returned to Belgrave with eight cars instead of the usual six. This is now the normal operation with two steam locomotives due

to constantly increasing passenger numbers. Previous limit was 16 vehicles.

WALHALLA GOLDFIELDS RAILWAY, Walhalla 762 mm gauge

On Sunday the 8 January 2017 WGR will be celebrating 25 years since the first volunteers started work in and around the Thomson yard and station. To mark this milestone the Railway will be celebrating with a back to WGR. All past members and volunteers have been invited to a special B-B-Q lunch in the Walhalla Goods Shed Function Room.

On Sunday the 9 October, the day following the AGM in the Goods Shed, the WGR Board was invited to another special day. The Society of Engineers held its wind up annual conference in Walhalla, with a celebratory luncheon including unveiling a specially prepared plaque commemorating the engineering significance of the Walhalla Goldfields Railway.

The faulty fuel line in the 10 class locomotive has been replaced but the main injector pump required replacement valves and springs to maintain fuel pressure to the pump. These spare parts have been received and will be fitted soon. These valves can be replaced without having to pull much other equipment off the engine. The locomotive has been test started using the newly commissioned air supply from the loco shed. Due to the higher air delivery rate, main reservoir charging time has been reduced, making the air starter motor more efficient. Although this is the only loco the Railway has that will pull all four carriages, it sits out in the weather without any cover all year and it is hoped that it will soon be stabled in one of the sheds.

Being a typical maintenance intensive English locomotive, the Fowler driving rods need to

be greased before each running day. The crew occasionally has trouble greasing two of the journals, however by moving the locomotive so the wheels move a quarter of a turn, everything returns to normal. A sand pipe was replaced and another realigned to ensure the sand is delivered to the right spot. The transmission clutch brake has had the leaking air cylinder diaphragm replaced.

The WGR Maintenance Department has been very busy preparing an indoor rail line to accommodate DH Locomotive 72, currently stored at Loy Yang. The locomotive will soon be moved to the new work shop area at Yallourn for regauging and restoration prior to introduction onto the WGR. Exacting measurements have been taken to ensure the locomotive will fit through the doorway with only three inches to spare. Rail has been collected from Platina and sleepers from Willaton Transport depot in preparation for the relocation of DH72. Temporary trolleys to mount the locomotive on the narrow gauge have been completed and transported to Yallourn. The old trolleys which were used to transport bridge beams into position when the rail line was being rebuilt, have now been modified to support DH72 while its bogies are being re-gauged. In order to get the locomotive into the required position some of the temporary rail sections need to be curved, and this has delayed the relocation somewhat. Sufficient temporary rail was required to allow the move to be carried out as simply as possible.

As yet a final vehicle specification has not been completed for the X1 Tram/Rail motors, and this will need to be finalised before work can commence. Work has however commenced to prepare the newly digitized drawings of the trams in readiness for design work for new bogie bolsters, headstocks and draft gear, engine supports and air cylinder supports. The Railway is also obtaining quotations for major components such as engines, bogies and other equipment which the Railway will definitely require; these major ticket items need to be identified to assist in the sourcing of funding for these projects. The Railway is also looking at alternative sources for bogies and other equipment. Engines for the rail motors have already been sourced.

With NKs26's engine rebuild completed, the works gang has its workhorse back. The Railway has also been lucky enough to have been allocated two rail trolleys from South Gippsland Railway following its closure. Both are in really good condition, although they will need to be converted from broad gauge to narrow gauge. The maintenance team have inspected them and determined that the conversion can be done in-house more easily now with the newly acquired lathe. Recently the Railway was able to purchase a metal working lathe for the locomotive workshop for the amazing price of \$500. The crew picked the lathe up from Mornington, once again taking advantage of the truck mounted crane. A bit of work was required fitting new bearings to the electric motor and setting up the lubricant pump and



Jumbuk, No.5, a Denys Steinhauser 0-4-0PM with train, at Redfin Flat station. Photo: Phil Rickard

splash guard, but all has been completed and workers now have a very handy new machine for the workshop.

Dogspikes and Diesel, October 2106 and November/December 2016

TASMANIA

IDA BAY RAILWAY, *Ida Bay*

610 mm gauge

This railway is currently for sale and expressions of interest are sought for this iconic tourist railway. The sale notice states that 'after twelve years of dedicated restoration and with full rail safety and tourism accreditation, the railway now needs a new vision to take it to the next level of excellence'. It is of interest to 'rail enthusiasts, business entrepreneurs and tourist entrepreneurs'. Interested parties are asked to contact Meg Thornton

megthornton22838@gmail.com or Nathan Wills nathan@idabayrailway.com.au

WEST COAST WILDERNESS RAILWAY, *Queenstown*

1067 mm gauge

West Coast Wilderness Railway locomotive number one celebrated its 120th birthday at Rhinadeena station on Thursday 24 November. Built by Dubs and Co (North British Locomotive Company), number 3369 of 1896, the locomotive worked on the Railway until 1963 when it was retired and plinthed at the West Coast Pioneers Museum in Zeehan. Number one pulled the first (1 November 1892) and last (10 August 1963) trains on the Railway. Rescued from Zeehan and restored, the locomotive resumed duties at the Railway in the early years of the twenty-first century. The locomotive received three cheers and some 'Happy Birthday Number ones' and then, in what must surely be a unique event, blew out the candles on its cake with a blast of steam from the right hand cylinder exhaust valve. This event can be viewed on the WCWR Facebook page. The locomotive then got on with the job of pulling the train.

WCWR Facebook post, November 28, 2016

A new West Coast Wilderness Railway trip called *Footplate Experience* is set to excite enthusiasts far and wide. Passengers can step into the cramped cab and light the fire at the beginning of the trip at 6.30 am. They will help drive the locomotive on the four-hour return rack and gorge trip into the untamed West Coast Wilderness, under the watchful eye of highly experienced train drivers. The trip includes a safety induction and a loan of overalls and cap. Passenger drivers get their own flask, mug and packed lunch and take part in a daily safety briefing before they help move the locomotive to Queenstown Station and have their photograph taken with the crew. Back at Queenstown they will have the opportunity to debrief with the crew. The journey takes in the Rinadeena Saddle and King River Gorge.

FRONZ Journal November 2016 reprinted from Railpage

SOUTH AUSTRALIA

SOUTH AUSTRALIAN LIGHT RAILWAY CENTRE, *Milang*

1610 mm and 610 mm gauges

There used to be around seven hundred light railways in South Australia before road transport became dominant. Now only eight remain, all of them amusement railways except for the five kilometre electric underground line at Olympic Dam. Sixteen years ago, the Milang Railway Museum purchased a kilometre of light railway track, a BEV battery locomotive, four wagons and some points. These were all two foot gauge and came from the Smithfield magazine railway which had just closed. During the Second World War, in 1942, an extensive explosives magazine had been built north of Adelaide to store the munitions manufactured nearby. The railway was 45 km long and some of the 85 buildings it served still exist today. After purchase, the track and rolling stock were all placed in storage in Milang for many years. Two years ago the Milang Railway Museum volunteers decided that it was time for the Smithfield rolling stock to begin a second life and to play their part in celebrating the history of light railways. A new building was therefore erected at Milang station for the purpose of telling the story.

On 14 December 2016 a crowd of sixty gathered for the opening of the new display. Museum secretary, Peter Lucas, explained what it was all about and Museum president, Allan McInnes, thanked the donors and volunteers. Les Howard, from the Light Railway Research Society of Australia, told the gathering what light railways are and the role they played. He was followed by the guest of honour, Bob Sampson OAM, who described his contacts with the Milang Railway Museum over the past thirty years.

The Light Railway Centre was then officially opened by Bob Sampson driving the Smithfield munitions train out of the Centre through a ribbon. The Milang Railway Museum is open each Saturday and Sunday afternoon, from noon to 4pm, and visitors will now be able to inspect the Light Railway Centre at those times.

WESTERN AUSTRALIA

BENNETT BROOK RAILWAY, *Whiteman Park*

610 mm gauge

The Railway has purchased three locomotives, currently located in Queensland. They are: four ton bow-framed FC Hibberd (Planet), ex-Plane Creek Sugar Mill; four and a half ton Ruston and Hornsby, ex-Plane Creek Sugar Mill and four ton bow-framed Simplex, ex-Gooni Sugar Mill, with Mourilyan Sugar Mill coupler modification on one end. They are all ex Queensland sugar mills and are currently located at Brisbane's Ipswich railway workshops.

In November the section of track from the south distant signal on the Mussel Pool line for about 100 metres south was flood ballasted. This section includes some of the roughest riding sections of track on the Mussel Pool branch. This ballasting was completed in the areas that require packing the most, so now it is just a matter of lifting and packing the track to remove the rough spots.

It's been a busy last couple of months with the end of a longer steam season and the 0-4-2 Perry having a relatively high availability and running both days on most weekends. This is the backup weekend locomotive. *Atlantic Planet* is running the vast majority of weekend services with a stripped bolt in its vacuum pump the only failure. It has been fitted with composite brake shoes.

NG 15 123's cab has returned from the Blacksmith's shop after having the front sheet straightened. Workers have been working with the boiler inspector to make progress on the boiler and the coded welding repairs needed to enable installing the new tubes. This is the first time a boiler has been completely re-tubed at the Railway and this process will help with the other four locomotives that require re-tubing over the coming years.

Work has been done on cleaning and re-painting the motion on the 0-6-2 Perry, ready to start re-fitting and re-assembly to make this a rolling chassis ready for the eventual refitting of the boiler.

December Newsletter 2016



Bob Sampson driving the Smithfield munitions train out of the Milang Light Rail Centre. Passengers were Adrian Pederick, the State Member of Parliament for Hammond and Pauline Cockrill from History SA. Photo: Andrew Emmett

New from LRRSA Sales ...

Engaging the Giants

A history of sawmills and tramways of Tasmania's Southern Forests

By Scott Clennett — Published by the LRRSA

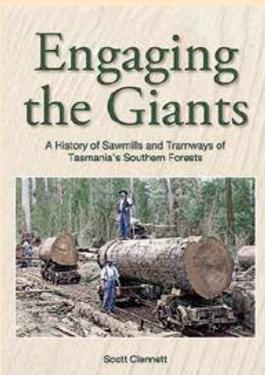
Hard cover, 240 pages, A4 size, 170 photographs, 21 maps, bibliography, references, and index.

Describes a complex series of timber tramways which operated in southern Tasmania during the period 1850 to 1974. It covers the area from Franklin (45 km south of Hobart) to Cockle Creek - the most southerly settlement in Tasmania, and includes Bruny Island. Details of the ships and barges which carried the products of the sawmills are given, together with an insight into the living conditions and the innovative methods that were used to solve many problems. Gauges of the timber tramways varied from 2 ft 6 in to 6 ft, but the most common gauges were 3 ft 6 in and 4 ft 6 in.

Over a dozen steam locomotives were used, including two Shays, and many of ingenious local manufacture. Three Hobart engineering firms supplied steam and internal-combustion locomotives (of unusual designs) to many of the sawmills.

The maps, prepared by Mike McCarthy, show the tramways, mills, roads, waterways, and contours.

Price \$60.00 (\$45 to LRRSA members) **plus postage.** Weight 1420 gm



Simsville and the Jarrah Mill

Myall River State Forest, New South Wales

By Ian McNeil

Published by the LRRSA

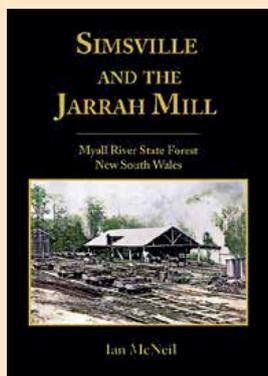
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The history of a 3ft 6in gauge tramway and sawmilling operations at the village of Simsville, near Stroud. The tramway used three Climax geared locomotives.

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The McIvor Timber & Firewood Company

Tooborac, Victoria

By Frank Stamford

Published by the LRRSA

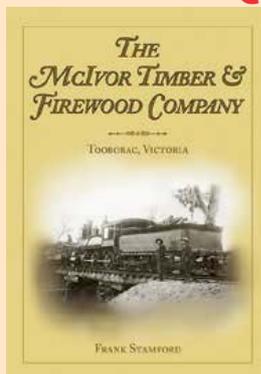
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Application for membership of Light Railway Research Society of Australia Inc. P.O. Box 21, Surrey Hills Vic 3127

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desire to become a member of the Light Railway Research Society of Australia Inc. In the event of my admission as a member, I agree to be bound by the rules of the Society for the time being in force. I enclose cheque/money order for \$48.00, or please charge my Visa/Mastercard No.

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