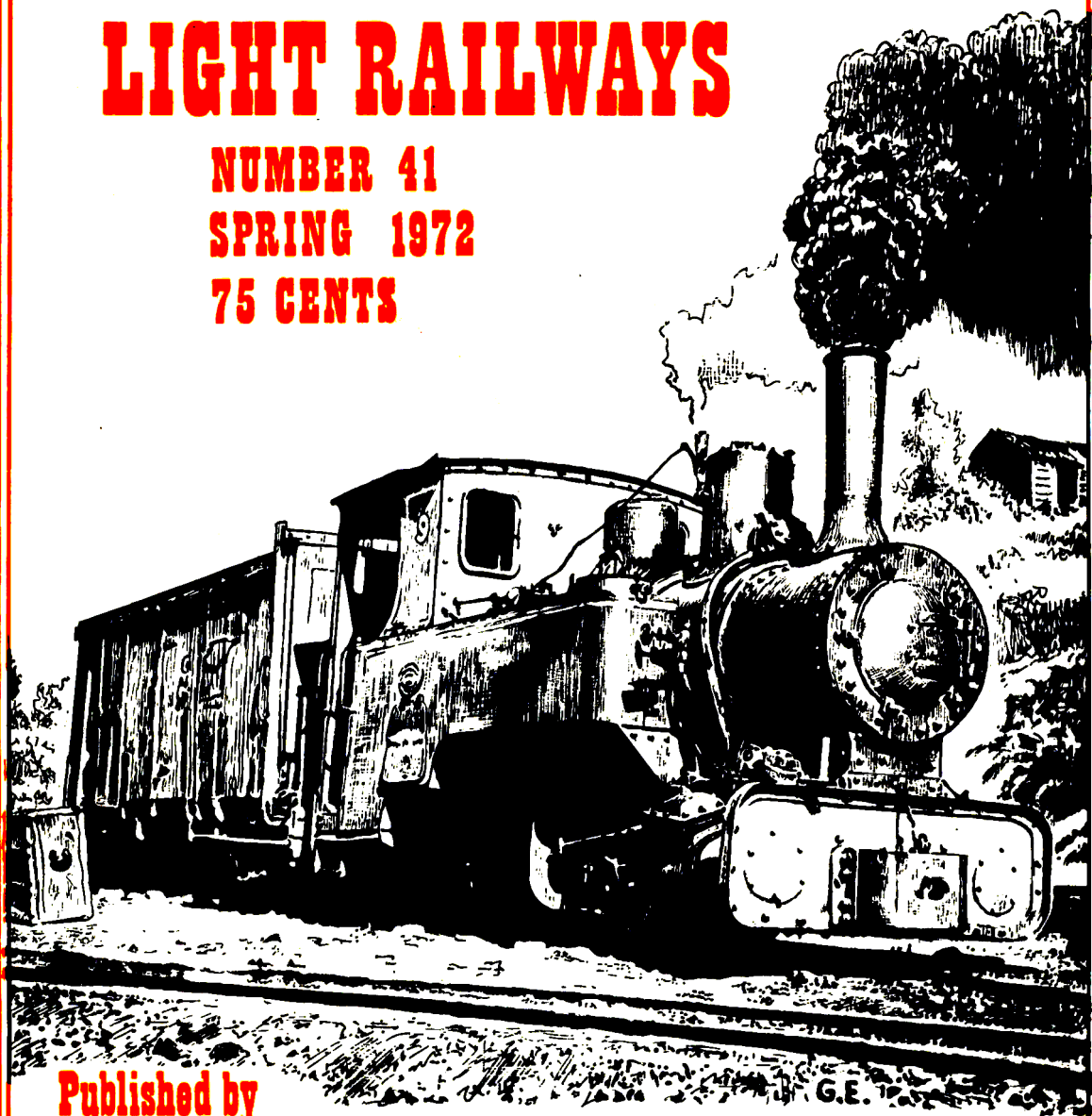


LIGHT RAILWAYS

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SPRING 1972
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THE LIGHT RAILWAY RESEARCH SOCIETY OF AUSTRALIA

Light Railways

No. 41

VOL. XI

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1972



From your editor

Earlier this year a popular Australian railway magazine ceased publication. It had apparently become well established, with rising circulation, good quality production and increasingly interesting articles. Having struggled through difficult times, its sudden cessation probably came as a surprise to most readers.

The production of small circulation magazines is a constant battle against rising costs, and the fate of "Green over Red" could easily befall other railway enthusiast magazines - including this one. We thought that our financial problems had been overcome, but just recently "Light Railways" had to face substantially increased printing costs. The selling price of "Light Railways" is already too high, so there is no possibility of increasing the subscription rate. On the other hand economies would entail a drastic reduction in quality, and nobody would pay 75¢ for a poorly produced publication. We must either increase volume of circulation, or increase our income. The latter course is the easiest in the short term - with members' help we can produce a number of special publications (like our very popular McIvor booklet) which will improve our financial situation. These plans would require participation by more members in the actual preparation for publication of material we have on hand. We must find an additional \$200 of income during the year.

These problems have led to a great deal of soul searching recently. The possibility of some form of amalgamation with some other organization has even been seriously discussed. Ironically we have had no serious shortage of articles for publication, which would indicate an increasing interest in light railway research. We now have to find the best way to encourage this despite rising costs.

Photographs for publication in Light Railways

Frequently I receive "super size prints" from contributors for publication in LR. These prints very rarely are suitable for publication, due to a low contrast range. Our printer goes to a great deal of trouble to ensure high quality photographic reproduction, but a poor print will only produce a second-rate result. The average cheap mass-produced print simply won't do justice to the photographer's work. If you are unable to supply a high-quality print we would be happy to work from your negatives, which would, of course be well looked after.

OUR COVER

In September 1959 Graham Evans visited Farrell Siding, Tasmania, expecting to see the Tullah Tramway's 0-4-OT "Wee Georgie Wood". Instead he found ex-Mount Lyell Mining & Railway Co.'s Krauss 0-4-OT No. 9 (B/No. 5988 of 1908) stoking up for the run to Tullah. This 2-ft. gauge locomotive was sold by the MLM & RC to the Australian Commonwealth Carbide Company in 1948, and they sold it the following year to the Mount Farrell Mining Co. for use on the Tullah tramway. It has since been donated to the Van Diemen Light Railway Society for preservation.

TO OUR READERS...

Whilst every effort is made to ensure the accuracy of articles published in "Light Railways", errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the Editor, and so help us to record the full history of Australia's light railways.

Articles and News Notes & Comments items are always welcome.

Historical references to sums of money in "Light Railways" are in Australian pounds (£). One pound equalled two dollars on changeover to decimal currency in 1966.

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MEETINGS - Second Thursday every second month at 8-00pm, room 11, Victorian Railways Institute, Flinders Street Station building, Melbourne. Next meetings 10th. August 1972, 12th. October 1972, 14th. December 1972, 8th. February 1973. Visitors welcome.

BACK NUMBERS of Light Railways - Nos. 13, 14 and 15 @ 50¢ for the three, including postage. Nos. 31, 32, 33, 36, 37, 38, 39 and 40 @ 70¢ each, including postage. All other issues are out of print. Available from - Stephen Martin, LRRSA Sales Officer, 7 Talaskia Road, Upper Ferntree Gully, Vic., 3156. Please make remittances payable to the LRRSA.

OTHER PUBLICATIONS available from the Sales Officer, include scale drawings of the Powelltown Shay locomotive, and a Baldwin 3-ft. 6-in. gauge 0-4-OST locomotive of the type used in industrial applications throughout Australia. These are 50¢ each or 90¢ the two, including postage in a mailing tube. Green over Red. Australia's modern railway magazine, March/April 1972; Jan./Feb. 1972; Nov./Dec. 1971; Sept./Oct. 1971 - all 40¢ each. Earlier back numbers from Nov./Dec. 1969 are available @ 30¢ each. Postage - 1 or 2 copies - 7¢, 3 to 5 - 13¢, 6 or 7 - 20¢, 8 to 11 copies - 28¢. Electric Traction, containing articles on electrified mining tramways in Victoria and Tasmania - Aug. 1971, Sept. 1971, Dec. 1971 @ 45¢ each, plus postage @ 7¢ on 1, 2 or 3 copies - 7¢. Industrial Railway Record (UK) @ 65¢ each, plus postage @ 12¢.

Locomotives of the Marrawah Tramway

By - H. J. W. Stokes



The Marrawah Tramway and its associated branches are still one of the biggest problems in Tasmanian railway history. They were the subject of a series of articles published in the A.R.H.S. Bulletins during 1951, but it has since become apparent that some of the information therein is open to question. The following notes come from the files of the Public Works Department, which are now held in the State Library Archives, Hobart. They cover the period from May 1914 to August 1929, during which time the tramway was owned and worked by the P.W.D. They are intended to be read as a supplement to the Bulletin articles and also to the LRRSA list of locomotives of the Tasmanian private railways (not yet published).

Spider

This was an 0-4-OWT of uncertain origin. It was the tramway's only engine when the PWD took over in 1914. The tramway manager (Mr. Ford) always referred to it as a Baldwin and in 1923 said that its boiler was 49 years old. "Spider" had been built for a gauge broader than 3-ft. 6-in. (presumably 4-ft. 8½-in.) and when she was regauged the width of the firebox did not allow the frames to be brought in sufficiently to make room for wheel flanges of normal width, so the latter were only ¼-in. wide. Thus the theory that "Spider" was an ex-standard gauge steam tram motor is confirmed, but when she was built and whether by Phoenix or Baldwin remains in doubt.

Despite a rather home-made appearance following much rebuilding, "Spider" was considered the best engine on the tramway until the arrival of "Big Ben" in 1920 and Mr. Ford always referred to her as "our No.1 engine" apparently meaning it in the qualitative as well as the numerical sense. In January 1917 "Spider" was taken by road from Smithton to Myalla and thence railed to the TGR workshops at Launceston for a general overhaul, in the course of which the original bar frames (which were cracked) were replaced by plate frames. "Spider" returned to Smithton later in 1917. In April 1923 the Emu Bay Railway Company agreed to replace her original boiler and this job seems to have been carried out about November of the same year. Together with the tramway and the other three engines, "Spider" was handed over to the TGR in September 1929. She survived to be the last of the four at Smithton and according to TGR records was sold to Britton Bros. on 4th. April 1949, ending her days at Britton's Mill on the Marrawah road.

Six-wheeler

This Hudswell Clarke 0-6-OST, (B/No.390 of 1891) was one of a class of four built for a railway contractor named E. H. V. Keane in Western Australia. According to PWD records it was owned by the contractors Henrickson & Knutson before being sold to the Smithton sawmiller J. S. Lee. The PWD began hiring "Six

Photographs opposite

Top - "Big Ben", a Baldwin 0-6-OST, B/No.52512 of 1919, was bought new for the Marrawah Tramway, becoming their No.3.

Bottom - "Spider", a former standard-gauge steam tram motor, as rebuilt and used on the Marrawah 3-ft.6-in. gauge tramway.

Both photographs - Winter's Studio, Burnie.



"Wheeler" from Mr. Lee immediately after they purchased the Marrawah Tramway, and on 6th. November 1915 they purchased the engine for £450. During 1916 "Six Wheeler" was given a general overhaul by the TGR at Launceston and by January 1917 it was back at Smithton, and according to Mr. Ford, "running very nicely now". Nevertheless Mr. Lee seems to have got the best of the deal, as even after its £350 TGR overhaul the engine was only valued at £400.

"Six Wheeler" was written off the TGR locomotive roster during the 1938-39 financial year. According to the ARHS Bulletin articles (November 1951, p.147), however, she was not sold until 1947, when she went to F. Jaeger on the Salmon River branch. She was rebuilt with a diesel engine and was eventually abandoned at the point at which the branch crossed the Marrawah road. I last saw her in January 1970, when she was still reasonably intact. (Steps are being taken to preserve this locomotive - see News, Notes & Comments, next issue).

Fantail

This was a Baldwin 0-4-OST. I am not qualified to enter the very involved controversy over the builder's numbers and exact history of "Fantail" and her sisters. Suffice it here to say that the PWD bought the engine about June 1915 from Sanderson of Forrest (Victoria) through the agency of Messrs. Cameron & Sutherland. The Department again seems to have got the worst of the deal. The agents assured Mr. Ford that the engine had not been in actual use for anything like its full life but in fact it seems to have arrived at Smithton in poor condition, and by March 1918 the tubes were so bad that it could be used only for shunting. The TGR refused to overhaul it and in August 1918 Mr. Ford received permission to offer it for sale. Not surprisingly no buyer could be found and for some time "Fantail" seems to have been regarded as a write-off. In August 1920 Mr. Ford reported that he had taken the engine to pieces and was considering either cannibalising it for parts or rebuilding it with a boiler he hoped to purchase from Lee. Nothing came of the latter proposal, but an acute shortage of motive power on the tramway forced the PWD to send "Fantail" to Salisbury's Foundry in Launceston during 1921, for complete overhaul and reboiling. Thereafter she was again an active member of the fleet. She was eventually written off by the TGR during the 1946-47 financial year and, like "Six-wheeler", was sold to become an internal-combustion loco on the Salmon River line. Her remains were abandoned at the old sawmill just south of the Marrawah road crossing, and when I inspected them in 1966 the only identifying marks were the letters 10C25 stamped (to the best of my recollection) on one of the wheel centres.

Big Ben

Although Mr. Ford considered he had had "wonderful luck" with "Spider" and "Six-wheeler" he was probably wise to buy this new and relatively large 0-6-OST of Baldwin class 6-12-D, B/No.52512 of 1919. Mr. Lee had complained of the tramway's inability to move all the timber he wished to consign, while the TGR had asked the PWD to work their new Smithton - Irishtown branch, traffic on which did not justify the allocation of a TGR engine and crew to Smithton. "Big Ben" was shipped from New York to Hobart about January 1920 and was certainly in service by the end of that year. The engine was delivered with the characteristic circular Baldwin plate on the smokebox door, incorporating a large numeral 3. Presumably "Spider" was regarded as No.1 and "Six-wheeler" as No.2, with "Fantail" omitted because she was out of service.

Alone among the Marrawah engines "Big Ben" did not end her days in the far north-west. In 1948 she was overhauled at Launceston and sent to work goods trains on the Parattah - Oatlands branch during the last few months of its existence. The branch was too light for anything bigger than a 2-6-0 so that to

provide an engine for it a 2-6-0 had either to be stabled at Parratah (which resulted in the under-employment of engines much needed on other branches) or worked through from Hobart on a main line goods (which with the very steep grades south of Parattah was operationally undesirable). After the branch closed "Big Ben" retired to Launceston, being sold for scrap in October 1951.

TGR engine B+1

Originally Tasmanian Main Line Railway No.15, this 4-4-0 (Hunslet B/No. 325 of 1884) was taken over by the TGR in October 1890 and numbered B+1. During 1921 and 1922 it was hired to the PWD for construction work on the Myalla-Wiltshire line, which was being built to link the isolated Stanley - Trowutta - Smithton lines to the rest of the TGR system. When the link was completed B+1 was sent to Smithton to work the short branch to Irishtown Junction under an agreement whereby the PWD supplied a crew and fuel for a charge of £2 per day. In January 1924 Mr. Ford tried to end the arrangement because the engine burned too much coal, but he seems to have soon dropped the attempt in favour of other economies as the following month the TGR complained that he had an unqualified boy firing it. B+1 was too heavy for the tramway itself (which still had sections of 27-lb. rail), although it may have been the TGR engine which the PWD attempted unsuccessfully to use for ballasting on the Marrawah line some time during the 1920's. It was last recorded at Smithton in January 1927, when the station master reported that within a few weeks it would be quite unable to cope with the traffic.

J. S. Lee's engines

Apart from the hire and subsequent purchase of "Six-wheeler", the PWD made considerable use of Lee's engines, although relations between the two managements were not always particularly cordial.

In August 1914 Lee offered to sell the PWD both "Six-wheeler" and also what was described as a "wooden tram" locomotive, for which he wanted £250. The offer was rejected.

In March 1918 Lee apparently had two engines. One of these was still the "wooden tram" loco, which had been "run to the last" on Lee's Trowutta tramway and had been under repair since November 1917. The other engine had been hired to the PWD "some time ago" and while on hire had suffered a cracked tube plate. At the time of the report Lee had a new tube plate for it, but the engine was still dismantled and a lot of other work needed to be done on it.

Further news of this second engine comes in a report from Mr. Ford dated 20th. December 1920. Apparently it used to do all Lee's work until it was hired to the PWD "some years ago" and was damaged as mentioned above. According to Mr. Ford a new boiler had been purchased for it but never fitted (presumably the one he considered buying for "Fantail") and the engine was still out of service. Some months earlier in 1920 he had told Mr. Lee that the PWD would be unable to handle all the traffic offering and had in consequence lent him a fitter to repair and re-assemble his own engine. But Lee had used the fitter on other jobs and the engine was still in pieces. Between them, however, they must have eventually got one of Lee's engines back on the road because in April 1923 Mr. Ford reported that he had "an old engine of Lee's doing the Pelican Point jetty work" while in the 1923-24 financial year the PWD paid Lee £451 for locomotive hire.

THE McIVOR 5-ft.3-in. gauge TRAMWAY - HISTORICAL NOTES & MAPS

The LRRSA now has available a new publication consisting of four pages of off-set printed maps at 2-in./mile scale, and 11 pages of duplicated typescript relating to this Victorian timber tramway which used VR rolling stock. Page size is 11½ x 8½-in., the price being 60c incl. postage. Available from - Sales Department LRRSA, 7 Talaskia Road, Upper Ferntree Gully 3156.

Early Locomotives of Jarrahdale

By - J. L. Buckland.

A 3-ft. 6 in. tramway - originally wooden railed - was built from Jarrahdale to Rickingham Bay in 1870, being one of the first applications of rail transport in Western Australia. The first locomotive - "Governor Weld" arrived in December 1871. "Pioneer" came a few years later, but "Governor Weld" mysteriously disappeared.



I ought to have my head examined in further reference to my previous letter re Beyer Peacock B/No.2158 of 1882 "Samson" (See LR 33, p.27-28). As Mr. Geoff Higham has very correctly pointed out to me, B.P. 2158 was of course, one of a pair of identical 2-4-0T's of typical Beyer Peacock design, identified as "Samson" and "Samson No.2" which came into the possession of Millar's Timber & Trading Company, on the acquisition by that Company of Jarrahdale Jarrah Forests & Railway Co.. Both Samsons were fitted with quite large, yet shapely diamond spark arrestors, and one (No.1) finally ended its days on one of Millar's timber concessions in the Philippines and almost certainly was destroyed or scrapped during the Japanese occupation.

Mention of Jarrahdale recalls to mind that in the 1890's the two Samsons; and another named "Pioneer" of strange appearance and uncertain ancestry, worked there. The latter, as can be seen from the photograph, is an obvious rebuild as a 4-4-0T which one might suggest possibly was originally of 0-6-0T type! If so, such a machine would not have taken too kindly to the track and curvature of timber lines, however well constructed. However, there is an air of deep mystery surrounding "Pioneer", which according to the Western Australian Boiler Inspection records was allegedly built by Fulton's Foundry of Melbourne, in 1874. Early newspaper reports suggest that this long-vanished firm did indeed build a locomotive of some sort, but I am inclined to doubt that this was so, because so far as can be discovered no other locomotive emanated from this source, although Fulton's Foundry nameplates appear on cast iron lamp standards adorning the exterior of the South Australian Parliament House in Adelaide, and on at least one iron bridge in the western district of Victoria.

Bruce Macdonald, of Goulburn NSW, suggests that "Pioneer" appears to have been a rebuild of a former tramway motor, and certainly the driving wheels appear to belong to a very much shorter boiler!

May I, at this stage, advance a theory (and emphasise that it is only a theory, unsubstantiated by other than wishful thinking at this stage) that "Pioneer" might be the mysterious pioneer product of the Phoenix Foundry at Ballarat (B/No.1 of 1872) which was built to a similar, though larger, design to the famous Ballarat for the same Western Australian timber firm. This was of 0-6-0T type with outside cylinders and rejoiced in the name "Governor Weld" on its arrival in Western Australia, which is chronicled, but thereafter all trace of a locomotive of this name vanished! Nor is there any record in the Boiler Inspection Department of any such, although these records do not extend back that far, on which more anon.

Looking closely at the picture of "Pioneer" one can see quite unmistakable likenesses at the front end to the early Ballarat built engines (including "Ballarat" itself, and the two large Davis' Patent pseudo-Cramptons built for Southland, New Zealand). The false frame surrounding "Pioneer's" superstructure

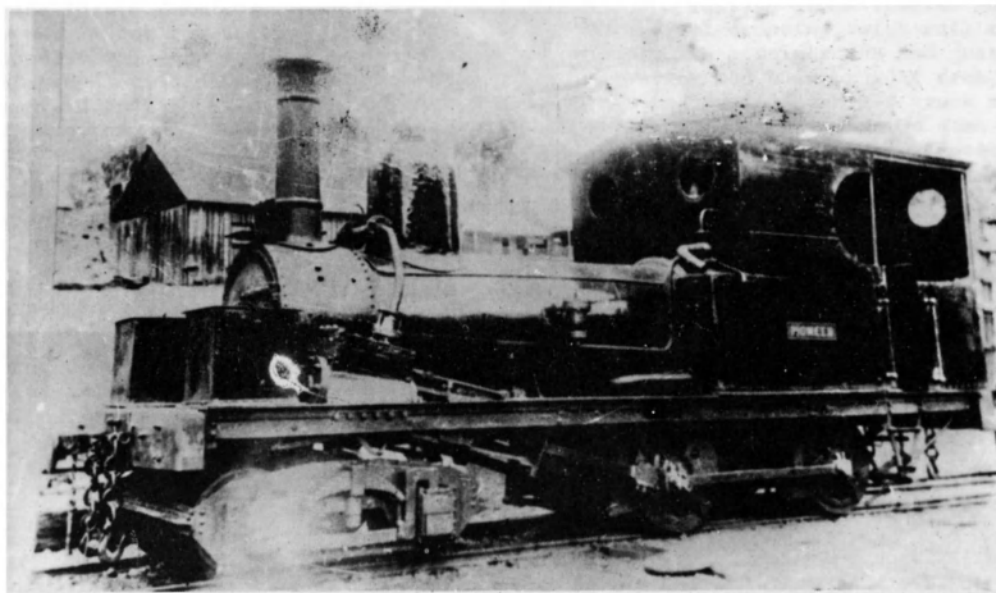
and the four-wheel leading bogie are obviously subsequent additions to the original and suggest to me that the leading coupled wheels and frame forward of the main drivers were excised, and possibly the cylinders altered and steeply inclined to drive what became the leading drivers (which is also reminiscent of "Ballaarat"). It would seem almost certain that the boiler is not the original - being far too long for the probable wheelbase of the original machine. This lends support to my argument that the boiler is a replacement and that this might well have been built by Fulton's, giving rise to the allegation that they built the locomotive as per the Boiler Inspection card entry, which I suggest should be 1894 (or even 1904), not 1874.

Somewhere I have a note indicating that "Pioneer" was rebuilt at the railway workshops, Fremantle, c.1904 (and bore plates to that effect) which Mr. Higham, or some other Western Australian bush locomotive authority may be able to confirm, if not enlarge upon. If "Pioneer" can be identified positively as having been originally the elusive "Governor Weld" I will be more than satisfied.

On further consideration of the ancestry of this quite peculiar locomotive, which appears to combine both professional design with amateur adaptation, a further theory occurred to me, which could possibly explain the transformation of "Governor Weld" (which vanished into thin air) and the appearance of "Pioneer" two years or so later, though whether it can be proved is another matter!

If we suppose that Governor Weld - an 0-6-0T with outside cylinders, proved too long in the wheelbase and too rigid for the Jarrahdale - Rockingham track, and was soon set aside as unsuitable, two things may have happened to it -

- (1) It was scrapped - or the boiler used for stationary engine purposes.



"Pioneer" as rebuilt circa 1904, Canning Jarrah Timber & Railway Co., Western Australia. Photo date circa 1914.

Photo - J. L. Buckland Collection.

(2) It was returned to Victoria for rebuilding, or modifications, say by mid-1873. By this time, Phoenix Foundry Company, at Ballarat, was in the throes of building its first government engines (ten Q class 0-6-0's for the north-east line) and they might well have sub-contracted the job to Fulton's Foundry in Melbourne.

It is a long shot, but it would explain how Fulton's became involved and assumed to have been the locomotive's builders, when in fact all they did was to rebuild it, and disguise its former identity under the new name "Pioneer"!

This would have taken possibly six months or longer and by the time the machine was redesigned, rebuilt and shipped back to Western Australia, it would be well into 1874.



Reminiscences of a fireman

ISIS CENTRAL MILL

By - G. H. Verhoeven



The author worked as a fireman on the 2-ft. gauge sugar tramways of the Isis Central Mill during the final years of steam operation. In this series of articles he presents a very interesting account of how the tramways operated between 1959 and 1961.

(The first parts of this article were published in LR 37 and LR 40)

THE 1961 SEASON

By 1961 No.9 had gone, No.8 was cut up, No.5 was very occasionally used to scorch grass, No.6 was finished and stood forlorn at Huxley. Only No.4 was still going strong at the weighbridge. No.10 was being used on day work only. We worked from 8-00am to 12-00noon and from 1-00pm to 5-00pm. We mainly assisted other engines in their runs, or otherwise did a run to Huxley or occasionally to Varso's in the morning, and a run to Formosa in the afternoon. In assisting other engines we travelled over lines and branches I had never worked before, but my driver knew them.

One day when doing a job for one of the Huxley diesels, we had to lift something like fifteen fulls from Parrick's line, and bring them to Huxley to be formed into a rake to go to the mill. This line has a falling grade towards Huxley and on our way back, rounding a bend prior to a level crossing, with rail all slippery from wet grass and leaves, we were confronted by a farmer who had just finished placing a loaded truck on the line. This truck had been brought from the field on the back of a road truck. This farmer had just driven his truck off the line, and had returned to tighten the chain holding the cane, when we came at a fair speed around the curve, thinking the line was clear. The brakes were to no avail, we kept sliding, pushed by our load.

We bumped into the truck, but not severely, and had it been an ordinary cane truck I think it would have been all right. But it was an "iron" truck, which jumped off the line. With a "wallaby" jack we carried for the purpose, we had to lift the truck back on to the line. One end was lifted at a time, and was allowed to fall back towards the line, the final drop being on to the line itself.

Derailment and runaways

Once, after lunch, the traffic officer told us to quickly take twenty empties to Formosa. And to save turning the engine, he told us that D2 could pull them out of the empty yard and we could go through "Foma Street" and up the deviation, thus saving time. This was normally not done, but the officer had ascertained that nothing was coming our way.

We went off in fine style, twenty empties was no load. A few hundred yards beyond the full yard ("Foma Street") there was a set of points leading into a field. The tender passed these points but the engine became derailed. Suddenly

Photograph opposite -

Isis Central Mill 2-ft. gauge 0-4-2 Sharp Stewart locos Nos.9 (left) and 10 (right) (B/Nos.4619 of 1900 and 4432 of 1898 respectively), 18th. August 1958.

Photo - J. W. Knowles.

we felt a jerk and the engine started to dance. Jim, the driver, had the presence of mind to shut off steam immediately, and I baled out smartly with a mighty leap. As I turned around and looked back I saw the rake parting. I grabbed some sprags and ran back, and managed to push one in the wheels, and stood back thinking I had saved the day until I saw the last two trucks still rolling. The sudden stop had undone a few hooks. I ran after them, but tripped and by the time I caught up with them they had increased speed and I could not get a sprag in. They went faster and faster towards "Foma Street", with me singing out to attract attention, as they were about to go over the road crossing. The points cleaner told me later that he heard the clicking sound on the track, and halted the road traffic. Luckily there was nothing on the line and the trucks came to a stand near the coal stage.

The traffic officer then sent out the loco foreman with his rescue truck. I returned to the loco, and Jim and I looked for the cause of the derailment. It transpired then that there was not much weight on the pony truck, and it had climbed the blade of the point, I think through centrifugal force, as the point lies in a curve. The wheel ran along the top of the blade until it came to the frog, and then moved out and went in the direction of the siding, jerking the engine off the line.

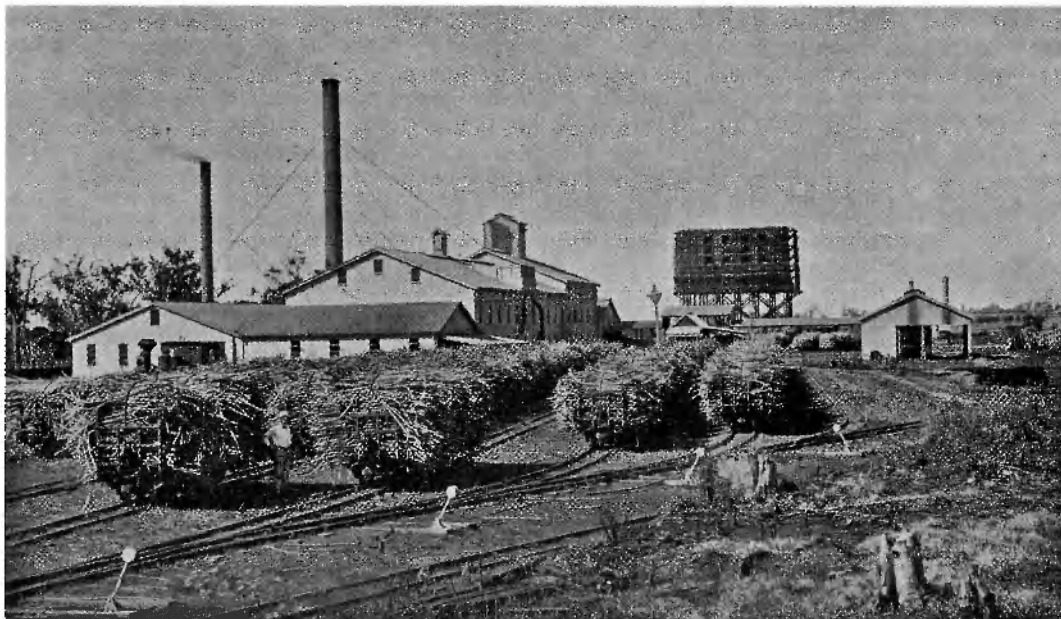
The loco foreman had his truck for occasions just like this. It was loaded with a couple of hydraulic jacks, and baulks of timber and strips of steel of all sizes. First the pony truck was jacked up as high as possible. The hole in the footplate which we used to hose out the ash-pan was then uncovered, and a bar was laid across it. A chain was then slung around this bar and the pony truck axle, thus keeping the pony truck wheels off the ground when the jack was removed. The loco was then jacked up at each end and placed on strips of steel on top of baulks of timber, keeping it sufficiently high to enable the flanges to clear the rail. With jacks the loco was then slid sideways until it was back over the line, and was then lowered onto the rails. It is understandable that mills prefer locomotives without pony trucks, as it saves jacking them up separately, and all axles are available for power.

The weighbridge shunt

An experienced crew (driver, fireman and clerk) could shift quite a lot of cane. At that time they worked as follows. The clerk would decide, say, to haul out of line six. He would get the tickets for that line, and take those for the first 18 trucks. The locomotive would go into the yard, couple up to 18, and a sprag would be put in the rest on line six. They took 18 because that was all that would fit between the level crossing and the highway.

After putting the boiler and fire in good order, the fireman stood at the window of the weighbridge and called out the numbers of each truck. The clerk had a push-button that worked a white light, no light meant "STOP", a steady white light meant "KEEP ON PUSHING", and the light going on and off meant "REVERSE". This should be visualized at night, the driver huddled in his overcoat because of the spray from the nearby cooling plant, the throttle just open, as he watched the light. While the fireman called the truck numbers, the clerk watched the weighbridge dial and noted the weight with one hand, while pushing the button with the other. Sometimes the rake moved too fast, or the weighing had to stop while the fireman put in a stake for sampling the cane. The driver worked with the reversing lever only, so that the engine "leaned into" the pressure on the piston, and smoothly went back the other way, pulling back the rake until the right truck was on the bridge. When the weighing was finished, the trucks moved on the grade towards the tippler.

Weighing went on 24 hours a day. In those days this spot was one of the



The former CSR sugar mill at Huxley, which was closed in 1932, the tramways serving it being taken over by the Isis Central Mill. The loco shed is the same as that illustrated in LR 40, p.9. Workings at Huxley in the 1959-60 era were described in LR 40, pages 7-10.

Photo - G. Bond Collection.

busiest in the mill yard, as there was a virtual bottle-neck going across the road. No.4 was constantly going to and from the full yard, or sometimes pulling from lines 8 or 9 in front of the traffic office - which was, incidentally, a heavy pull too - across the road and back into the weighbridge.

Then there was the Bl3 (3-ft.6-in. gauge 4-6-0) which hauled "Jap" wagons loaded with sugar for the sugar sheds along the Adies line, which had to storm the grade after the level crossing. Rakes of fulls from the direction of Cordalba Hill had to keep moving here too, to get into the full yard. There was also D2 with empties for, or fulls from, the Adies line, which had to pass this crossing. Not to speak of the light engines coming from the full yard (called "Roma Street" for some reason) that had to go into the loco shed lines. Yes, this was a busy spot indeed. An old-timer was employed full time around here to keep the points oiled and clear of sticks of cane and stones.

A few times in an emergency a diesel was put on weighing, but it always took them too long to reverse. They had to come to a full stop, reverse on air slowly, before they could move again.

Working at the mill tippler

In 1961 I sustained an injury which prevented me from working on the locomotives, so I worked at the tippler. As the weighed trucks arrived at the tippler, a man was employed to undo the couplings, and as they came near the tippler he spaced the trucks out and released the ratchet pawl to ease the chain

holding the cane. He then worked a capstan which brought the trucks forward. This has since been replaced by a mechanical mule - that is a continuous chain that runs between the track. There are projections on the chain which grip the axle of a truck and move it forward, the chain being worked by an electric motor.

When a load of cane was required on the carrier, the truck was pushed on to the tippler. The tippler was set in motion - bars went pneumatically between the spokes of the wheels, and then the whole platform tipped sideways, spilling the cane onto the carrier below.

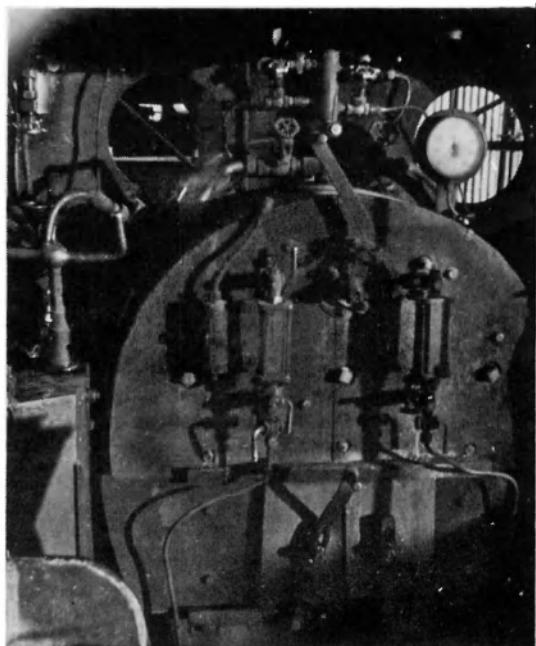
The tippler operator had to use judgement doing this, so that the feed on the carrier was at all times even. When the truck was empty the tippler returned to its normal position and the holding bars were released. Two men then pulled the truck off the tippler, one of them secured the chain around the stanchions, and they oiled the axleboxes. There was a long hose at each side of the line to do this. The lid of the axlebox was lifted, oil was squirted in, the lid was then closed and the truck pushed away, and so on to the next one. Later they used mechanical oilers. After ten trucks had come off the tippler, one of the oilers or a horseman coupled them up again. A horse would be waiting to pull the ten trucks to the empty yard. Any trucks marked "hospital" or with defects, were then turned into the truckshop line.

At lunchtime it was my job to relieve the horseman. I did not like the animals, but provided you kept to the routine they worked all right. These horses worked shift work, and knew their shifts exactly. At the first whistle prior to the shift change, they stood ready at the gate of the paddock. As the last horse of the previous shift came back through the gate, the next shift stepped out and



Top - Dual gauge (2-ft. and 3-ft.6-in.) points at Isis Central Mill. Photo - G. Bond coll'n.

Right - The cab of an Isis Central Mill Sharp Stewart 0-4-2 locomotive - ex TGR 'G' class.
Photo - G. Verhoeven.



went with the horseman. They had a waiting place, at which there was always a bag of feed from which they munched in between trips.

All one had to do was couple the trucks up, grab the chain, which was harnessed to the horse, and hook it on. The minute you grabbed the chain the horse started to walk and take the strain it expected. However, if you were slow in hooking on or fumbled in any way the horse was off to the yard. It then had to be grabbed by the head and led back. Once coupled you could let it go. It would then walk into the empty yard on its own, taking the right track according to the point setting, and walk to the end if the the line was empty, otherwise as far as the first truck.

We had to be slick with them. I rode on the first truck of the short rake, and had to judge the speed and cast the chain off at the right time to stop the rake in the right place. This was not easy, as sometimes there was still tension in the chain. I also had to watch that I did not get caught between the trucks while trying to unhook the chain. Then I had to throw the chain clear of the track, otherwise it could derail the trucks, or get caught between the rail and the wheel - the horse would then pull the truck off the line.

After hauling the rake into the empty yard the horse would then turn and half gallop back for his feed. If the chain was not undone that was too bad, he pulled the lot back where they came from. Locos were not allowed to move on adjoining lines when the horse was in the empty yard shunting. How the horses knew which was the right line to go into I will never know. Perhaps they could tell by the position of the point blades or the point lever, but they were never wrong in picking which of the three empty lines was the right one.

I have been told that this has changed now, too, with mechanical mules now working the empty lines.

Working in the "slack"

In 1960 I moved to Apple Tree Creek to live nearer the mill. Being a "local" now, and possessing a diesel ticket, I got a job at the mill during the slack. We went navvying. During the slack the navy gang was strengthened by the younger drivers and mill hands, to keep them employed in repairing and renewing lines. It is hard work, but an experience railway-wise. There is much more to it than meets the eye.

First we put new sleepers and some new lengths of rail in the "old mainline". At Isis the line was packed into the earth right up to rail level. With pick and shovel we had to dig the sleeper into the open, and then remove the dog spikes with crow foot and sledge hammer. The sleeper could then be pulled out sideways, and a new one put in. With a huge auger holes for the new spikes were drilled. Hammering in the new spikes needed some skill too. The sleeper was held hard against the rail with a crow bar. Then the earth was shovelled under the sleeper. For ramming we used the handle of a shovel, putting some bagging over the blade to avoid cutting the hands while doing the ramming.

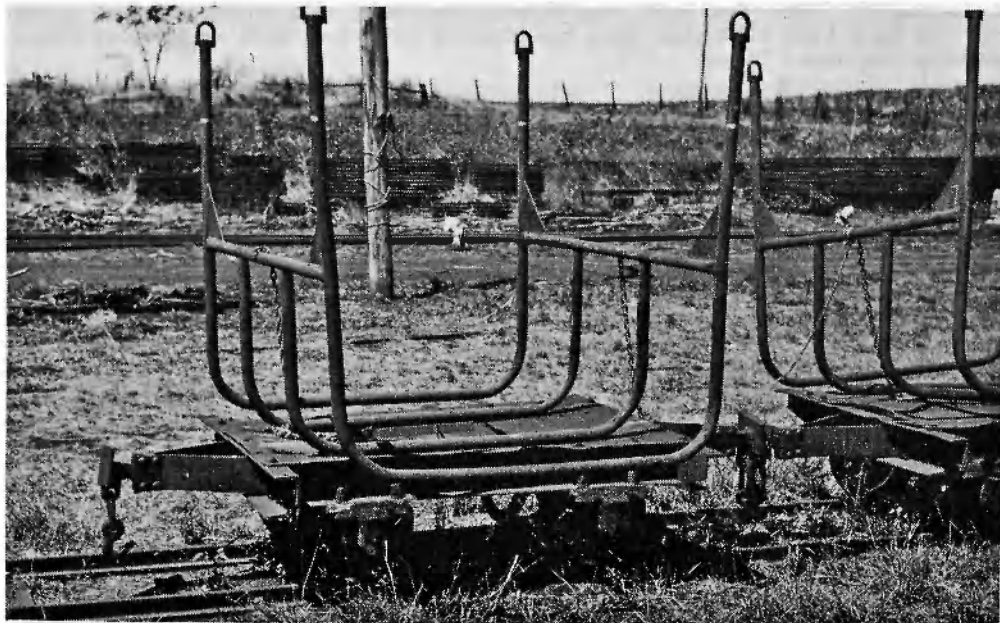
Two men worked in this way on each sleeper, while the ganger watched the rise in the rail by eyeing some distance away over the top of the rail. For rail renewal, we had ex-QGR 41½-lb. rail from the Booyal line. The old rails were cut up for cattle grids. The method by which these were cut was an eye-opener to me. One man held a large cold chisel in a pair of tongs, while another struck it with a sledge hammer so that they nicked the rail around the head and base. Then with a mighty clout against the rail it snapped in two. Some fellows were real experts in this, and could cut old brittle rail in a couple of blows.

We next renewed a stretch of line out of Huxley. The whole gang re-

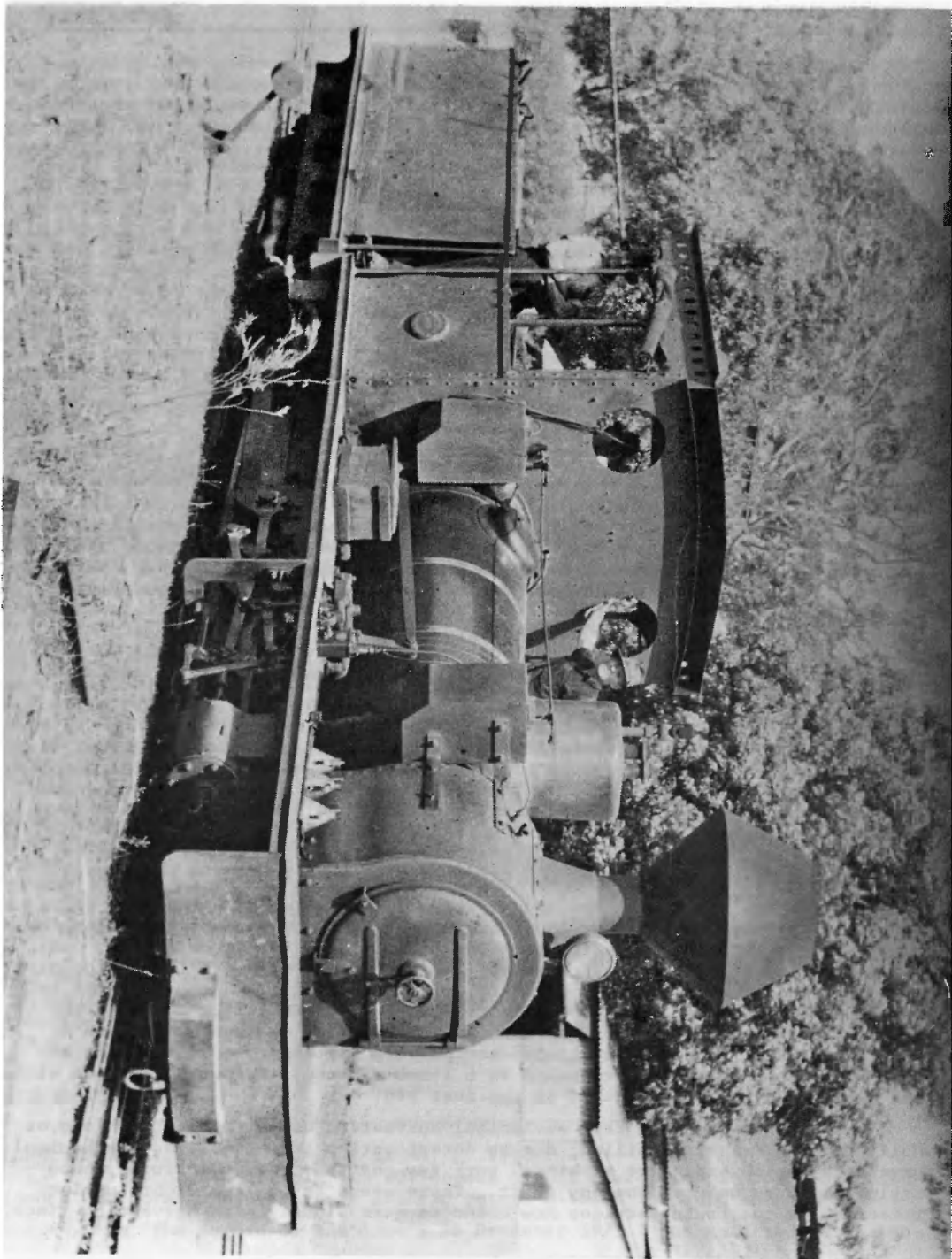
moved the dogspikes, and a few with sledge hammers knocked the bolts of the fishplates. One clout against the nut generally sent it flying. When the rails had been removed a grader pushed the soil and old sleepers aside and levelled the formation. New timber sleepers were then laid out and the new rail laid. The ganger marked the position of the sleepers, roughly 18-in. apart, and we shifted them into position with bars. The rail was then spaced with a gauge, and a fellow with an electric drill made the holes for the spikes on each side of the rail. He was followed by the spikers. Then followed a trolley with an electric generator to supply power for the drill. At the end of the relaid stretch the rail was cut with an oxy-cutter to fit it in with the original line, and holes were made for the fishplate bolts.

We then straightened the line with crowbars, all men being on one side. At the signal of the ganger, who eyed along the track, everybody heaved on the crowbars. A grader then pushed a fill of soil over the line and we started to tamp the whole length. This was the hardest part. The ganger watched the rise in the rail and checked the tamping, to see that everybody put enough "ginger" into the job - some fellows were a bit wily and did all the motions of a hard job without actually doing any real packing at all.

When this was finished the grader filled the whole line up to rail level with soil. This is done so that in the case of a derailment the wheels will not root up the track, but nasty tongues maintain it is to hide the work of the gang. In that year we started to use the spring type spikes, and there was a knack in hammering them in - it was not easy.



Photographs, above - Old steel cane trucks at Huxley. Photo - J. Armstrong.
Right - Hudswell Clarke 0-6-0 2-ft. gauge tender loco, B/No.1098 of 1915, was No.7 in the Isis Central Mill's steam roster. Photographed in 1944 by John Buckland.



Later on we had to do some curved sections. The rails were bent on the site in a huge clamp, called a Jim Crow. The Crow has two arms which grip the railhead. A hefty screw, turned by a long bar, pushes the rail out until it deflects. This is done at regular distances along the rail, so that a smooth curve is obtained. The ganger had a table which gave the deflection of the length of rail needed for a certain curve. We used a length of string from end to end, to measure the deflection in the middle. I became fairly adept at this job, and was kept on rail bending for the rest of the time. There were small differences in the bending qualities of the various makes. Even pressure had to be applied on the crow along the whole length of rail marking a spot with chalk. The crow was then shifted until the arm came to the mark, and the same pressure was applied again - and so on for the whole length. Some rail I could do in one or two operations, sometimes others needed as much as eight to come good. It is better to do it in easy stages, rather than attempt to make the curve too sharp in the first go, as it is a hell of a job to bend them back to a slighter curve.

There are certain tricks of the trade in packing the line, too. For example judgement has to be used in packing near level crossings, and on the approaches to culverts and bridges, so that no "holes" will appear in the road.

In recent years I have seen some track laying in northern Queensland almost up to mainline standards, with concrete sleepers and spring dogspikes throughout, and properly ballasted with crushed gravel. But of course it is much wetter in the north, and drainage has to be considered on a much larger scale. In the north I also saw packing being done with air-operated tampers. A little trolley with a compressor followed four men each with a tamper. You could see the rail lift when they were in action. On a hole in the road, small jacks were used to lift the rail, after which the sleepers were packed. Yes, there was much more to it than one thinks, to keep the locos on the tracks. All the same, I was glad when the slack was finished and we went back to old No.10 again in 1961.

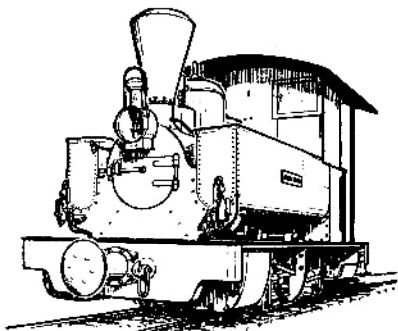
Conclusion

I now live in the Victoria Mill area (Ingham), and this is a very up-to-date mill. Most (and very soon all) of the cane is harvested by mechanical harvesters. No more wooden or iron trucks, but bins to take the chopped cane. These bins run on roller bearings, carry five tons and have automatic couplers. Experiments have been made with brake units, as the difficulty now is not in pulling the rake but stopping it. These brake units, running on three axles, are as heavy as a diesel locomotive, and are coupled to the back of a rake, with brakes worked by radio control.

The weighbridge is a far cry from that I knew at Isis. No longer is it necessary to stoop and peer through the cane to find the truck number, and hand uncoupling is no longer necessary. The trucks are moved to the bridge as wanted by the clerk at the push of a button. A flick on the trigger of the coupling by a man in a concrete pit uncouples the trucks. The clerk can read the number of the truck himself on the side of the bin. He can weigh one, two or three trucks at a time. Point blades are painted white so the men can see at night that the blades are not cocked by a stick of cane. Proper steel rods with tail light or flag, are attached to the last bin.

The chopped cane from mechanical harvesters cannot be left as long as whole stalk before being milled, due to deterioration of the juices. Mechanical harvesters, being expensive machines, work two shifts a day. Previously hand cutting was done only in one day shift. There seems to be less night running of trains, as the train services now coincide more closely with harvesting times.

In time perhaps we may see some tram systems succumb to road transport, trials are already underway. However some mills may stick to tramway transport for a long time to come, as many times I have seen a load of about 600 tons of cane come in in one haul. Who wants to see that sort of loading moving along the road in trucks?



LETTERS

PRESERVATION (LR 40, p.2)

In reference to your editorial in LR 40, I beg to differ on your point regarding the "fantastic amounts" paid for locomotives by individual enthusiasts and the consequent effect on their value as a whole.

I myself have recently purchased a locomotive from a north Queensland sugar mill. My motives were neither those of preservation or profit, but rather the culmination of an almost lifelong interest in narrow gauge railways and their motive power. The locomotive was expensive to purchase and transport but, considering the price of the loco when new, its age and its present condition, I feel that it was an absolute bargain. Surely such a unit could not be described as "intrinsically scrap metal" when its close equivalent would be a motor vehicle with only 20,000 miles on the clock.

I know of some organisations who have had locomotives, and in some cases, even their transport, given free of charge. They have obviously been very fortunate that the companies (who after all, have their shareholders to consider) have been so generous. They should not, however, lose sight of the fact that they are being given (or in some cases, sold at scrap value) what are often working pieces of valuable machinery, quite capable of further periods of revenue service. In fact, one of my loco's "shed mates" was sold to another mill only a few years ago.

So, it would appear that the mills are now becoming aware of the fact, and this could spell the end of the situation as it was. I feel, however, that if the "something for nothing" era is indeed over, those concerned should be thankful that it ever existed at all.

Thank you for a first rate magazine.

St.Ives,NSW,2075

Bruce Belbin

LUNE RIVER RAILWAY (LR 35, p.5; LR 40, p. 15)

Ray Graf's article (LR 40) covers almost everything I could have said (and a lot more), however there are two points I think I should make:

- a. The future of the line - In December 1971 I was told that the lime-

stone that was being carted to Hobart by road was being supplied to an outside buyer and that the Carbide Company had found that the railway/ship combination remained a better prospect economically for them. I guess changing to road transport would involve them in capital expenditure at Electrona (where the plant is presumably oriented to receive the raw material from the sea side rather than the land side) and that is hardly a proposition for them. If what I was told is correct, the railway's future rests probably with the Tariff Board and, of course, the continued existence of those crazy old ships!

b. Loading at the quarry - Ray surmised that "the use of 'boxes' for carrying limestone...began with the opening of the present quarry..." It seems to me that this may not be so. There is an overhead loading hopper on the southern side of the loading area at the quarry, complete with tracks, now out of use. My understanding was that this was in use still in 1965. Perhaps the "boxes" were in use in conjunction with it (i.e. the only change may have been the introduction of the "back-end loader" trucks, which were certainly in use in late 1966), but I think I was told once that the bogie wagons were used under the chutes. Anthony Cooke went there in 1965 and I think he saw the chutes in use. Further to this, I understand that the extended roof of the steam loco was fitted to protect boiler top fittings when passing under the chutes. I do not recall having seen this mentioned anywhere. It may not be true, but it is plausible.

Canberra, A.C.T.2600

Jeremy Wainwright

CORNWALL COAL MINE, Tasmania (LR 34, p.33; LR 36, p.21)

The remains photographed at Cornwall shown on p.35 of LR 34 are those of the Hobart Municipal Tramways one and only sprinkler car which went to Cornwall about 1955.

Dickson, A.C.T. 2602

H.J.W. Stokes

NORTH MOUNT LYELL RAILWAY (LR 39, p.23)

I was most interested in C. W. Jessup's account of his trip over the North Mount Lyell line to Kelly Basin. I walked in there myself in May 1964 and noted one or two things besides those mentioned in LR, namely:

Darwin - an old branch goes off for about $\frac{1}{4}$ -mile eastward to the limestone quarry.

Purgatory Gap - to the east of the line are the remains of at least three attempts to drive a deeper cutting (and tunnel?) through the ridge at a lower level. Presumably they were defeated by the very loose and broken nature of the ground.

Bird River - in 1964 there were two old fettlers huts just south of the bridge on the east side of the line.

Kelly Basin - on a length of track in the old passenger station area stood a 4-wheel centre-buffer wagon, which had (so far as I could decipher) one axlebox inscribed "Midland Railway of W A/Lancaster Wagon Coy 1886", and two other axleboxes by James Martin of Gawler, dated 1888 and 1889. As Mr. Jessup does not mention it I guess it must have fallen victim to campers gathering firewood.

The North Mount Lyell Railway is very much in need of an historian, especially as the middle section may well be flooded by yet another hydro-electric scheme within the next decade. The early years of the railway are fairly well recorded in the Mount Lyell Standard, Zeehan & Dundas Herald, and the mining papers, but once it ceased to be news and Crotty closed down there is virtually nothing written about it. Yet there are probably still people in the Queenstown area who

worked on it and can give valuable information that one could never find from ground exploration or old newspapers.

Dickson, A.C.T., 2602

H.J.W. Stokes

MALLET COMPOUND LOCOMOTIVE IN PERTH (LR 39, p.34)

Regarding the former Magnet Tramway mallet locomotive described in LR 39, p.34, I have some information which differs from that in Light Railways. The technical details of the locos given below are out of an old Mines Department report, whilst the dates have been derived from various newspapers through my research.

The Magnet Tramway was formally opened on 23rd. January 1902 and initially the company had two locomotives. No.1, built by Orenstein & Koppel, was a compound engine, with articulated underframe on the mallet system. While the total wheelbase of this engine was 10-ft., the greatest rigid wheelbase was only 4-ft.3-in.; the long total wheelbase giving steady running, while the short rigid wheelbase enabled the locomotive to traverse sharp curves with great facility. This locomotive arrived in the middle of October 1901, and it was assembled and put into service in the beginning of November 1901.

No.2 locomotive was a small four-coupled engine, built by Orenstein & Koppel, arriving on location in the middle of July 1901 and being used immediately on construction work, and later on work at the mine.

Principal dimensions of these two locomotives were -

	No. 1	No. 2
Cylinder diameter, front	12-in.(low press.)	6 $\frac{1}{2}$ -in.
" " rear	8-in.(high press.)	-
Cylinder stroke	12-in.	12-in.
Wheel diameter	25-in.	22 $\frac{3}{4}$ -in.
Rigid wheelbase	4-ft.3-in.	3-ft.3 $\frac{3}{8}$ -in.
Boiler pressure	170-lbs.	170-lbs.
Weight in steam	18 tons	6 $\frac{1}{4}$ tons.

All the steel rails, points, and crossings etc., including the locomotives were supplied by the Central Mining & Tramway Appliances Proprietary Limited, of Sydney.

Another compound mallet locomotive, also built by Orenstein & Koppel, was purchased later, and became No.3. In the Magnet Company's Manager's Report of 13th. February 1908 it states "The erection of No.3 locomotive is progressing well". So the two mallet locomotives did not arrive at Magnet together.

Maydena, Tas. 7457

R. W. Chynoweth

MALLET COMPOUND LOCOMOTIVE IN PERTH

Regarding the article in LR 39 describing the little Orenstein & Koppel mallet locomotive in Western Australia, I enclose a photograph that might be of interest. This was taken in September of 1962 and shows the loco in the yard of the Great Boulder Mining Co. at Kalgoorlie. At that time I think that it had only just been withdrawn from service. From my remembrance the colour scheme was mainly a light blue-grey, with a darker grey smokebox and funnel, and black diagonal stripes on the tank fronts and probably the cab rear.

The valve gear fitted to this engine, which is very well illustrated in Mr. Murdoch's photographs (LR 39, p.36), is of interest. It is Marshall valve gear, a radial gear based on the original type of radial valve gear - that invented

by Mr. J. W. Hackworth. Hackworth valve gear has been used occasionally on locomotives through the years, generally on small industrial engines, but I do not ever remember seeing or reading of the Marshall gear being used on locomotives apart from this little mallet. As can be seen from Mr. Murdoch's photographs the Marshall valve gear is quite a simple mechanism, but it has a few kinematic faults. It is only a short travel gear, probably not a great fault in industrial railway applications, and even when in mid-gear position the valve driven by it will still have a slight reciprocating motion.

It is to be hoped that this extremely interesting little engine will be saved from rust and the scrap merchant. Its obvious place now is in the ARHS WA Division Museum. After all, it is the only mallet locomotive left in Australia and from this aspect alone it is worthy of proper preservation.

Kensington, Vic. 3031

W. A. Pearce

MALLET COMPOUND LOCOMOTIVE IN PERTH

I was very interested to see in LR 39 the notes about the mallet loco now at Caversham. You are quite correct in presuming that it came from Tasmania, but I can offer you a little extra information.

In February 1968 I was able to examine the loco at Boulder and take the enclosed photo, which shows the loco rather more complete than when photographed by Mr. Murdoch. It still bore the name plate "Magnet No.3", and a builder's plate which unfortunately did not give a serial number. On examining the motion, I found 2609H stamped on both connecting rods of the rear unit. I presume this would be the builder's number (I can only surmise that the "H" could stand for "hinten", the German for hind) but as yet we have not been able to prove this.

Your correspondent appears to have been misinformed about the ARHS. That Society's approach was to the Mine, not to Mr. Whiteman at Caversham, about 1968, but I understand that at that time the mine replied that the loco was still considered a "standby". The present condition of the loco is a great pity as it is the only mallet extant in Australia.

Cottesloe, WA. 6011

G. J. Higham

MALLET COMPOUND LOCOMOTIVE IN PERTH

When I visited Western Australia in September 1962 I visited the Great Boulder Mining Company in Boulder. At that stage former Magnet No.3 had been replaced and stored out in the open. Also stored at Great Boulder was 0-6-OT Orenstein & Koppel B/No.4241, whilst 0-6-OT Orenstein & Koppel B/No.4242 was stored at the Lake View & Star Gold Mine.

The Douglas Shire Council in north Queensland, who operated a tramway from Port Douglas to Mossman until 1959 also owned an 0-4-4-OT/T, built by Orenstein & Koppel, B/No. 943 of 1901 and scrapped in 1946.

Mount Waverley, Vic. 3149

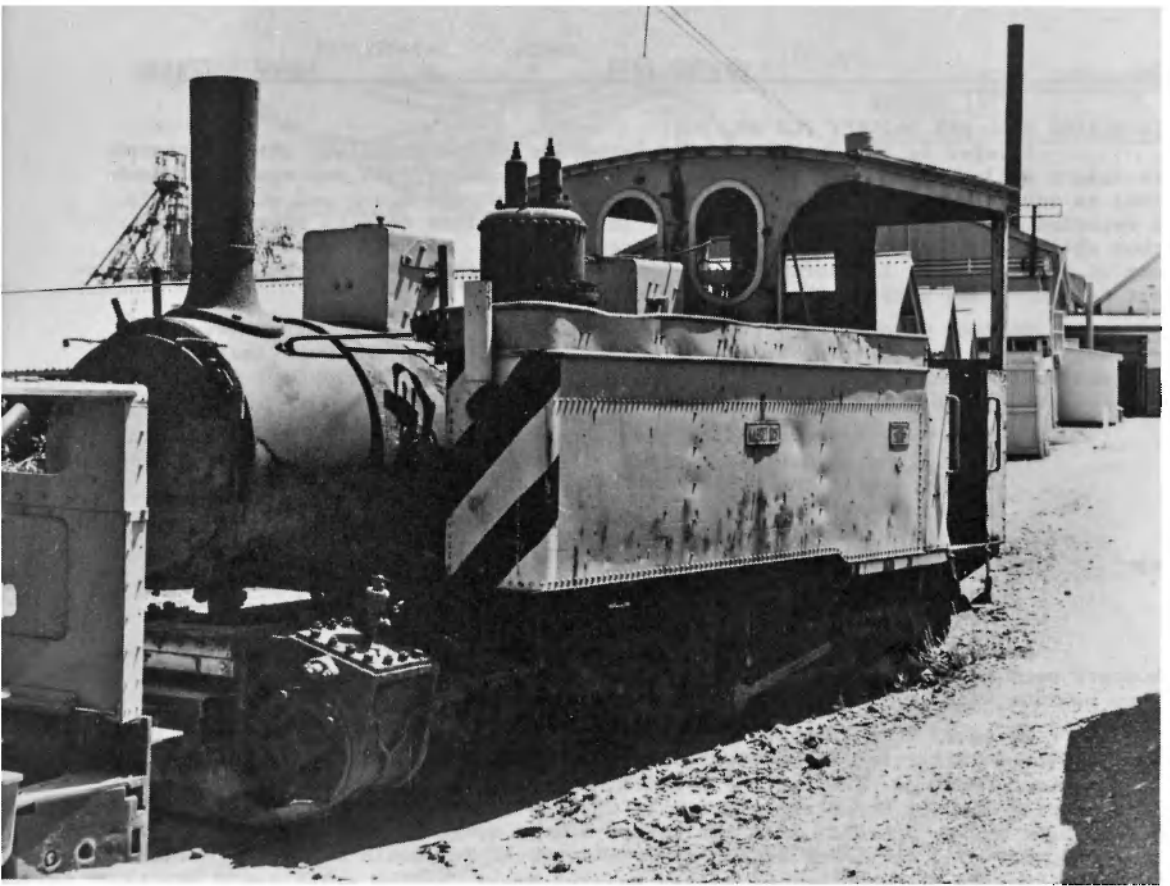
P. L. Charrett

Photographs, Top - "Magnet No.3", 2-ft. gauge 0-4-4-OT built by Orenstein & Koppel, at Boulder, WA, in February 1968. During its final years of operation the front unit was disconnected, and the loco ran as a "simple" using rear (high pressure) cylinders only.

Photo - G. J. Higham

Bottom - Magnet Tramway No.3, an 0-4-4-OT, probably B/No.2609 of 1907, at work on the Magnet Tramway, Tasmania.

Photo - J. L. Buckland collection.



CATHERINE HILL BAY RAILWAY (LR 39, p.5)

I refer to the article on the Catherine Hill Bay Railway which appeared in "Light Railways" No.39. I visited the area in October 1955 and again in March 1963 to take movies of the working, as well as colour and black and white stills. I recorded a track map on my first visit in 1955 and this differs somewhat from that which accompanied your magazine's recent article. I have enclosed a sketch map of the system as I recorded it in 1955 and trust that this may be of some interest to you. (See p.25 of this issue).

On 3rd October 1955, (this being Labour Day in Sydney but as Newcastle did not observe that holiday at that stage, but celebrated "May Day" instead, this was the most suitable time for Sydney-siders to visit the undertaking) I observed the following loco workings -

Loco 3 "Kathleen" was in use between the mine and the weighbridge.
Loco 2 was in use between the weighbridge sidings and the jetty.
Loco 4 was in the loco shed in workable condition.
Loco 1 was up on blocks undergoing major repairs.

The hurried visit on 17th. March 1963 revealed that -

Loco 1806 was working between the mine and the "Skelty Bridge" and
Loco 27 was working the jetty end of the track.

At that stage both the ex South Bulli wagons as well as the Wallarah hoppers were in use. A visit by a friend in November 1960 revealed an identical loco routine using the same locos as I found in March 1963.

My notes show loco No.4 as being obtained from the Bunnerong Power House Railway where it carried identification "JK" but I cannot recall the source of this information. (Perhaps "JK" was the branded initials of dealer J. Kennaway, and the loco carried this at Bunnerong after sale to show its new owner?) I feel that if the machine was obtained in 1947 its former owners would have been the Sydney County Council and not the Electricity Commission of New South Wales.

The South Bulli hopper-wagons carried fixed hoppers which could not be lifted clear of the chassis frame. During April 1972 the Bellambi Coal Company offered what is believed to be the last "South Bulli" hopper wagon to the Illawarra Light Railway Museum Society for preservation, but as that body is concentrating on the preservation of narrow-gauge items, the wagon was directed to the NSW Rail Transport Museum, which group has since transported the wagon (No.479D) to their Enfield museum site. This wagon was located on the standard-gauge (bull-head railed) sidings at Mount Pleasant Cokeworks near Wollongong.

The tracks beyond the seaward points on the Catherine Hill Bay jetty were skewed towards the northern edge of the decking (see map) possibly to aid wagon unloading.

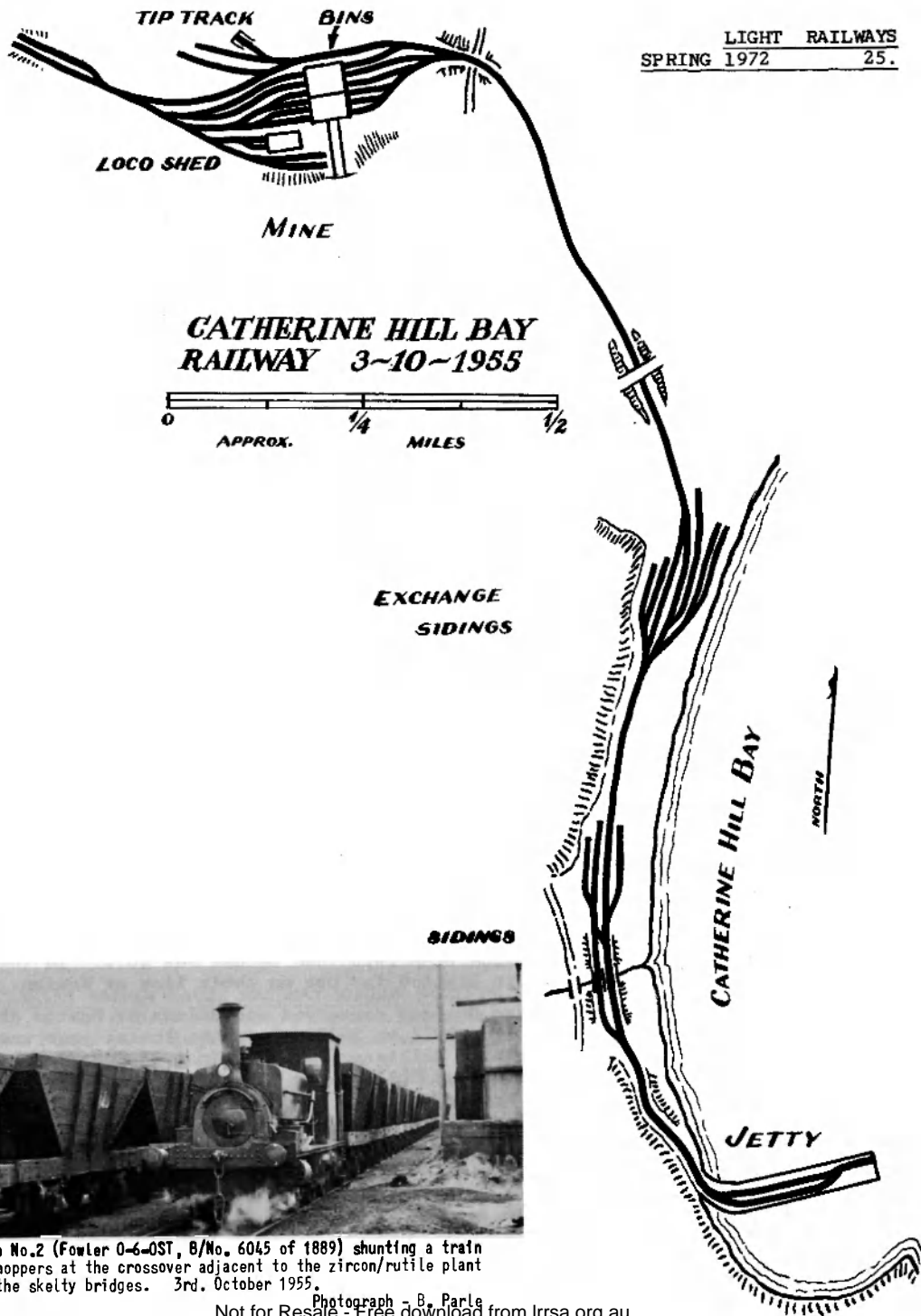
The most striking aspect of the Catherine Hill Bay railway on my first visit in 1955 was the fine condition of the locos and the sound track condition, well above the condition expected of an isolated railway which possibly only had itself to please.

Dapto, NSW, 2530

K. McCarthy

CATHERINE HILL BAY RAILWAY (LR 39, p.5)

Referring to the photograph of a locomotive boiler and frame in use as a winding engine at B Pit, Catherine Hill Bay (LR 39, p.20) - it is a Manning Wardle because it has the plate "Driver" on the side of the tank. Two locos went from the Auckland & Drury Railway to Driver & McLean, contractors, hence the name.



Loco No.2 (Fowler 0-6-0ST, B/No. 6045 of 1889) shunting a train of hoppers at the crossover adjacent to the zircon/rutile plant at the skelly bridges. 3rd. October 1955.

It is possible that after they had finished one of them was converted to a stationary engine in New Zealand; but I cannot believe that any company spending the money that Wallarah did for the development, would go to New Zealand to get the wreck of a locomotive which had been used as a stationary engine, and bring it all that distance for a similar purpose when there were "things" locally available that could have been adapted. No, I believe that locomotive was whole when it came to Australia and I would not be surprised if it was whole when it arrived at Wallarah and if it did not do a stint on the construction work. Let us not forget that the author states "The...Company...was formed in 1888...authority for the commencement of various projects was cabled...so that work could start immediately." How do we know that the two Fowlers were of 1889? Fowler's plates bear no date. I have "Driver" as Manning Wardle No.162 of 1865, but I cannot find how I got that number. It seems to have become redundant, according to Stewart's book on New Zealand railways, about 1877. Railway construction in New South Wales was quite active then and a hardly used loco in New Zealand would get a buyer. Some quite less attractive stuff went to South Australia.

The remains of the boiler embedded in concrete is in my opinion the boiler of a transportable engine. The number above the firehole door would be the Mines Department boiler registration number.

Goulburn, NSW, 2580

Bruce Macdonald

CATHERINE HILL BAY RAILWAY (LR 39, p.5)

The article in LR 39 on the Catherine Hill Bay Railway I found of great interest. Perhaps you may be interested in some further information on the J. & A. Brown, Abermain-Seaham (JABAS) loco No.27 which hauled the last train to Catherine Hill Bay.

No.27 (Avonside B/No.1415) arrived from Bristol as No.2 of the East Greta Coal Mining Company and was used in that company's Stanford Merthyr extension. Dimensions of the loco not included in LR 39 (p.17) include driving wheel-diameter of 39-in., a total boiler heating surface of 540 sq.ft. pressed to 130-p.s.i. The fire grate had an area of 8 sq.ft. The saddle tank extended the full length of the boiler and smokebox.

There was no back plate provided to the cab and the low bunker provided above the rear buffer beam gave the only weather protection in reverse running. When the Cessnock passenger service was implemented on 1st. March 1904, No.2 was largely used on these passenger trains as well as on the Abermain coal traffic.

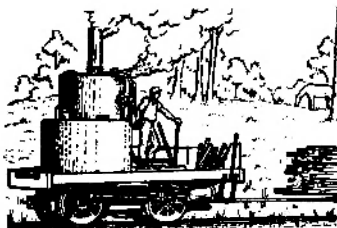
In 1918 the railway interests of the East Greta Coal Mining Company and the Hebburn Coal Mining Company were amalgamated into one corporate concern, South Maitland Railways Pty. Ltd.. Avonside B/No.1415 then became SMR No.2. In the early 1920's SMR No.2 was hired to Hebburn Limited for use on their line at Weston.

The East Greta Coal Mining Company commenced operations at Paxton about 1922. SMR No.2 was hired to them from 1922 to 1933 and in the latter year was purchased for use at Stanford Merthyr No.2 Colliery, Paxton. In 1934 East Greta Coal Mining Company sold Stanford Merthyr No.2 Colliery to the JABAS interests who in due course renumbered the loco as No.27. No.27 was out of service at Stanford Main No.2 (as JABAS renamed the Stanford Merthyr No.2 colliery) in October 1946.

JABAS purchased the issued capital of the Wallarah Coal Company Limited of Catherine Hill Bay in 1955. Unfortunately I cannot give information on the movements of No.27 between 1946 and 1957. It seems it never left JABAS (Coal & Allied) hands and must have been overhauled before arrival at Catherine Hill Bay, though its failure in 1962 casts doubt on this.

Nowra, NSW, 2540

Grant Pacey



News, Notes & Comments

NEW SOUTH WALES

SOUTH BULLI COAL COMPANY (near Wollongong) 3-ft.6-in.(1067 mm) gauge

An extensive underground tramway of 3-ft.6-in. gauge is in use here. Miners are transported 12 miles to the working face by tram. We were told that the Company operates two diesel locos, six battery locos, 19 man-riding cars (akin to what we would know as railmotors) and bogie coaches. One of the man-riding cars was fitted as a rescue vehicle cum ambulance, with all manner of facilities to effect rescues in the event of an underground calamity. Rolling stock noted during our visit in April 1972 was as follows -

Man-riding cars

No.1	E.M.Baldwin	946/1365	MDA/DE1
3	E.M.Baldwin	946/3965	MDA
4	E.M.Baldwin	946/41065	MDA
5	Fox		
8	Fox Man Riding Car	MRL 211	
9	"	"	" 4MRL 228
10	"	"	" 4MRL 227

No.11	Fox Man-riding car	MRL4 229	
14	E.M.Baldwin Model	11DH ser.3652.2.1270	
15	E.M.Baldwin	" 11DH ser.3652.3.271	
16	E.M.Baldwin	" 11DH ser.3652.4.271	
17	E.M.Baldwin	" 11DH ser.3652.6.471	
18	E.M.Baldwin	" 11DH ser.3652.5.371	
19	E.M.Baldwin	" 11DH ser.3652.7.471	

Ambulance/safety car - Fox 4MRL 240.

Battery locomotives - E, F, 3, 7, 9.

Diesel locomotives - D1 E.M. Baldwin 2047/2/10.68

D2 E.M. Baldwin 2047/1/ 9.68

Passenger coaches - several bogie coaches with very low roofs.

(ANGRMS Stack Talk)

QUEENSLAND

AUSTRALIAN NARROW GAUGE RAILWAY MUSEUM SOCIETY

An O-6-OT Bundaberg Fowler locomotive has been donated to the Society by the Pleystowe Sugar Mill, at Mackay. This locomotive (No.5) is in good condition and has been stored under cover. The Pleystowe Sugar Mill has also donated a motorized navvies' wagon and another vehicle which is essentially a converted road vehicle.

The Aberdare Colliery in the Bundamba area has donated two coal skips to the Society.

The Farleigh Sugar Mill has donated "Alison", a Fowler O-6-2T, to the Society. It is in good condition, and is expected to be operable, but a number of fittings are missing. Suitable replacements should be obtainable, however.

(ANGRMS Stack Talk)

MOUNT ISA MINES 3-ft.6-in. (1067 mm) gauge

Two new underground locomotives, built by Fox, were seen in Brisbane during June, on their way to Mount Isa. Both were four-wheeled, weighing about 22 tons each, and numbered 805 and 806.

(ANGRMS Stack Talk)

VICTORIA AND MACKNADE MILLS, INGHAM 2-ft. (610 mm) gauge

The position re steam here is unchanged from last year (see LR 36, p.26). There will be five in steam at Victoria and four at Macknade Mill. Mr. Bob Fraser of Fraser's Travel Agency in Ingham now has a car for rental in Ingham. Previously you had to get one in Townsville and travel 70 miles before you came to the district. Best vantage spots for steam are, in Ingham itself, around Victoria Mill. All the way from Victoria Mill to Halifax and Lucinda the tramline is alongside the road and from Carr's siding (near Halifax) to Lucinda Macknade's No.4 runs the sugar to the port. Some spectacular steam scenes can be photographed around Macknade Mill, especially at the bridge across the Herbert River, owing to the grades on each side of the bridge and the loose coupled rolling stock - the engine has to make pace to keep the couplings taught. On both sides the road crosses near the bridge head, giving a good overhead view, but the mill side is the better one. You can also use the bridge to walk over, as it is a recognized pedestrian crossing, it is even protected with lights for oncoming trams now. And at low tide you can go on a sand bar in the river and take side-on shots.

(G. H. Verhoeven)

GRESSBROOK TRAMWAY, (near Esk) 3-ft. (914 mm) gauge.

Late in 1971 several enthusiasts visited the formation of this log carrying tramway, which opened about 1922, and closed approximately seven years later. The photograph below shows the remains of a three-railed bridge at the foot of the incline section. At right is the wooden frog of the junction where the three wooden rails diverged into four at the half-way passing siding.



The Cressbrook Tramway ran for about one mile from a sawmill on Cressbrook Creek, below Mount Deongwar, along the creek valley, thence by means of a wagon turntable it turned a right-angle up an incline 37-chains in length, encountering grades of 1 in 1 to 1 in 3.

Wooden rail would seem to have been used throughout, except perhaps on the bridge over Cressbrook Creek, which was at the foot of the three-railed incline. Horse power was used on the level section to the sawmill, with a winding engine powering the balanced incline - loaded wagon coming down hauling an empty wagon coming up, and crossing at the half-way loop. The wooden rails and steel cable on the incline were still in place.

(Dan Sheehan)

TASMANIA

LUNE RIVER RAILWAY (LR 35, p.5; LR 40, p.15)

I called into the Lune River depot early in September, and was talking to one of the workers there. He has just bought the railcar from the company and is going to do it up. He has already repaired the gearbox which was the vehicle's main trouble. The future of the railway now appears secure for the time being as the Carbide Company have overcome most of their difficulties and have recently spent a few thousand dollars on this side of the carbide operation. The limestone that is being carted by truck is only to fulfil a contract with the Electrolytic Zinc Company (Risdon), and as the stone has to be first taken to crushers and then to the zinc works at Hobart it is easier to transport it by truck

(Wayne Chynoweth)

VAN DIEMEN LIGHT RAILWAY SOCIETY, P.O. Box 887, Launceston, Tas.7250

We have had a substantial donation from the Electrolytic Zinc Company of Australasia Limited, in the form of Krauss locomotive No.9 (B/No.5988 of 1908), together with a quantity of 2-ft. gauge rolling stock, spare wheels, buffing and draw gear, bogies and some items of workshop equipment. The Krauss locomotive was moved to our temporary headquarters, where it is standing next to the Hunslet locomotive. A boiler inspection report on our latest locomotive revealed that the foundation ring and back plate require attention, and therefore, we anticipate that it will be several months before steam is raised.

The Hunslet locomotive was again steamed for the television cameras in June, this time with the roof cut back to the cab, for current affairs programme "This Day Tonight" and although the injector proved a little temperamental the steaming was without mishap. We recently received some newspaper publicity when the Advocate newspaper produced a front page report - complete with photo - indicating that we intended to remove "Wee Georgie Wood" from Tullah - having misinterpreted the story of the EZ Company's donation of Krauss No.9!

The negotiations for land with the St.Leonards Council have fallen through on account of objecting landowners and we are now looking at seven or eight alternative sites for our proposed dual gauge railway.

Incorporation of the Society was completed in April 1972, and we are now able to sign contracts, etc. in our own name. Membership to date is 48, which is most encouraging. Although we are temporarily without a permanent home, we are adamant that we will be in partial operation by next tourist season, and accordingly we would be pleased to hear from mainland enthusiasts who will be touring in Tasmania.

(Ian Hall, President, VLRS)

ZEEHAN SCHOOL OF MINES MUSEUM

Major extensions are planned for Zeehan's famous museum. It will cross the street to occupy an area of about a quarter of an acre. The area will become a walkthrough exhibit of early West Coast mining relics. Focal point of the new area will be the headframe from the Oceana Mine near Zeehan.

An old miner's hut and blacksmith's tools from the disused Farrell Mine at Tullah will be displayed. The Museum Committee has also decided to place a roof over its locomotive yard to protect the valuable exhibits from the elements. It is expected to cost about \$15,000 to roof the area with Perspex. The sides will remain open so the exhibits can be photographed from the street.

Inside the now overcrowded museum a plate glass viewing window is being installed in front of the pride of the railway section - the Mount Lyell Daimler railcar. Donations from tourists help pay for the extensions. In 1971 80,000 people visited the museum - an amazing increase of 40,000 on the 1970 figure.

(The Saturday Evening Mercury, 1st July 1972)

VICTORIA

KIRCHUBEL'S TRAMWAY, TANJIL BREN

This tramway extended 3½-miles from Tanjil Bren to Kirchubel's Mill. Rails were in position at the crossing of the Mount Baw Baw Road at Tanjil Bren as recently as May 1959. The tramway is shown on Lands Department Map "Walhalla A" of 1952.

The three-mile section from Tanjil Bren to the West Tanjil River was described in LR 22, p.30. The half-mile section from the West Tanjil River to Kirchubel's Mill appears to have been laid with light-weight steel rail, with wooden rail on the outside of each steel rail. The steel rail has been dismantled (some can be seen thrown to one side) but the wooden rail is in position for most of the half-mile length. Just beyond the West Tanjil River the tramway is thickly clustered with treeferns for a short distance. There are six bridges between West Tanjil River and Kirchubel's, and all appear to be constructed as crib log bridges and not trestle style. Most of the bridges are very close to the mill itself.

First bridge - on a left-hand curve, part of it has collapsed sideways.

Second bridge - on a left-hand curve, decking still complete.

Third bridge - bridges a very deep gully, on a left-hand curve, decking incomplete.

Fourth bridge - curved at the Tanjil Bren end, leads to huge rock beyond which is Fifth bridge - a straight one.

Sixth bridge - Another straight one.

Bridges 4,5, and 6 have complete but well rotted decking.

Kirchubel's Mill The tramway becomes double track on the low side of the sawbench. This track reaches its end beyond the sawbench and has no connection with a tramway running from the high side of the sawbench into the forest beyond. A bridge on this latter tramway at the edge of the mill area was observed. One side of it had tumbled down. It is not known how far into the forest the tramway ran, as it is not shown on the "Walhalla A" map. Around the mill were remains of wheels and bogies. Three huts were still standing, and the collapsed remains of several others were seen.

(Ray Jude)



Tramway bridge over the West Tanjil River on Kirchubel's Tramway running from Tanjil Bren - photographed during steady snowfall. 16th. August 1970.
Photo - Ray Jude.

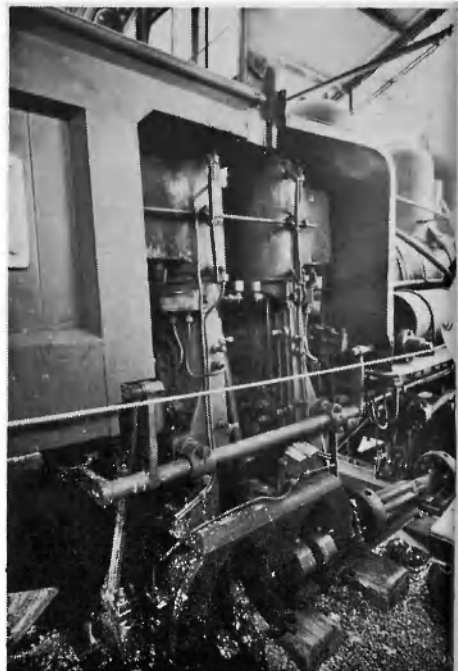
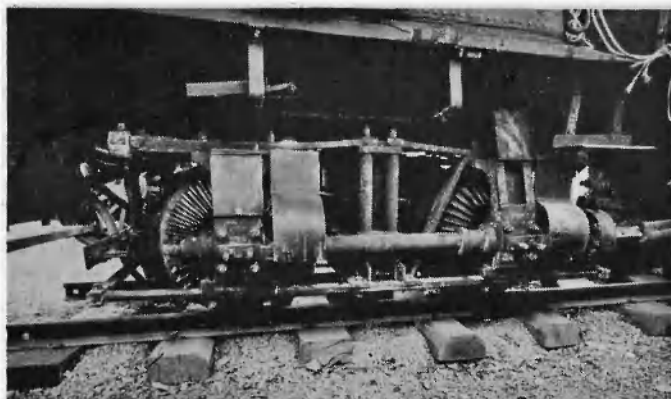
PUFFING BILLY PRESERVATION SOCIETY, Menzies Creek Museum

The PBPS recently took delivery of a 2-ft.6-in. gauge two-truck two-cylinder Shay locomotive, which was donated to them by the Taiwan Forestry Commission. The locomotive (B/No.2550 of 1912) has 7-in. x 12-in. cylinders and 26½-in. driving wheels, and is in good mechanical condition, having been in regular service until recently. However the boiler requires some attention before the loco could be steamed. The top of



the wooden cab is at present sitting on the water tank, having suffered some damage in transit.

The photographs on this page and page 31 were taken at Menzies Creek, where the confined conditions require the use of wide-angle lenses - hence there is some distortion in a few of the pictures.



POWELLTOWN TRAMWAY, 3-ft. (914 mm) gauge.

In LR 28 we reported that the Malcolm Moore non-coupled six-wheeled tractor at Powelltown was to be moved to the Yarra Junction railway station for preservation. This has now been done, the tractor being stored under the verandah, which has been enclosed with high chain-wire fencing.

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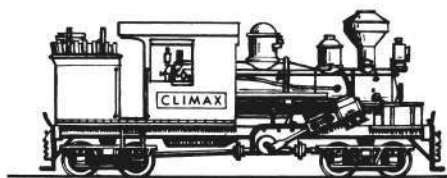
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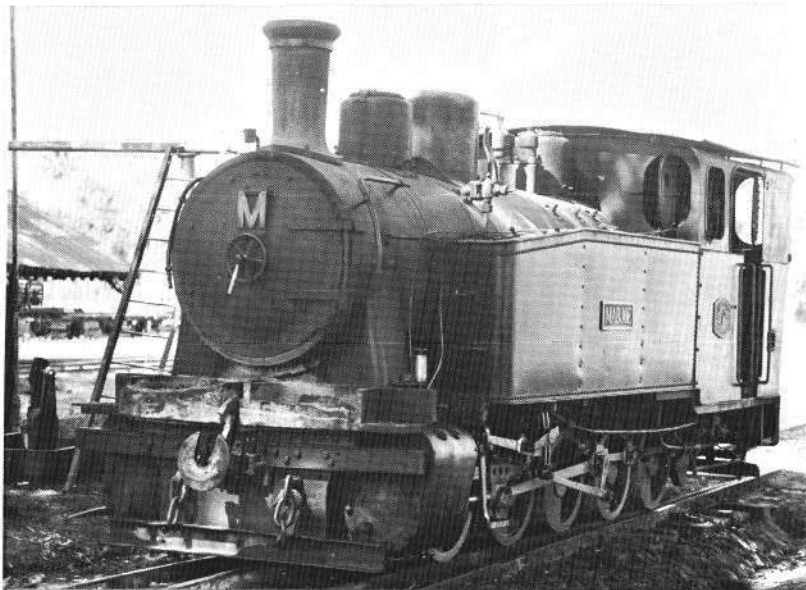
1972-73



MADJOE !

Funny name for a locomotive. Actually it means "forward" or "progress" in Indonesian. It is one of several 3-ft. 6-in. gauge 0-10-0T locos used on an Indonesian State Forestry railway at Tjieu, in east Java. The lower photograph shows the ornate builder's plate. The wheel-base is flexible to some degree. The first and third third axles are rigid, the second, fourth and fifth are free to move about one inch in either direction, sideways. The fourth and fifth axles are connected by a rocking beam, so they move in opposite directions. The wheels of the third axle are flangeless, whilst to prevent the coupling rods binding, a lay-shaft without any sideplay is provided after the fifth axle.

OUR COVER - Ex North Mount Lyell Railway (Tasmania) 3-ft.6-in. gauge Shay locomotive, B/No.697 of 1902 at work on Lahey's Canungra & Pine Creek logging tramway in southern Queensland. The $4\frac{1}{2}$ -chain tunnel was located just south of Canungra.



TO OUR READERS...

Whilst every effort is made to ensure the accuracy of articles published in "Light Railways", errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the Editor, and so help us to record the full history of Australia's light railways.

Articles and News Notes & Comments items are always welcome.

Historical references to sums of money in "Light Railways" are in Australian pounds (£). One pound equalled two dollars on changeover to decimal currency in 1966.

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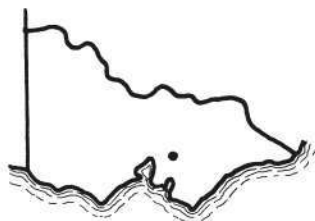
MEETINGS - Second Thursday every second month at 8-00pm, room 11, Victorian Railways Institute, Flinders Street Station building, Melbourne. Next meetings 8th. February 1973, 12th. April 1973, 14th. June 1973, 9th. August 1973.

BACK NUMBERS of Light Railways - Nos. 13, 14 and 15 @ 50¢ for the three, incl. postage. No. 27, 31, 32, 33, 37, 38, 39, 40, 41 @ 70¢ each, including postage. All other issues are out of print. Available from - Stephen Martin, LRRSA Sales Officer, 7 Talaskia Road, Upper Ferntree Gully, Vic. 3156. Please make remittances payable to the LRRSA.

OTHER PUBLICATIONS available from the Sales Officer, include scale drawings of the Powelltown tramway Shay locomotive; Powelltown 3-ton wagon (a reproduction of the Company's original blue print); the Harman geared locomotive; and a Baldwin 3-ft. 6-in. gauge 0-4-0ST locomotive of a type used in most states of Australia. All are off-set printed, price 40¢ each; plus 12¢ postage for one to four drawings packed in a mailing tube. McIvor Tramway - maps and historical notes, 15 pages 11 $\frac{3}{4}$ x 8 $\frac{1}{4}$ -in.; 50¢ each, posted. "Day's Tractors", six pages including scale drawings and three photographs, 45¢ each, posted.

Upper Acheron Tramways

By - N. Houghton



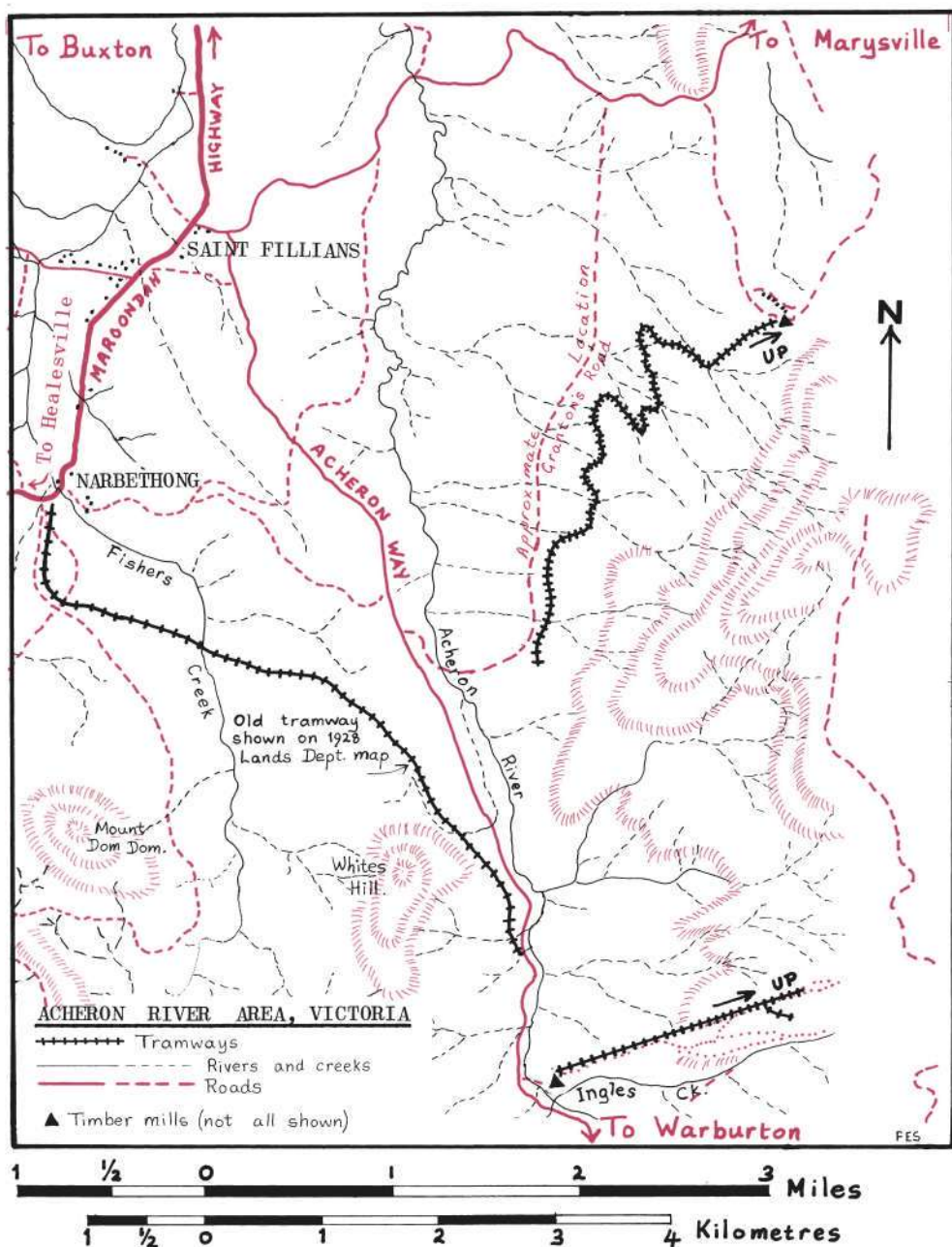
The rugged Acheron Valley was first settled in the 1870's mainly as a route to the Wood's Point goldfields. After the mining decline settlement in the valley stagnated because of transport difficulties. Timber in the Upper Acheron Valley remained untouched for many years until concern over the messmate, woollybutt and white gum spoiling through over ripeness and bushfires prompted action.

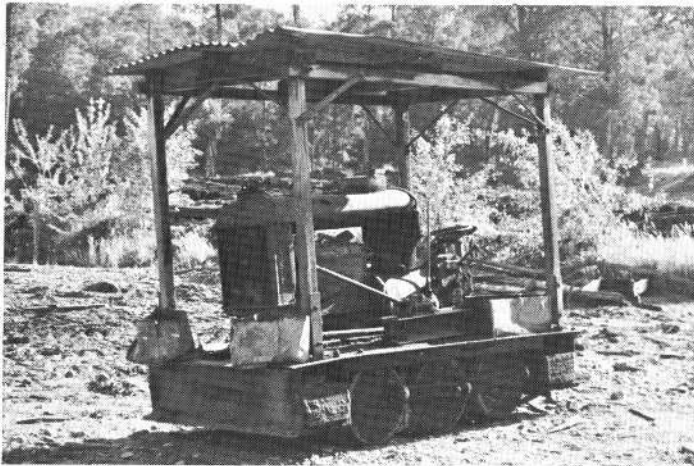
Accordingly, in 1918 plans were considered for a transport link between Warburton and the Upper Acheron Valley, to extract the timber. The Victorian Railways surveyed a 2-ft.6-in. narrow-gauge route from Warburton over the Mount Donna Buang saddle and up the valley, but abandoned the plan when it was found that a zig-zag would have been necessary to gain an elevation of 2,000-ft. in six miles to surmount the saddle. Another survey was made from Narbethong to the Upper Acheron. This 2-ft.6-in. gauge route was 19 miles long with a ruling gradient of about 1 in 35/40, and of interest - at least for the VR - was the planned use of 30-lb. rails on the straights and 40-lb. rails on the curves. The VR examined the construction methods and operations of some Queensland sugar railways and satisfied themselves that large annual tonnages could be carried over very light narrow-gauge railways.

But the proposed railway also lapsed for a number of reasons, one being that the line would traverse the Maroondah watershed and would be a pollution danger. A Narbethong sawmiller, Mr. Joseph Timms, offered to construct the line at the scheduled rate of £75,000 and erect modern mills and seasoning plants in the valley, in return for payment of 5% treasury bonds. But since interest in the line had disappeared nothing came about.¹ There the issue of timber extraction rested until a tourist road, the Acheron Way, was constructed from Narbethong to Mount Donna Buang in about 1926.² Once the virgin forest was opened up by this road the sawmillers moved in.

The Lilydale firm of Messrs. Joseph and Judah Feiglin established two mills on the Acheron Way.³ The No.1 mill was sited at the junction of the Acheron River and Ingles Creek (grid.ref.714617 on Juliet 1:50,000 map). No.2 mill was located six miles south of this at a location presently unknown to the writer.

A perusal of the Forestry Commission reports at this time (1924-27) shows that the Commission was concerned about millers selling unseasoned timber. Their attempts to persuade millers to use the FCV seasoning plant at Newport or to establish their own plants had been unsuccessful. Perhaps the FCV insisted on seasoning plants after this for some millers, or perhaps the Feiglins had sufficient capital to bear the stockpiling of timber, for they built two seasoning kilns at their No.1 mill. The kilns were fired by the off-cuts and sawdust burnt in a pit under the kilns. Next to the pit was the boiler for providing steam for the saws which were located a little distance away. Apparently the logs were cut into roughly 12-ft. x 2-ft. x 2-ft. pieces, loaded onto an eight-wheeled 3-ft.6-in. gauge trolley and propelled into the larger kiln. The method of propulsion (winch ?) and the means of entry to the kiln has baffled the writer, for an inspection of the overgrown,





Left - Six-wheel coupled tractor out of use at Gould's mill, near Marysville. Jan., 1973.

Below - Two views of Webb, Rowe & Anderson's tramway south-west of Marysville, on which the tractor illustrated above worked. Sept., 1972. Both photos - N. Houghton.



burnt out, and recently bulldozed site raised more problems than solutions. The entrance to the larger kiln is on the southern end, yet there seems to be no room for, or remains of, a traverser or rails. From the other end of the kiln the 3-ft. 6-in. gauge track appears to have headed north to where many sawn logs remain. A 3-ft. gauge steel-railed incline headed in an easterly direction up the hill from this enormous jumble of logs. The incline is very shallow at first but suddenly elevates sharply and continues for a total distance of 2,500 yards rising about 1,450-ft. Little remains of the incline apart from a few sleepers, a piece of twisted steel rail, some lengths of wooden rail and a few rollers. A track has been built on the incline for some of the way before veering slightly to the right, then more or less following the incline to the summit and beyond.

About three-quarters of the way up is a branch to the right. The rail has been lifted but many sleepers remain. The writer does not know how far this branch extends nor how it was worked, though a guess would be horses. Where this branch leaves the main track, (about 20-ft. to the left of the jeep track), remains three or four rollers still sited on the roadbed.

At the summit are the remains of two winches, a large petrol or diesel one, and a smaller one mounted on a car chassis of about 1919 vintage. The drum for the latter winch lies some distance down the incline. The larger winch hauled up or lowered down the log bogies on the incline itself while the smaller winch hauled the bogies from the incline onto the flat roadbed skirting the summit. This wooden railed track appears to have continued for some distance but the snow on the ground hampered inspection. The writer visited the site during winter and the summit of the incline is well above the snow line! Next to the winches is an intact two-roomed cabin. According to the Forestry Officer at Marysville the log loads were sent hurtling down the incline in a hair-raising manner. A slow walk up and a terrain enforced semi-trot down this steep slope soon confirms this statement.

The mill was burnt out by the disastrous 1939 bushfires. One of Feiglin's timber splitters, a Mr. Kerslake, together with his wife and daughter and four other unfortunate souls, was incinerated whilst fleeing the flames. The two Feiglins and twenty of their employees sheltered in the dugout at the mill while "thousands of planks 15-ft. high were reduced to mere 4-inch heaps of ashes, and heavy tractors and machinery ended up just twisted masses of metal, while the tram route consisted of the iron rails in grotesque curves lying on the ashen shapes of sleepers".⁴ Feiglins rebuilt the mill and continued operations for a period unknown to the writer before abandoning the site to the blackberries, after taking any salvageable equipment to another mill at Narbethong.⁵ This mill could have been Feiglins' No.3 mill, for such a mill was in existence in 1940 simultaneously with Nos. 1 and 2 mills.⁶ Feiglins Narbethong mill is close to the FCV softwood mill which was formerly the Little Wonder hardwood mill. A tramway operated out of this mill in a northerly direction for some miles.⁷

While on this interesting area mention must be made of the tramway along Granton's Road (LR 25, p.28). This tramway belonged to Webb, Rowe & Anderson. It was allegedly built during the 1930's, and was well graded though sinuous. The track was steel-railed, about 30-lb., with outside wooden rails though some sections appear not to have had the wooden rails. Other sections had two wooden rails outside extremely light iron rails. Motive power was provided by a Fordson Major six-coupled tractor.

Webb, Rowe & Anderson had two mills, No.1 and No.2.⁸ No.1 mill was situated on an elevated site in the bush off the Narbethong-Marysville road down Andersons

**PROPERTY
ENCLICED**



REMAINS OF
SAWN LOG
STACKS

INCLINE

REMAINS
OF HUTS.

W.C.

// CHAIN

BROCKWAY
PETROL
ENGINE

HI WHEELS & JUNK

STEAMPIPE
(TO SAWS?)

Acheron Way
100 yards

8 WHEEL -
TROLLEY.

WINCH PARTS

! APPARENT ROUTE
OF 3'6" TRACK!

CABLE
& SHACKLE

BEARER LOGS
DOGSPIKES || ↙

BEARER LOGS, DOG SPIKES.

REMAINS
OF LOW LOG
PLATFORM

⊕ RUBBER TYRED
WHEEL WITH
GROOVE CUT IN
CENTRE.

SMOKE BOX

SUGGESTED →
BOILER SITE

WRECKED	8
KILN	8

BEARER
LOGS 3
APART

KILN

VERTICAL PIECES
OF RAIL c. 18"-2 ft.

НУТ ?

BOILER MINUS
SMOKEBOX.

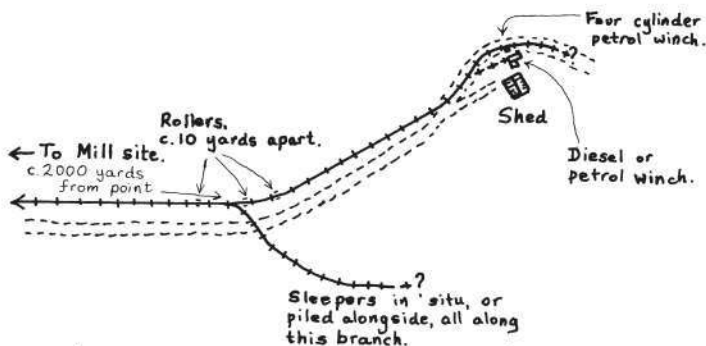
PIT

+++ CONJECTURED
TRAM ROUTES

NOT TO SCALE

CREEK

For reproduction, please contact the Society



Road, (grid ref. 736689; Juliet 1:50,000). The 1939 bushfires destroyed the mill and 14 houses causing £20,000 damage.⁹ Apparently the tramline escaped damage, in view of the silence of newspapers on this point. The mill was rebuilt and continued in business for a further thirty years.

From the mill an incline descended in a south-westerly direction for nearly 800 yards to the foot of the hill and crossed a creek. The incline had a slight bend in the middle, this necessitating a Tommy Dodd¹⁰ - a sideways mounted roller to guide the cable round the bend. This particular tommy dodd consists of two tram wheels joined together at their outside edges, i.e. non-flange side.

See Exhibit, Agricultural Show
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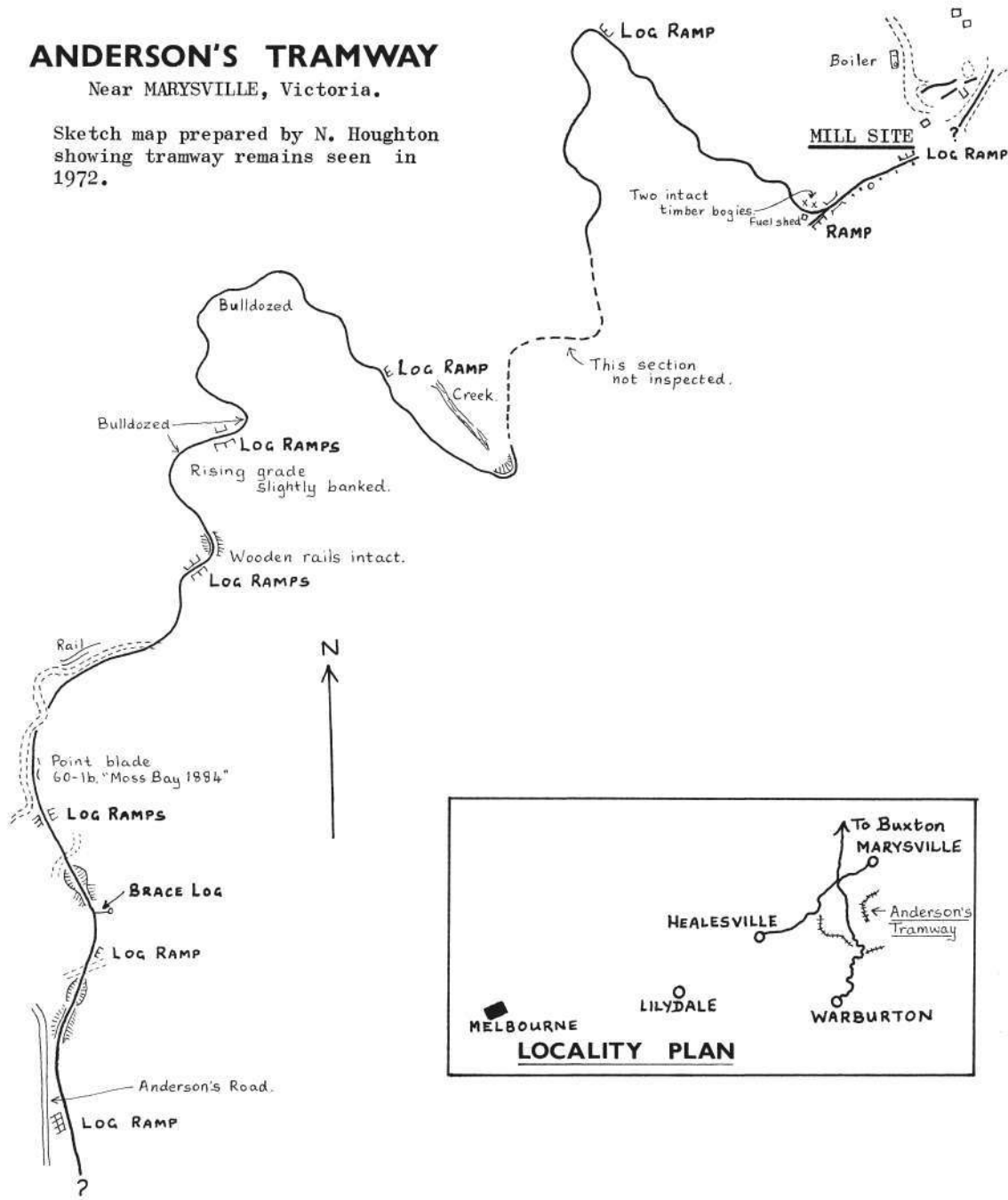
465 COLLINS ST MELB.



ANDERSON'S TRAMWAY

Near MARYSVILLE, Victoria.

Sketch map prepared by N. Houghton showing tramway remains seen in 1972.



Recently the tramway and incline remains were bulldozed to make a fire-track for the FCV and many interesting features were obliterated in the process. But from what remains it seems as if the incline was three-railed. At the bottom of the incline was a fuel shed for the tractor and what appears to be a short spur line alongside a log ramp. Two intact bogies lie in the mud just off the track. From here the tramway begins its tortuous path for the next three or four miles. Log loading ramps are at frequent intervals. The line boasts of some cuttings and high embankments before emerging from the bush at the side of Grantons Road, then just as quickly plunging back into the bush, past a log ramp and losing itself in the undergrowth and bulldozer tracks. How far it extends in this direction is unknown to this writer.

Mr. Edward Anderson operated his mill (and tram?)* until 1968. He sold out to Gould who bought a number of mills in the area, and closed them. Gould consolidated his milling activities in the one large mill at Marysville. The Fordson tractor remained at the foot of the incline for some time before being dragged up from the mud and deposited in a shed at Gould's mill where it still was some months ago, and should still be though the mill has been closed. The Marysville Historical Society intends to establish a permanent display featuring the tractor and a set of bogies bearing a log of suitable dimensions.¹¹

- References - 1. Parliamentary Standing Committee on Railways' Report on the Upper Acheron Valley Railway, Vol.1, Parliamentary Papers 1918, pp.673-684
 2. Country Roads Board Annual Reports 1924-27
 3. "The Age", 12th January 1939
 4. "The Age", 13th January 1939
 5. Information from Mr. Morrison, FCV Officer, Marysville.
 6. "The Age", 15th March 1940
 7. As for 5.
 8. "The Age", 14th January 1939; "The Argus", 12th January 1939
 9. "The Argus", 12th January 1939
 10. A.R.H.S. Bulletin, No.405, July 1971, p.166.
 11. As for 5

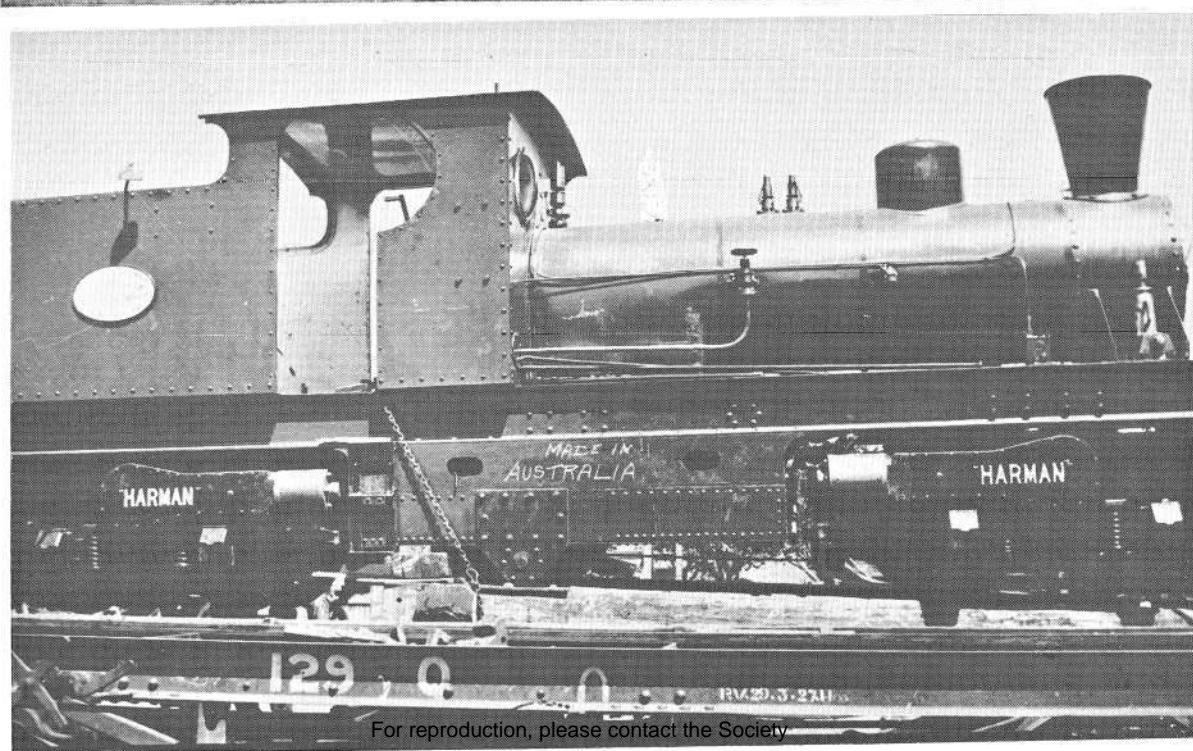
* The tramway was actually closed some years before 1968 - Ed.

NEWS FROM THE SALES DEPARTMENT

"LIGHT RAILWAYS" No. 27, Autumn 1969. This off-set printed 36 page issue has recently been reprinted. It contains articles on - Victoria's 3-ft.6-in. gauge Elphinstone timber tramway; the Victoria Dock construction project of the late 1880's, on which six Krauss 2-ft. gauge locomotives were used; the Tasma Hardwood Company's tramway near Ulverstone, Tasmania; the Dean - Korweinguboora timber tramway of Victoria - with its strange steam locomotives; a visit to Welcome Swamp, Tasmania; the Williamsford haulage in Tasmania; and the usual News Notes & Comments and Letters sections. Seven photographs and several line drawings and maps are included. Price - 70¢ incl. postage.

"DAY'S TRACTORS" by Geoff Baxter. This off-set printed publication consists of six pages, each 8½-in. x 11½-in., and includes three historic photographs, and scale drawings of two different types of Day's rail tractor, which were used extensively on Victorian timber tramways. A description of the tractors is also given. Price - 45¢ incl. postage.

Available from - LRRSA Sales Officer (Stephen Martin),
 7 Talaskia Road, Upper Ferntree Gully, Vic., 3156.



For reproduction, please contact the Society

The Harman Geared Locomotive

by - E. G. Stuckey.

Few geared steam locomotives were constructed in Australia. Those that were, were usually crude copies of Climax or Heisler designs, or traction engine rebuilds - the result of typical bush workmanship. The Harman was exceptional. Its design was unique, and the locomotive was very well engineered. But the Australian market for such locomotives was too small. Only one prototype was built and its many teething troubles were never fully overcome.

In 1926 the Forests Commission of Victoria constructed the Tyers Valley Tramway to transport sawn timber from the bush sawmills to Collins Siding. Collins Siding was situated one mile south of Erica on the Moe - Walhalla 2-ft.6-in. gauge branch line of the Victorian Railways.

The tramway was of 2-ft.6-in. gauge laid with 41 to 43 pound per yard rail on 5-ft. x 7-in. x 4-in. hardwood sleepers at approximately 24-in. intervals. The ruling grade was 1 in 30 for a distance of 2½ miles against the load. The sharpest curve was of 80-ft. radius and 254-ft. long.

In August 1926 the Commission advertised for a locomotive which could meet the following requirements -

1. Limiting dimensions; height - 10-ft.6-in., width - 6-ft.
2. Draught gear by reach bar and pin to be 1-ft.5-in. above rail level.
3. Steam and hand operated brakes to be fitted.
4. The loco to be capable of hauling a load of 10 loaded trucks of approximately 7 tons each, up the ruling grade and of starting on that grade with the load.
5. Loco to be fuelled by hardwood billets, 4-ft. in length.
6. The loco must be capable of drawing water from streams 12-ft. below rail level.

No answers were received and information was then sought from Beyer Peacock & Co., England regarding the supply of a stock (2-6-0+0-6-2) Garratt, but this unit proved to be heavy, and a special (0-4-0+0-4-0) version too costly. Enquiries were then made in the USA for a Climax, Shay or Heisler geared locomotive. The quote for a Climax was considered satisfactory and the Commission recommended that this locomotive be purchased. However, because the locomotive was not of Australian or British manufacture the Government refused to approve the purchase.

In 1927 tenders were again called for the supply of a loco. The only tender received was from Mr. Alfred Harman, of North Port Melbourne. Mr. Harman's design had many unusual features, but as there were no other tenders an order was placed under condition that a full guarantee was given that the engine would perform to specification. The loco was to be of the following dimensions -

Height	10-ft.0-in.	Maximum speed	10 mph
Length	28-ft.0-in. over the buffers.	Minimum curve	66-ft. radius
Width	5-ft. 4-in.	Weight in steam	16-17 tons.
Rail clearance	4-in.		

Photographs opposite - The Harman 2-ft.6-in. gauge geared locomotive outside the Harman Foundry at North Port Melbourne in November 1927.

Photo - M. Brudar collection, courtesy E.G.Stuckey.

Hauling capacity (exclusive of loco) was estimated by Mr. Harman to be -

On level track	700 tons approx.
On 1 in 100 grade	200 tons
On 1 in 50 grade	110 tons
On 1 in 33 grade	80 tons

A main frame of 12-in. x 6-in. x 54-lbs. rolled steel joists with cross braces was supported on two power bogies. Each bogie had four driven wheels of 28½-in. diameter and two 6-in. x 6-in. cylinders fitted with roller bearing crankshafts and big ends. All moving parts with the exception of the Stephenson link motion was enclosed and ran in oil. The bogie frames were constructed of heavy side plates carrying horncheeks in which the axleboxes slid, connected together by end plates and a central steel casting which carried the ball bearings for the reduction gears. Reduction was first by steel spur gears, then by chain and sprocket to the axle, giving a final ratio of four to one. The bogies were sprung on underslung equalising bars through helical springs. The mast, about which the bogie rotated was hollow to allow entry for the steam pipes and link motion controls. Either bogie could be put in or out of steam according to the load.

The boiler was 6-ft.6-in. long and 2-ft.10-in. diameter; the firebox was 4-ft.3-in. x 2-ft.5-in. x 3-ft. and was fitted with a turbine furnace. Built by Messrs. Johnson & Son it had a total heating area of 257.7 sq.ft., and operated at 200-lbs. psi. Two water tanks were fitted, one in the tender - of 200 gallons, and one under the main frame - of 270 gallons. Boiler feed was by injectors and check valves. A small Mumford steam pump was fitted for emergency use. An injector pump and hose was fitted to fill the water tank from creeks. Steam and hand brakes were fitted. The spark arrestor, a Cheney spark nullifier which damped any sparks by expelling exhaust steam through slits in the top of the smoke stack forming a cone of saturated steam, was supplied by the Commission.

The locomotive was delivered on the 29th. November 1927 to Moe railway station on the VR narrow-gauge transporter. The actual weight was 26.5 tons in working order. On the following day a Victorian Railways' crew drove the loco from Moe to Collins Siding over the VR 2-ft.6-in. line. Trouble was experienced with the method of dealing with the exhaust steam in the smokebox and the exhaust pipes had to be removed to complete the journey. A temporary connection was laid between the VR track and the Tyers Valley Tramway for the loco to run over. A trial run on the tramway revealed that the loco could not negotiate the smaller radius curves owing to the lack of clearance in the bogie masts, and three derailments occurred. The loco was returned to Collins Siding while a decision as to what should be done was made. Mr. Harman was of the opinion that the lack of clearance in the bogie mast could be remedied by installing weaker springs on the bogies, a new set of springs was then made and installed.

On 13th. December 1927 a trial was carried out with the weaker springs, no improvement was discernible. Three derailments occurred on the run to Tyers Junction. The curve resistance was extremely severe, and to avoid further derailments the outer rail was greased for the last mile. Further alterations were proposed which consisted of cutting the two sides of the bogie centres so that the mast or trunnion could swing freely sideways and tilt forward and back. Two polished hardened steel rings were fitted to act as bearing services. The alterations were completed on the 11th. January and twelve trips with light loads were made from Tyers Junction to Collins Siding.

Further defects became apparent. The ejector pump required 30 minutes to fill the water tank (470 gallons) from a stream 8 to 10 feet below the rail level. The two boiler feed injectors could not pump at a high enough pressure to feed against the 200-lbs. psi of the boiler, and the small Mumford pump fitted for an emergency had to be used at all times. This proved inadequate and the loco had to stop every ten minutes or thereabouts to raise the water level in the boiler. Problems were also encountered with the draught in the smokebox and the blast pipe and blower were remodelled. On the 16th. January a big end bearing on the left front bogie seized through lack of oil and the crank shaft was bent. The crank case held about four gallons of oil and was checked regularly but the oil had floated off through steam condensing in the case in less than 100 miles of steaming.

Harman's fitters completed the repairs on 28th. February 1928 when further trials were carried out with a load of 33 tons. Trouble was experienced with the new pump and the lubrication of the crank case, also the steam glands were leaking badly. Finally the loco ran out of water, being unable to carry sufficient for the $3\frac{1}{2}$ mile run between water points.

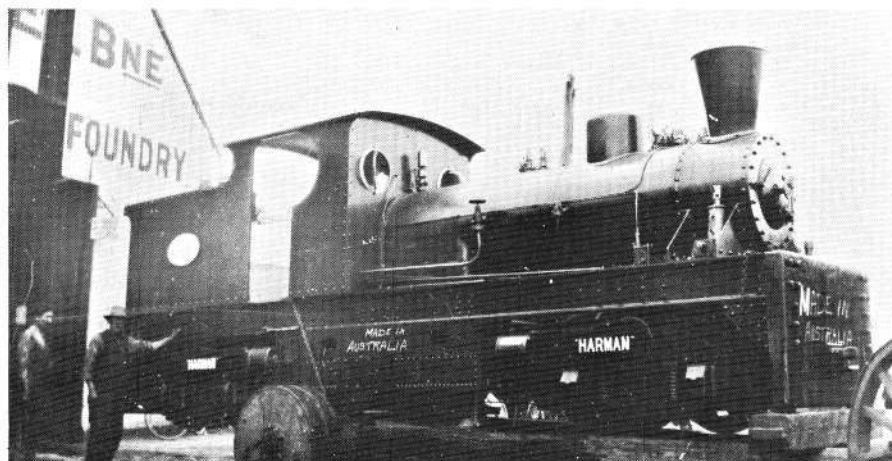
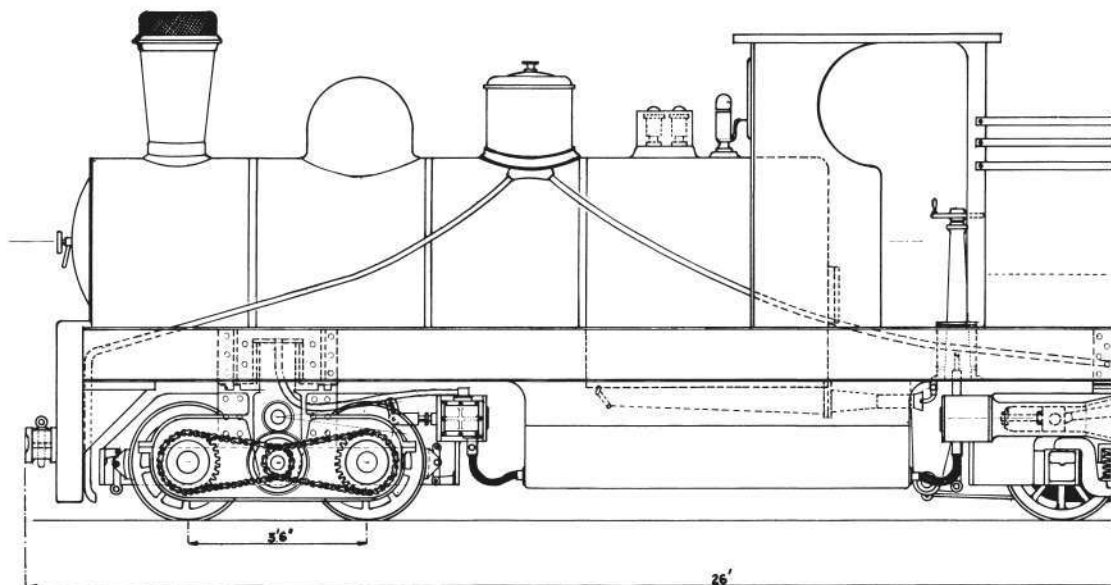
In March 1928 the Commission notified Mr. Harman that in the event of the loco failing to carry out a satisfactory trial within one week, the contract would be cancelled and steps taken to recover the monies advanced during construction. Mr. Harman made a counter claim that the Tyers tramway was not laid true to gauge and that his loco had not received a fair trial. An inspection of the track in company of representatives of both parties was made and the rail gauge checked with the VR standard gauge for 2-ft.6-in. lines. The line was found to be for the most part at the correct gauge, and in addition the loco was found to have half-inch side play in the wheels, so that the claim appeared unfounded.

On the 28th. March 1928 a further trial of the loco was carried out with a test load of 50.5 tons. The engine failed to pull the load up a 1 in 40 grade with a curve of 100-ft. radius. In view of the accusations made about the track the Commission had the line inspected by the District Engineer of the VR who reported that with the exception of the ballast, the line complied with the requirements of the VR narrow-gauge lines, in addition that there were no factors which would prevent the loco from hauling the specified load provided it had the necessary tractive force.

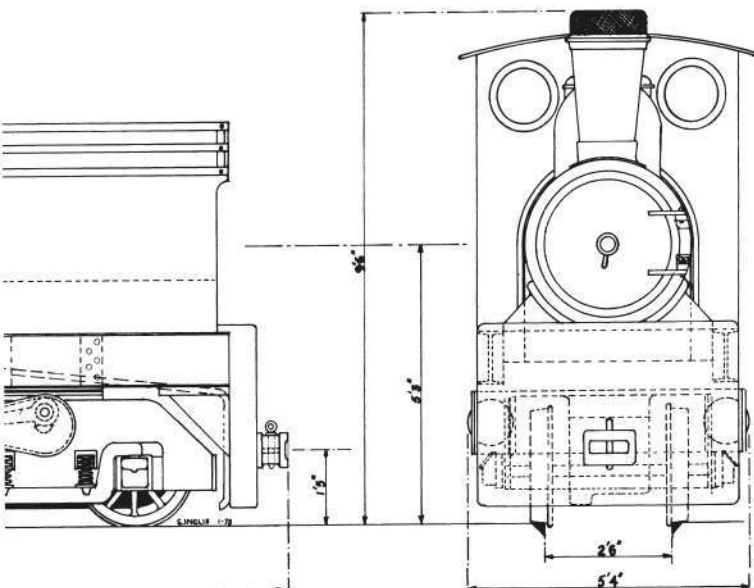
Because of the serious lack of haulage capacity due to the unsatisfactory performance of the Harman loco, the Commission again called tenders for the supply of a locomotive: no replies were received and no suitable second-hand locomotive could be found in Australia, so in April 1928 an order was placed for a Climax class B₂ 25-ton locomotive with the Climax Manufacturing Company, USA.

A group of sawmillers dependent on the line, approached Mr. Harman and the Commission with the proposal that they attempt to make the loco work. The sawmillers assisted Mr. Harman in alterations to the blast pipe and blower; additional water capacity, high pressure injectors and a feed water heater were installed. Service began and although working with light loads breakdowns continued to occur which held up operations for days at a time. During this period a new watering station was erected at Johns Creek which reduced the distance between water stations. Late in April a key on one of the crankshafts worked loose throwing the gears out of action.

In June the Commission cancelled the contract with Mr. Harman, but agreed to permit the loco to remain on the tramway for another three months for further experiments with a view to possible improvements. In July stoppages occurred due to



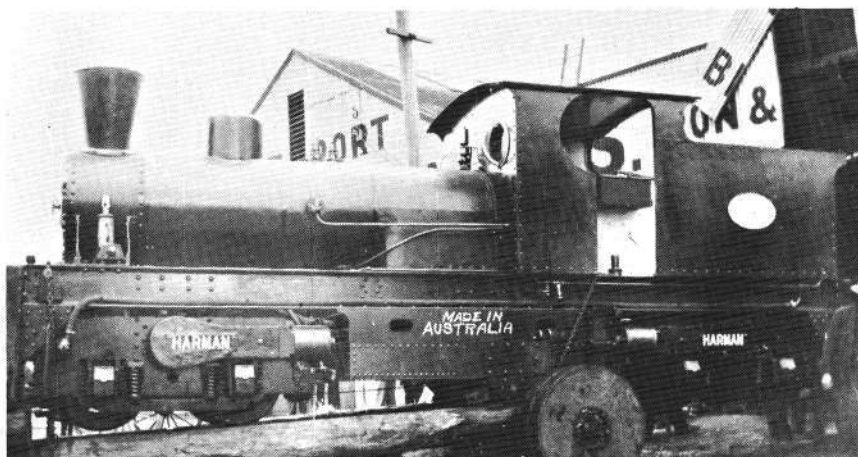
Two views of the 1/2 gauge geared locomotive built by Harman's foundry, proudly displaying "MADE IN AUSTRALIA". The locomotive's construction was encouraged by the government's policy of encouraging the purchase of locally built locomotives in this particular



The HARMAN geared locomotive, Tyers Valley Tramway

Drawing traced by Graeme Inglis from plans of the proposed locomotive prepared by Harman for the Forests Commission. As the photographs show, the locomotive as built differed in a number of details from the plan.

Harman 2-ft.6-in. locomotive outside at North Port, showing the words "Made in Australia" on the side. The reason for the construction was the policy which disfavoured the purchase of foreign locomotives, - false economy or false case.



the eccentric strap fouling the framework of the bogies and breaking, the link motion was also found to be striking the wheels. On 4th. September 1928 the Climax commenced operations on the tramway.

On the 11th. September an attempt was made to haul a 77 ton load with the Harman from Tyers Junction to Collins Siding but at Hotel Creek the load was reduced to 68 tons, the loco behaved poorly and the average speed was only $1\frac{1}{2}$ -mph. On the 28th. a further attempt was made to haul ten trucks (75 tons) but once again the loco failed and the load had to be reduced to 58 tons. Harman's two fitters had spent five weeks in repairing and adjusting the loco in preparation for the run. On 26th October another trial was carried out which proved as unsuccessful as those of the previous few months.

Alterations were then made to the boiler and on 16th. January 1929 the engine was tested with a load of $80\frac{1}{2}$ tons. The loco showed a considerable improvement, and succeeded in hauling the load to Collins Siding, but the boiler was required to operate at in excess of 200-lbs. psi to haul the load. Further alterations were made, the turbine furnace was removed and an ordinary grate fitted, in addition rectangular holes were cut in the frames to provide more air for combustion. The steam passages to the cylinders were opened out and larger steam pipes fitted. On 16th. July 1929 another test was carried out with a load of 84 tons. Once again the feed water pump would not operate against full boiler pressure and the locomotive took approximately one hour to travel $1\frac{3}{4}$ miles.

In October the Commission informed Mr. Harman that it was not prepared to re-enter negotiations for the purchase of the loco and requested that it be removed. A number of further trials were proposed by the manufacturer but did not take place, mainly due to the lack of timber traffic on the line at the time. The possibilities of reboiling, or rebuilding the loco with a diesel engine were considered and rejected on the basis of the costs involved. In April 1930 after the last trial was carried out, the loco was put in the engine shed at Tyers Junction where it remained until the line closed in July 1949. The loco was cut up for scrap in 1951 during the dismantling of the tramway.

Alfred Harman's Port Melbourne engineering works were noted for the manufacture of steam winches used for logging. In 1923 they built one 3-ft.6-in. gauge 0-4-0T locomotive to specifications for the State Rivers & Water Supply Commission for use on the construction of the Hume Weir. There is evidence that the works were involved in the construction of the "Natrass Patented Rail Tractor", and that in 1928 Mr. Natrass worked for the company.

A number of reasons appear to have contributed to the Harman geared locomotive's lack of performance. Basically the engines were very similar to those used in the Harman steam winches and of proven success, they in fact gave little trouble. The main problem seems to have been the excessive weight of the loco in relation to the tractive force. It is generally accepted that the economical ratio between adhesive force (i.e. approx. 25% of total weight) and the tractive force of an industrial steam locomotive should be about 1:1.

In this case the locomotive had -

$$\begin{aligned} \text{Adhesive force} &= \frac{\text{tons weight} \times 2240}{4} \\ &= \frac{26.5 \times 2240}{4} \\ &= 14,840\text{-lbs.} \end{aligned}$$

$$\begin{aligned}
 \text{Tractive force} &= \frac{2 \times .75P \times d^2 \times S \times R}{D} \\
 &= \frac{2 \times .75 \times 200 \times 36 \times 6 \times 4}{28.5} \\
 &= 9,095\text{-lbs.}
 \end{aligned}$$

Where P = boiler pressure; d = diameter of cylinders; S = stroke;
R = reduction ratio; D = diameter of driving wheels;

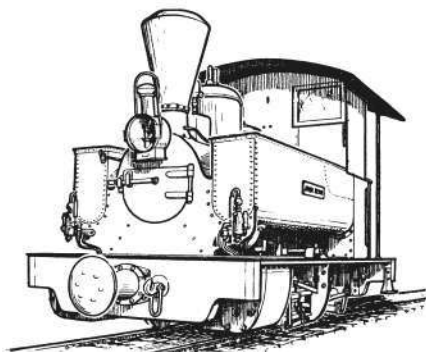
giving an excess in the former of 5,745-lbs., or approximately ten tons overweight. Had the design in fact weighed 17 tons as specified, there is still doubt that the boiler capacity was capable of supplying sufficient steam to drive the locomotive at an economic speed.

It is interesting to compare the boiler size of the Harman - diameter - 34-in, length 6-ft.6-in.; with that of the Climax - diameter - tapering 35-3/16-in. to 41-in. and 15-ft. in length; also that the draught system was seriously at fault and although modified never fully realised the steam capacity of the boiler.

In all, the locomotive was a collection of minor design faults which could have been overcome had not the weight grossly exceeded the design specification.

References - The Tyers Valley Tramway, By N. E. Wadeson, ARHS Bulletin No.255, January 1959.

Forests Commission of Victoria



LETTERS

CATHERINE HILL BAY RAILWAY, LR 41, p.24

Regarding Ken McCarthy's letter on the Catherine Hill Bay Railway the Hudswell Clarke had on one side tank "J.K.6". This was painted on by John Kennaway for publicity photos upon its delivery to Catherine Hill Bay. So, if we want to engage in exactitudes, should we say that it was purchased from John Kennaway and not the Sydney City Council? Also, in passing, what were John Kennaway's Nos. 1 - 5? I can think of three locomotives he owned but I did not see numbers on them.

Goulburn, NSW, 2580

B. Macdonald

CATHERINE HILL BAY RAILWAY (LR 39, p.5)

Just before the publication of Mr. Pacey's letter (LR 41, p.26) concerning JABAS loco No.27 (ex S.M.R. No.2) my attention had been drawn to a recent conversation at the SMR locomotive depot, wherein one of the Company's senior drivers had made a general query concerning the eventual fate of "old No.2". Now it should be noted that SMR No.2 had disappeared from East Greta Junction well before the advent of any of the present day enginemen, having been transferred to Stanford Merthyr No.2 Colliery (Paxton) for shunting duties in 1923. It was here that the latter day SMR men made the acquaintance of No.2 as the little 0-4-OST was to remain at Paxton for approximately 27 years - by 1936 it was the last of the original East Greta Coal Mining Company's "little engines" still to be found running on the South Maitland system.

The SMR driver who raised the aforementioned query concerning the whereabouts of ex-No.2 had in fact been at the regulator of the little saddle tank when it made its way light-engine from Paxton to Pelaw Main via Weston Junction. Unfortunately he could not recall the exact year of this interesting journey but states that it was "about 1950".

This fortuitous piece of information goes some way towards filling in the history of No.27 during the period 1946-57. It seems reasonable to assume that No.27 was stored at Paxton from about 1946 to 1950. The withdrawal of No.27 in 1946, while still serviceable, is consistent with the increase in production at Paxton around this period, following the award of a contract to supply the Bunnerong Power Station in Sydney. The Bunnerong trains were composed of Departmental vehicles marshalled in block loads of 700 tons and it is reasonable to suppose that No.27 was a little light for the heavier shunting work then required. About 1946 No.27 was replaced by JABAS No.25 (ex Seaham Collieries (2nd) No.3) a Kitson outside cylindered 0-6-0 tender engine.

It is unlikely that No.27 saw much service after its transfer to the Richmond Vale Railway system but Mr. Pacey is probably correct in assuming that it received some sort of tone-up before its transfer to Catherine Hill Bay. I do not see any significance in the fact that No.27 failed in 1962 except to note that the engine had by then given five years' of presumably trouble free service on the Wallarah Colliery Railway - not bad going for a 62 year old loco, over-haul or no overhaul.

Redfern, NSW, 2016

R. Driver

REMINISCENCES OF A FIREMAN, LR 41, p.11

The leading paragraph of the Isis serial states "...No.8 was cut up,..." What was No.8 ??? I have believed that 8 was the number originally carried by the Fowler diesel which was renumbered D1.

Goulburn, NSW, 2580

B. Macdonald

(Editor's comment - In LR 37, p.6 it was stated that No.8 was reserved for the ex-QGR "B13" class locomotive No.185, and it was also stated that the B13 never actually carried the number 8. It was the B13 loco which was referred to in the first paragraph of LR 41, p.11. On the other hand, in LR 41, p.13, George Bond stated that the Fowler diesel No.D1 was originally No.8 in the steam roster.)

TO ROCKY BLUFF (LR 32, p.9)

The builder's number of Stannary Hills No.1 "Pompey" is more likely to be 2196, but not 2198. Krauss 2198 of 1889, an 0-6-0T was No.4 of the 750 mm gauge Ferrocarril de Onda Al Grao de Castellon (OGC), Spain. The locomotive was rebuilt in October 1956 by the OGC. (Reference - Minor Railways and Tramways in Eastern Spain, published by the Birmingham Locomotive Club). 2198 was seen personally by Chas. Small.

Mount Waverley, Vic. 3149

Peter L. Charrett

LOCOMOTIVES OF THE MARRAWAH TRAMWAY, (LR 41, p.4)

"Spider" was of Baldwin manufacture. There were distinctive features about Baldwin and Phoenix tram motors ex Bendigo. Briefly they were (a), the smokebox front; (b), the steam chest cover and the arrangement of the holding studs; (c), the design of the counterweight on the driving wheels; (d), the design surrounding the slidebar support. An example of a Phoenix motor was the Mitchell (Cave Hill tramway) loco at Lilydale. The cost of conversion of Spider was told to me to be £600. The thin flanges arose because they were originally of tramway contour.

I saw the boiler of "Big Ben" in a machinery yard at Launceston in 1961. In the section on Lee's locomotives, there is no mention of the Thos. Green tram motor.

Goulburn, NSW, 2580

B. Macdonald

LOCOMOTIVES OF THE MARRAWAH TRAMWAY (LR 41, p.4)

The builder's number of "Six Wheeler" should be 380 not 390. Hudswell Clarke 390 of 1891 was a 2-ft.11½-in. gauge 0-4-OST built for Van Rietschoten & Houvens, Importers, Rotterdam.

Mount Waverley, Vic. 3149

Peter L. Charrett

EARLY LOCOMOTIVES OF JARRAHDALE, (LR 41, p.8)

LR 41 gives an opportunity for the "rank and file" to give an opinion on my theory concerning "Pioneer". Compare the lower half of the picture of "Spider" (LR 41, p.5) with that of Pioneer (LR 41, p.9) for similarity of wheel spacing and diameter. Also, the two lengths of structural steel (one on each side) are about the same height as the footboard of Spider and could have conceivably been fastened to the counterpart on the embryo of Pioneer. It is apparent, by the daylight seen between the bogie and the driving wheel unit that these steel members are all that is keeping everything in place. Not all of the Bendigo tram motors have been traced.

Goulburn, NSW, 2580

B. Macdonald

EARLY LOCOMOTIVES OF JARRAHDALE (LR 41, p.8)

Negotiations with the colonial government of Western Australia led, in 1870, to the granting of timber concessions in the Jarrahdale district of Western Australia to a Mr. Wanliss of Ballarat, on the condition that he developed a mill, tramway and port. The first motive power for the project was a large traction engine, the Thomson Road Steamer, which arrived in September 1871. It was used initially to haul drays or sleds of equipment to the mill site at Jarrahdale

and, indeed, probably hauled the Ballarat locomotive "Governor Weld" to the mill-site after its arrival - in pieces - on the brigantine "Nightingale" in December 1871. The route was overland from Mason's Landing, which was the site of another wooden tramway running east to Canning Mill, operated by Mason & Bird.

The Jarrahdale tramway was constructed from the mill, westward $23\frac{1}{2}$ miles, reaching the ocean at the site of the port of Rockingham in December 1872. The locomotive was found unsatisfactory as it damaged the 4-in. x 3-in. jarrah rails pegged to roundback sleepers. Later iron straps were added to the rails, but also were unsatisfactory resulting in complete relaying with iron rails by late 1882. Teams of eight horses replaced the locomotive and an incline system using whip rope and pulleys was instigated on the steep grades of the escarpment.

The locomotive "Governor Weld" drops into complete obscurity after this. In V.G. Fall's book "The Sea and the Forest" (University of W.A. Press, 1972), which is a history of Rockingham Shire, there is a report that "Governor Weld" was rebuilt at the Fremantle Government Railway Workshops in 1892. This coincides with the takeover in March 1892, of the business by a new company titled "Rockingham Railways & Jarrahdale Forests Co. Ltd." Fall also claims that Mr. E. W. Woodland, the Honorary Secretary of the Australian Railway Historical Society, W.A. Division, is in possession of one of two brass plates attached to Governor Weld at the time of rebuilding. This should not be confused with the 1904 rebuilding of the locomotive "Pioneer" mentioned by J. L. Buckland (LR 41). Fall's account does not make any reference to a 1904 rebuilding but merely states that the locomotive worked at Jarrahdale until 1904 and no details are given of its subsequent disposal.

V. G. Fall states explicitly that the locomotive, "Pioneer", appeared on the scene in 1874 from Fulton's Foundry in Victoria and worked on the line until 1904.

A further complication is the claim by Fall that the "Thomson Road Steamer" worked hauling machinery to the millsite and later logs from the forest until, in the mid-1870's, it was rebuilt to run on rails as a locomotive. There is no mention of this locomotive in the literature; indeed the only locomotives mentioned as having worked the Jarrahdale line, at least in the days before the 1902 amalgamation when the vast timber interests of Millars, Davies and Jarrahdale merged to form Millars Karri & Jarrah Co.(1902) Ltd. controlling 14 major sawmill complexes in the south-west, appear to be "Governor Weld", "Pioneer", "Samson", "Samson No.2", and two G class 2-6-0 Beyer Peacock tender locos named "Jarrahdale" and "Rockingham", purchased from WAGR in 1896.

Another piece of evidence is the report in the "Western Australian Almanac" of 1872 (p.54) which states that the Thomson Road Steamer was "yclept the 'Pioneer'" (yclept = "called", "named", middle English, World Book Dictionary).

It would appear that Mr. Woodland or the W.A. Division of the ARHS can provide evidence of Governor Weld's existence up to 1892 when it was rebuilt. The converted Thomson Road Steamer now becomes the mystery locomotive. Did it become the locomotive, "Pioneer" of 1874? It is unlikely that the name "Pioneer" would be applied to the 1874 Fulton locomotive, without the suffix "No.2" added, unless it was the rebuild of the original "Pioneer" - the Thomson Road Steamer. Like Mr. Buckland, I too would like to see this perplexing mystery solved by the experts on Western Australian bush locomotives.

The references used in my assembly of data above are as follows -

- (i) The Sea and the Forest by V. G. Fall, published for Shire of Rockingham by University of W.A. Press 1972. This covers the history of the Shire, and the Rockingham line in detail, and is the principal reference.
- (ii) Along the Canning by F. G. Carden, published by Canning Shire Council, Cannington W.A., 1968. This covers the history of Canning Shire which lies near Jarrahdale - mainly covers the Mason's Landing tramway to Canning Mills, but also details history of Rockingham line.
- (iii) Australia's Western Third by F. G. Crowley, published by Macmillan, London 1960. This book has a general chapter on development of the timber industry

Macgregor, A.C.T. 2615

I. R. Crellin.

LOCOMOTIVE VALVE GEARS (LR 41, p.21)

On the subject of valve gears which W. A. Pearce referred to in LR 41, p.21; Ray Graf's photograph of Hunslet B/No.1844 at Ida Bay township (LR 40, p.20) clearly shows Hackworth valve gear. I do not understand Mr. Pearce's reference to kinematic faults. All valve gears do and should impart a reciprocating motion to the valve, when in mid-gear, this being equal to the lap, plus allowance for lead (if lead is used). This can clearly be seen by examining a photograph of Walschaert's valve gear. This reciprocating motion is obtained directly from the cross-head via the "combination link" the sole purpose of which is to add this motion to that derived from the return crank.

Hackworth, Marshall and Joy valve gears all suffer from the characteristic that vertical motion of the driving axle caused by track irregularities, is transmitted to the valve as an error motion. I should imagine that as the springs age, and acquire a "set" on engines with Marshall's gear, they would take on bad syncopation and sound as bad as Puffing Billy!

It would appear to me that these problems could be solved if the transverse shaft which carries the slides on Joy's and Hackworth's, or the rocking arm on Marshall's gear were mounted on the axleboxes of the driving axle, rather than on the frames. I would be interested to hear if any LR readers have observed this on an actual locomotive.

Hawthorn East, Vic. 3123

Richard Schürmann

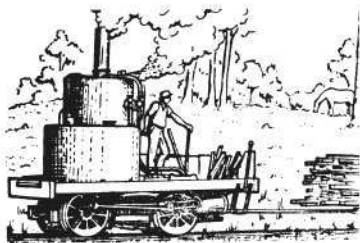
NEW SCALE DRAWINGS

HARMAN 2-ft.6-in. gauge GEARED LOCOMOTIVE as used (on test runs) on the Forests Commission's Tyers Valley Tramway, Victoria. The drawing is directly traced from the manufacturer's original plan, and shows side and front elevations, as well as details of the unique drive arrangement. Two photographs are also included on the 9 $\frac{3}{4}$ x 13 $\frac{1}{2}$ -in. sheet.

POWELLTOWN 3-ton WAGON This is an off-set printed photographic reproduction of the Victorian Powell Wood Process Company's original blueprint of 1912. The drawing shows all constructional information in great detail, and almost all faults on the original have been retouched to give a very clear print. (Black lines on white background).

(The POWELLTOWN SHAY, and BALDWIN 0-4-OST drawings are now available in an improved off-set printed form, showing details more clearly)

Price of all drawings - 40¢ each, plus 10¢ postage on one to four drawings. Available from LRRSA Sales Department, address on page 3.



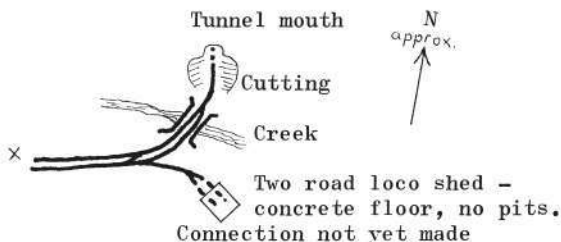
News, Notes & Comments

AUSTRALIAN CAPITAL TERRITORY

NEW 610 mm gauge RAILWAY IN THE A.C.T.

Work has commenced on the $5\frac{1}{2}$ mile (8.8 km) Tuggeranong sewerage tunnel from the north bank of the Tuggeranong Creek in the vicinity of Canberra's proposed "satellite city" of Tuggeranong to the sewerage works at Weston Creek. The tunnel will be concrete-lined and is expected to cost more than \$6 million. Near the existing Canberra suburb it will be 350-ft. below the surface. An inspection on 2nd July 1972 revealed that tunnelling has so far progressed only 20-ft. or so and, although there are no rails in the tunnel itself, an embryo railway set-up is in existence. A total of about two-hundred yards of track is laid, part of it on a wooden-decked steel bridge over the Tuggeranong Creek in the following arrangement -

Conveyor belt arrangement
for loading spoil ex
Hagglund dump cars into
motor lorries.



In July rolling stock included -

- (a) two Hagglund Type 1 HRST 90 B dump cars (capacity 9 m^3 ; with air-motors model PA 23), serial numbers 11506 and 11507 but no road numbers as yet. Built under licence by Joy Manufacturing Pty. Ltd of Mascot, NSW.
- (b) three Atlas Copco model LM 56 HE loaders, serial numbers 72 718111; 72 718123 and 72 718124, bearing road numbers 1, 2 and 3 respectively.

All railway equipment is new. The operator is Pearson-Bridge Group Engineering, constructing the sewer for the National Capital Development Commission.

There is a similar railway at the other end of the tunnel, and by September 1972 locos had been delivered. I have also learned of another railway in the area, this time engaged on a sewer diversion job in the Belconnen district of Canberra. This line belongs to Leighton Constructions and has a

length of nearly 2,400-ft. Tunnelling is expected to be completed in September 1972, but I guess it will survive a little longer, since the tunnel will be lined.

(J. Wainwright)

NEW SOUTH WALES

GOONDAH - BURRINJUCK TRAMWAY, 2-ft. (610 mm.) gauge.

In February 1973 I visited the Burrinjuck Waters Park to see what could be found of the former 2-ft. gauge tramway.

The only piece of line left is near the dam proper and until early February it could be seen, but now the water level has risen and covered it. Nearly all the formation still exists. The parts missing have either been flattened by the people who bought land along the route, or are obscured by roads.

Starting from Goondah nothing much can be seen. According to Mr. Bruce Macdonald of the Goulburn Museum, portion of the old 2-ft. gauge platform can be seen. We could not find it, as the formation seems to go through somebody's property where the platform would have been. The formation can be seen where it crosses the main NSWGR line, just west of the Goondah station. It heads off in front of a house and into a paddock. From there we lost it. I should say it would have followed the telegraph line, as it does at the dam end of the route. Before the main NSWGR line reaches Goondah (from Bowning) it goes round a great horse-shoe curve. Heading from the Goondah station towards the northern end of this curve is an old formation which, according to a lady of the area used to be part of the 2-ft. gauge line. To me it seemed that the formation was too large for a 2-ft. gauge line. (This was probably the formation of the original route of the NSWGR line before the present deviation was built in 1915 - Ed.)

After leaving Goondah we travelled east to Bowning to join the Hume Highway, and then west to the Burrinjuck Dam turn-off - about 14 miles by road, whereas the old 2-ft. line took five miles for this section. At the turn-off the formation can be seen north of the Hume Highway. It is about 100 yards east of the road junction, and we followed this for some two miles before we found ourselves trespassing.

From the turn-off towards the dam the old formation can be seen on the left (east of the road). This is fairly easily seen all the way because it is dotted with the original and still used telegraph line. About a quarter-mile from the turn-off is the remains of a bridge. All that is left are the uprights. These are about seven feet high. Along the way the formation has been washed away by small seasonal creeks. On entering the park area you have to cross a cattle grid, and from here on for the next five miles or so the sealed road is on the old formation.

At the Park proper nothing remains of the line except for a photo donated by one of the locals of the area. I was told at the Park office that if I liked to go a couple of miles further on to the village near the dam I would find some people who worked on the line. However, the access road was "closed to unauthorised persons until further notice". Consequently I did not get to talk to these people.

About 30-yards from the park office is a 3-ft. gauge side-tipping truck that was used on the dam site during construction.

(G. F. Murdoch)

(References to this line can be found in "River Rovers" by E. J. Brady, published

in 1911; in ARHS Bulletin Nos. 230 and 236, December 1956 and June 1957; and in the NSW Rail Transport Museum's magazine of September 1966.)

METROPOLITAN WATER SEWERAGE & DRAINAGE BOARD 2-ft. (610 mm) gauge.

The Sydney Morning Herald carried an advertisement on 4th. November 1972 for the sale by auction of one Gemco 2-ft. gauge battery-electric locomotive fitted with two 5-h.p. motors. The locomotive was presumably one of a fleet used by the Sydney MWS&DB for underground mains construction. From past sales of this type of unit I would say that it was probably suitable only for scrap, as this type of machinery suffers badly from rust and battery acid damage. (D. Audley)

TASMANIA

VAN DIEMEN LIGHT RAILWAY SOCIETY, P.O. Box 887, Launceston, Tas., 7250

Despite a tremendous effort from some of our members, we have still been unsuccessful in finalising arrangements for a permanent home for the Society. From a total of 43 sites considered, we have now produced a short list of five or six. One of these sites is near Deloraine, on the disused right-of-way of the North Broken Hill Company's line abandoned some 42 years ago. Even if this does prove abortive, the investigations into the past operations proved to be very interesting, and could be well worth an article in a future issue of LR! (Yes, definitely! - Ed.)

The TGR have now expressed keen interest in our proposals, and it appears that various assistance and donations will be forthcoming. We are enjoying an excellent liaison with the ARHS Tasmanian Division, and with the Tasmanian Steam Preservation Society from whom we frequently get practical advice and assistance. The support that we have been getting from private industry has been most enthusiastic - we even had 15 tons of steam coal donated.

The restoration work on the Hunslet loco has proceeded slowly, mainly because we are not established in a permanent home. It is intended to modify the cab to one both more practical, and pleasing to the eye. The present arrangement makes it impossible to see the road ahead when standing in the driving position. Restoration of one of the Zeehan & North Dundas Mineral Tramway flat cars is well underway, and we have been able to sort out a set of wheels without flats. Amongst other equipment recently brought from Tullah are two loco frames - a Fowler (the original "Wee Georgie Wood") and an Orenstein & Koppel (former Magnet Tramway loco). It is hoped eventually to use these frames as brake-vehicles. We found two complete flat cars in the scrub at Tullah - one built by Pickering, and the other an old timber framed 19-ft. Zn & Nth Ds M1 Twy vehicle, which turned out to be the old Tullah tram passenger car - minus most of its body - with operating hand brake and complete vacuum brake system.

The boiler inspector has indicated that the Krauss No. 9 (B/No.5988) could probably be given a certificate for a boiler pressure of 60-70 p.s.i., and offered to give a hydrostatic test at the same time as the Hunslet. We appeal for the return of the works plates of Krauss 5988 which, together with the whistle, are believed to be in the hands of a Victorian enthusiast.

(Ian Hall, President, VDLRS)

WELCOME SWAMP REVISITED (See LR 27, p.22; and LR 34, p.31)

On Monday 29th January 1973, in company with Mr. Phil Britton and another

helper, we proceeded to Welcome Swamp on the Redpa Road and made the preliminary preparations for loading "Six Wheeler" onto a low-loader for transport to Brittons Bros. mill at Britton's Swamp. (See LR 41, p.4 for history of this loco). We had quite a bit of digging to do because the loco had been pushed into its present position by a bulldozer during road widening works and quite a lot of dirt was piled up in the back of the cab. After this was cleared away the blackberries and other vegetation was removed and a wire rope attached to the loco drawbar. The winch on the low-loader truck was then used and the old loco's wheels once again began to turn as it moved gently up onto the decking of the transporter.

On arrival at the mill during the lunch hour, a fork lift was used to pick the loco up and place it gently onto a temporary wooden platform so that the restoration work can take place. The internal combustion engine and gearbox is to be removed, and the boiler from the old steam loco "Spider" is to be placed into its frame.

We then hooked a wire rope onto the boiler of "Spider" which was lying on its side in a hollow, and a large timber hauler dragged it up onto level ground alongside "Six Wheeler". The boiler lagging has now been taken off and the final result is to be painted up and placed outside the Marrawah Hall at some future date.

Mr. C. Jaeger kindly donated "Six Wheeler" to the Marrawah committee and Mr. Phil Britton donated the boiler of "Spider" for the project. It may also be possible to place two timber tramway bogies behind the loco with a large log placed upon them, to represent an era in transport in the Circular Head District for the benefit of tourists.

(Ralph Proctor)

VICTORIA

TRAMWAY REMAINS AT PLATINA

I was most surprised to find in the map in LR 38 a steel-railed line running out of Platina - it is not mentioned in "Speed Limit 20" - so I recently went to search for it. It is easily accessible now, (unfortunately) since a bulldozer has destroyed the layout. There are three levels at the terminus and remains of sleepers everywhere, as well as some very light rail (height $2\frac{1}{8}$ -in., base $2\frac{1}{8}$ -in.). I found the concrete base for a boiler and the remains of a boiler at the lime works. Also found were two bodies of "vee" skips in fairly good condition, the tops being 3-ft. 11-in. square, and the height 2-ft. $4\frac{1}{2}$ -in. Part of a skip frame was found, complete with axleboxes - wheelbase 21-in., length 6-ft., width 2-ft. $5\frac{1}{2}$ -in. Nearby there was a pile of coupling parts (link and pin type).

(John Peterson)

YARRA JUNCTION STATION OPENED AS A MUSEUM

It was reported in LR 28, p.19 that the Upper Yarra Historical Society intended to take over Yarra Junction station and open it as a museum of local history. This they have now done, and the result will be of interest to all railway enthusiasts. The Malcolm-Moore six-wheel tractor from Powelltown has been completely repainted and is displayed on the platform. Inside there is a fine collection of photographs and other items connected with the history of the area. The museum is open on Saturday and Sunday afternoons, and is well worth seeing.

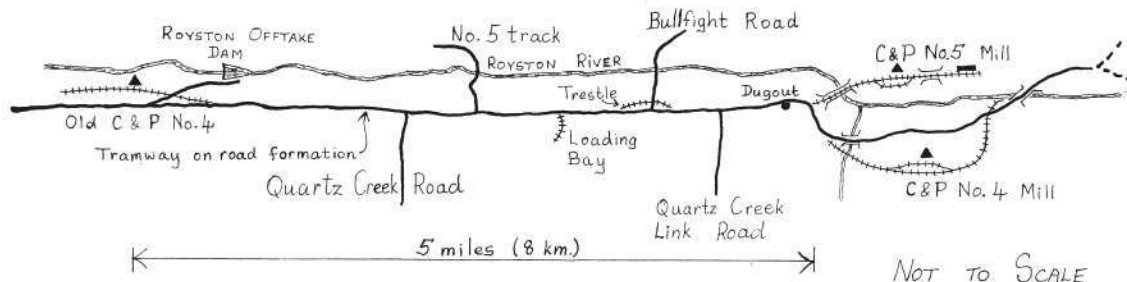
(Frank Stamford)

RUBICON FOREST TIMBER TRAMWAYS, Clark & Pearce Pty. Ltd. 3-ft.6-in. gauge

In October 1972 the remains of Clark & Pearce's tramway to Nos. 4 and 5 mills was inspected. The tramway was picked up where it crossed the SEC water channel, the formation being evident on both sides, but no bridge remains are present. (See maps in LR 28, p.13; and LR 36, p.15).

At old C&P No.4 nothing remains except a huge pile of sawdust, a rusting boiler, an old galvanized iron shed (possibly used to house a tramway tractor?) and blackberries. From here the Royston road has been built on the tramway for much of the distance, this is evident by sleepers in the road. (On a visit to Old C&P No.4 mill in January 1971 the frame of a home-made four-wheel tractor, and the remains of two timber bogies were found. These are probably now hidden under the blackberries - Ed.)

Along the road a loading bay with wooden rails may be seen, also the remains of a wrecked trestle. The only intact trestle bridge seen on the tramway, complete with some decking and rails - being a three-span type - may be seen at the Bullfight Road junction, immediately to the left.





Left - Rails on trestle on Clark & Pearce's 3-ft.6-in. gauge tramway at No.5 Mill site. 8th. October 1972.

Right - Trestle near Bullfight Road on Clark & Pearce's tramway in the Rubicon forest. 8th. October 1972.

Photos - A. Sedawie.

Clark & Pearce No.5 Mill

This is about five miles from Old C&P No.4. 100 yards past the dugout on the right side of the road, the road turns right, but the tramway continued straight ahead crossing the Royston River on what must have been a very large trestle bridge - alas there is not much left now. After crossing the river you reach C&P No.5, some huts may be seen from the road. At the mill many sleepers are in place where there was a passing siding. Ten yards further along there is a long low bridge with some sleepers and wooden rail in place. Just past the bridge the tramway terminates at a loading bay with sleepers and wooden rails in place. The mill site is quite clear, two huts, light scrub and concrete foundations is all that remains.

Clark & Pearce No.4 Mill

Another 100 yards down Royston Road the road crosses a creek and climbs a steep bank. Immediately to your right the remains of a wrecked trestle can be seen at the creek, this bridge was on a gradient. At the end of the bridge the remains of C&P No.4 can be found. Here the remains include a loading bay and two water tanks, some wooden rail being still in position. The tramway continues past the mill, on a left hand curve and still on a gradient. Steel rails on both sides are still in place on this section. The tramway continues for a further half-mile crossing the Royston Road and terminating near where Royston Road crosses the river. The mill site was not inspected too well, as time was running short. The map in LR 28, p.13 is misleading. (Editor's comment - The map in LR 28 showed the roads as indicated on a Forests Commission map of 1944 when the tramway was still in use. It would appear that when the tramway closed the road was diverted to follow the tramway route, otherwise the 1944 map was very inaccurate). The mill sites may be reached by car, the road being nearly level for most of the way, but very rough in places.

(A. Sedawie)

M&MBW THOMSON RIVER - YARRA TUNNEL 2-ft.6-in. (762 mm) gauge.

To help alleviate Melbourne's water supply problems the M&MBW is constructing a tunnel to bring water from the Thomson River to Melbourne's water storages in the Yarra River Valley. The tunnel is being built jointly for the M&MBW by Guy F. Atkinson Co. and John Holland (Constructions) Pty. Ltd. Diesel locomotives are used on a 2-ft.6-in. gauge railway in the tunnel. The tunnel is scheduled to be completed by April 1974 although the government appears likely to speed up the completion date.

(P. L. Charrett)

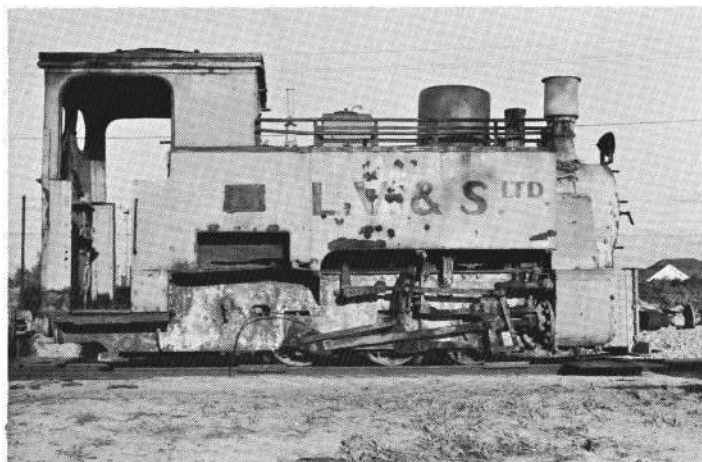
WESTERN AUSTRALIA

LAKE VIEW & STAR TRAMWAY 2-ft. gauge

The Lake View & Star goldmine is situated about 2½ miles south-east of Kalgoorlie, on the "Golden Mile". My wife and I visited LV&S on 22nd. August 1972, one of the "open days" for tourists. After much time at the offices I received a pass to allow me to inspect the railway line. The receptionist could not understand why I was only interested in the railway and not the gold! The map I have done is pretty close to scale as it is copied from a map purchased from the Tourist Bureau.

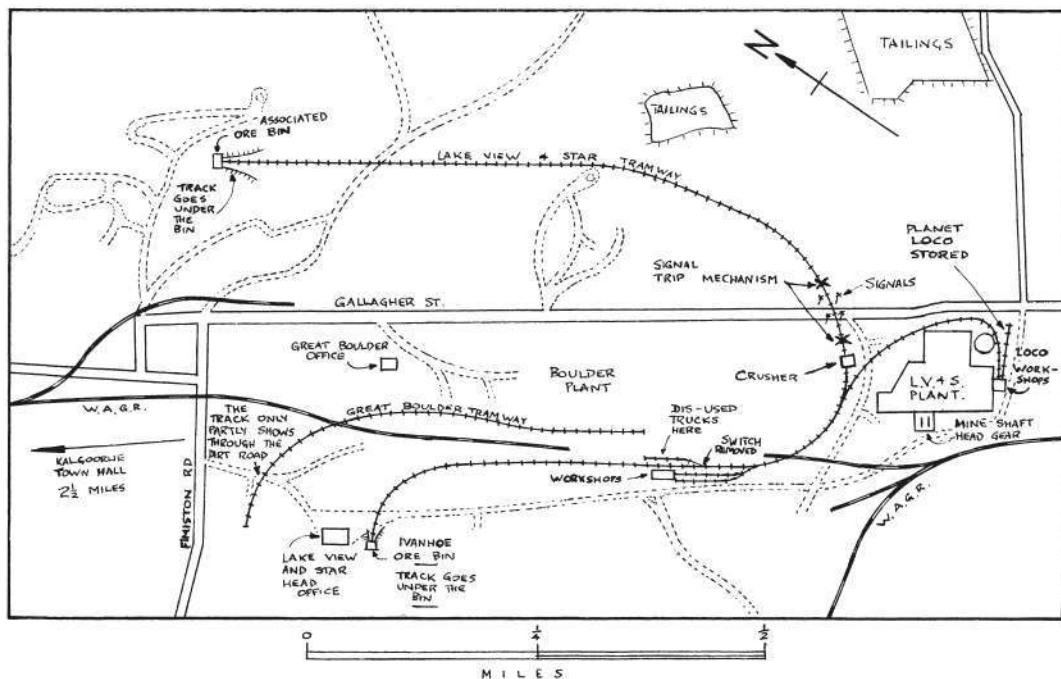
As can be seen from the map, the line is roughly U shaped. The slight gradient on the line has its lowest point at the actual LV&S plant area. This means the trip from the ore bins, with a full load, is relatively easy for the locos. An unusual feature of the line is that it has a flashing light system on the Gallagher Street entrance to the plant. As the train approaches Gallagher Street an overhead mechanism is tripped by a raised section on the roof of the loco, causing the home-made flashing lights to operate. Once the road is crossed a similar mechanism is tripped to stop the lights. This has a limiting effect on the length of trains. With the hopper cars used at present, the number is eight. The older smaller hoppers were coupled together in twelve's.

The line is at present worked by three 0-4-0 diesel locos. Two were built



Former Lake View & Star tramway 2-ft. gauge Koppel 0-6-0T locomotive now stored at Ashfield, Perth.

Photo - G. F. Murdoch



by Planet, of the United Kingdom. The other is locally built by George Moss Pty. Ltd. of Perth. One of the Planets is stored out of use on a short piece of track outside the loco workshops. The locos and hopper wagons are painted yellow.

The LV&S has just purchased a bigger 142-h.p. Planet diesel (painted blue) from the Great Boulder company. I saw this loco near one of the sheds in the Great Boulder plant but because of its size I thought it was a WAGR loco. The signal trip mechanism will now have to be raised about 9-in. to allow the bigger loco to pass under it.

The line used to be worked by two 0-6-0T Koppel steam locomotives which had consecutive builder's numbers (see LR 41, p.22). They were also painted yellow. One is at present in the ARHS yard in Perth. The other is in somebody's back yard under repair, to be run (supposedly) at the site of the Castledare Miniature Railway. (This is a 7 1/4-in. gauge miniature railway in the grounds of a boy's home in the Perth suburb of Riverton.) The Koppel locos were 8-ft.5-in. high over the cab and 6-ft.1-in. wide. Another steam loco of a different type is depicted in a huge photo display in the entrance to the LV&S offices.

Outside the loco workshops is a pile of old 18-in. and 20-in. gauge mine trucks which were used underground. Inside the workshop area were a few 20-in. gauge battery-electric locos. They would be about 4-ft. long and 2-ft. high with the four wheels being coupled.

(G. F. Murdoch).

Sixty years ago...

From the files of the "Upper Yarra Advocate", 28th. February 1913.

TRAM DISASTER

TWO MEN KILLED

NINE INJURED.

TRUCKS LEAVE RAILS

Overtaken at Crossing.

An accident which resulted in two men being killed and nine more or less seriously injured, occurred on the Powellised Tramway Company's line, about three miles from Yarra Junction, at 8 a.m., on Tuesday morning. Several trucks broke away and left the rails at a crossing, with disastrous results, dashing into a store at the side of a road

CAUSE OF ACCIDENT.

The train, which had become stalled on an incline, was divided. The back section of the train was "choked," and the engine, in starting, set back a little, giving the trucks at the rear an impetus which carried them over the chocks. The trucks rushed down the incline to Yarra Junction. At the crossing in Main street the accident occurred. The trucks left the rails and fell to the ground with a crash.

When the trucks broke away sixteen men were seated on top

of the load. Six of them jumped off, and the others were pinned beneath the wreckage when the load upset.

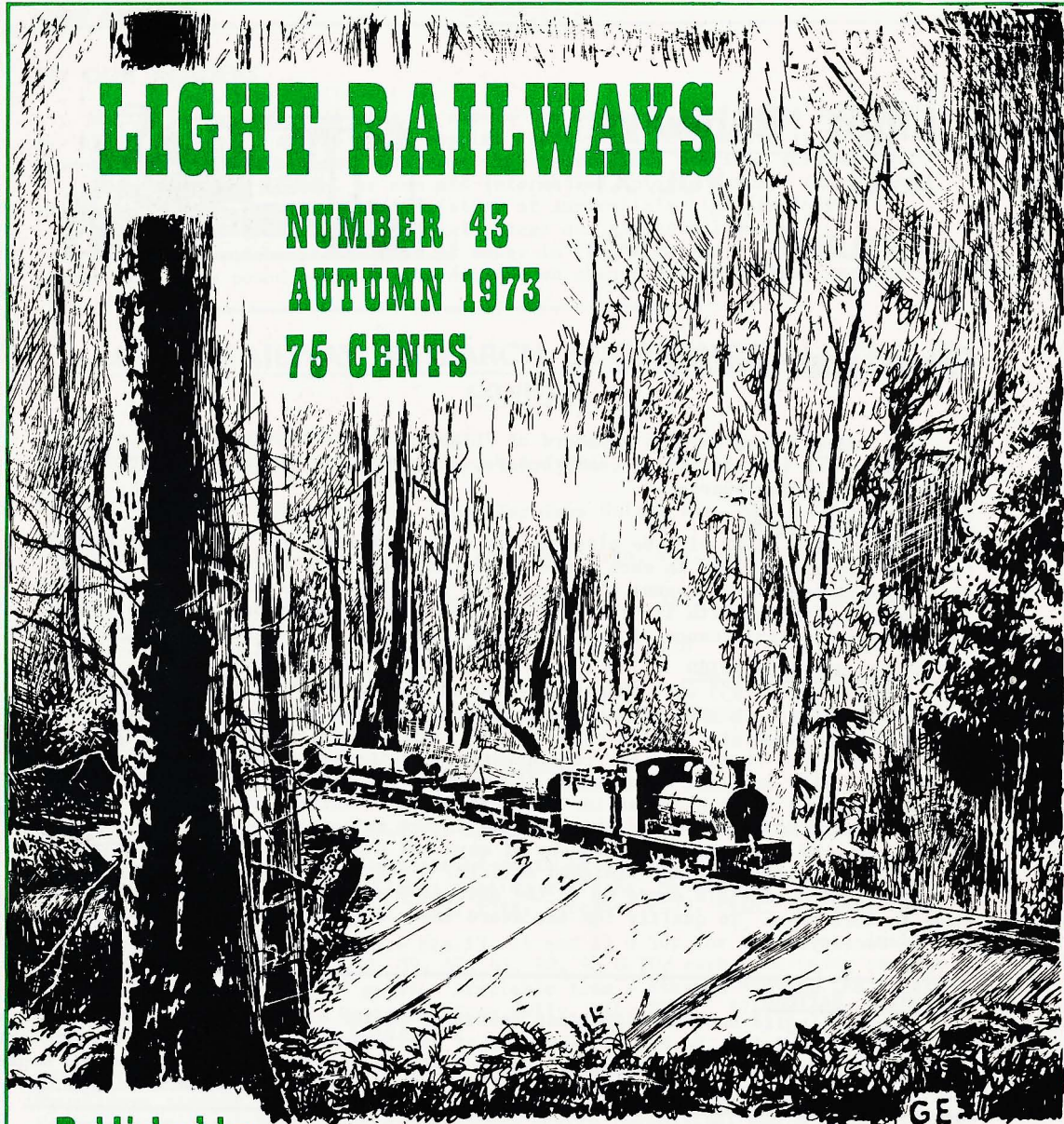
Arrangements were made to have the injured men sent to Lilydale, a distance of about 18 miles, and a message having been received in Melbourne, a special train was despatched from the Flinders street station at 8.58 a.m. The train consisted of a casualty van, three carriages, and a guard's van.

In the course of a brief interview on the Lilydale station with our representative on Tuesday, Geoffrey Wardley, the guard on the timber train, gave his story of the accident.

"About three miles from the township we found it necessary to divide the trucks. This was done, and blocks were placed behind the wheels of the back trucks to prevent them from running downhill. In easing up to them for the purpose of uncoupling, the engine struck the trucks rather hard. The result was that they ran over the blocks and dashed downhill. I hung on to the brake for about two miles to try to stop the trucks, but finally had to give up the task. When the trucks bolted half-a-dozen of the men jumped down, and landed safely on the ground. The others took their chances on the trucks, with the results already known."

LIGHT RAILWAYS

**NUMBER 43
AUTUMN 1973
75 CENTS**



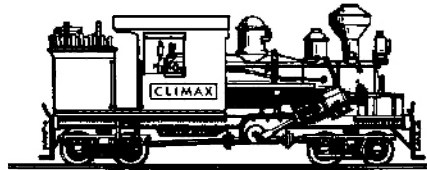
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THE LIGHT RAILWAY RESEARCH SOCIETY OF AUSTRALIA

Light Railways

No. 43 VOL. XI

AUTUMN 1973



From your editor

In order to improve the standard of "Light Railways" and to provide some recognition for the efforts of contributors, the Society's Council has decided to issue the following awards -

FIELD REPORT AWARD

This award of \$2 will be given to the contributor of the best "News, Notes & Comments" item published in each issue of the magazine, as judged by the editor. Judging will take into account clarity of the report, the adequacy of maps and photographs supplied with it, the difficulty involved in visiting the site, and the historical significance of the discoveries made.

HISTORICAL RESEARCH AWARD

This award of \$35 will be given to the author of the best major article published during each subscription year, commencing with LR 44. The judge or judges will be appointed by the council, and judging will be done in consultation with the editor. To qualify for consideration for the award articles must consist of substantially original research by the author, and must be fully supported by a complete list of references (as in "Millars' Denmark Railway" in LR 33). Judging will primarily be based on the thoroughness of the author's research, the historical significance of his work, the adequacy of maps and other illustrative material, and the literary standard of the finished article. If in any particular year the judges consider that no article comes up to the necessary standard the award will not be made in that year. To qualify for the award the contributor must also be a member of the Society.

EDITORIAL MATTERS

Graeme Inglis has been appointed Assistant Editor of "Light Railways" to help us get back on schedule. He has handled much of the typing and correspondence associated with this issue. In the coming year a number of new innovations to improve the magazine are planned, commencing with LR 45, including a larger page size.

OUR COVER

Sixty years ago in August 1913 the 3-ft. gauge Powelltown tramway commenced operation as a public passenger and freight carrier, construction of the main line between Powelltown and Yarra Junction having been completed a few months earlier. Our cover shows "Powellite" an 0-6-0 Bagnall locomotive (B/No. 1965 of 1912-13) hauling logs from the bush into the mill at Powelltown.

TO OUR READERS...

Whilst every effort is made to ensure the accuracy of articles published in "Light Railways", errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the Editor, and so help us to record the full history of Australia's light railways.

Articles and News Notes & Comments items are always welcome.

Historical references to sums of money in "Light Railways" are in Australian pounds (£). One pound equalled two dollars on changeover to decimal currency in 1966.

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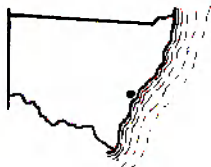
MEETINGS - Second Thursday every second month at 8-00pm, room 11, Victorian Railways Institute, Flinders Street Station building, Melbourne. Next meetings 9th. August 1973, 11th. October 1973, 13th. December 1973, 14th. February 1974.

BACK NUMBERS of Light Railways - Nos. 13, 14 and 15 @ 50¢ for the three, incl. postage. No. 27, 32, 37, 38, 39, 40, 41, 42, 43 @ 70¢ each, including postage. All other issues are out of print. Available from - Stephen Martin, LRRSA Sales Officer, 7 Talaskia Road, Upper Ferntree Gully, Vic. 3156. Please make remittances payable to the LRRSA.

OTHER PUBLICATIONS available from the Sales Officer, include scale drawings of the Powelltown tramway Shay locomotive; Powelltown 3-ton wagon (a reproduction of the Company's original blue print); the Harman geared locomotive; and a Baldwin 3-ft. 6-in. gauge 0-4-OST locomotive of a type used in most states of Australia. All are off-set printed, price 40¢ each; plus 12¢ postage for one to four drawings packed in a mailing tube. McIvor Tramway - maps and historical notes, 15 pages 11¼ x 8¼-in.; 50¢ each, posted. "Day's Tractors", six pages including scale drawings and three photographs, 45¢ each, posted.

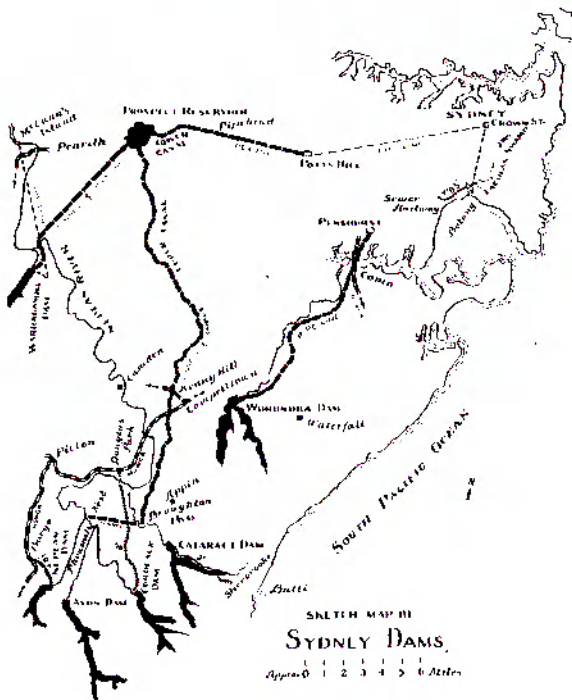
Railways and Ropeways at Warragamba Dam

By - K. McCarthy



This article originally appeared in the magazine "Trolley Wire", in issues dated February, March, and April 1955 and was based on observations made during visits to the dam site on 5th. September 1953 and 23rd. October 1954. Further details have been added to the original material by the kind co-operation of Mr. Jack Southern of Wollongong, who visited the workings on 7th. April 1959.

In 1867 a "Commission of Investigation" found that the water supply situation for the City of Sydney would soon reach crisis point; the needs of the growing population of the city had outstripped the water supply of the Lachlan Swamps, which are a group of lakes draining into Botany Bay at Botany from a source in the vicinity of Paddington and Centennial Park. An immediate solution to this supply problem called for the construction of two weirs at Pheasants Nest and Broughton Pass on the Nepean and Cataract Rivers near Wilton (the upper reaches of the Hawkesbury system) which would receive water from a catchment of some 350 square miles. Later, four dams could be progressively constructed in the area to ultimately bring the water storage capacity to 100,000 million gallons.



Although some 50 miles from Sydney, the scheme enabled the water to gravitate the entire distance to the Crown Street reservoir in East Sydney. The water drawn from the Pheasant's Nest weir (430-ft. above sea level) flowed through a four mile tunnel to the Broughton Pass weir (425-ft. above sea level) and from that location gravitated along a supply canal and tunnels 40 miles northwards to a reservoir at Prospect (180-ft. above sea level). From Prospect the water continued along the lower canal five miles eastwards to the pipehead at Guildford, after which it progressed for a further five miles to Potts Hill reservoir, and then on to Crown Street 125-ft. above sea level and 13 miles eastwards from Potts Hill.

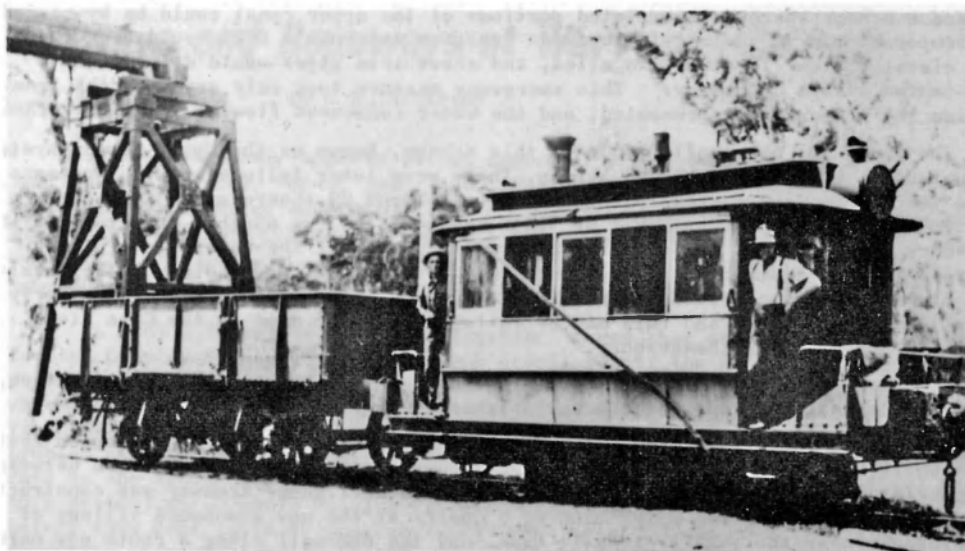
This major project, which was commenced in 1880 and completed in 1888, was only partially built when Sydney suffered a severe drought. To obtain relief from the incomplete scheme, Hudson Brothers, the predecessor of Clyde Engineering,

proposed a scheme whereby incompleated portions of the upper canal could be by-passed with temporary pipes, the section between Prospect and Pott's Hill could be served by an elevated flume for some two miles, and sheet iron pipes would deliver the water to the swamps at Botany. This emergency measure took only seven months from the time the proposal was presented, and the water commenced flowing in January 1886.

The four dams eventually built in this scheme, known as the Upper Nepean system, were Cataract, Cordeaux, Avon and Nepean. These were later followed by the Woronora Dam on the independent Georges River system (catchment 29 square miles) and the gigantic Warragamba Dam (catchment of 3,390 square miles) on another tributary of the Hawkesbury system. These six structures have taken care of the water needs of the Sydney-Wollongong district for this century and work is now proceeding on the Shoalhaven River dam scheme (2,000 square mile catchment) to provide water for the early part of the 21st century and this may be followed later by dams on the Colo River, a northern branch of the Hawkesbury.

Although the subject of this brief account is the Warragamba Dam construction, some mention should be made about transportation techniques on the earlier dams.

1. Cataract Dam, west of Bulli. The first of the four dams on the Upper Nepean system was built between 1902 and 1907. Traction engines provided transportation between Campbelltown and the dam site via Appin; while a 2-ft. gauge tramway was constructed over a distance of seven miles linking a quarry at the now abandoned village of Sherbrooke near the summit of Bulli Pass, and the dam wall along a route now normally submerged. Steam locos are reputed to have been employed on this line.
2. Cordeaux Dam, west of Wollongong. The second dam on the Upper Nepean scheme was built between 1918 and 1926. A standard gauge railway siding was constructed southwards from the main NSWGR Southern Line at Douglas Park for half a mile to a ropeway which spanned the nearby gorge on the Nepean River. A 2-ft. gauge steam line connected the southern side of this gorge with the dam site 12 miles away - this railway being located beside the Mount Keira road for much of the way. One of the two Davenport locos known to have worked over this line is number 1517 now preserved at the Goulburn Museum of Historic Engines.
3. Avon Dam, 1921 - 1927 and Nepean Dam, 1926-1935 south east from Bargo completed the Upper Nepean constructions. The Nepean Dam construction was serviced by a 2½ mile standard gauge railway siding from the NSWGR worked by a former Sydney steam tramway motor 61A (Baldwin 7063 of 1883). The earthworks of the line are still clearly visible while tramway type track is still in position in the road surfaces at the picnic area.
4. Woronora Dam was next constructed, in two stages. Between 1927 and 1930, when work was suspended due to the financial depression, the dam was completed to a height of 45 feet and then used as a weir to impound water from which enough was released to keep a pumping station (located further down stream serving the Sutherland-Cronulla area,) supplied. Work resumed in 1935 and this dam reached its final 200-ft. wall height in 1941. Small sections of 2-ft. gauge track served this construction. At the dam site two Ruston Hornsby four-wheel locos (B/Nos 183063 and 183064 of 1937 carrying Water Board numbers 14 and 13 respectively) were used during the second stage of the construction. These were diesel powered 44 HP machines with chain driven axles. Two foot gauge railways played a larger part in the construction of the 16 mile 48-in. diameter pipeline linking Woronora with Penshurst reservoir. Built between 1930 and 1941 (with a suspension during the mid 1930's) this line passed through tunnels and over creeks through rugged terrain, while the Georges River was crossed on the old



Former New South Wales Government Tramways motor No.61A on the Bargo to Nepean Dam railway.

Photo - K. Magor collection.

Como railway bridge. 2-ft.gauge track can still be seen set in concrete tunnel floors along the pipeline. Around 1941 approximately, a half mile length of track aided the construction of the pipeline north of Como Bridge, the last section of this disappearing in 1951, no doubt finding its way into nearby boat ramps!

WARRAGAMBA DAM

Warragamba Dam wall rises 370-ft. above the floor of the gorge while the roadway above the release gates reaches 450 feet with a crest length of 1,150-ft. This structure impounds 452,500 million gallons of water compared with the estimated capacity of Sydney Harbour which is a mere 120,000 million gallons. As early as 1867 a dam at this location was considered but not until the severe drought of 1934-42 was the first stage of exploitation launched at this site, some 40 miles southwest of Sydney. Emergency work commenced in 1937 on the construction of a 50-ft. weir from which water was pumped and delivered to Prospect Reservoir through a 48-in. diameter main completed in 1940. Preliminary work started on drilling the permanent dam site in 1940 but due to the manpower demands of World War II little could be done until after 1946.

The dam site was originally planned to be downstream from the emergency weir, which could be used as a coffer dam, but after considering two other sites further upstream, a location 2,000-ft. south of the weir was adopted in 1946.

Excavating for the dam wall foundations commenced in 1948 and by 1953 a township providing housing for 2,000 people and barrack accommodation for a further 1,100 had been established. The following transportation and constructional facilities could be observed on five terraces cut into the eastern wall of the gorge ranging between 370-ft. and 500-ft. above the gorge floor:-

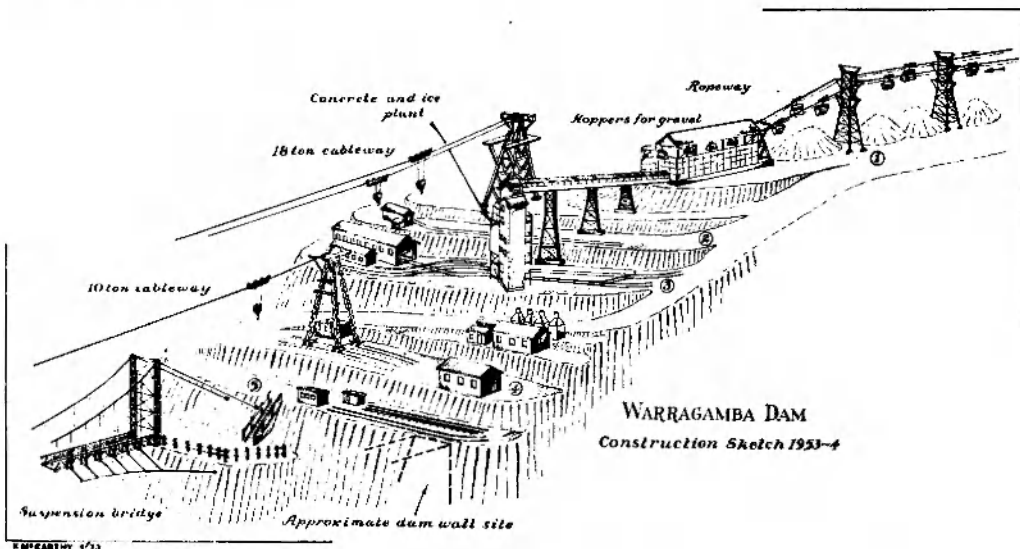
Level 1. Aerial ropeway terminus, stockpile area and store bins for aggregate and sand, fixed mast for twin 18 ton cableway with moveable tower on the western side of the gorge.

Level 2. 6-ft. gauge (approx.) line with flat trucks for storing cement formwork.

Level 3. 2-ft. and 4-ft. 8½-in. gauge railways used for transporting concrete from the mixer to a location capable of being reached by the hook on the 18 ton cableway.

Level 4. Two sets of parallel 4-ft. 8½-in. gauge tracks on which were located the trucks under the moveable tower of the 10 ton cableway crane. The fixed mast stood on the western side of the gorge.

Level 5. In September 1953 a 2-ft/3-ft dual gauge track was located at this level but had been replaced by a 4-ft. 8½-in. gauge track by October 1954.

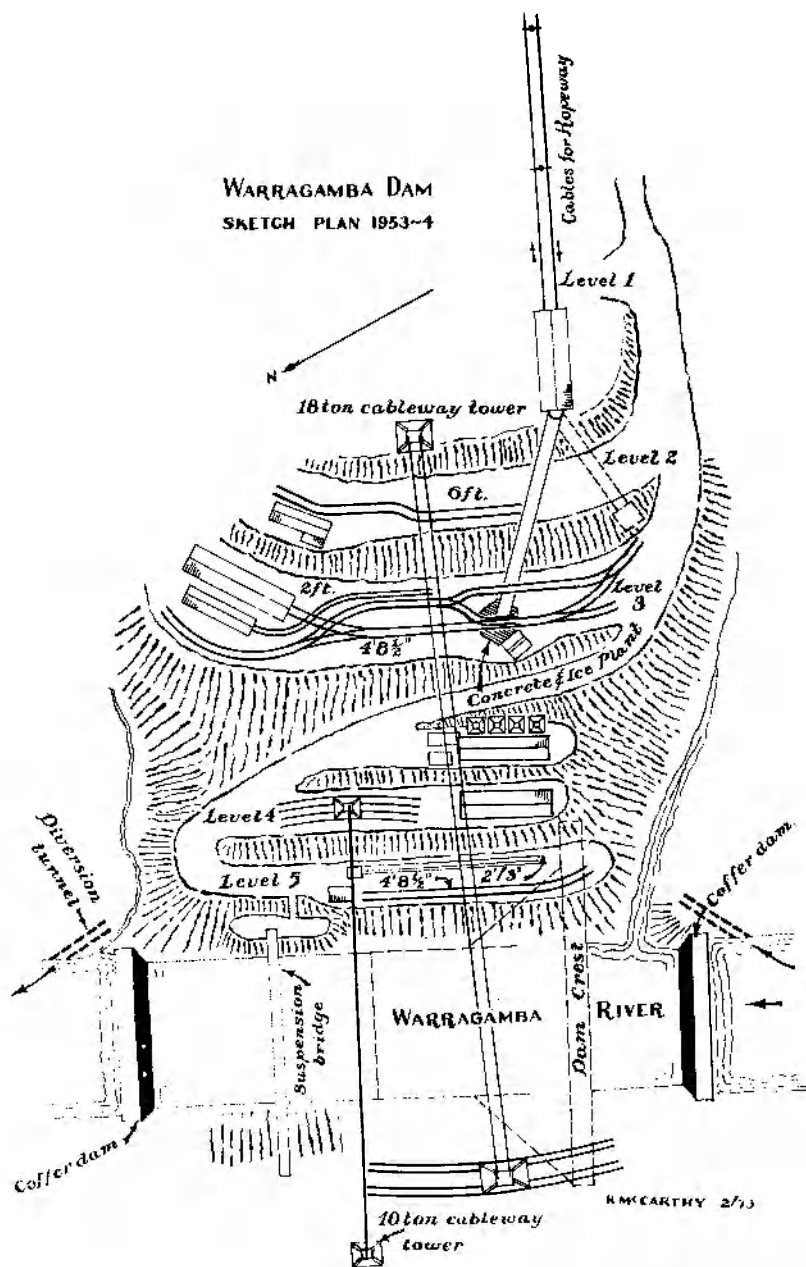


THE AERIAL ROPEWAY

After thorough investigation, the Metropolitan Water Sewerage & Drainage Board found that the most economical method of transporting the required 2,500,000 tons of sand and gravel needed for the dam wall from the 100 acre deposit 12½ miles downstream at McCann's Island near Penrith was by way of an aerial ropeway. This was constructed during 1952-3 and entered service late in 1953.

The ropeway had four separate operating sections each with its own cable power house, which moved the 27½-cwt. capacity side tipping hoppers at 8 mph along the first three sections towards the dam, while over the last section an operator could control the speed of the hoppers and have the contents dumped at various locations by the activation of trips. The running ropes along the first three sections were 1¼-in. in diameter and that on the final section amounted to 2-in. to support adequately any banked up traffic.

From McCann's Island to the east of the dam the ropeway traversed a general north-south direction, turning sharply westwards to complete the journey to the dam site. Towers ranging in height from 20-ft. to 120-ft. partially compensated for the rugged terrain over which the ropeway was located.



The ropeway and some 400 skips were constructed by British Ropeway, London, and assembled by Perry Ltd. of Adelaide. The skips were held on the running cable by a block containing four over-running wheels, two on each side of the central column, from which the hoppers were connected with a yoke enabling these to be inverted sideways to dump the load. To move along the rope a gripping mechanism engaged the smaller lower haulage wire and on reaching a change of section a ramp device on the section tower lifted one jaw of the grip allowing the skip to travel over the dead section of some two feet under its own momentum.

The whole structure was painted silver and motor traffic on roads crossed by it were protected by steel nets stretched under the ropeway across the thoroughfare. The skips travelled along the system in a clockwise direction, thus keeping to the left, and a single journey in one direction occupied $1\frac{1}{2}$ hours. The ropeway operated efficiently during the entire construction period working at a capacity of 170 tons per hour. Its movements were controlled by line telephone with emergency radio contact in case of line failure.

Cement Formwork Line

This single line of approximately 6-ft. gauge was observed during two visits in 1953 and 1954. Several four-wheel flat trucks were noted in their role of transporting sections of the falsework from the store and workshops to an accessible position under the 18 ton cableway. This operation occupied the second level.

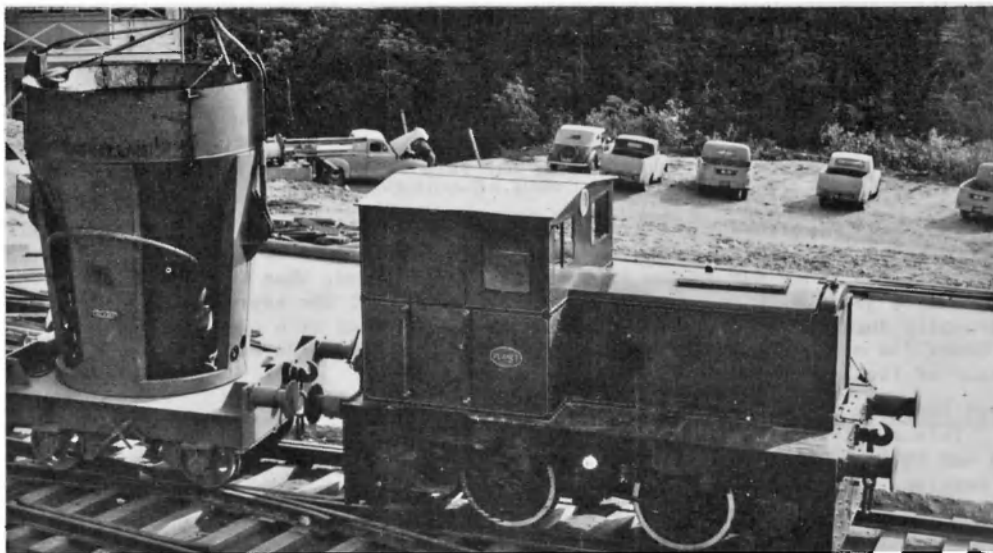
2-ft. and 4-ft. $8\frac{1}{2}$ -in. Lines

This small network on the third level was of considerable interest. The 4-ft. $8\frac{1}{2}$ -in. gauge line was employed in transporting the 8 cubic-yard concrete buckets from the cement mixing and chilling plant to the 18 ton cableway, and also provided transport to the large workshop complex at the northern end of this level. The 267,000 tons of cement needed for the dam wall construction was transported by road from the Berrima cement works, being mixed with sand and aggregate in a mixing tower on this third level. An iceworks tower with a prestressed concrete framework stood adjacent to the mixing tower, occupying a ground area of 39-ft. x 33-ft. and attaining a height of 100-ft. The freezing plant produced finely crushed ice designed to melt in the normal 3 minute cement mixing process, while every 24 hours 10,000 gallons of water was chilled to 34°F (1°C) to be pumped through circulating pipes in the dam wall to stabilize the curing concrete in a short period, thus preventing unwanted stresses which could have caused instability in the structure resulting from a curing period of up to 100 years if this process was not controlled by the cooling procedure.

To provide motive power on this track, two "Planet" four-wheel diesel locos reached the site in August 1953. Constructed by C. Hibberd Coy. of London, these machines carried builder's numbers 3570 and 3575 of 1952, chassis numbers 2022 and 2027 and Water Board fleet numbers 51 and 52 (respectively). These 75 hp units were carried on 36-in. diameter wheels spaced on a wheelbase of 5-ft.6-in. with a length of 18-ft. over buffers and a width over headstocks of 8-ft. The buffing gear amounted to 18-in. at both ends and the front axle was located 5-ft. behind the front headstock or buffer beam. The chassis floor stood approximately 4-ft.6-in. above rail level and the cab roof extended a further 7-ft above this floor.

Later (possibly in 1955) a third "Planet" loco joined the other two; this unit carrying builder's number 3715 of 1954, chassis 2110 and local fleet number 53.

The role of the 2-ft. gauge track on this level is not too clear, being served by four-wheel trolleys. Its possible function was to carry parts requiring maintenance in the adjacent workshops, from the cement mixer, freezing plant and 18 ton



Above - Standard gauge "Planet" diesel locomotive on the Warragamba Dam construction project in 1953.

Photo - Metropolitan Water Sewerage and Drainage Board

Below - Warragamba dam site showing the suspension foot bridge, and standard and 2-ft. gauge track on the lower right. 23rd. October 1954.

Photo - F. McCarthy.



cableway. These narrow tracks crossed the standard gauge rails on the level at the northern end of the terrace by means of a substantial crossing.

4-ft. 8½-in. gauge ropeway tower tracks. The moveable tower of the smaller single 10 ton cableway travelled along two standard gauge tracks, approximately 25 feet apart, laid in an arc on the fourth level. This, and the larger cableway, were electrically powered, collecting current from three overhead parallel trolley wires (through three small trolley poles) located on poles above the eastern track on this fourth level. The moving tower for the higher 18 ton cableway stood on a similar arrangement on the western side of the gorge. This larger structure spanned 1,640-ft. across the gorge at the start of construction and as progress demanded some relocation, this span was later increased to 1,795-ft. The smaller 10 ton cableway could carry concrete buckets of 4 cubic yards capacity and spanned 1033-ft.

Multi-gauge and 4-ft. 8½-in. tracks. During a visit in September 1953 a multi-gauge, 2-ft./3-ft. (common rail at the east) track was noted on the fifth level served by Ruston Hornsby 2-ft. gauge loco No. 14 (see Woronora paragraph for details) hauling a 3-ft. gauge flat car. A four cubic-yard concrete bucket was seen at this time on the flat truck but the regular purpose of the railway was not clear. A further visit during October 1954 revealed that this multi-gauge line had been replaced by a standard gauge track laid street tramway fashion in concrete, (as was the track on the third level) but the condition of the rails suggested that it had not been put to any use at that stage.

There is also reason to believe that the 2-ft. gauge former Woronora loco No. 13 also served the Warragamba project but could not be located on any tourist visits. These two small machines may have been used on the third level 2-ft. gauge track serving the workshops.

During February 1959 the storage level of the dam wall had reached a height whereby the water topped the 262-ft. elevation enabling gravitational flow along a now enlarged pipeline to Prospect Reservoir and on October 2nd 1960 the completed dam works were officially opened.

The 2-ft. gauge locos were dispersed to the Sydney Dry Dock and to Oxley, Queensland; while "Planet" locos 51 and 52 replaced steam shunting locos at the Board's steam pumping station at West Ryde in Sydney. Unit 53 travelled further afield and is now employed on the Coff's Harbour jetty tramway. The ropeway was advertised for sale in the Sydney press during July 1962 and was purchased for use in New Zealand. It has since been re-erected at Mere Mere, North Island, over approximately the same distance, where it serves the purpose of transporting coal from a mine to a nearby power station.

References

General references were -

F. Henry, "The Water Supply and Sewerage of Sydney", 1939.

W. Aird, "The Water Supply, Sewerage and Drainage of Sydney", 1961.

"Sydney Water Board Journal" - House magazine of the Metropolitan Water, Sewerage & Drainage Board.

Specific details have been obtained from -

W. A. Bayley, "Black Diamonds, History of the Bulli District of NSW". p.49 - mention of 2-ft. gauge railway linking Sherbrooke at the top of Bulli Pass with the dam wall at Cataract dam.

W. A. Bayley, "History of Campbelltown" p.118 - photo of traction engine hauling boiler from Campbelltown to Cataract Dam; p.120 - brief mention of "Cataract City". the work town at the dam construction site.



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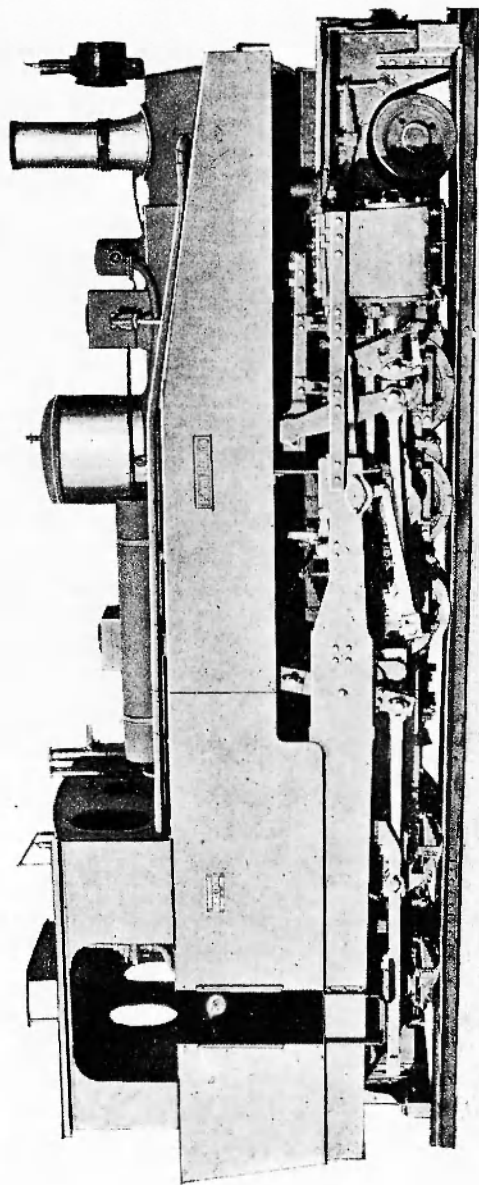
CATARACT DAM CONSTRUCTION TRAMWAY, 1903

Left - A Fowler 2-ft. gauge 0-4-0 locomotive with flat trucks and skips on the Cataract Dam tramway. Page 5 of this issue has more details of this tramway which was located west of Bulli, New South Wales.

Above - On the same tramway, a Fowler locomotive with "passenger" car at the gravel quarry plant.

Both photos - Metropolitan Water Sewerage and Drainage Board.

5 6 gekuppelte Drehgestell-Locomotive (Patent Hagens)
bestellt von den
Tasmanian Government Railways, London.



No. 436.
Locomotivfabrik Hagens in Erfurt (Deutschland).

Vom Verein der Deutschen Eisenbahn-Verwaltungen erhielt das Locomotivsystem Hagens den
I. Preis von 7500 Mark.

Hagan's Patent Locomotive

The Tasmanian Government Railways 2-ft. gauge "J" class locomotive created considerable interest when it entered service on the Zeehan - North East Dundas Tramway in 1901. At that time it was the largest and most powerful 2-ft. gauge locomotive in the world, and was the only engine of its type to work in Australia.

With 1 in 25 grades and a succession of two chain and $1\frac{1}{2}$ chain radius curves to contend with, the TGR was anxious to obtain more suitable motive power than its "G" class Sharp, Stewart 0-4-2T locomotives to work its North East Dundas Tramway, which served the silver-lead-zinc mines at Williamsford in western Tasmania.

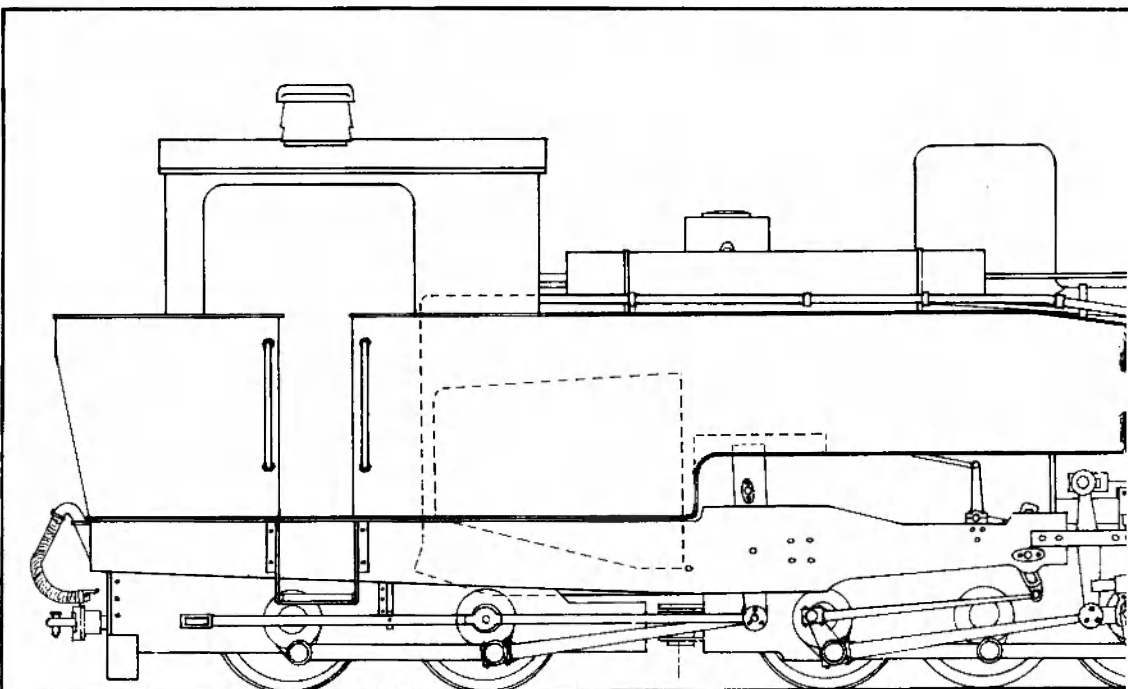
The sharp curves necessitated a short rigid wheelbase, so some form of articulated locomotive was called for. Articulated locomotives requiring flexible steam pipes (such as the Mallet and Double Fairlie) had the disadvantage that it was difficult to prevent steam leaks, and this is probably the reason why the TGR's Chief Mechanical Engineer - Mr. W. R. Deeble M.I.Mech.E. - looked for a design which had mechanical linkage from one set of driving wheels to the other. Presumably the "Shay" type was considered and ruled out on the grounds of low maximum speed.

In any case, an order was placed with Locomotivfabrik Hagans of Erfurt, Germany for one 2-6-4-JT locomotive using their patent form of articulation. At that time a number of standard gauge Hagan's Patent locomotives were in use on the Royal Prussian State Railways (KPEV). These included the T13 class 0-4-4-0T locomotives, of which 29 examples were built between 1898 and 1902; and the T15 class 0-6-4-0T, of which 92 examples were built between 1897 and 1905. The KPEV were obviously not completely satisfied with the design, as from 1910 a conventional form of 0-8-0T loco was adopted as a standard class (also classed T13), nearly 700 examples being built; and a conventional 0-10-0T design was also adopted, about 1,700 being built. On the KPEV the Hagan's type locomotives were withdrawn from service before the first world war, whilst many of their replacement T16 class C-10-0T's are still in service today.¹ In 1902 the Serbian State Railways bought one 760 mm (2-ft.6-in.) gauge 0-6-4-0T Hagan's patent locomotive. They did not come back for more as they found the Mallet type far more satisfactory.² It would appear that the Hagan's type was quite popular on narrow-gauge railways for a short period but the full extent of their use is not known to this writer.

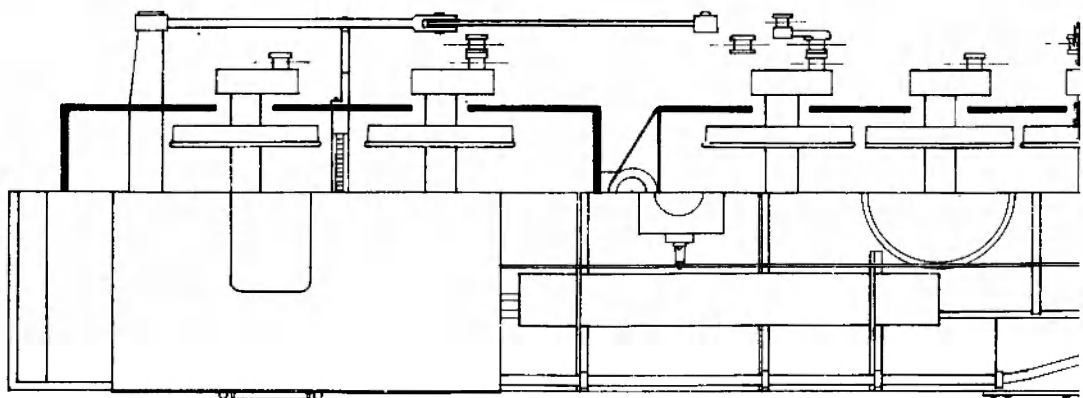
The TGR's J class locomotive (Hagan's B/N).436 of 1901) was designed to haul 100 tons up a 1 in 25 grade,³ and was originally proposed by the builders to be of 0-6-4-0T wheel arrangement, the leading pair of wheels being added at Mr. Deeble's suggestion.⁴ Initial trials of the locomotive took place late in July 1901, it having been erected in the Zeehan workshops by the Chief Locomotive Foreman (Mr. H. Mennitz) and the Chief Fitter (Mr. Alf. Hall). The initial trials "gave great satisfaction" and several months' running conclusively proved that the engine fulfilled all the requirements of the TGR.⁵

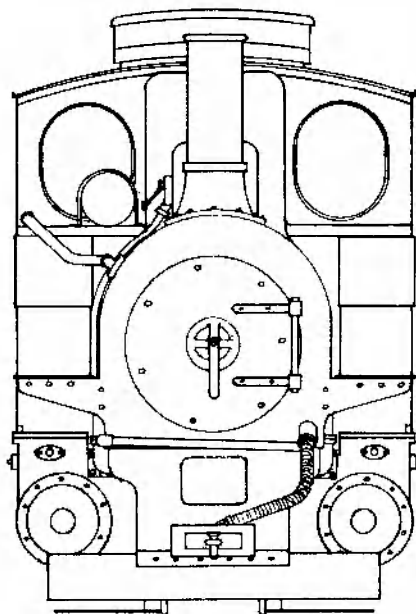
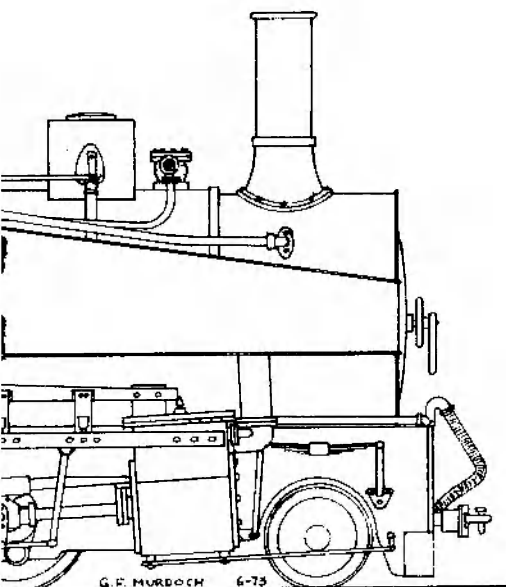
Photograph opposite

A page from the builder's catalogue, showing the 2-ft. gauge J class locomotive of the Tasmanian Government Railways.



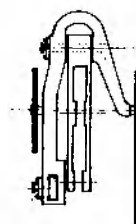
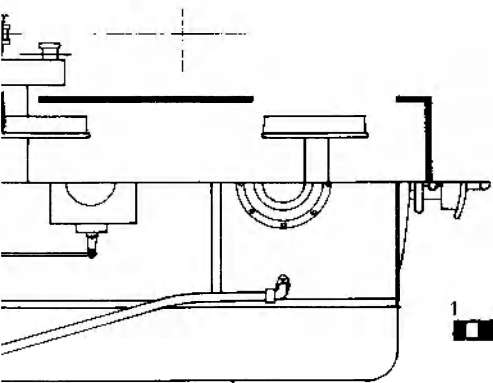
Hagan's Patent Locomotive, Tasmanian Governor





Government Railways J class 2-6-4-0T

2-ft. GAUGE



Cross section
through second
vertical lever.



Feet

Dimensions

The locomotive had an overall length of 28-ft., a width (over handrails) of 7-ft.7-in., whilst the top of the chimney was 10-ft.6-in. from the rails. The weight in working order was 41 tons 0 $\frac{1}{2}$ cwt. distributed as follows -

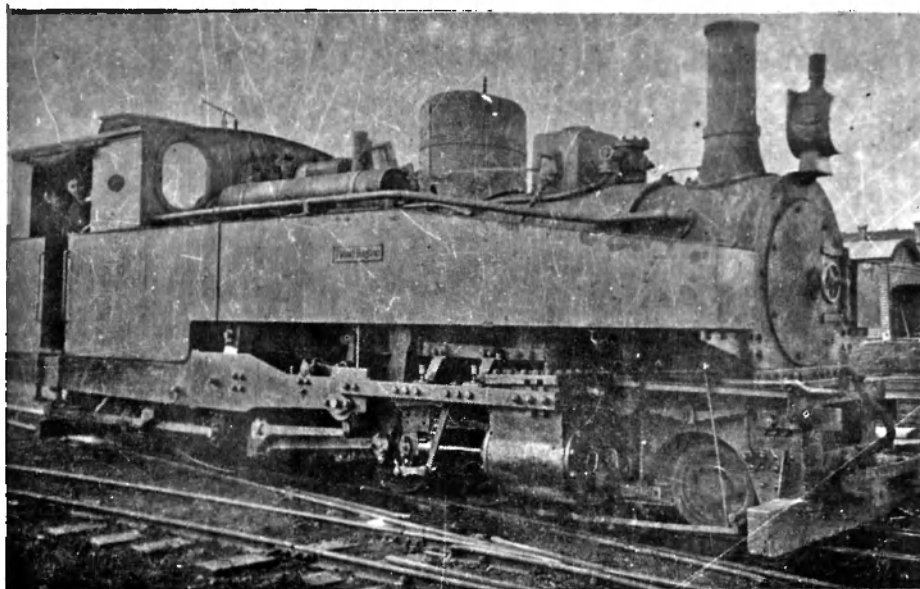
Leading axle	4 tons	0 cwt.	4 qrs.
First coupled axle	7 "	8 "	3 "
Second " "	7 "	13 "	3 "
Third " "	7 "	11 "	3 "
Fourth " "	7 "	6 "	3 "
Fifth " "	7 "	4 "	2 "
TOTAL	41 "	6 "	2 "

The rigid wheelbase was 5-ft.5 $\frac{3}{4}$ -in., the coupled four-wheel bogie had a wheelbase of 3-ft.7-5/16-in., and the total wheelbase was 20-ft.10-in. The ten driving wheels were 2-ft.7 $\frac{1}{2}$ -in. (800 mm) in diameter, and the leading wheels were of 1-ft.10-13/16-in. diameter. The cylinders had a diameter of 15 $\frac{3}{4}$ -in. (400 mm) with a stroke of 15 $\frac{3}{4}$ -in. (400 mm). The boiler pressure was 185 lbs. psi (13 kg/cm²), grate area was 16 sq.ft. (1.5 m²), total heating surface 861 sq.ft. (80 m²), giving a tractive effort of 19,349-lbs. Water capacity was 1,200 gallons and coal capacity 47 cwt.⁶

Prior to the locomotive entering service it was necessary to widen cuttings in several places (due to the excessive overhang of the rear of the locomotive on sharp curves), strengthen bridges, and lengthen the rails on the turntable by 5-ft. It was

TGR J class 2-6-4-OT locomotive at Zeehan.

Photo - Tasmanian Govt. Rlys.



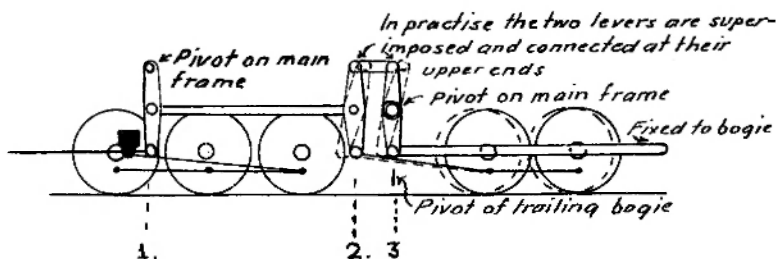
expected that the loco would do less damage to the track than the G class Sharp, Stewart locomotives, as the latter had a heavier maximum axle loading, whilst the rigid wheelbases were the same.⁶

Mechanical details

The diagram below shows the main details of the method of articulation. It was copied by Mr. J. B. Goggs from a drawing originally published in "The Locomotive Magazine" Volume 9, of 1903. The following description is based on an article in the same issue of "The Locomotive Magazine".

The locomotive had three coupled axles at the leading end, which constituted the rigid wheelbase, these being driven directly from the piston rod by means of a connecting rod, as in a conventional locomotive. The centre pair of driving wheels were flangeless.

HAGAN'S SYSTEM



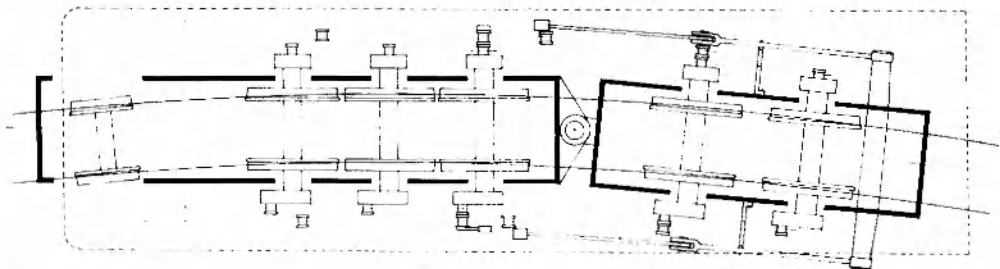
The two coupled axles at the trailing end were however, grouped in a separate bogie frame, and to compensate for the movement of this on curves direct coupling of all axles was impossible. Instead a lever (1) was provided, having a fixed pivot at the top of the lever on to the main frame, and connected at the lower end to the crosshead by a short link.

A lever of exactly similar dimensions (2) was arranged to the rear of the three coupled axles in the main frame, and the two levers were connected at their respective centres by a coupling rod.

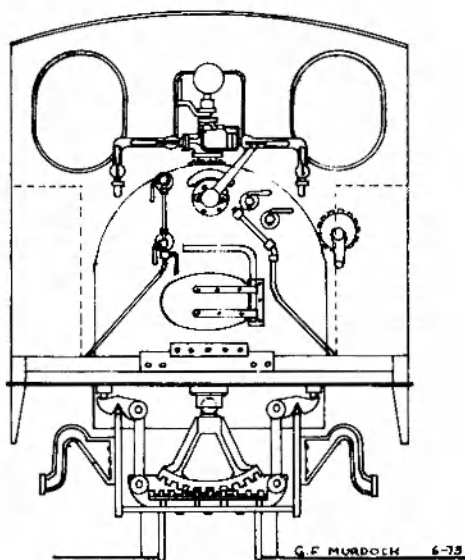
The lower end of the second lever was connected with the two pairs of coupled wheels on the bogie by a connecting rod, and it is obvious that, were the ten wheels in a rigid frame, and the upper end of that second lever pivoted on a fixed point, the driving of all the wheels would present no difficulty. But in that case the interposition of the intermediate levers and links would of course not be necessary.

Since however, the wheelbase of the engine between the rigid axles and the bogie constantly varied with curvature of the line, an adjustment to meet those conditions was necessary, and this was effected by making the pivot of the second lever (2) a point determinable by the movement of the bogie frame.

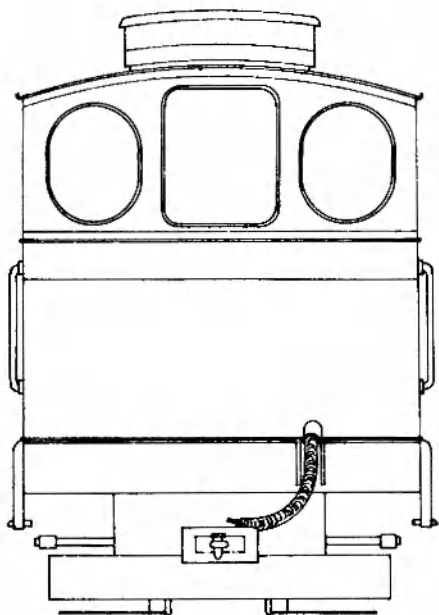
To achieve this a third lever (3) was provided and this was pivoted at its centre to a point on the main frame. The lower end of this lever was connected by means of suitable links with the bogie frame, while the upper end constituted the pivot on which the second driving lever worked.



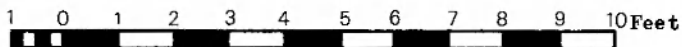
Hagan's patent locomotive rounding a 1½ chain curve.



Section through rear bogie



Hagan's Patent Locomotive



If the wheelbase on one side of the engine diminished in passing round the inner rail of a curve, the operation of the third lever, as shown by the dotted lines, tended to move the top pivot of the second lever backwards to an extent exactly commensurate with the difference in the wheelbase, and brought the driving end of the lever equally to the front end, thereby compensating for the difference. On the other hand a lengthening of the wheelbase on the outside of a curve shifted the same top pivot forward, and the driving end of the lever backwards, so that no matter what the position of the bogie frame and wheels in relation to the rigid frame and wheels, the two series of coupled axles received their driving impulse in exactly the same degree, and the cranks and coupling rods always occupied the same relative position of revolution. To allow for horizontal play of the connecting rods when taking a curve, the brasses were made in the form of upright cylinders, retaining the usual form of crankpin journals.

The three mainframe axle springs compensated with those of the leading truck wheels, and the trailing coupled bogie wheels compensated with each other. Hand brakes acted on all coupled wheels, while the automatic vacuum brake operated blocks on the main frame coupled wheels only. An emergency steam brake was also provided, this having been designed and fitted by Mr. Deeble after the locomotive had arrived in Tasmania.⁹

Subsequent history

When the TGR required further motive power for the North East Dundas Tramway in 1909 they chose the Beyer Garratt type, the result being the two K class 0-4-0+0-4-0 Beyer Garratts - the first locomotives of this type in the world. These were much smaller than the J class, having a total weight of $33\frac{1}{2}$ tons and tractive effort of 14,380-lbs. As the J class was reported to be completely satisfactory during its first few months of operation, it is reasonable to assume that maintenance of the driving linkages proved to be a problem. It is interesting to speculate how much the J class was used after the arrival of the K's. In any case the J was scrapped at Zeehan many years after the closure of the North East Dundas Tramway, but one of its side tanks could still be found lying in the station yard in 1971 and may still be there. A spare boiler was provided for the locomotive, stamped with the builder's number 526 - this was still in existence at Launceston locomotive depot a few years ago.¹⁰

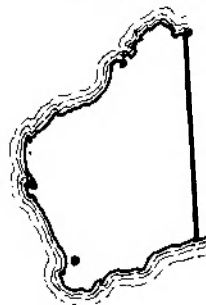
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1. H. D. Reichardt, Von pr T. (bis 98.80 - Geschichte der Tender Lokomotive in Deutschland in Marklin Magazin, February 1967, p.27.
 2. A. E. Durrant, The Steam Locomotives of Eastern Europe, p.123
 3. From "The Locomotive Magazine" (London), Vol. 9, 1903.
 4. Article in "The Tasmanian Mail" of 10th. August 1901.
 5. As for 3
 6. Most dimensions are from TGR records; with the exception of the tractive effort figure which came from ARHS Bulletin No.66, April 1943, p.49 (no author shown).
 - 7, 8. As for 4
 9. All mechanical details are from "The Locomotive Magazine" 1903
 10. J. S. W. Stokes in a letter published in ARHS Bulletin No.316, February 1964, p.40.
- "The Weekly Courier" (Launceston) of 3rd. August 1901 also had an article on the locomotive, giving specifications and technical details which agree with those obtained from the other sources listed above.



The Metropolitan Brickworks Tramway

By - Geoff Murdoch



This 2-ft. gauge tramway is owned and run by the Metropolitan Brick Company at their site about two miles east of the City of Perth. It is situated on the north bank of a horse-shoe bend in the Swan River, and has the appearance of a partially controlled marsh area during winter months. I visited the line in early summer, and the area was hard, dry and becoming dusty. The line has a level section, and an incline - part of which is on a trestle.

The motive power consists of two four-wheeled petrol locomotives built by the mechanics at the brickworks. They are fitted with Holden 186 engines, with automatic transmission, and the drive to the wheels is by chain. They are controlled by a hand-brake type wheel located near the driver's right knee. The original locos were built by Messrs F.C. Hibberd & Co. Ltd., Park Royal, London, and were fitted with Ford 10 engines. They were grossly underpowered for their usual task of hauling a rake of six side-tipping trucks, which weigh about 18 to 20 tons loaded. Because of this two engines per year were worn out. Increasing difficulties were experienced in obtaining spare parts, so the Hibberd locomotives were scrapped. The new locos have been used for three years without any trouble. They are 6-ft. high and painted green. The windows are of perspex, and the door consists of a couple of bags sewn together and running on a rough curtain rail. The cab roof appears to be masonite.

The driver sits sideways in the cab, and near his left knee in the front wall of the cab is the "passenger seat". This is a board 2-in. x 2-in. and about 12-in. long, - the passenger faces backwards with one knee pointing outside the cab. (I am 6-ft. 2-in. tall, so a shorter person might be more comfortable). I got quite a fright when my knee touched the side of the tunnel as we passed through at 15 mph on the way to the clay pit. I was told of this small tunnel by Mr. Woodland (Secretary, ARHS WA Div.) but did not take heed! Standing in the tunnel I could touch both sides, my head being no more than 3-in. from the top. This made Spray tunnel, in Tasmania, look large!

Once through the tunnel (see plan, p.6) the track becomes more uneven due to its non-permanent nature. As the clay is taken away the track has to be shifted or extended for easier access. Two areas are being worked, to obtain different types of clay for the manufacturing process at the kilns. Petrol driven shovels are used to fill the six trucks of a rake, which is then hauled off to the incline to be emptied.

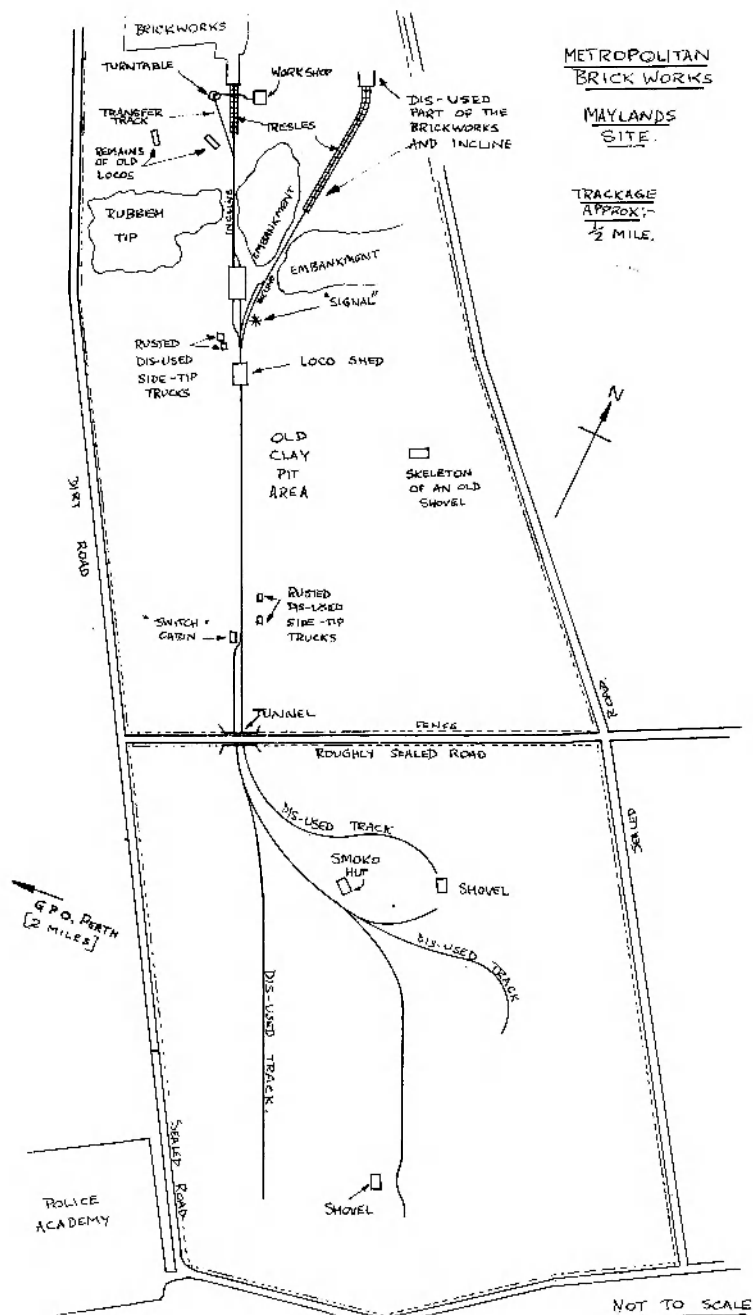
The side-tipping trucks are of a fairly standard design, and are hooked together by a length of chain of some five or six links. As can be imagined, there is quite a lot of buffetting as the trucks slow down and regain speed while travelling along the not-quite flat track. I counted 24 of these trucks.

Photographs opposite

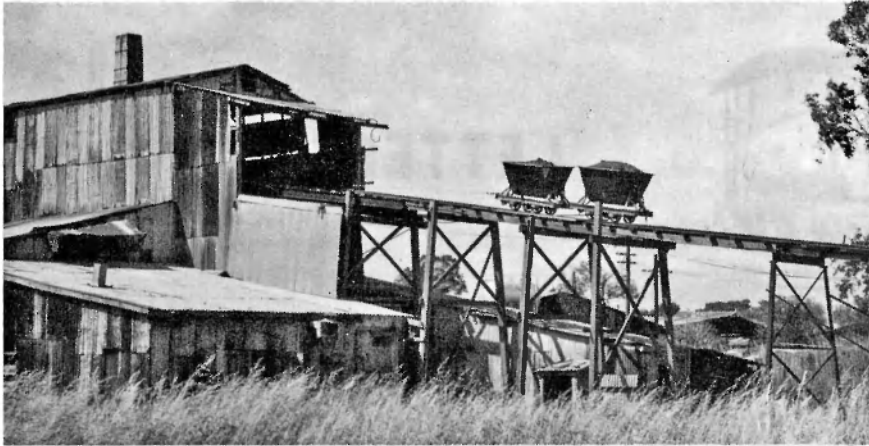
Top - 2-ft. gauge four-wheel petrol locomotive powered by a Holden 186 engine at the Metropolitan Brickworks, Maylands, Perth WA.

Bottom - Petrol locomotive passing through the tunnel to the claypit with a string of empties. The track on the left is disused.

Both photographs - Geoff Murdoch



For reproduction, please contact the Society



Near the top
of the
incline,
Maylands,
Perth, WA.

Photo -
G. Murdoch

At the bottom of the incline, under a one-sided shed, the trucks are paired off for haulage to the top. Once emptied, they are allowed to coast back to the bottom. This is a sight to behold. Making an estimate, I would say that they reach 25 mph and bounce all over the track until slowed at the shed where the cable is removed and hitched onto the full trucks. The hauling and emptying process is then repeated. On leaving the bottom of the incline the empties are hooked onto the waiting loco and taken back onto the "main line", then through the loco-shed and back to the clay pit via the red-brick lined tunnel.

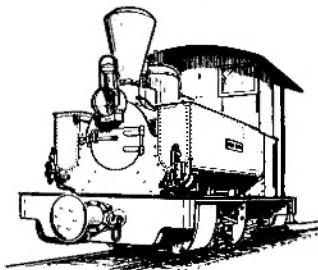
The line has a turntable and a disused signal. The turntable is about 5-ft. in diameter and is situated at the end of what I have called the "transfer track" to the workshops. This track starts off about half-way up the incline. There is no pointwork at this spot, so the locos are driven up to this location, and lifted across. The trucks are dealt with similarly. The transfer track is approximately level and leads to the turntable, where a 90° turn takes it into the workshops. Just before reaching the workshops, after the line has passed under the trestle part of the incline, is a right-hand curve that would be no more than 8-ft. radius! The gauge at this spot is 25-in. The track then goes into the workshops and stops half-way across the concrete floor. Judging by the flange marks on the floor, I would say that the track is the only thing that stops at the half-way mark.

The "signal" is an 18-in. disc on top of a 12-ft. pole at the bottom of the old incline. This was used for safer operation due to the height of the embankments near the bottom of the incline and the curve at the top which partially obscured hand signals given by the workmen. To conclude, I must thank Mr Woodland for telling me about this tramway.

(A previous article on this line can be found in ARHS Bulletin No. 377, March 1969, p. 65.)

A reminder

Have you renewed your subscription ?



LETTERS

EARLY LOCOMOTIVES AT JARRAHDAL (LR 41, p.8; LR 42, p.21)

As Bruce Macdonald points out in LR 42, there is much visual evidence for the locomotive having incorporated parts of a Bendigo tram motor in its chassis and running gear. There is circumstantial chronological evidence as well. The five Bendigo motors were imported from Baldwin (USA) in 1892 and withdrawn in 1902. They were sold in 1903. As the photo in LR 41 was taken circa 1914, it is reasonable to say that it is of the 1904 rebuild of the loco. Chronologically there is nothing to preclude the use of a Bendigo motor in this rebuild; indeed the proposition has much intuitive appeal. It should be borne in mind however, that the locomotive was about 30 years old at that stage and it is a semantic point as to whether this makes the loco a "rebuild of a Bendigo tram motor" or a "rebuild of Pioneer".

1. "The Bendigo Tramways - an illustrated history", K. S. Kings, ARHS Vic.Div., Melbourne, 1972. (Editor's note - in addition to the five Baldwin motors, the Bendigo tramways had three Phoenix Foundry tram motors, which were also sold in 1903).

Macgregor, A.C.T. 2615

I. R. Crellin

LOCOMOTIVES OF THE MARRAWAH TRAMWAY (LR 41, p.4; LR 42, p.21)

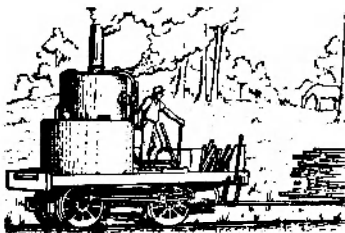
May I add a postscript to Messrs. Charrett and Macdonald's comments in LR 42 on my notes on the locomotives of the Marrawah tramway (LR 41). I regret the incorrect citing of Six Wheeler's builder's number, which was a transcription error on my part. I am grateful for Mr. Macdonald's evidence on Spider's Baldwin parentage. I did not refer directly to Lee's Thos. Green tram motor because my notes were concerned mainly with material from the PWD records; it seems likely however that this was the "wooden tram" locomotive referred to by Mr. Ford.

Canberra, A.C.T. 2600

H. J. W. Stokes

THE McIVOR 5-ft.3-in. gauge TRAMWAY - HISTORICAL NOTES & MAPS

The LRRSA still has available some copies of its special publication comprising four pages of off-set printed maps and eleven pages of duplicated typescript relating to this Victorian timber tramway which used VR rolling stock. Page size is 11 $\frac{3}{4}$ x 8 $\frac{1}{4}$ -in., the price being 60¢ incl. postage. Available from - Sales Department LRRSA, 7 Talaskia Road, Upper Ferntree Gully 3156.



News, Notes & Comments

SOUTH AUSTRALIA

BEACHPORT SHIPPING RAILWAY 3-ft.6-in.(1,067mm) gauge.

Briefly visiting Beachport, South Australia, on 2nd February 1973, I called at the old wool and grain store, now preserved by the local branch of the National Trust and used as a museum. Large quantities of produce were shipped from Beachport at the end of the last century. The town was the terminus of the long closed narrow-gauge extension from Millicent.

A 3-ft.6-in. gauge railway track still runs the full length of the two-storey building, terminating over an inspection pit. This was used to service a small steam locomotive, used to shunt wagons on and off Beachport's long jetty in connection with the shipping business. Presumably, the locomotive was owned either by the Mount Gambier Steamship Company, which had two ships on the run to Beachport in 1880, or French & Son, the company's agent. Water for the engine was obtained from a bore in the north-western corner of the store.

Residue of soot from the locomotive can still be seen on the stonework of the building's arches. The railway originally ran across Railway Terrace and joined the SAR's yard, which ran down to the jetty at a right angle to the store. The total length of the private line would have been about 200 yards. Does anybody know more about it? Also, was this Australia's shortest steam-operated railway?

(John Inchbold)

VICTORIA

STATE ELECTRICITY COMMISSION, YALLOURN, 2-ft. (610 mm.) gauge.

Whilst the 900 mm. (2-ft. 11-7/16-in.) gauge railways used by the SEC in the Yallourn area are well known, it is interesting to note that the SEC has used three other gauges in the area - 5-ft. 3-in., 3-ft. 6-in., and 2-ft.

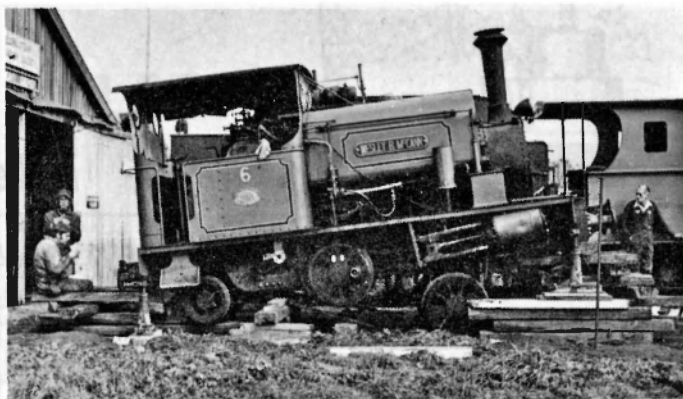
The 2-ft. gauge line ceased operating last year. It was a short section of track used to carry ash and sludge from the boilers at the Yallourn power house. Motive power consisted of two Malcolm Moore four-wheel petrol locomotives, which hauled four-wheeled side tipping wagons.

The Gippsland Folk Museum, at Moe, is now considering laying a 2-ft. gauge tramway around their site, to carry visitors around the various exhibits. The SEC has offered the Museum one of the locomotives, eight trucks, and some track.

(John Peterson, and editor)

GEELONG STEAM PRESERVATION SOCIETY, 3-ft.6-in. (1067 mm) gauge

Locomotive No.6
(Hudswell Clarke, B/No. 646
of 1903) commenced being
overhauled on 19th. May.
The leading axle was
"dropped" (or, alter-
natively the loco was
"raised") to enable the
axleboxes to be removed to
renew the axlebox liners.
The dome, safety-valves,
and numerous other fittings
were removed after the loco
was lowered on to her wheels
again. It is hoped to have
her back in steam again in a
few weeks. (M. J. F. Menzies)

CHEETHAM SALT LIMITED, LAVERTON, 2-ft. (610 mm) gauge

During late March and early April 1973 I visited the Cheetham salt works at
Laverton and noted the following locomotives at and around the works area -

No.	Wheel arrangement	Builder	Type	B/No.	Engine number	Engine model	See note
R2	0-4-0D	Ruston & Hornsby	30DL	# 283509	294364	3VSHL	a.
RL3	0-4-0D	Ruston & Hornsby	30DL	283510	286245	3VSHL	a.
SL1	0-4-0D	Motor Rail-Simplex					a.
	0-4-0	Day's				828DE	b.
	0-4-0	Day's					c.
RL4	0-4-0D	Ruston & Hornsby	20DLU	320555	317242	2VSHL	d.
7	0-4-0D	Motor Rail-Simplex		7351			d.
	0-4-0P				AVDR- 3592	E	e.
R1	0-4-0D	Ruston & Hornsby	30DL	252805			f.
1	0-4-0P						g.
LL2	0-4-0P				AVDR 1985	E	g.

Notes - a. Appeared to be serviceable, but not actually in use.
b. Derelict with a motor. Converted from a tractor.
c. Derelict, frame only.

- d. In use.
- e. Derelict, frame and engine. Engine rebuilt by Ford.
- f. Said to have arrived from Geelong 7 to 8 weeks ago, i.e. about February 1973. In the workshops for modifications.
- g. In the workshops, out of use. Ford engines.

(P. L. Charrett)

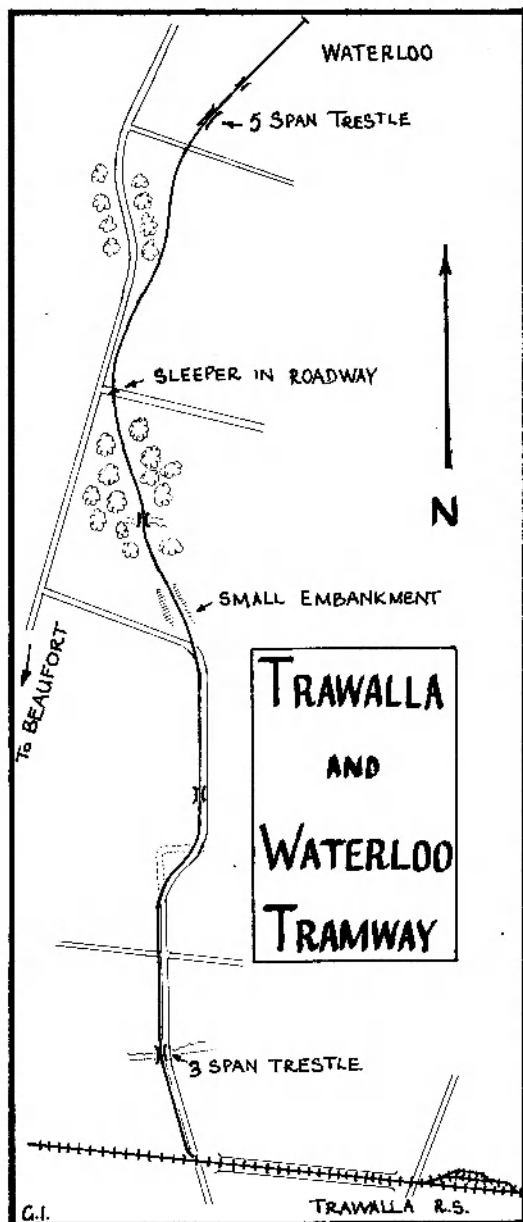
THE TRAWALLA - WATERLOO TRAMWAY, 5-ft.3-in. (1600 mm) gauge.

Over 60 years after closure of this tramway, quite a few obvious traces remain. For most of the distance to Waterloo the line closely follows the present day road. In some places the route is very indistinct, but generally is fairly clear considering the time which has passed.

Even more interesting is that all the major bridges are still intact and one can still walk across several of them. The largest is almost at the terminus at Waterloo and is a low trestle of five spans extending about 35-ft. across a small creek. It is

Remains of a bridge on the Trawalla - Waterloo tramway. This bridge, photographed in April 1973 (over 60 years after abandonment), is only about half a mile north of the tramway's junction with the VR's main Serviceton line.





made of baulks of sawn timber rather than the more usual bush tramway techniques of tree trunks cut to suitable length - a comparable 5-ft.3-in. gauge example of the latter style being the bridges on the Melvor tramway.

There are remains of another fairly large bridge not far from the site of the former junction between the tramway and the VR. This would be about 10-ft. from the normal level of the creek to the sawn timber beams which still remain. Both these major bridges were probably open decked, being more economical to build than the VR type.

Another interesting relic is a sleeper still intact in a bush track which still shows signs of fairly frequent use. Again one wonders how this survived for 60 years

Very little is known of the history of this line, but the following notes may encourage further research.

20th. April 1908 was a black day in the history of the Victorian Railways. On that Easter Monday a packed passenger train from Bendigo ploughed into the rear of another passenger train which had arrived from Ballarat and was stationary in the platform at Sunshine. Forty-four passengers lost their lives and over 400 were injured in that disaster.

The driver of the Bendigo train was Leonard Milburn, and because he found employment with the Trawalla & Waterloo Tramway Company, some snippets of information have come to light. The tramway company applied to the railways commissioners for permission to run their trains for about a quarter-of-a-mile over VR metals from the tramway junction into Trawalla station. The company "undertook to supply the Government with (mine) tailings as ballast for the permanent way" and engaged Milburn as a driver. Whether the

directors knew of Milburn's connection with the Sunshine accident has not been established, but obviously this became known with the Commissioners' refusal to grant running rights to the Company's trains. Once again Milburn found himself dismissed, and the company was able to run trains into Trawalla.

To operate the service, an H class 4-4-0 loco was purchased from the VR. This engine had been built by the Phoenix Foundry, Ballarat, in 1877 and passed into the tramway company's hands in May 1909. It was sold to Smith & Timms (South Australia) in 1912 when the tramway closed, and was last seen at Mile End in 1922. It was VR No.150, B/No.32 of 1877. From an outline diagram, H 150 had 15-in. x 22-in. cylinders, 5-ft. diameter driving wheels, boiler pressure of 130-lbs. psi, roadworthy weight of 50 tons 2 cwt., and tractive effort of 8,580-lbs.

Little else is known of the tramway in its heyday apart from some extracts from the VR's Weekly Notices (for which I must thank Mr. J. McLean). The tramway was under construction in the middle of 1909 and completed in February 1910. WN 11/11 (March 1911) declared the tramline unfit for traffic! (I gather this prohibited VR wagons from being used. Whether the company had some wagons of its own is unknown, but it seems likely as trains ran for almost another twelve months). Complete closure of the tramway took place in January 1912.

(The information concerning Leonard Milburn came from a short article in the "Nagambie Times" 22nd. October 1909 while I was looking for more information about the McIvor tramway - which just goes to show how coincidence can play a part in research work, but more importantly, what wealth of information is still available to breathe life into a collection of facts.)

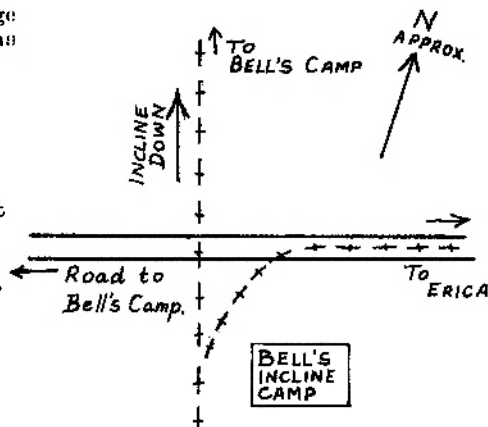
(Graeme Inglis)

(A CHALLENGE - Which one of our readers will go out and search for a photograph of the Trawalla & Waterloo Tramway in operation? From experience it would seem probable that photographs will be lurking around somewhere, it is only a question of tracking them down. Here is your chance to make a great historical discovery! Further information on the Sunshine disaster can be found in an article by John Buckland in ARHS Bulletin No. 381, July 1969. - Ed.)

THOMSON VALLEY TRAMWAY, 3-ft. (914 mm.) gauge

The location of Bell's Incline Camp has been found. The base on which the winding engine would have stood still exists here, together with two ruined huts. These are located just above the present road which has been constructed on the old tramway formation up to this point. From here the tramway ran down the incline, and to connect the two alignments there was a very steep and sharply curved track (see plan, p.32) several sleepers of which can still be seen.

Part way down the incline was found what is believed to be the longest length of steel rail still intact on this tramway. Presumably the straightness of the incline would explain the use of such light rail.



At the foot of the incline there are two adjoining bridges, side by side, which must have carried two tracks over Bell's Clear Creek.

The photograph at right shows rails still intact on the incline, and was taken on 22nd. October 1972. (Ray Jude)

(Light Railways No. 38 contains an 18 page article on the Thomson Valley Tramway. Copies are still available at 70¢ each including postage. The issue includes three pages of three-colour maps of the tramway, at one inch = one mile. These maps are also available separately at 25¢ incl. postage.)



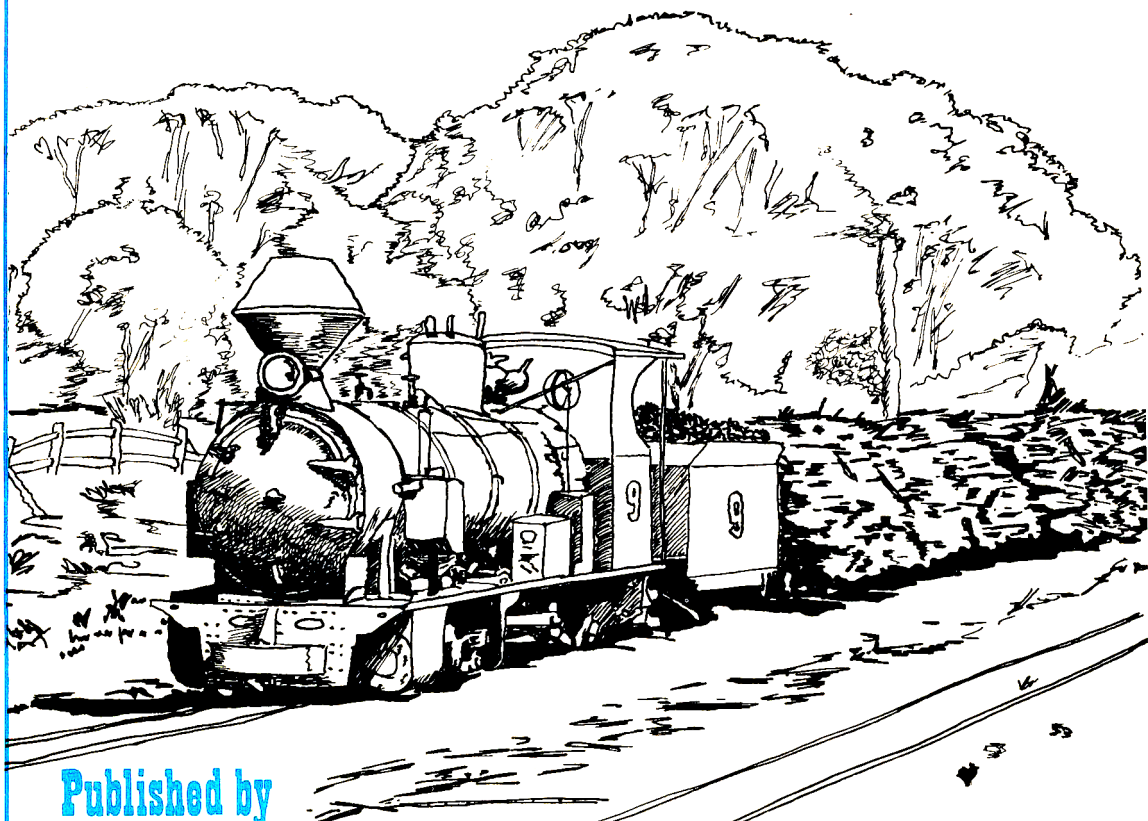
We want your opinions! SPECIAL PRIZES OFFERED !

Would you like to win an historical 8-in. x 10-in. photograph of the Powelltown or Melvor tramway? One will be given to each of the five members who provide the most practical and useful suggestions and criticisms to enable us to improve "Light Railways". We want your ideas on how to improve presentation, increase circulation, and your criticisms on what you dislike about the magazine. In the coming year rising costs of printing and postage are likely to be a problem, consequently we must explore every avenue to make "Light Railways" more sought after. Increased circulation is the real answer to rising costs. Send in your ideas to the Editor by 15th. October 1973. You may be one of the five lucky members to receive a carefully selected photographic "gem" from the archives.

Registered for posting as a periodical - category B.

LIGHT RAILWAYS

**NUMBER 44
WINTER 1973
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Published by

THE LIGHT RAILWAY RESEARCH SOCIETY OF AUSTRALIA

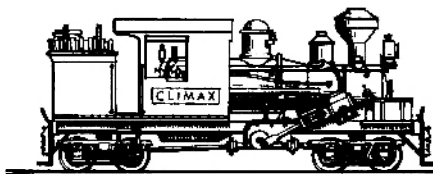
Light Railways

No.44

VOL. XI

WINTER

1973



From your editor

POWELLTOWN SIXTIETH ANNIVERSARY MEETING

On Thursday 9 August 1973 the Society marked the sixtieth anniversary of the opening of the Powelltown tramway with an entertainment meeting, at which almost seventy people attended. A special guest was Mr Frank Hoskin, who was the Victorian Hardwood Company's Manager at Powelltown from 1935 to 1965. A discussion on the tramway took place, slides of historic views of the line were shown, and Mr A. J. Houston showed a very good film he had made describing the tramway. Following the formal part of the evening, the sixty candles on the birthday cake were lit, and Mr Hoskin ceremoniously cut the cake. To round off the evening coffee and biscuits were served with the cake. This was so successful that the Society council has decided to provide coffee and biscuits at future meetings.

ARCHIVES DONATION

The firm of Irish, Young & Outhwaite, who were the accountants for the Victorian Hardwood Company Pty Ltd, recently donated to the Society the Minute Books of the Company covering the period 1918 to 1947. These provide a considerable amount of valuable information on the Powelltown tramway. Also donated to the Society was a large photograph of the mill area. The Society is most grateful to Irish, Young & Outhwaite for this addition to our archives.

TARGET 1000

As part of the Government's attempt to keep down prices, postal rates on magazines are to be increased. At present it costs $3\frac{1}{2}\text{¢}$ to post each copy of LR to members. From 1 October this year this is increased to $4\frac{1}{2}\text{¢}$, from 1 March 1974 it is further increased to 7¢, from 1 March 1975 it will cost 9¢, whilst from 1 October 1976 the rate will be at least 17¢. To post a back-issue it presently costs 7¢, from 1 October this year this rises over 200% to 15¢. These increases will result in many small circulation publications ceasing publication. For us it makes it even more necessary to increase circulation, as this will effectively lower our printing costs.

OUR COVER

Max Michell has drawn this view of the Isis Central Mill's Sharp Stewart 0-4-2 tender loco No. 9 (B/No. 4619 of 1900) leaving Huxley for Isis Mill in August 1960. This locomotive was a former Tasmanian Government Railways "G" class - see LR 37, 40 and 41 for articles about Isis Central Mill's tramways. (Graham Evans, who has drawn our last six covers, is now on an extended overseas trip).

TO OUR READERS...

Whilst every effort is made to ensure the accuracy of articles published in "Light Railways", errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the Editor, and so help us to record the full history of Australia's light railways.

Articles and News Notes & Comments items are always welcome.

Historical references to sums of money in "Light Railways" are in Australian pounds (£). One pound equalled two dollars on changeover to decimal currency in 1966.

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ANNUAL SUBSCRIPTION \$2-90 (\$1-45 if under 17 years) for year ending 31 May 1974.

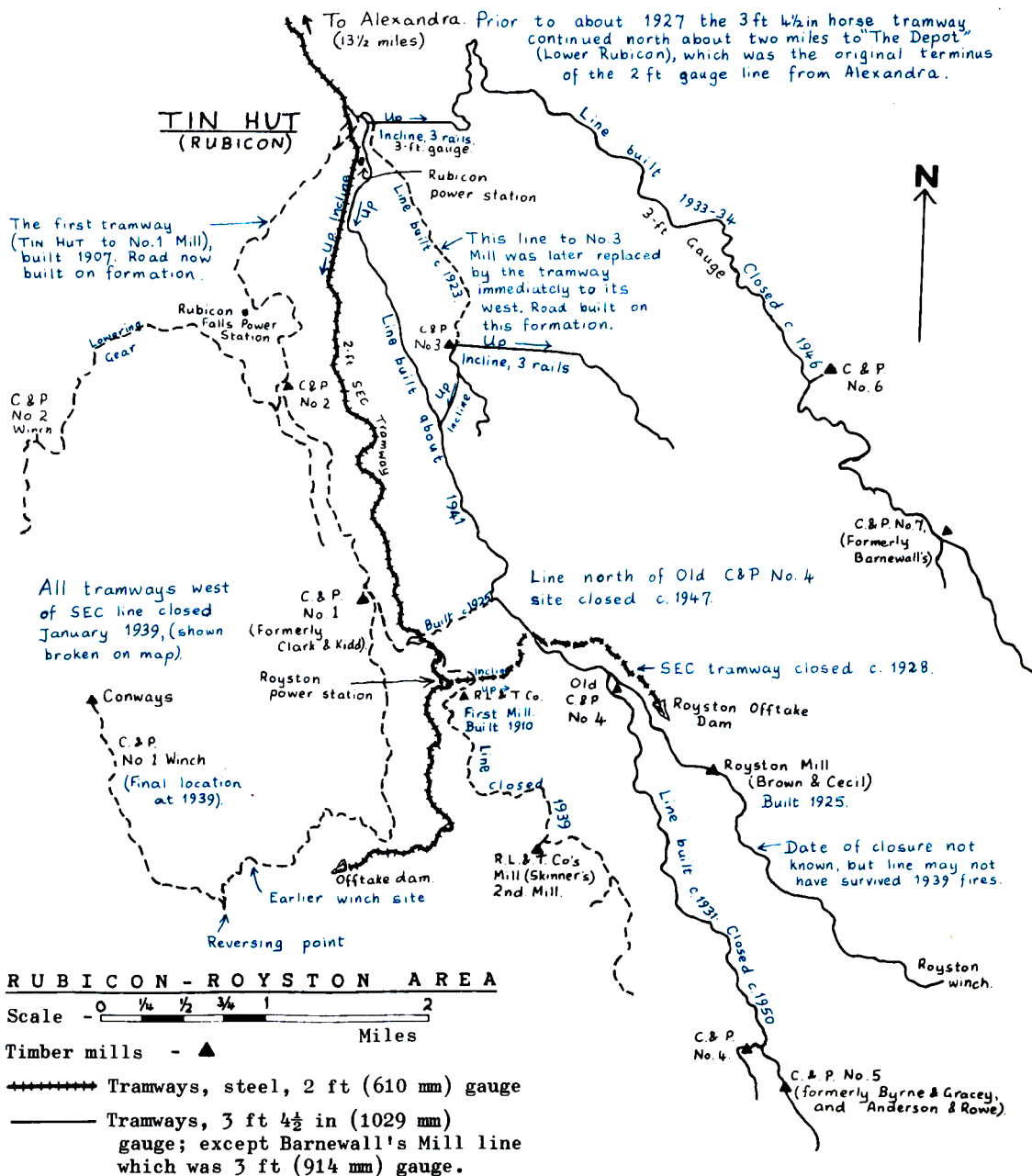
MEETINGS - Second Thursday every second month at 8-00pm, room 11, Victorian Railways Institute, Flinders Street station building, Melbourne. Next meetings

13 December 1973, 14 February 1974. Visitors welcome, coffee and biscuits provided.

BACK NUMBERS of Light Railways - Nos.13, 14 and 15 @ 50¢ for the three incl. postage.

Nos.27, 37, 38, 39, 40, 41, 42, 43, 44 @ 75¢ each, including postage. All other issues are out of print. Available from - Stephen Martin, LRRSA Sales officer, 7 Talaskia Road, Upper Ferntree Gully, Vic. 3156. Please make remittances payable to LRRSA.

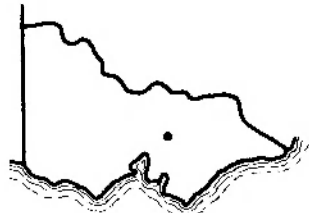
OTHER PUBLICATIONS available from the Sales Officer, include scale drawings of the Powelltown tramway Shay locomotive; Powelltown 3-ton wagon (a reproduction of the Company's original blue print); the Harman geared locomotive; and a Baldwin 3-ft. 6-in. gauge 0-4-OST locomotive of a type used in most states of Australia. All are off-set printed, price 40¢ each; plus 12¢ postage for one to four drawings packed in a mailing tube. McIvor Tramway - maps and historical notes, 15 pages 11¼ x 8¼-in.; 50¢ each, posted. "Day's Tractors", six pages including scale drawings and three photographs, 45¢ each, posted.



Timber Tramways of the Rubicon Forest 1935-1950

By - Frank Stamford

Previous articles in LR 28 pp. 3-18, and LR 36, pp. 3-20 described the development of the Rubicon Lumber & Tramway Company's 2 ft gauge Alexandra - Rubicon steam tramway; and the 3 ft and 3 ft 4½ in gauge timber tramways in the Rubicon forest. This article describes the final fifteen years of the tramways' history.*



Introduction

It will be recalled from the previous two articles that the Rubicon Lumber & Tramway Co built a 12 mile long 2 ft gauge steel-railed timber tramway from Alexandra to Lower Rubicon, this being opened in 1912. Subsequently in 1926 this line was extended by the SEC for a further distance of two miles to Upper Rubicon (Tin Hut). This extension replaced a 3 ft 4½ in gauge horse worked tramway. Meanwhile, in 1906 the firm of Clark & Kidd (later Clark & Pearce) built a 3 ft 4½ in gauge wooden-railed horse tramway in the Rubicon forest, to serve their mills south of the Rubicon falls. Subsequently, as described in the previous articles, more mills were opened by Clark & Pearce, the Rubicon Lumber & Tramway Co (R.L. & T.Co) and other sawmillers, all but one being served by 3 ft 4½ in gauge wooden-railed tramways. The one exception was Barnewall's Mill, in the Snobs Creek area, this being served by a 3 ft gauge tramway. In addition to the timber tramways, the SEC had constructed in the 1925-26 period, a permanent 2 ft gauge tramway and haulage parallel to their water raceline and pipeline, along with several temporary lines of the same gauge, to serve their hydro-electric scheme.

The agreement with the Alexandra Shire Council, under which the R.L. & T.Co had built the Alexandra-Rubicon 2 ft gauge line specified that after a period of twenty-five years from 1910 the tramway would become the property of the Shire. Its route followed the side of the Alexandra - Thornton - Rubicon road, the R.L. & T.Co paid £5 p.a. to the Shire as rental for use of part of the road easement. In November 1935 this agreement expired and the Shire invited tenders from persons interested in taking over the tramway. Clark & Pearce outbid the R.L. & T.Co who then lost control of the tramway.

The new lease agreement

In November 1935 there were eight sawmills in the Rubicon forest, five of which were owned by Clark & Pearce. With so many mills, C & P could see a

* In previous articles the 3 ft 4½ in gauge tramways were referred to as 3 ft 6 in gauge. As explained in LR 28, p.16 the only specific reference to the gauge of these tramways which I could find was in ARHS Bulletin No.37 of November 1940. I have since spoken to Mr. Tom Scheffer of Alexandra, who was responsible for maintenance and construction of the tramways, and who made numerous track gauges for them. He told me that steel rails were laid to a gauge of 3 ft 4½ in, but wooden rails were laid to 3 ft 4¼ in gauge to allow for the effect of the wheels rounding off the edge of the timber.



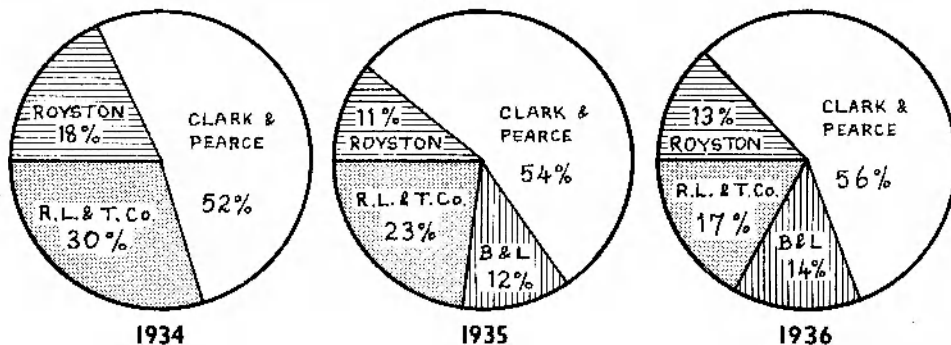
In 1934 the R.L. & T.Co's second locomotive, 2 ft gauge Krauss 0-4-0WT B/No.2591 of 1892, takes water near Thornton. Steam operation of the tramway ceased on 30 November 1935.

Photo - Late W. Jack

very bright future for the Alexandra - Rubicon tramway as part of their enterprise, consequently in their successful tender to the Shire they offered a rental of £1,050 p.a., and opted for a lease period of fifteen years (when the Council asked for tenders they requested that tenderers should state the period of lease desired, either ten or fifteen years - Clark & Pearce were sufficiently confident of future prospects to choose the longer period). This was a major error of judgement, but in 1935 C & P were unable to foresee the disaster which was less than four years away.

Up to this time the two mile extension of the 2 ft gauge line at Rubicon, which had been built by the SEC in 1926, had been worked by the R.L. & T.Co under an agreement with the SEC. In December 1935 the SEC sold this stretch of track to the Forests Commission (FCV), who then rented it to C & P for £200 p.a.

In the years ending 30 June 1934 and 1935, and the nine months ending 31 March 1936 traffic handled on the 2 ft gauge line came from the following companies -



In transferring the delegation of authority to operate the tramway to Clark & Pearce, the original agreement as accepted by the R.L. & T.Co was used as a basis for the new agreement, but there were a few significant changes. The most interesting from the railway enthusiasts' viewpoint was the requirement that "during the months from the first day of November to the first day of April in each and every year run the engine by internal combustion".

The Krauss 0-4-0T locomotives used by the R.L. & T.Co. had built up a reputation for starting fires, and the Council now took the opportunity to ensure that this would never happen again. For five months of each year steam was barred, and as Clark & Pearce were taking the line over during that five month period they had to have an internal-combustion locomotive to run the tramway right from the start. More of this later.

Another significant requirement was that the full amount of freight was to be paid to cover transport from the place of loading to Alexandra before permitting the timber to be unloaded. The Council's intention was to prevent the carriage of timber by tram from Rubicon to Thornton, and by road the rest of the way to Alexandra. They did not want their roads worn out by heavy trucks. Messrs. Barnewall & Lee, who had a timber mill in the Snobs Creek area, had an agreement with the FCV whereby the FCV could require them to build a seasoning plant. Barnewall had made repeated attempts to find a suitable site for such a plant at Alexandra, but without success. He was now planning to build seasoning and dressing facilities at Thornton. Hence he objected to the requirement that freight would have to be paid for the full journey. He claimed that timber lost 50% of its weight in the seasoning and dressing process. So he would be paying double freight for the Thornton - Alexandra part of the trip. Residents of Thornton also objected to the clause, on the grounds that they would be paying excessive freight on any timber they required for their own use. The Council would not budge, claiming that the railways charged a much higher rate for seasoned timber; so in August 1935 a deputation of Thornton residents requested the Minister of Public Works to intervene. He promised to "look into the matter".

Whilst the "shadow of road transport" (to quote one councillor) was very much in the Council's mind, it seems Clark & Pearce had not given road transport sufficient thought when preparing their tender for lease of the tramway.

New freight rates were established - for timber the rate was to be not more than 5d per ton per mile (the same as charged in 1912), whilst all other goods and livestock were to be charged 6d per ton per mile. Special rates applied to

small consignments, irrespective of distance, the smallest charge being 6d for items weighing less than 14 lbs, whilst a 5½ cwt consignment would cost three shillings. The tonnage rate applied to consignments over 5½ cwt.

Clark & Pearce take over - the pioneer diesel

In May 1935 the Shire Council announced that Clark & Pearce were the successful tenderers for the line, so Clark & Pearce had little more than six months to find an internal-combustion locomotive. Consideration was given to using an articulated rail-tractor arrangement, however this idea was rejected in favour of a diesel locomotive. Whilst "Day's" or Malcolm Moore could have supplied one of their rail tractors, Clark & Pearce aimed for something better. Geo. W. Kelly & Lewis Pty. Ltd., engineers of Springvale, Vic., offered to build a 10 ton 0-6-0 diesel-mechanical locomotive for £2,750; and this offer was accepted. Whilst the locomotive was partly based on English practice, its design was quite distinctive.

Clark & Pearce were required to commence tramway operations on Monday, 2 December 1935 - they had a contract to carry R.L. & T.Co timber from that date. Skinner, the R.L. & T.Co's major shareholder and manager, thought Clark & Pearce would have to buy the R.L. & T.Co's Krauss locomotives, and rolling stock to fulfill the contract. The story goes that he asked an exorbitant price for them, and that he locked them away on the last day of R.L. & T.Co operation (30 November 1935) so that Clark & Pearce could not use them on the following Monday! On Friday 30 November Clark & Pearce still had no locomotive or rolling stock.

But, with tremendously fine timing the first diesel locomotive arrived by rail at Alexandra on Saturday, 1 December, a special train being run to deliver it. It was unloaded and given a trial run to Rubicon on the same day. Mr. R.P. Cleary, the locomotive's designer rode in the cab, whilst a reporter from the Alexandra & Yea Standard rode on the first truck, and wrote that the engine "gave every satisfaction." Representatives of Messrs. Kelly & Lewis watched the trial from a motor car, whilst Mrs. Pearce, assisted by her daughter, provided everyone with afternoon tea on the banks of the Rubicon River. Kelly & Lewis also supplied twenty new bogies at a cost of £30 each. So Clark & Pearce now had a train, and Skinner was left with his rolling stock, but nowhere to run it. The new bogies followed the same pattern as those previously used, being steel framed, sprung, and with railway contour flanges and treads. On the test run it was found the diesel spread the track in many places, it being considerably heavier than the 6½ ton and 7½ ton steam locomotives it superseded. Track maintenance by the R.L. & T.Co had been poor during their last six months of operation.

The locomotive went into revenue service on Monday, 3 December 1935, as planned, thus making history as being the first diesel locomotive built in Australia. On Saturday, 14 December a demonstration run was made of the locomotive, for the benefit of "businessmen with interests in the timber industry" and local residents. About sixty guests attended, lunch being served in a hall at Rubicon. The President of the Alexandra Shire (Cr. A. Dobson) presided over the event. Mr. Pearce said that on the previous day the locomotive had brought in sixteen trucks of timber. After speeches, an adjournment was made to the Rubicon depot, where Mrs. A. Dobson smashed a bottle of champagne over the locomotive and christened it "The Pioneer". The locomotive then hauled eight trucks (i.e. sixteen bogies) of timber to Alexandra.

Track maintenance

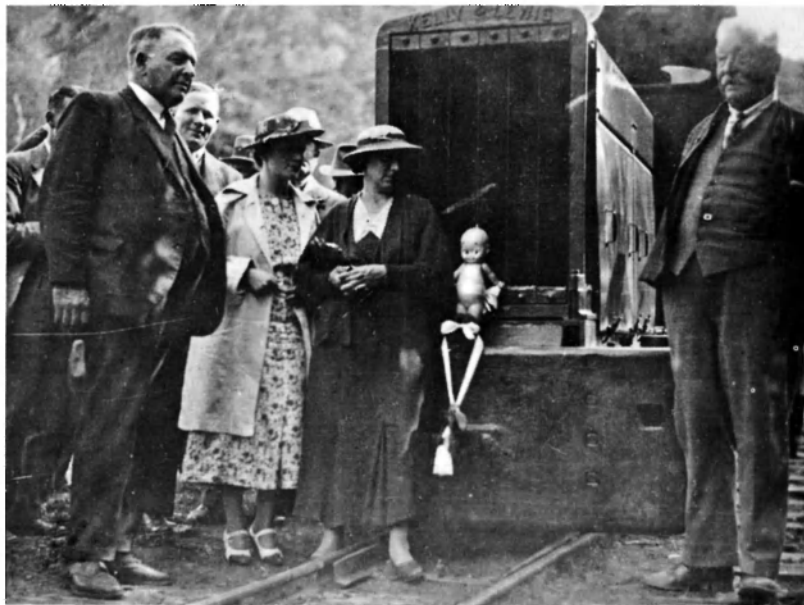
Late in 1934 the Shire Council had requested the Forests Commission to inspect and report on the tramway. An initial report was given to the Council

in February 1935 but this was not published. In January 1936, Mr. W.J. Lakeland, an FCV engineer, submitted a further report. He stated that the level of the track was extremely poor throughout, beyond sleeper replacements no effort had been made to keep the line up to standard. "Slacks" were so pronounced at many points that the buffer plates of the new locomotive touched the rails. Curves and super-elevation were irregular and poorly maintained. Bad and unsafe joints were almost too numerous to list. He said the knowledge needed to keep the line in good order was lacking in the men who maintained it. He suggested the only way to tackle the job was to start a gang at one end under a competent track man, and work steadily through. Simultaneously, a flying gang of three men should be employed on points requiring immediate attention. The Council decided to send a copy of the letter to the R.L. & T.Co as they regarded it as that Company's responsibility to put the line in order, whilst Clark & Pearce complained to the Council about the state of the tramline. Clark & Pearce said it would cost £607 16s 8d to put the line in reasonably good order, and they suggested that the Council should pay for the same by an allowance from the rental account. Predictably the Council declined to accept any responsibility. It would appear that the R.L. & T.Co soon put the line in order, as at the Council meeting of 8 April 1936 a letter was received from the R.L. & T.Co which in effect simply thanked the Council for thanking them (i.e. the R.L. & T.Co) for maintenance and repair work done on the tramway.

The diesel locomotive having proved very successful, a second one was obtained in 1936, at a cost of £2,600. Further timber bogies were also obtained.

Clark & Pearce expand their operations

In April 1938 a new Company - Ruook Timbers Pty. Ltd. - was formed. It took over the assets of Clark & Pearce Pty. Ltd. and the timber milling operations of Barnewall & Lee. The new company had a registered capital of £50,000; and the



The christening ceremony of the pioneer diesel at Rubicon on Saturday 14 December 1935. From left to right, the people are Mr G. E. Pearce, Cr Dobson, Mrs Dobson, Mrs Pearce and Mr Clark.

Photo - Courtesy
Mrs A. Gilmour.

directors were James Clark and G.E. Pearce. In November 1938 Skinner decided to retire from the timber milling industry, with the result that Ru oak took over the R.L. & T.Co's sawmill, 3 ft 4 $\frac{1}{4}$ in gauge tramway in the bush, and the old 2 ft gauge locomotives and rolling stock. The steam locomotives had not been used since 1935, and did not work again. The diesels had proved so successful that use of steam was unthinkable, even in winter when the fire risk was negligible.

The late Bob Rees - the last steam driver for the R.L. & T. Co told the writer that it could take over two hours to cover the fourteen miles from Rubicon to Alexandra with steam. Although the 7 $\frac{1}{2}$ ton loco could haul up to 15 loads in one train; three was the maximum that could be taken up McKenzie's Hill. The diesel could haul 17 loads, and only needed to divide the train into two sections to negotiate McKenzie's Hill. With steam there were several places where the train might have to be divided.

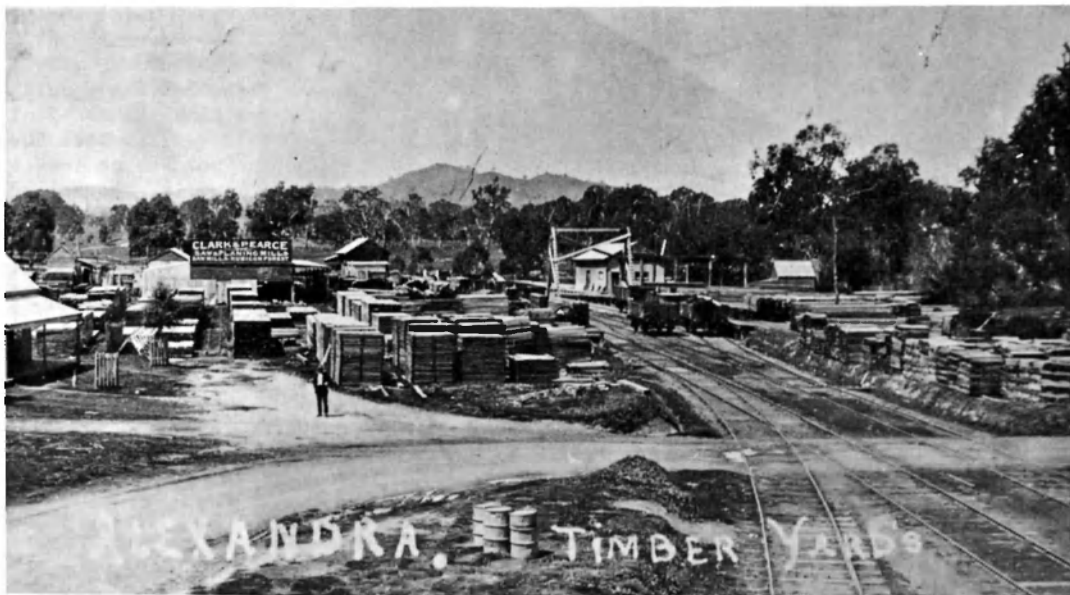
Holocaust

With the formation of Ru oak Timbers and its takeover of both Barnewall's Mill and tramway, and the R.L. & T.Co's assets, Clark & Pearce's enterprise had reached its ultimate size. They now had seven mills in the Rubicon forest, with only one competitor - Brown & Cecil's "Royston Mill". This situation was to last ... two months.

1938 had been a drought year for Victoria, and the summer of 1938-39 saw little rain, but was exceptionally hot, drying the State's forests to such a degree that they were a virtual time bomb. For Rubicon that time came on 8 January when a bush fire started near Rubicon Falls. Efforts to check it were unsuccessful.

An early view of the timber yards at Alexandra railway station, with Clark & Pearce's area on the left, and the R.L. & T.Co's on the right.

Photo - Courtesy Mrs A. Gilmour.

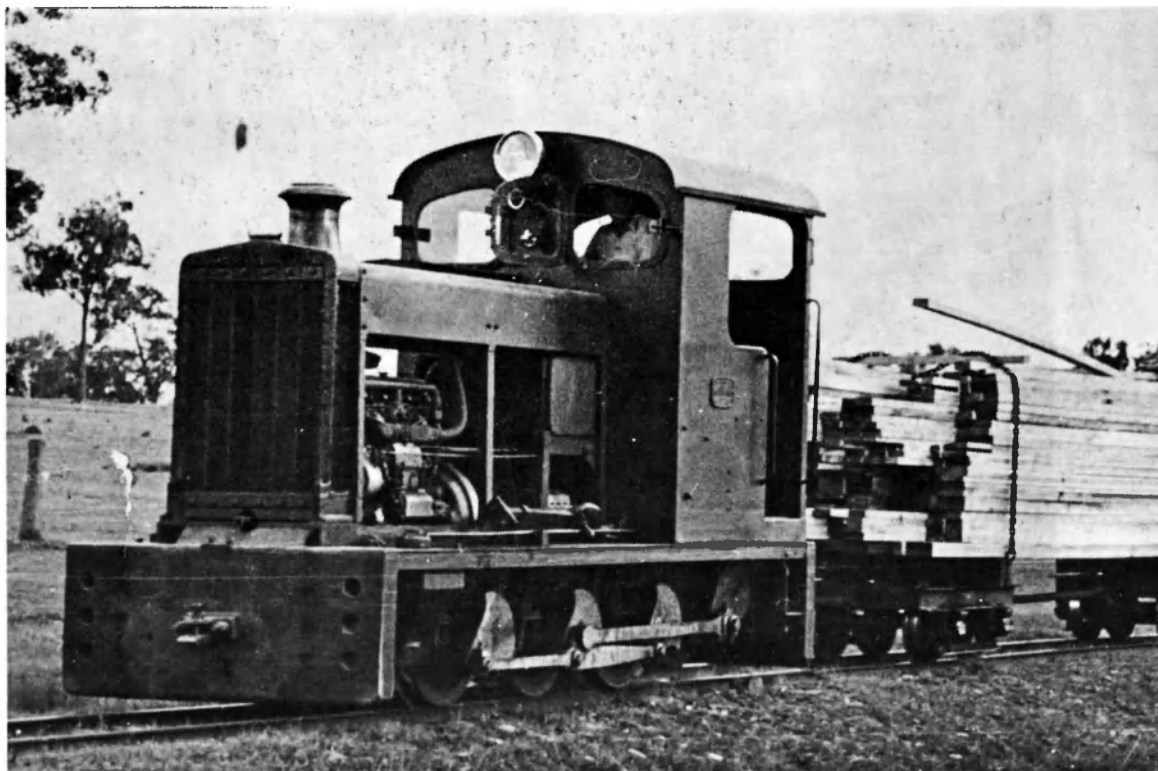




Top - Mr G. E. Pearce on his horse "Paddy". This was the ideal method of travelling through the bush in the days of the timber tramways. Horse troughs were provided at strategic intervals along the tramways.

Left - Much earlier (c. 1918) Mr and Mrs Pearce were living at this house at No. 1 Mill. At that time Mr Pearce was managing Clark & Pearce's bush operations.

(Photo - courtesy Mrs A. Gilmour)

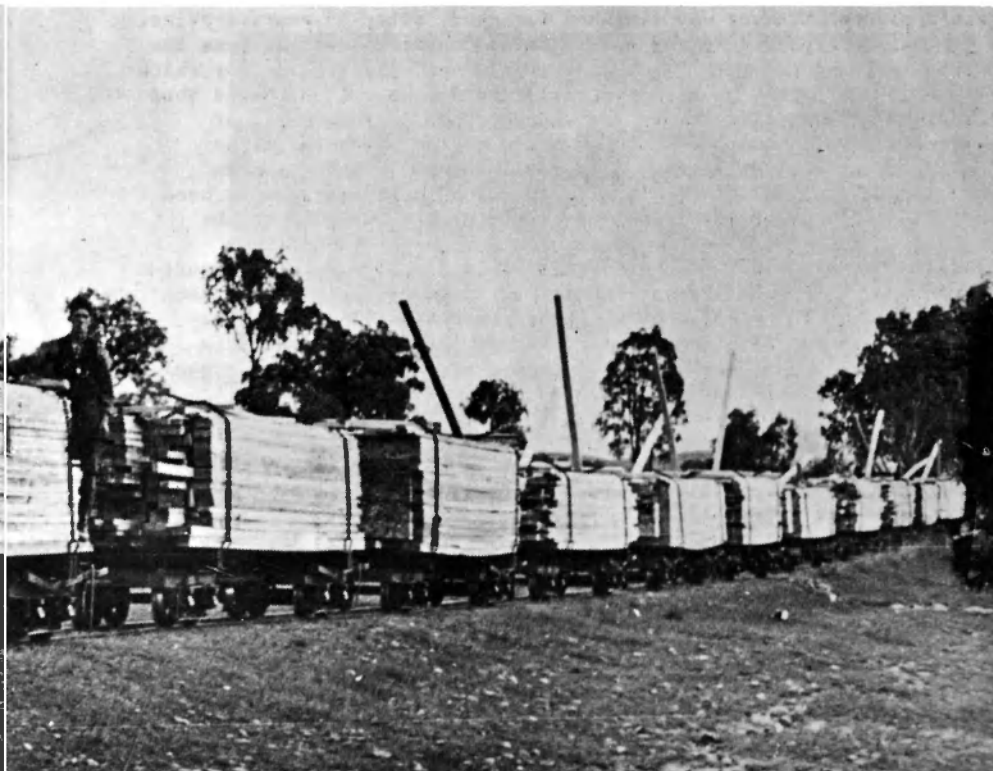


Kelly & Lewis 2 ft gauge 0-6-0 diesel-mechanical locomotive hauls a load of sawn timber to Alexandra.

Photo - Courtesy B. J. O'Brien, Ruook Timbers Pty Ltd

On Tuesday 10 January the women and children were evacuated from the forest to Thornton, using the SEC tramway's railcar through the forest. Before departing forest residents buried their radios, crockery and clothes in their vegetable gardens. Whilst all mills and settlements were intact on Tuesday, on that night the hot north wind whipped the flames into a fury.

Dawn on Wednesday revealed seven mills destroyed, and twelve men burnt to death, including three men in a dugout at No. 2 Mill. Dugouts had only been built a few years earlier, after the mill workers threatened to strike if they were not provided. At that time the FCV did not force millers to provide dugout accommodation, despite considerable loss of life in the 1926 fires. About 25 men made a hasty retreat from No.2 Mill, where the dugout was inadequate, and got into the SEC's Rubicon Offtake Dam. Intense heat caused a pipe to melt and the dam gradually emptied, but it served a purpose at the critical time. About thirty horses employed in the industry perished in the fire. A few houses at the Nos. 4 and 5 Mills were saved, all the others were destroyed. The only mill to survive



the fire was the Clark & Pearce No.4. Most survivors of the fire sheltered in dugouts - at Barnewall & Lee's Mill there were twenty-five people in one dugout.

To rescue injured victims of the fire, parties with stretchers and water bags had to traverse five miles of track strewn with boulders, rocks, fallen trees (which had to be crossed) and burnt bridges. Heat was so intense that bridge piles were burnt a considerable distance under the ground. Walking through gullies it was easy to put one's foot on a supposedly solid piece of ground only to find it disappearing into a hollow red-hot bridge pile. People who had worked in the bush for most of their lives had great difficulty in orientating themselves as all the familiar landmarks had been destroyed.

Such mammoth destruction required a complete re-appraisal of the industry's future. The Rubicon fire was only a fraction of the total damage which occurred in that week in Victoria, but Ru oak Timbers suffered the biggest loss of any saw-milling company. Several hundred acres of timber and many miles of tramlines had been destroyed in addition to the mills. Timber and tramlines were uninsurable.

Skinner's old company - the R.L. & T.Co - having sold all its assets to Ru oak in the nick of time, now made the small gesture of forwarding a cheque for £10 10s 0d towards relief of its former employees.

By 27 January it had been decided to abandon the old tramway in the Rubicon Falls area, which served Ru oak Nos. 1 and 2 Mills and the R.L. & T. Co's Mill.

Thus the Rubicon's pioneer tramway was finished for good, after 33 years service. Ruok Timbers now tried very hard to get some tramway rental concession from the Council. At first they got no sympathy at all, even though the tramway for which they were paying rent was partly unuseable due to fire damage. It appeared that some Councillors were antagonistic toward the Company, but a groundswell of public opinion caused them to compromise. For a few months after the fires Ruok's saw and planing mill at Alexandra was still working, using timber stocks which had accumulated in the previous year. Once these stocks were used up many people in Alexandra were thrown out of work. By May business in the town had declined to its lowest level for many years, with the result that businessmen, timber workers, and the local branch of the A.L.P were all supporting Ruok's request for a revised tramway agreement. A public meeting had been held in March, attended by 100 people, at which Mr. Pearce outlined plans to bring logs into Alexandra and mill them there. It was pointed out that this would remove timber millers and their families from a very dangerous area, and allow their families to get a better education.

After much deliberation, in June the Council decided to rebate four months rent and agreed to review the existing contract in five years. They wrote to Ruok Timbers saying that the FCV believed that more timber than ever would come out of the forest in the next five years. (At this time the FCV were planning to recover as much fire-killed timber as possible). Ruok Timbers were not impressed with the Council's generosity and replied offering to hand the tramway back to the Council, sell them the rolling stock, and inviting the Council to run the tramway themselves, provided no change was made to the freight rates. It was a good test of the Council's sincerity, for with a big increase in traffic the tramway might have become quite profitable, as it had been before the fires. Ruok's offer was declined.

The plan to move the mills to Alexandra only began in a small way in 1939. In the first few months of that year a temporary sawmill was erected in the railway yards to cut logs brought by road from the Crystal Creek area (south-east of Alexandra). In the bush the No.4 Mill recommenced operations once the damage to the tramway was repaired. However, mill owners soon had a new problem to contend with - labour shortage, due to the Second World War. Mill workers were not prepared to work at an isolated mill when they could easily get a job at mills which had road access. To overcome this isolation the FCV began construction of a summer dry weather road from Rubicon (Tin Hut) as far as No.3 Mill which was then being rebuilt. This road followed the same route as the tramway to this mill. This tramway was very steep, and great care had to be exercised in negotiating it. Prior to the fires it was only needed to carry timber from No.3 Mill, but now that the output from No.4 Mill had been diverted along it, it had become inadequate. It was therefore decided to close it, and build a completely new steel-railed line from a point about half a mile south of No.3 Mill to Rubicon (Tin Hut). The new line commenced at Rubicon as a horse-worked line for a distance of twenty-eight chains, then continued as an incline of twenty-seven chains length with an average grade of 1 in 2, then followed 120 chains of tramway on an average grade of 1 in 18 in favour of the load. The latter section was suitable for operation by a rail tractor. Subsequently No.5 Mill was rebuilt, whilst in the Snobs Creek area Barnewall & Lee's former mill (No.6) was also rebuilt, and the 3 ft gauge tramway leading to it was repaired.

In rebuilding the mills some parts could be salvaged for re-use. Boilers were generally not damaged, but shafts were bent in the heat. Wheels could be knocked off shafts without much difficulty for re-use. The boiler of No.2 Mill



Above - "Engine requirements" on Clark & Pearce's horse tramway in the Rubicon Forest.

Right - On the same tramway a hand winch is used to load logs. The cable runs from the log, round a pulley attached to a tree outside the picture on the left hand side, then back to the hand winch.



was eventually retrieved and is still in the Alexandra seasoning works. It was taken out by mounting it on a wooden sled and hauling it out by "Cletrac" crawler tracked tractor. The ex VR locomotive boiler (DD or A2 class) at the R.L. & T.Co's Mill was sold a few years after the fires. With great difficulty a low loader was driven along the Royston Road, which by then had been extended to No.5 Mill. On the way out the boiler tipped off the low loader, necessitating a further very difficult salvage operation.

"Day's" tractor purchased

The new road to No.5 Mill was dry weather only, and traffic on the tramway serving Nos.4 and 5 Mills was now being hauled by a six-wheeled "Day's" rail tractor, which had been purchased in mid 1940. Immediately prior to the acquisition of this tractor Ru oak were using two horse teams from their No.4 Mill. Fourteen horses were employed, with several more held in reserve. With the reconstruction of No.5 Mill twenty horses and five men would have been required to move the traffic, but the tractor could carry it all. A home-made four-wheeled tractor was also in use, to carry people. This had been constructed because of the acute shortage of manpower. Workers were going out daily from Alexandra to Nos. 4 and 5 Mills.

In November 1942 James Clark, a director of Ru oak Timbers, a senior partner in Clark & Pearce, and a partner in the pioneer firm of Clark & Kidd; died in Hawthorn, having shifted from Alexandra some twenty years earlier. He was the last of the pioneers of the Rubicon timber industry. Seven months later the death occurred of Mr. W. J. Muntz, the civil engineer who surveyed the route of the first tramway in the Rubicon forest, in 1905 (see LR 28, p.4).

In 1942 the FCV advised the Council that they intended to construct a road into the Snobs Creek area, and that they were bringing in road making plant. But the 3 ft gauge tramway serving this area remained in use, due to Council opposition to carriage of logs over their roads. In this area the old No.6 Mill became No.7 Mill when a new No.6 Mill was built about $1\frac{1}{2}$ miles north of the old No.6. A balanced incline about a quarter of a mile long connected the new No.6 Mill to the outlet tramway. In May 1946 an 18 year old youth was killed at this mill when the rear bogie under a log became detached while negotiating the haulage, causing the log to roll off. Shortly after this the tramway went out of use, and all the equipment from No.6 Mill was brought into Alexandra. At about the same time No.3 Mill closed, and its plant was also transferred to Alexandra.

Ru oak Timbers intended to erect these two mills in Alexandra township, and in fact they eventually did, but only after a further argument with the Council. Ru oak's plan was to carry logs from the Snobs Creek area by road direct to Alexandra. At first the Council insisted that these logs be transhipped onto the 2 ft gauge line at Thornton to complete the journey into Alexandra by tram. After Ru oak pointed out how much this would cost the Council eventually, and very reluctantly agreed to allow the logs to go all the way by road.

The last remaining tramway in the Rubicon forest was the line serving Nos. 4 and 5 Mills. Whilst for the first years of the 1940's this line was operating in its entirety, the timber being transhipped from the 3 ft $4\frac{1}{2}$ in gauge to the 2 ft gauge at Rubicon (Tin Hut); after the FCV had upgraded the road from Tin Hut to No.3 Mill to all weather status, the northern section of the tramway was abandoned. A transfer point between tram and road trucks was set up near the original site of No.4 Mill, near the Royston Offtake Dam. At the transfer site a gantry was provided, and a galvanized iron shed still stood there in January 1973. (See LR 42, p.28). At the same spot the remains of a few timber bogies, and the frame of the



Above - A horse team commences its journey from one of Clark & Pearce's mills. This is believed to be No. 3 Mill.

Right - Clark & Pearce's No. 1 Mill. This mill was built in 1906, and was powered by Pelton wheel. It was destroyed in the 1939 fires and never rebuilt.



passenger carrying home-made tractor were found a few years ago, and they are probably still there, although well hidden under blackberries.

In December 1946 one of the many trestle bridges on this line collapsed under the weight of the "Day's" tractor, causing the death of its driver, Mr. Charles Richards. Although No.5 Mill remained in use until 1954, in the last year's of the mill's operation timber was taken all the way by road. It is probable that the southern section of this mill's tramway finally ceased working in about 1950, but nobody I have spoken to has been able to give a precise date of closure.

Last years of the 2 ft gauge tramway

In February 1946 a new road bridge over the Rubicon River was completed, and to carry the 2 ft gauge tramline over this, second-hand 60 lb/yd steel rails were purchased from the VR. The rail surface was made level with the wooden bridge deck. This was the last major work done on the tramway, as traffic declined drastically later that year when the Council allowed road transport of logs, and ceased altogether in the latter half of 1947.

In April 1948 Ru oak asked the Shire Council to terminate the tramway agreement. The Council declined, and insisted that the tramway rental be paid although the line was out of use. Twelve months later the Council changed its mind, but it was not until March 1950 that all the legal requirements for surrender of the lease had been completed. Ru oak retained a section of the tramway between the railway station and their Alexandra timber mills, a distance of thirty-four chains. This was leased to them by the Council for £3 p.a., and was operated manually. It was still being used in 1959, but has since been dismantled. Some 2 ft gauge tramway continues to be used around the mill area. The three Krauss steam locomotives were scrapped between 1951 and 1957, but the two diesel locomotives and the 3 ft 4½ in gauge Day's tractor remain at the mill to this day.

In June 1950 the tender of Tivoli Collieries, Queensland, for purchase and removal of the tramway's rails was accepted. About ten tenders were received, the successful tenderer paid £8,400. By November 1950 the dismantling job had been completed.

References: Alexandra & Yea Standard, 1935 - 50 inclusive.

Government Gazette (Victoria), 4 December 1935.

C.C. Singleton & W.R.B. Johnston, "The Rubicon Tramway", ARHS Bulletin,

Vol. VI, No.37, November 1940, pp. 54-55.

"Australian Built Diesel Locomotive", The Commonwealth Engineer,
1 January 1936, pp. 185-6.

Acknowledgements: I would like to thank the following people, all of whom provided information which clarified and added to the details which were gleaned from the sources listed above:

Mrs A. Gilmour, of Alexandra (daughter of the late Mr G. E. Pearce).

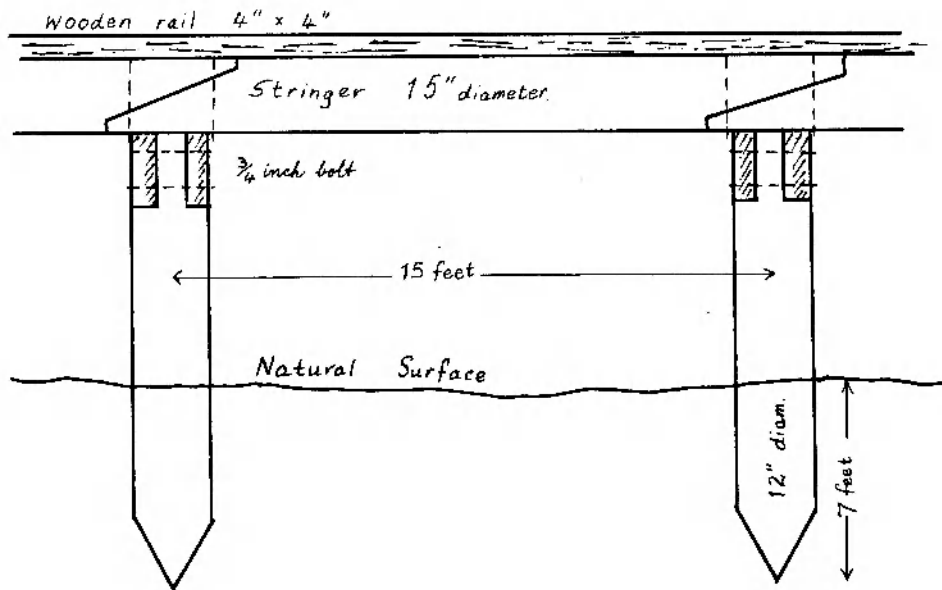
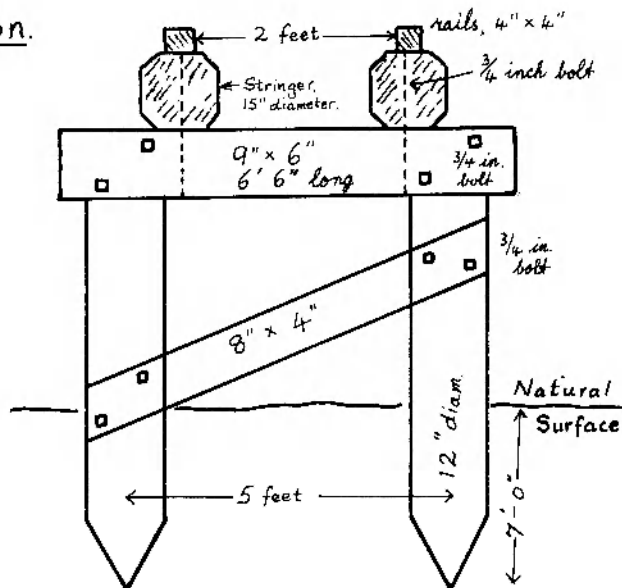
The late Mr R. Rees, and Mrs Rees, of Eildon (Mr Rees was the R.L. & T.Co's locomotive driver in its last years of operation, and subsequently worked at the R.L. & T.Co's Mill).

Mr & Mrs E. H. LeBrun, of Rubicon, who formerly lived at the R.L. & T.Co's Mill.

Mr B. J. O'Brien, of Alexandra, recently retired manager of Ru oak Timbers Pty Ltd.

Mr & Mrs T. Scheffer, of Alexandra (Mr Scheffer was responsible for bush tramway construction for Clark & Pearce).

Mr & Mrs H. Clark, of Dandenong (Mr Clark formerly worked for Clark & Pearce at the Nos. 1, 2, and 3 Mills).

Elevation.Section.RUBICON LUMBER & TRAMWAY
COMPANY PTY LTD

Specifications for 2 ft gauge tramway bridge construction on soft ground, as lodged with the Public Works Department in 1910. The original tramway specifications called for 20 lb steel rails on curves and level crossings, and 4 in x 4 in timber rails elsewhere. However, the tramway was constructed with steel rails throughout.

The Mason's Landing Tramway

By - I. R. Trellin



In LR 42, p.22 brief reference was made to the Mason's Landing to Canning Mills tramway, owned by the timber milling firm of Mason, Bird & Co. This 3 ft gauge horse tramway - one of Western Australia's earliest railways - is described more fully in this article.

In 1864 Mason obtained a timber concession on the slopes of the Darling Range some miles east of Cannington.¹ By 1866 he employed over 100 men and hauled his timber either to the Canning River or direct to Perth. He erected a large steam mill at Mason's Landing, near Cannington, in 1869. The firm Mason, Bird & Co. was formed in 1871 to export timber and the need for a tramway to the mill was felt. It was built in 1872.

The line was built in the unusual gauge of 3-ft., using wooden rails and horse traction.² It extended for nine miles from the mill at Mason's Landing to the concessions on the lower slopes of the range and is reputed to have cost £300 per mile.³ It followed closely the route of a survey made in 1869 by Surveyor Cowle as a route for the WAGR's Great Eastern Railway. Cowle's proposal was scrapped and the WAGR built their line north of the Swan River.⁴

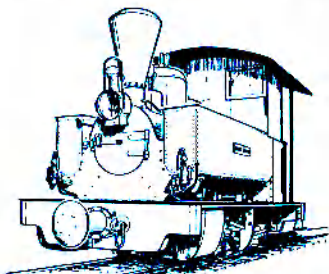
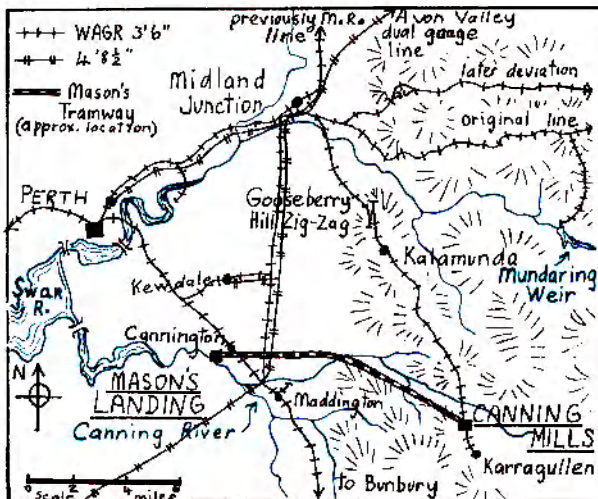
By 1874 the timber cutters had extended further back into the range and the mill was shifted from Mason's Landing to Canning Mills, about 12 miles eastward and on the top of the range in the forests. The line was presumably extended, as a reference exists to the use of two brakemen needed to ride wagons down the range.⁵ Also it is likely that sawn timber rather than logs now made up the freight on the line. The same reference states that when the railway opened to Midland, timber was diverted there by dray and use of the tramway discontinued. The Perth to Guildford railway was opened in 1881 and extended to Midland shortly after.⁶ In 1882 Mason's timber yards at the Landing were auctioned but drew no bidders. The land on which the tramway was built was in the hands of the WAGR until at least 1916.⁷

A more fascinating story unfolds from this point. Certain leases in the Darling Ranges, possibly those of Mason & Bird, were taken over on 1st. January 1883 by the railway contractor, Edward V. Keene, for structural timbers and sleepers. On 26th. February 1891 an Act was passed by the Western Australian Government authorising him to build a private 3-ft. 6-in. gauge line - the Upper Darling Range Railway. This was constructed from Midland to Canning Mills, where Mason & Bird had earlier owned the mill. The notable feature of this line was the Gooseberry Hill zig-zag. Here the line rose 458-ft. in $3\frac{1}{2}$ miles using a zig-zag with four reversing points and a grade of 1 in 40.⁸ Millars took over the concern in late 1901. Lines to the bush certainly existed from Canning Mills⁹ and possibly from near Kallamunda. In 1903 the WAGR took over the portion of line from Midland to Pickering Junction (near Kallamunda). I do not know if this is called a junction because of a possible junction with bush lines, or if merely because it was the point where the government and private portions of the line met. The remaining part of the line was taken over to Canning Mills in 1910, and extended $1\frac{1}{4}$ -miles

to Karragullen in 1911. During the 1949 coal strike, services were withdrawn from this line. They were never re-instated and official closure followed in 1950. Thus ended rail connection to an area which had one of our few zig-zags and 3-ft. gauge tramways.

References -

1. F.G. Carden, "Along the Canning", 1968.
2. ARHS (WA Div.), "100 Years of Railways in Western Australia 1871-1971", 1971.
- 3, 4, 5, As for 1.
6. As for 2.
7. As for 1.
8. W.A. Bayley, "Lithgow Zig-Zag Railway", (undated).
9. Railway map of Western Australia - 1897.



LETTERS

EARLY LOCOMOTIVES OF JARRAHDALÉ, LR 41, p.8; LR 42, p.21.

I must put pen to paper in the face of recent interest in the early Jarrahdale locomotives, in particular "Governor Weld" and "Pioneer", since some of Mr. Buckland's comments were inspired by information originating from me.

During my few years as Research Officer of the ARHS WA Division, I was able to gain access to files of the WA Machinery Inspection Office, which was responsible for the recording and registration of all pressure vessels, including of course, locomotive boilers. Hence the old files yielded an immense amount of information on private locomotives. The Machinery Department was established in about 1897, so information on earlier locomotives was only available if the engine (and boiler) was still in existence at that time, even if in a derelict condition.

The facts concerning "Pioneer" - taken from the Machinery Inspection Office's cards - are: the boiler was built by the Fulton Foundry Co. Ltd., Melbourne, in 1874. There were seventy-three iron tubes, 108 in. long and 2 in. in diameter.

The firebox was $3\frac{1}{4}$ in. long, 24 in. wide at the bottom, and 30 in. high, with a grate area of 6.3 sq ft. Boiler pressure was 100 p.s.i.

Note that I have stressed the boiler, because that was the inspector's prime concern. However, the file refers to "Loco. Pioneer", inferring the complete locomotive, and the files usually stated if a new boiler had been fitted to an older locomotive.

The Machinery Department file on this locomotive commences in June 1900, when "Pioneer" was in use at Jarrahdale. By July 1905 it was permanently out of use at Mundijong, later it was transferred to Jarrahdale, but was never used again under steam pressure. There is no mention of any 1904 rebuilding, nor would it have been warranted, as the large, combined company possessed many modern locomotives by that stage.

I also vigorously disagree with the claimed 1892 rebuilding at the WAGR Fremantle workshops (referred to in LR 42, p.22). Mr Woodland does indeed possess one brass plate inscribed to the effect that the locomotive to which it was attached was rebuilt at the Fremantle workshops in 1892. However, this was not a private locomotive, but one of the WAGR's own "Double Fairlie" articulated 2-4-0+0-4-2 locomotives of the "E" class. Two of these were built in 1874 by the Avonside Engine Company of Bristol, England, and imported to work on the first government railway in Western Australia, from Geraldton to Northampton.

They were subsequently transferred south to Fremantle for use on the Eastern Railway. One locomotive, No.20, was broken into two portions at the Fremantle Workshops in 1892, one half being used to drive workshop machinery. The other half (Avonside B/No. 1239 of 1874) was rebuilt as a 2-4-2T locomotive, and issued to traffic as "F" class No.20 in 1893. This locomotive was sold in 1899 to the Jarrah Timber & Wood Paving Corporation Ltd, which operated at Worsley, near Collie, and was one of the companies which amalgamated in 1902 to form Millars' Karri & Jarrah Co (1902) Ltd. No.20 was out of service by 1905, but had seen service at a couple of other mills by that stage.

I maintain that this is the locomotive from which Mr Woodland's plate originates, not "Governor Weld". From what I recall stated to me, the plate came off the remains of a side-tank at or near Jarrahdale, which was said to be the remains of "Governor Weld". I doubt very much that this is fact. The evidence is quite clear, both from WAGR Annual Reports and Machinery Department records, that the only 1892 rebuild at the Fremantle workshops was the F class No.20, and not "Governor Weld".

In conclusion, this does not solve the mystery of the ultimate fate of "Governor Weld", but it is quite clear that it was not rebuilt at the WAGR workshops in 1892. There did not appear to be a boiler file on "Governor Weld", which would indicate that it was not in existence, at any rate as a locomotive, when machinery inspection began.

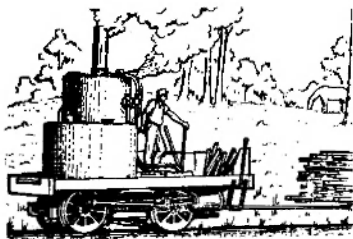
All that is definite is that in 1897 a locomotive named "Pioneer" existed, with a boiler made in 1874 by the Fulton Foundry. Whether its frames were originally "Governor Weld" can only be surmised at this stage, but I offer these facts in an attempt to keep the record as straight as possible.

South Caulfield, Vic. 3162

A. Gunzburg.

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News, Notes & Comments

NEW SOUTH WALES

J. & A. BROWN, (COAL & ALLIED INDUSTRIES) HEXHAM, 4 ft 8 $\frac{1}{2}$ in (1435 mm) gauge.

Two months ago Coal & Allied Industries invited tenders for purchase of most of J. & A. Brown's locomotives. Railway enthusiast groups successfully tendered for the following locomotives:

No. 2, an 0-6-0ST, built by Avonside in 1922 for Abermain Colliery, and trafficable until a few months ago. The successful tenderer was a Hunter Valley railway preservation group - the Hunter Railway Company, which plans to establish a working museum at Maitland.

No. 4, "The Buck", an 0-6-0ST built by Kitson in 1870 for the contractor building the Murrurundi section of the Great Northern Railway, was purchased by the NSWGR in 1872 and numbered 20N, subsequently 403. It was purchased by J. & A. Brown in 1891, and worked until the late 1960's. The NSW Rail Transport Museum will be buying this for \$2,100.

No. 5, an 0-6-4T with outside frames and cranks, built in 1885 for the Mersey Railway of England. It was purchased in 1907 by Brown's, for use on the Richmond Vale Railway until the arrival of the ROD's in 1923-24. It was subsequently used at Abermain Colliery. The NSW Rail Transport Museum will also be buying this, for \$2,800.

Nos. 20 and 24, both ex-Great Central Railway (UK) ROD 2-8-0's. These two locomotives have been bought by British preservation groups. It is believed that about \$8,000 was paid for No. 24.

Other locomotives for which tenders were invited were: No. 3, Kitson 0-6-0ST of 1878; No. 27, Avonside 0-4-0ST of 1900 (which last worked on the Wallarah railway at Catherine Hill Bay); and ROD 2-8-0's Nos. 13, 15, 16, 17, 19, 22, and 23. Sims have bought some or all of these for scrap.

(R.T.M. newsletter, and Grant Pacey).

VICTORIA

ANDERSON'S TRAMWAY, MARYSVILLE

The dismantling of part of Anderson's tramway (see LR 42, pp. 7-11) was undertaken on Saturday 21 July 1973. The steel rails from the tramway, if not removed, would have fallen into the hands of the Forests Commission when the lease expired. Therefore Mr Gould who now owns the tramway, had the rails broken into 50 ft lengths, and hauled by a bulldozer to a loading site about two miles

from the base of the incline. From here they will be cut up and transported to Gould's Mill at Marysville, where they will be sold.

The tramway formation was converted to a track, to enable a truck to pick up short sections of rail near the incline. The formation was completely destroyed.

Uncovered by the operation was an interesting four-wheeled trolley with two drums mounted on it. The trolley is positioned on a short spur leading to a loading bay; due to debris over the spur I would say it was long out of service before the tramway closed. Near the trolley the track makes a deviation around a bridge, it appears to be the only bridge of any size on the line. It is about 15 ft high, and constructed by criss-crossing of large logs, the steel rails have been removed leaving only the wooden braces. The bridge and trolley are about 300 yards from the creek in the section noted as "not inspected" in LR 42, p. 10.

Also uncovered at the base of the incline were two connecting rods, obviously spares for the Fordson tractor.

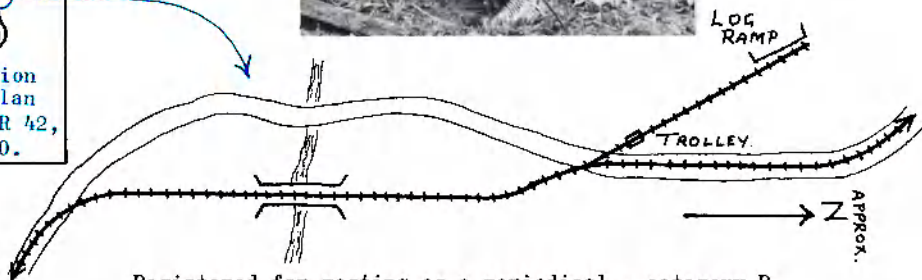
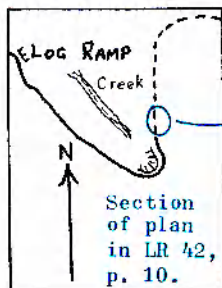
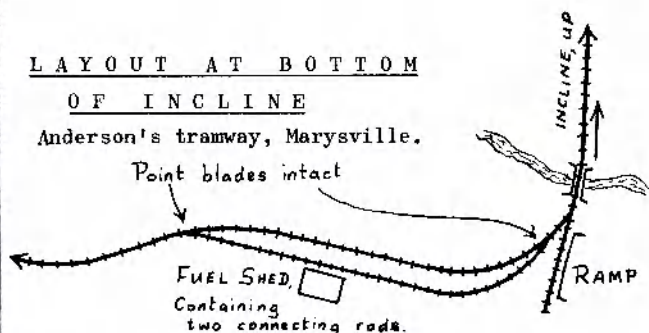
(Anthony Sedawie)

(This item earns the \$2 Field Report Award for this issue - Ed.)



LAYOUT AT BOTTOM OF INCLINE

Anderson's tramway, Marysville.



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