LIGHT RAILWAYS

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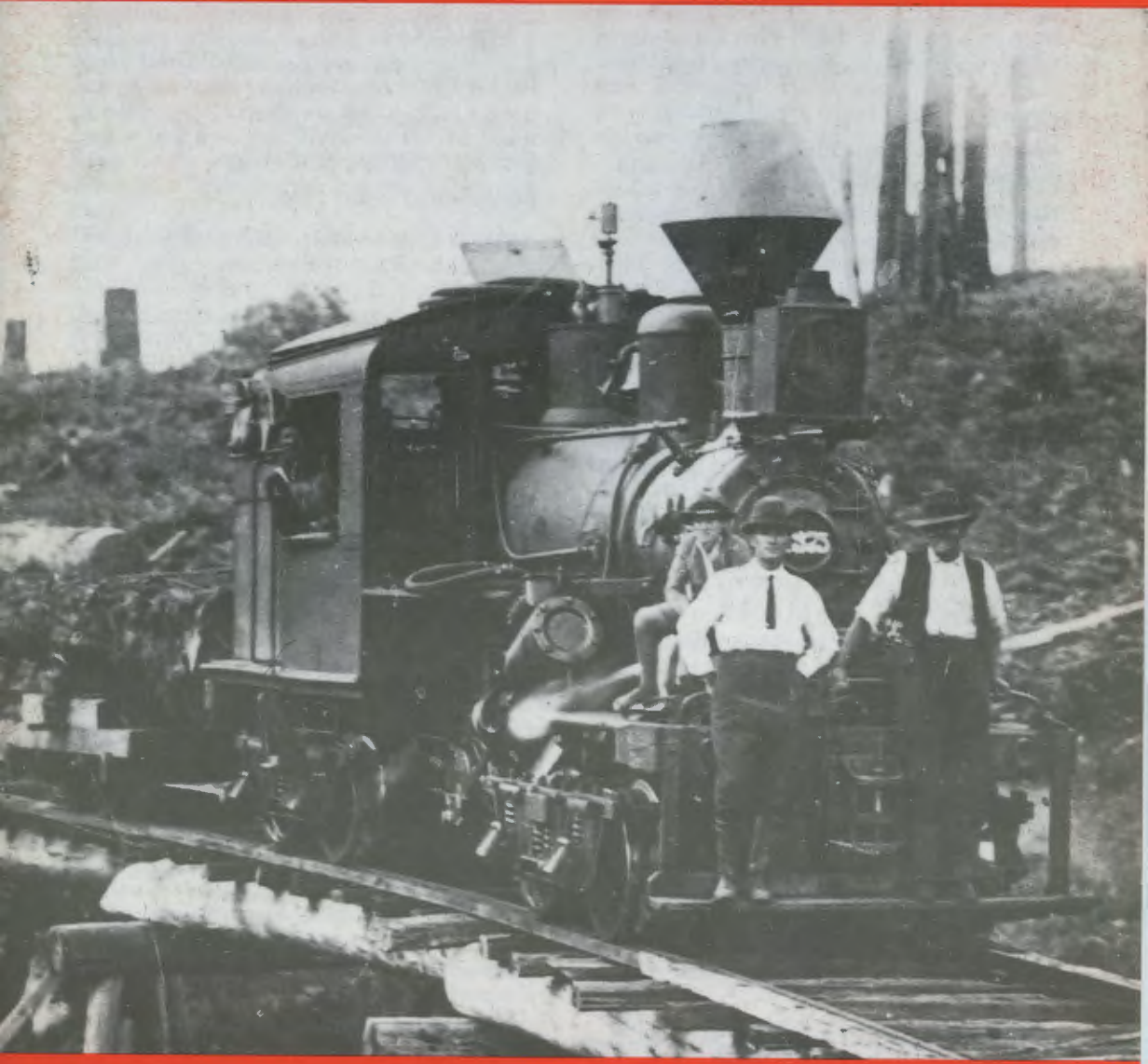

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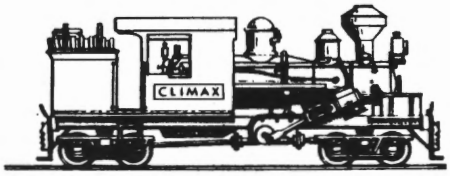

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Subscriptions: $32.00 per year covering 4 issues Light Railways, 6 issues Light Railway News and information on Society activities, publications, etc. Airmail rates on application. To Membership Officer, PO Box 21, Surrey Hills, Vic 3127.

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Cover Photo:

Longworth's B Class Climax loco, No. 1375 of 1916, hauling logs at Kendall, NSW.

Photo: Jim Longworth per NSW Forestry Commission Collection.

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The Light Railway Research Society of Australia was formed in 1961 and caters for those interested in all facets of industrial railways in this country and its off-shore territories, past and present.

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

Who knows what lies hidden in the forest? Members have uncovered tramway formations, sawmill sites, winches, steam boilers, bridges, log landings and more. The Society has been instrumental in preserving many sites through Heritage Classification so that future generations can enjoy glimpses of the past.

CONVERSIONS:

1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metres
1 mile	1.60 kilometres
1 super foot	0.00236 cubic metre
1 ton	1.01 tonnes
1 pound (£)	$2.00 (in 1966)
1 pound (lb)	0.454 kilogram
1 acre	0.4 hectare
1 horsepower (hp)	746 Watts

WHERE THE RAILS ARE FREE, FIJI

by Richard Harrington

I was prompted by a recent slide night to dust off my old travel diary and revive memories of a trip to Viti Levu, Fiji Islands in 1957. Here's how it was then.

It's true – there's not much that is free any more, and not much that can be bought with a penny. But you don't need even that for a 135 mile ride on the only passenger train in the smaller islands of the South Pacific. Fiji claims it has the longest free train ride in the world. The Fijian name for the train is 'Sitima-si-vanua', meaning 'steamer of the land' since they had no word for train.

You don't ride in style nor at speed, but you get there, thanks to the Colonial Sugar Refining Company's narrow-gauge railway. It wanders from Sigatoka on the south to Tavua on the north shore of Viti Levu, main island of the Fiji group.

This unique railway has no printed schedule, no dining car, no parlour car and no station platform – in fact no stations. It has no tickets to collect and needs no conductor. And it's anybody's guess how many passengers it serves per year. You get on and off anywhere along the line.

If you forgot to bring lunch, you can snack on sugar cane anywhere along the line at the Company's expense or buy victuals from vendors who offer highly spiced pretzels, greasy doughnuts, or curried peas in bags made from newspapers. You can purchase 'lolly water' or thirst until the train stops for its regular thirty-mile drink.

The air conditioning is superb. The coaches are exposed to all the airs that blow, including those laden with cinders and dust, for they are completely opensided. Each of the two coaches can seat forty passengers but the load is more likely to be around one hundred, with the excess doubled up on someone's knees, hanging from the sides or braced on the couplings. The passengers cannot overflow onto the flat roof as each is liberally laced with barbed wire to thwart such contingencies.

There is little danger of falling off, and no damage if you do. You can easily catch up with the train at its customary ten to twelve miles per hour. Sometimes it gets up to the snorting speed of fifteen miles per hour, but that's risky. You never know when you're going to run into some livestock, which can topple over the whole train. That, at least, was my experience, the one 'narrow escape' of the lengthy journey. We were held up for an hour because the train ahead of us, hauling 'trucks' (tiny flat cars) of sugar cane had rammed into a horse. The encounter was fatal to Dobbin, whose head was sheared from his shoulders but in turn he derailed the engine and upset a batch of trucks. Our engineer had to walk ahead of our train, pitching cane out of the way. We free-loaders, a hundred strong, lolled back in our seats and accepted the service.

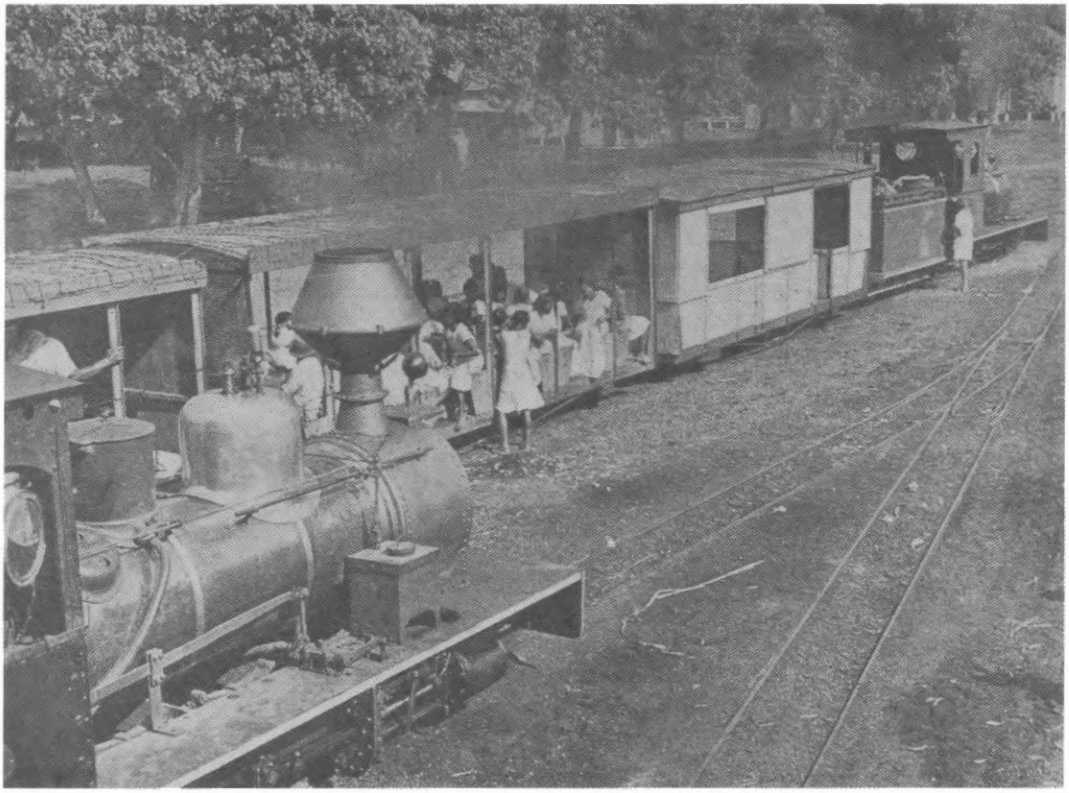
Engineer B.R. Mangaru had been on this run for the last twelve years and is highly trusted by his employers. He knows everyone up and down the line. 'Same faces all the time,' he said. 'Up and down, up and down, visiting friends, going for a free ride, buying tobacco at one end, selling it at the other'.

The light two-foot-wide railway line wavers westward from its terminal of Kakvanangasan, just outside Sigatoka, then across country through fields of plumy sugar cane to Lautoka on the north shore, then farther along to Ba, and to the end of the line at Tavua. It has no precise schedule but makes the trip twice weekly. It is a picnic for the tourist who wants to see more of the country and of the Fijians and East Indians who comprise most of the population.

Certainly the arrival of the train is an event in this back country, unlike the sophistication of towns along the highway. Everyone came to the doorway to watch and wave as we lurched past. And it is no light thing to make a journey, if you can believe the raucous screeches and witness the embraces of travellers. You would think they were off around the world, when it is most likely only to the next water tower.

The land now used for sugar cane belongs to the Fijians and by law may not be alienated. However, by arrangement with the Fijian landowners and the Government, the Colonial Sugar Refining Co in 1905 agreed to provide free passenger service in return for the right of way through the country. All Fijians might thus ride free.

Our excursion took place on a Saturday, when the train left its terminal at Kava. We caught it at about 8 am at the bridge over the Sigatoka River, which it shares with highway traffic. 'Puffing Billy' slowed down long enough for us to scramble



The passenger train waits on a loop line while a sugar train has right of way. Note the barbed wire lace on each carriage roof. Photo: Author.

aboard; then with a shrill shriek this little 1915 English locomotive lurched into brisker action.

Behind it streamed its tender, carrying coal for fuel; the pay van, containing three safes which held cash to pay the sugar cane workers; two open coaches teeming with passengers; the guard van with a train man to throw off bags of stuff to waiting workmen along the tracks; and last an ice box (a sort of refrigerator car) which carried fresh fruit and meat to overseers's residences.

Kids scrambled over the polished roof of the ice box, sliding off, clambering back on again. This is not possible on the coaches due to the barbed wire. Incidentally one passenger in our coach was a black and white billy goat.

We cut across sugar cane fields with their blossoms tall against the sky, through small settlements, over mangrove swamps, between high rock cuts and across trestles that also served the highway. We passed long, low sugar trains with as many as 130 trucks all loaded with cut brown cane. You get entirely different impressions from the railway from those of the highway.

Once our engineer put on a specially good burst of speed and we roared along at fifteen miles per hour until two cows got on to the track in front of us. The shrill whistle made them stampede through a rock cut until they were exhausted. Then a train man had to stand on front of the engine, using a stick to prod them along until finally they found a path off to one side.

Usually the train only slows down sufficiently for people to step on and off, then gathers up speed to rattle on again. As only the 'loco' has any brakes, when these are applied there is an abrupt jolt all down the line. Powerful brake shoes keep the wheels from turning.

At one highway crossing the fireman had to run ahead of the train and shovel the gravel off the tracks. The gravel (they call it 'metal') was thick enough to derail the light-weight train.

Many extra miles of line are laid at cutting time, to transport the cane to Fiji's five sugar mills. In spite of its name, the Colonial Sugar Refining Co does no refining in Fiji, but ships out the brown sugar and molasses to its refineries in Australia and elsewhere.

Smoke and dust covered us on our nine-hour ride from Sigatoka bridge to Lautoka, a distance of eighty-four miles. Having made that great dash the train halted for the next day, Sunday, for the Fijians are strong Wesleyans. On Monday the train puffed outward another twenty-nine miles to Ba, this time without the pay van but a long sugar train again delayed us, so that it took four hours to make the twenty-nine mile run. Every time the train halted or even slowed down sufficiently, passengers dived into the cane fields and came back, grinning, with cane. Soon the car floor was covered with spit-out pulp and we were glad for the open sides. Of course, it was also possible to make tea along the way with hot water from the boiler.

Tavua, end of the line, was twenty-two miles farther along, and here the line abandoned the coast to strike inland. Just a quick turnaround here, and then Puffing Billy snorted its way back across the fields to rest overnight at Lautoka. On Tuesday it made the return trip to Sigatoka and its terminal.

After an overnight rest, the leisurely little train starts its rounds on the morrow, cheerfully collecting and depositing the same joyriders as before. You don't have to pay for a train ride to enjoy it. The chief quality needed for this trip is patience, or endurance.

Clearing the track after the sugar train up ahead derailed and spilt its load. Photo: Author.

ROTTNEST ISLAND NOTES

by Colin Harvey

The defence tramway on Rottnest Island has earlier been described in this journal, LR 46, by Ian Crellin. Additional information is now available from Military Board files held in the Australian Archives Victorian regional office. See Series MP 729/6. The following items are from files 23/406/250 (items to 1940) and 47/401/1416 (1941).

Before any major defence construction could be undertaken on Rottnest Island the jetty at Thompson Bay had to be lengthened and strengthened. This work was undertaken by the Western Australian Public Works Department at a cost of £2450. The jetty was extended a further 18 metres in 1941-42.

The plans for the defence works on Rottnest Island were prepared by the Works and Services Branch of the Department of the Interior in Sydney. These plans included the specifications for the construction of the railway and for an internal combustion locomotive.

The railway tender comprised construction of 6.6 kms of 3 ft 6 ins (1067 mm) gauge railway and included recovering and repairing track, 10 points and crossings and 30 ballast trucks from Henderson Naval Base (equipment transferred from the Navy). Additional 45 lb/yd rails were purchased from the WAGR by the Department of the Interior and provided to the contractor. The line from the jetty to Olivers Hill was to be constructed first, followed by the line to Bickley Hill.

The contractor was responsible for erecting a temporary galvanized-iron engine shed to house a 50 hp diesel locomotive which was to be available to the contractor from January 1936 and which would be run and maintained by the Department.

The railway contract was awarded to John Dunstan & Co (WA) Ltd at a price of £13,354 with rails to be purchased from the WAGR estimated to cost a further £5200.

During construction it was found necessary to add a 400 metres spur line, to be used initially for the conveyance of shell grit and later for the storage of trucks, and a 300 metres spur line to a quarry, for stone to protect the line approaching the jetty and limestone for concrete for the battery. (The shell grit was to protect sand embankments and to replace sand ballast which blew away.) Five level crossings were also needed and 80 metres of 60 lb/yd rails were used on these instead of 45 lb/yd. Construction of the railway was completed by 6 May 1936.

Tenders for the locomotive closed on 26 August 1935 with prices ranging from £875 to £11,133 – which seems to indicate that the specifications were fairly broad. The lowest tender was accepted. This was from Tomlinson & Co for a F.W.D. petrol-driven road vehicle converted to rail use. The loco was 'new' although made 'about 18 years ago'. An additional £100 was spent on alterations to the body of the loco. (This is probably the loco illustrated on page 30 of the Autumn 1985 issue of *Heritage Australia*.)

By 30 June 1936 a Fordson locomotive had been supplied by Malcolm Moore, of Melbourne, at a cost of £968. There was also a motor-driven gangers trolley on the island from 1936.

In November 1939 the Quarter-Master General recommended the purchase of an additional Fordson locomotive to the same design as that supplied in 1936. He stated that the converted motor truck had done the bulk of the work during the construction of works on the island but was no longer reliable. The Fordson locomotive had been used for shunting and had given excellent service.

Malcolm Moore was the only tenderer for the new locomotive. Except for minor differences to the engine, the new loco was identical to the previous Fordson. It had a petrol engine mounted across the chassis driving one axle by a chain with the second axle driven from the first. Two drive sprockets were supplied giving a top speed of either 7.5 mph or 15 mph in third gear. The loco was due at Fremantle on 15 July 1940 and buffers were fitted at Rottnest. The completed cost of the loco was £786. The loco was taken over by the Rottnest Island Fortress Coy, RAE on 22 July 1940 from The Department of The Interior.

The construction of an aerodrome on Rottnest Island required the relocation of a portion of the tramway. This work was carried out by the State Public Works Department during March 1941.

In June 1941 two WAGR 'G' type wagons were purchased by the Army to supplement the existing three, low sided, 'H' type wagons which could not

be loaded to their full capacity with light materials such as firewood and stores.

There are additional files dealing with the Rottnest Island tramway in the Western Australian office of the Australian Archives (series PP102/1 and PP519/2). These files probably contain more detail than those in Victoria. Perhaps a Western Australian member would like to examine them.

The Bickley Point branch line on Rottnest Island, photographed in 1981, long after closure. Photo: David Whiteford.

GLEN DAVIS – A SECOND OPINION

By S.F. Johnson

The following recollections are offered as an addendum to Ross Mainwaring's paper, "Glen Davis Oil Shale Works", published in *Light Railways* in July and October 1993. The research and documentation by Ross Mainwaring into the rail-haulage system at Glen Davis Shale Mine and the reasons for its installation show tremendous dedication, persistence and attention to detail, all of which deserve the highest commendation. In regard to the overall mining operation however, I feel that, as the son of the under-manager for the entire period of its operation and, at the time, as a young mining student, I may be able to offer some further insights which may assist in a more comprehensive understanding of the project.

Ross Mainwaring correctly noted that Harry Dalziel, the first Manager, had proposed that the mining method should be longwall, using the then best available techniques. However, he was overruled and the method adopted was trackless bord and pillar, a mining method, which was sweeping the American coal industry with high productivity, largely as a result of Joy equipment.

A key element in this wave of high productivity in America was the rubber-tyred universal coal cutter, which vastly minimised blasting requirements and produced maximum quantities of broken coal in a neat compact heap at each working face with little if any significant damage to roof support timber and ventilating brattice.

At Glen Davis, however, this key element could not be used, with all its resulting disadvantages, particularly including slow, cumbersome, very labour intensive drilling, requiring a very large number of working places. Ventilation to this large number of working places was of itself difficult and labour intensive, but each blast in each working place frequently wrecked the brattice and roof support timber for a considerable distance, requiring continued re-establishment. (Brattice, at that time, was heavy hessian fabric, used for directing ventilating air around the working faces). The heap of broken shale in each working place was much less than would have been obtained if a coal cutter could have been used and it was also spread out over a much greater area, making for slower loading.

For several reasons, the use of coal cutters at Glen Davis was impracticable. The physical texture of oil shale itself provided a tough cutting proposition. If the cut was made in the shale seam, the excessive proportion of very fine material created problems in the retorts; screening out the fines resulted in disproportionate waste. Even if the cut were made in the stone floor or in the intermediate band, unless a very large number of shot holes were drilled, of approximately the same number as for grunching (an excessive quantity of oversized lumps would have been produced) making loading difficult, if not impossible.

Mobile mounted drilling units had been developed by Joy and others and used to some extent in America. Only a very small number were used in Australia. In the coal industry it was generally felt that the small number of holes required could be drilled with hand-held machines and did not justify an additional large plant item.

It would appear that the reasons they were not introduced at Glen Davis were that a large number would be required, possibly, two or more to each working section, with further complications of ventilation and power reticulation and also apprehension that the darg might be lifted only inadequately.

Despite all this, Holman Frith, the electrical engineer and Fred Johnson made several attempts to develop compact, high performance drilling equipment. Later, Joy Manufacturing was able to provide a multiple boom drilling unit for trial, but in the confined spaces existing at Glen Davis it proved too elaborate, cumbersome and slow.

At this stage, it may be appropriate to consider the vast difference in only the drillings requirements for grunching in a bord and pillar operation compared to grunching on a longwall.

In the former, a large number of holes, of varying angles and lengths is required. Required also is a large number of working places. Only a small tonnage is produced at each working place. However, on the type of longwall envisaged for Glen Davis, and trialled in the small prototype development referred to in Ross Mainwaring's paper, all the holes are parallel and of the same length. The potential for maximum efficiency in blasting is thus very high. Mechanisation of the drilling process is very much simpler. The drilling equipment can be dedicated solely to the longwall

and need never leave the immediate vicinity of the face. Face ventilation is excellent with no labour requirement. Damage to roof supports is negligible or non-existent.

Brief description of the longwall envisaged by Fred Johnson, Hol Frith and Idriss Richards.

At that time, in Britain, advancing longwalls were the most common form in use, as they provided then the most effective means of coping with the greater depths and poorer geological conditions generally encountered.

On many longwalls, square timber chocks were commonly used, but some had commenced using hand-powered hydraulic jacks instead of timber chocks. Development of electrically powered jacks and self-advancing supports followed quickly.

Fred Johnson and Hol Frith often discussed face conveyors on longwalls. Both were well aware of conventional rigid chain conveyors. As a young man, Fred had worked on longwall faces so equipped. As soon as they saw the first hint of development of the modern longwall face, with the armoured-face conveyor and self-advancing supports connected as one integrated unit, they felt sure they had the answer for Glen Davis.

On a face about 100 yards long, their concepts also involved a very small loading machine such as the Huwood loader. This was a surprisingly effective machine used on many longwall faces in Britain prior to the widespread adoption of high capacity shearers. (Shearers are a specialised form of continuous miner, designed for operation only along a longwall). It wasn't much larger than a large suitcase, with a set of reciprocating flights at floor level, which moved the broken material laterally on to the face conveyor. It hauled itself along the face by two ropes.

For Glen Davis, it was proposed to eliminate the rope haulage system and simply push the Huwood loader along the face with a small crawler-mounted drill rig, the drill slide of which could be mounted at right angles to the direction of travel. It was proposed to use two such drill rigs, one drilling only the top holes and the other the bottom holes. Depending on roof conditions, the length of holes could vary from 4 ft to 8 ft.

Prior to blasting, the armoured face conveyor would be about 5 ft or 6 ft back from the face. After blasting, the armoured face conveyor would be started and advanced into the heap of broken shale until it was about 6 ft from the new face when the loader and drills would move along the face.

In regard to the then 'state of the art' longwall proposed for Glen Davis, perhaps the most significant decision required was whether a successful grunching system for breaking out the mineral could be devised. Idriss Richards, with his acknowledged expertise and experience had no doubt that it could.

Because the trial retreating face at Glen Davis was such a small-scale experiment, none of this specialised longwall equipment was available. The only type of chock that could be used was of square timber. At the time, these were not uncommon in Britain, but as mentioned earlier, they were rapidly being replaced with hydraulic supports. An integral feature of such timber chocks was a fabricated steel weldment, called a chock release, of the same dimensions as a block of timber, with a triangular prism at each end held by catches which were released by a tap with a hammer.

At the start of the experimental longwall, these chock releases were incorporated in the chocks (I believe they had been imported). However, they rapidly became lost. This was the reason for the use of the small concrete cubes referred to in Ross Mainwaring's paper.

Because of the industrial climate at that time and because of the way in which new concepts were introduced, mine workers generally were often dubious of new concepts. On the other hand, for example, when the longwall was introduced at Angus Place in 1979, partly because of the changed industrial climate, but more importantly, because of the care and attention to detail with which it was introduced to the employees, they were keen and determined to make a success of it.

NEGATIVE IMPACTS

It may be opportune to consider here the vast difference in what could be referred to as 'cultural concepts' in the coal industry at the time of setting up the Glen Davis operation and for its effective life, compared to present-day attitudes. Today, those concepts seem strangely irrational and almost unbelievable.

One such belief was that rail haulage was the only practical system for large modern mines. Even as belt conveyors were beginning to make progressively greater impacts, there were some very senior executives who insisted that conveyors would never replace locomotive haulage. I can well remember being told this in 1948 by one of the most senior executives in the coal industry.

Another belief, widely held throughout all sections of the industry was that longwall was

a quaint form of British or European mining which would never be able to compete with American or Australian bord and pillar operations. I can clearly recall this credo being pronounced, even some years after the dramatic and outstanding success of the first longwall at Angus Place in 1979.

Other obstacles, such as the union ban on mechanical extraction of pillars and the imposition of dargs have been already referred to by Ross Mainwaring. Yet another at that time was the implacable opposition of the union to profit sharing or production bonus schemes. Many workers also saw mechanical equipment on longwalls as the 'thin edge of the wedge' towards machines in pillars.

These days, the underground coal industry throughout the world relies heavily on longwalls. There are very few underground coal mines that don't depend on belts for haulage.

Fred Johnson sought to convince each of the successive managers, board members, mine workers and anyone else who would listen, of the benefits of belts instead of locomotive haulage and of the safety, productivity and logic of longwall instead of bord and pillar mining. Probably, he would have been far better off to have just pulled up stakes early in the piece and taken a more conventional job elsewhere in the coal industry, but he saw it as his duty to do his level best to make the system he was given work to its maximum capability, whilst never ceasing to plan for the day when he would see an effective longwall at Glen Davis.

CONCLUSION

Comments have appeared from time to time that Glen Davis was a project that never really had any chance of success and was doomed from the start, if for nothing else, because of the variability of the deposits, in both thickness and quality, and inadequacy in the total quantity of the resource.

It would appear that such comments are facile and less than fully informed.

The mining method used did not permit maximum extraction of the resource and sterilised other areas. (As was the case in most Australian coal mines at that time, it was sometimes referred to as "bord and pillar without the pillar".) Problems such as floor heave, noted by Ross Mainwaring, are typical symptoms of inadequate pillar size and/or inadequate pillar extraction. Diamond-shaped pillars are a major disadvantage in successful pillar extraction.

Even without the benefit of the extensive exploration drilling which would now be considered mandatory, around the Capertee Valley, several other potential shale mining areas within convenient trucking distance of the refinery had been identified by outcrop prospecting with potential for development as satellite mines. If reasonable production levels had have been able to be obtained, important ancillaries such as a more detailed exploration and drilling program could have been justified.

At present, and for the foreseeable future, it appears most unlikely that there will be any requirement to mine oil shale by underground methods in Australia. However, if such need were to eventuate it now seems more than probable that suitable cutting heads would be able to be developed both for continuous miners and longwall shearers to cut oil shale.

In practical engineering terms, it would appear that it was only the discoveries in Australia, more than nine years after the closure of Glen Davis, of major oil and gas reserves and of immense oil shale reserves, amenable to large-scale open cut mining, which finally validly justified its closure.

ACKNOWLEDGEMENTS

In the preparation of this paper, assistance from Bill Norcross, Jim Norcross and George Wilson is gratefully acknowledged.

LONGWORTH'S LOGGING LINE – AN OPERATIONAL HISTORY

by Ray Cooper

In the period 1916 to 1933 an extensive tramway system operated out of the town of Kendall on the north coast of New South Wales, 430 km from Sydney. The tramway was constructed and operated by W. & T. Longworth and used a Climax locomotive for haulage. The following account of the operations of Longworth's tramway is based on personal knowledge and the recollections of those associated with the business.

Longworths had land holdings at Cataract on the Comboyne Plateau 16 km west of Kendall, and built the tramway to transport logs to Kendall. From Kendall the logs were conveyed by droghers down the Camden Haven River to the company sawmill at Laurieton on the coast.

The tramway was built to a gauge of 4 ft 8½ ins (1435 mm) initially using Brush Box wooden rails and half-round sleepers. In operation it was found that the wooden rails had no durability and these were eventually replaced with light-weight steel rails.

THE CLIMAX LOCOMOTIVE

The actual date of commencement of traffic on the Longworth tramline is not known with certainty, but it would have been about 1916. It was reported that Longworth's 'B' class had builders number 1375 of 1916 attached to it, built by the Climax Manufacturing Company of Corry, Pennsylvania, U.S.A. When Robert Longworth ordered his locomotive, he insisted that it have the straight 'English' type funnel but he had to later change it to the 'American spark arrestor' type. This was made necessary by conditions issued by the Forestry Department when they issued Occupation Permit No 72 dated 26 March 1918. It said: *A Spark arrestor of approved pattern to be attached to and kept in good condition on all locomotives or steam engines working on the State Forest.*

This spark arrestor did not always work for there were many occasions over the years when Longworth's men had to go back into the bush and put out bushfires that had been started by the flying sparks left by the engine.

The Climax had two domes on top of the boiler, the first contained sand for the wheels and the second dome contained the steam dome with the pop safety valve. The design of the cylinders caused the engine to prime regularly without much effort due to accumulation of steam and water in the cylinders with the result that this condensation blew out as prime, making a mess of anything it came into contact with. The 60% slope of the cylinders meant that most of the time the engine had to travel with cylinder cocks open to prevent damage to ends of the cylinders. This also lowered the efficiency of the engine.

There was a square headlight included in the components for the engine shipped from the U.S.A. (it is shown in early photographs of the locomotive). It was fitted with a lime block which glowed when it was heated by a kerosene lamp. It was ineffective and it was fortunate that the engine was never used at night. The lime block was later removed and replaced with an acetylene carbide generator.

When the Laurieton School of Arts was constructed, Robert Longworth had the headlight removed from the engine and placed in the hall where the large concave reflector with the carbide generator provided the main source of light until the installation of electricity.

The Climax was equipped with a most unusual 'pop' steam safety valve. Most safety valves gradually increase in noise as the engine builds up a head of steam. This unusual 'pop' valve would not make any noise while pressure was building then suddenly it would blast off with an ear-splitting sound.

An incident that was told and retold for years was when the engine arrived at Dew Drop on its first journey. People, dressed in all their finery, came from miles around on horses and sulkies to see this marvel of modern technology. On arrival, 'Fardie' Gibson noted the pressure building in the boiler and said to Robert Longworth, "You'll see some fun directly!" There was pandemonium when the 'pop' valve suddenly let go like a double barrel shotgun blast. Horses, kids and women scattered in all directions and it was some time before all was again under control.

A log train running on the original wooden rail track. Photo: Courtesy P. Sellers.

THE ENGINE DRIVERS

Drivers of the Longworth locomotive over the years became household names to the people who lived along the tramline and provided a service which was invaluable for the womenfolk who lived such an isolated existence in the bush. Their only regular shopping contact was through the driver and fireman of the loco on the tramline. The only other way of obtaining fresh supplies was by a long trip by horse or sulky. The drivers would pick up the shopping list on their way to Kendall and deliver it to the shops and then pick up the groceries the next morning. Quite often a long blast on the powerful whistle to signal departure time brought the grocery boy running down from the shop with a box of groceries. On approaching their properties, a blast on the whistle would alert the people to collect their goods.

When the bush residents became floodbound in times of heavy rain, provisions were brought up on the loco to the Tipperary log depot and transferred by a wire flying fox specially built for such emergencies.

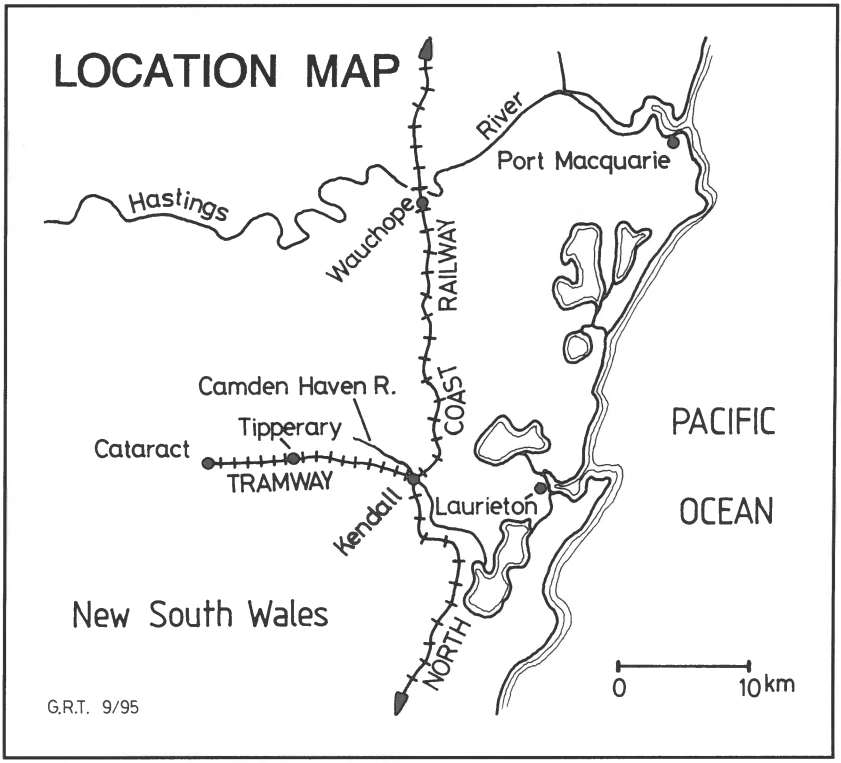
'Fardie' Gibson, who assembled the Climax originally, naturally became the first engine driver because of his knowledge of steam. He only remained a driver for a short time. He then trained George Bennett, who had surveyed and built most of the line.

The next driver to be trained by 'Fardie' was Sam Berry, who was a fearless man and would often let the engine rip down some of the grades at speeds that often put the fear of God into his firemen and any passengers travelling with them. He was often heard to say "H'mn, weel now. I was just thinking we should get a little more speed out of her" and open the regulator to hear the engine roar and see the sparks fly from the smokestack.

Len Swan, now of Port Macquarie, recalls as a boy watching the loaded train labouring up the grades and hearing his younger brother calling out "Stick it into her Sam (Berry) Bellie!" especially when the engine was slipping under a full load with smoke and cinders streaming skywards.

The next driver was Alec 'Sandy' Stevens and he continued as the driver until the line closed down with the onset of the Great Depression.

Families moving up into the Camden Haven Valley made good use of the tramway to shift their



possessions using the empty wagons on the return journey. In most cases they were to become employees of the Longworth Company.

THE RIGHT OF WAY

Robert Longworth had to negotiate with private owners for an eight-foot right-of-way for part of the tramway route from Kendall to his property 'Cataract' near Lorne. To overcome the difficulties he was experiencing with some landholders, it was rumoured that one day he may expand the railway to include a 'passenger' service. This of course never eventuated.

According to the Australian Railway Historical Society's *Bulletin* No. 44 of June 1941 and No. 95 of September 1945, it was indicated that two passenger carriages (ex steam tram trailers) had been obtained from A. Goninan & Co in May 1925 and were scrapped in 1934. To quote ... 'The line was constructed in 1914 primarily for the conveyance of timber, but in May 1925, two steam tram trailer cars ex NSW Tramways, Nos 22 and 106, were purchased from A. Goninan & Co so as to provide an auxiliary service for passengers and supplies for residents along the route.'

It has since been ascertained that the author of the article was not accurate. It has been confirmed that the two trailers in question were withdrawn from government service in Newcastle during 1924 and disposed of to A. Goninan & Co the following year. No further records of them have been discovered.

At that time, travel was by horse or spring cart or if you were lucky, by sulky which was very slow and often advantage was taken of the train returning with its empty wagons to shift other items of goods. Many people travelled at their own risk on the locomotive. Holes burnt in their clothes and hats by sparks from the firebox exhaust were trademarks of having ridden on the Longworth Line.

LOGGING

Logging was carried out at various locations along the line stretching into the hills. The logs were hauled by bullock wagons to log dumps built facing the tramway.

These dumps were established at a number of locations where there was easy access for bullock teams. One was established on the property 'Tipperary' owned by W.J. Tisdell . This location was to feature prominently in the final chapter of the Longworth line. Construction of the line was halted here while a fairly substantial bridge was built across a dry deep creek bed.

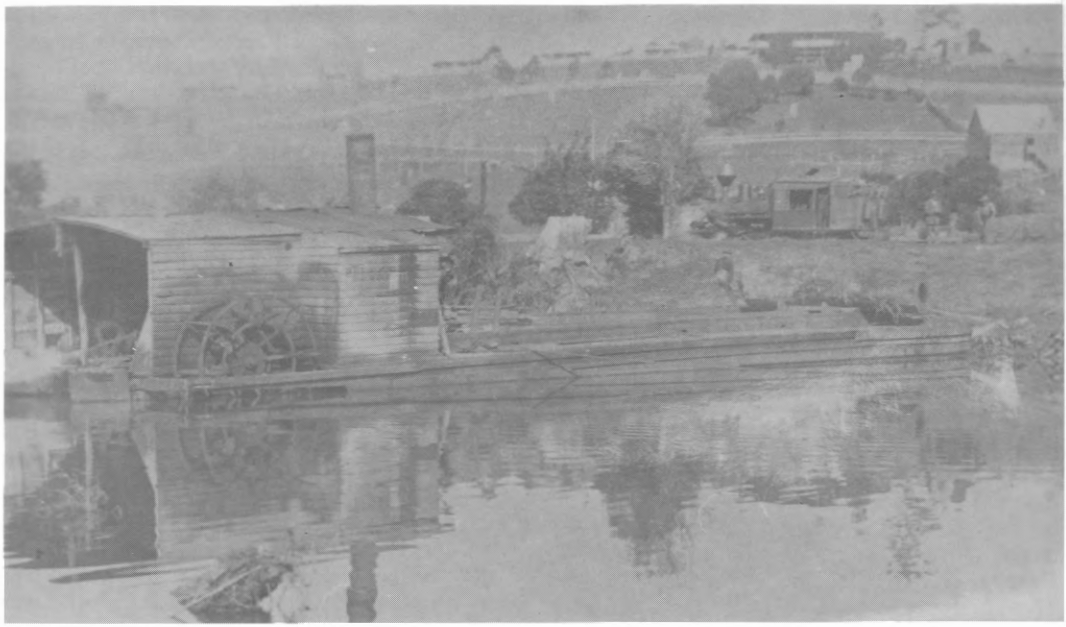
On arrival at the log dumps, logs were tipped off wagons close to the loading ramps ready to be rolled onto skid logs and then onto tramway bogies. The bed of the loading ramps at the dumps consisted of large logs, eighteen inches to two feet in height, laid parallel with the tramline and on top special skid logs were placed at right angles. At most log depots a large stump would be left in the ground on the opposite side to act as an anchor and a 'snatch block' pulley was attached to the stump. A wire rope was attached to the engine, passed through the snatch block, then taken round the log three times and held in the hand. In this way the wire was not hard to hold. The engine was then driven away and log pulled on to wagon. It would generally take up to two or three hours to load the wagons. On most occasions it was a most strenuous operation.

Gum Scrub, sometimes called 'Gum Tree Depot' was the largest log dump on the tramline. From Kendall the dumps were called 'Dew Drop', 'Gum Scrub', 'Tipperary' (sometimes called The Feed Shed), 'Falls Bridge' (near a pretty waterfall) and onto Cataract.

The log depot at Lorne was a large one. It served a wide area and there was intense activity when the bullock teams arrived at the close of day. There were up to eighteen bullock teams hauling to this depot each day when it was in full production. Some of the better-known bullock drivers were George Tisdell, Vic Smith, Bill McCarthy, Greg Kelly, Mick Knox,Drew Kelly, Jimmy Warrell, Mort 'Boy' Cook, J.J. Smith (known as 'Blazing John Smith' for he never swore! It was always "get over there you blazing bullocks or I'll lift the hide off you, etc.") Some of those that came later were Tom Gibson, George Crane, Jim Swan, George Smith and Steve, Bill and Eddie Latham.

As the log supplies dwindled around Lorne, so did the number of bullock teams. Len Swan drove a team for a short period when there were only five teams hauling into Cataract.

Due to the isolation and infrequent contacts made with other human beings, the various workers in the district developed into 'characters' with their own individual fascinating ways about them. Some acquired quaint ways that suited them, but appeared strange to those who came into contact with them. One character was Bill Richardson, who cut a lot of the girders for the various bridges on site. He also cut a lot of sleepers, mostly 'round backs' as time was money even in those days and it was considered a waste of time and effort to square the sleepers on all sides with the broad axe.



The Drogher employed by Longworths to convey logs along the Camden Haven River to Laurieton. Photo: Courtesy Jim Longworth.

Bill had a habit of cutting his plug tobacco with his pen knife, then without wiping it, would stir his cup of tea. He maintained that it added flavour.

George Watts also worked for Longworths for many years and finally retired at 93 years of age having spent his last years working mainly as a saw sharpener. He had been employed at the terminus at Lorne in the early days to cut logs into sizes suitable to load on the tramline bogies. These logs had to be no longer than 20 feet in length otherwise they could not negotiate the sharp curves on the line. The logs loaded on the last wagon were allowed to be longer because there was no limiting factor.

Originally the tramline and Longworth's loco was supposed to have the capacity to haul enough logs to supply Breckridge's and Steinmetz's mill and as well as Longworths with a surplus. The loco proved capable of hauling only about 25% of the trucks originally provided due to the sharp curves and steep grades.

THE SLEEPER CUTTERS

With removal of the larger trees by timber getters, sleeper cutters moved in to use the smaller and other reject trees. The fledgling Forestry Department was then, as now, anxious to get the best use from the forest products. It actively encouraged sleeper cutters to clear this timber so that the young trees could grow.

On 11 November 1921 District Forester H.J. Lewis reported from the District Office at Taree that "sleeper operations in Compartment 2 of Kerewong State Forest were progressing satisfactorily and four men were cutting sleepers for the Commission, which had been cut out for milling timber. The men were observing conditions and hewing sleepers. At the last pass, out of 800 sleepers inspected, only one had been rejected. The arrangements made with Mr Longworth to haul sleepers on his tramline to depot at Kendall is working very satisfactorily. Up to date 1518 sleepers have come off this area. (End of report)". As sleeper cutters ranged further and further into the forest they were often away from home for up to two weeks. They provided themselves with damper, jam and honey, sugar, tea and corned meat mostly contained in sugar bags and off they went into the lonely bush until they ran out of food and had to return home.

The tramway bridge across the creek just downstream from Buctons Bridge was left in place for many years after the tramway ceased operating, because it provided the only flood-free access for

residents. It was only after the Hastings Shire had constructed a good bridge and road that the rails were removed from the bridge. It was later washed away in a large flood. The large timbers can still be seen in the clear water near the foundations of the bridge.

Most of the sleepers used on the construction of the new North Coast railway line were purchased from sleeper cutters of the Camden Haven.

The onset of the Depression caused a slump in the timber market and in 1929 the Company closed the mill and tramway.

REOPENING THE LINE

In May 1933 Robert Longworth attempted to revitalise the Camden Haven's timber industry and brought his 'Climax' steam locomotive back into service for the first time in four years. Careful planning and preparation had gone into the reopening of the tramline as several of the bridges had to receive major repairs, especially to one over the Camden Haven river, namely Bucton's Bridge. These bridges had all fallen into disrepair caused by the cessation of operations and nature's toll.

The 'B' class Climax, resplendent in its coat of black paint with red trim, moved slowly out of the shed that had been its home for nearly four years. Albert Parrish, with years of NSW Government Railways experience, tentatively operated this strange steam engine. Different from other locomotives he had driven, it was much noisier with its inclined cylinders and unusual gearing. It looked and operated like a steam truck.

The Climax reversed out of the shed 'tender first' and coupled onto the wagon. The four-wheeled wagon, loaded with rails and sleepers totalling 15 tons, was to act as a test vehicle to be pushed on to the bridges to check for any weaknesses and the sleepers used to replace any that had rotted.

Bert Latham, the fireman, felt uneasy about the trip and was sure that all the bridges had not been checked thoroughly. The basis of his concern was his previous employment by Longworths where he had worked on and around the tramline in its heyday for a number of years.

The old locomotive started on its journey up the valley moving at a speed of 6 mph, just faster than walking pace. On the flat sections, Bert Latham and his second son Ted, rode on the step in front of the engine as lookout men.

The progress was so slow because of the continual stopping at the approach to the bridges to check their stability before venturing on to them. All were aware of the possibility of an accident due to the rough and ready methods used in the original construction. The lack of skilled bridge builders at the time when the line was first laid and the lack of maintenance over the 'close down' period.

The driver had discussed with the others the problems that could occur on this first trip and had especially warned them to walk behind the engine on the bridges, and not in front. As he put it, "If she looks like going over, I'll open her up and I don't want to run over you and if she goes over too quick I'll ride her to the ground!"

Upon arrival at the Dew Drop log dump they found the trip could not be completed by nightfall with safety and decided to camp the night in the 'feed shed'.

Making slow progress again next morning, they relaxed their vigilance somewhat. Having passed over many of the bridges, especially the highest and longest one, Falls Bridge, named after the pretty waterfall upstream from the bridge was reached. If an accident was going to happen it was here, but no mishap occurred.

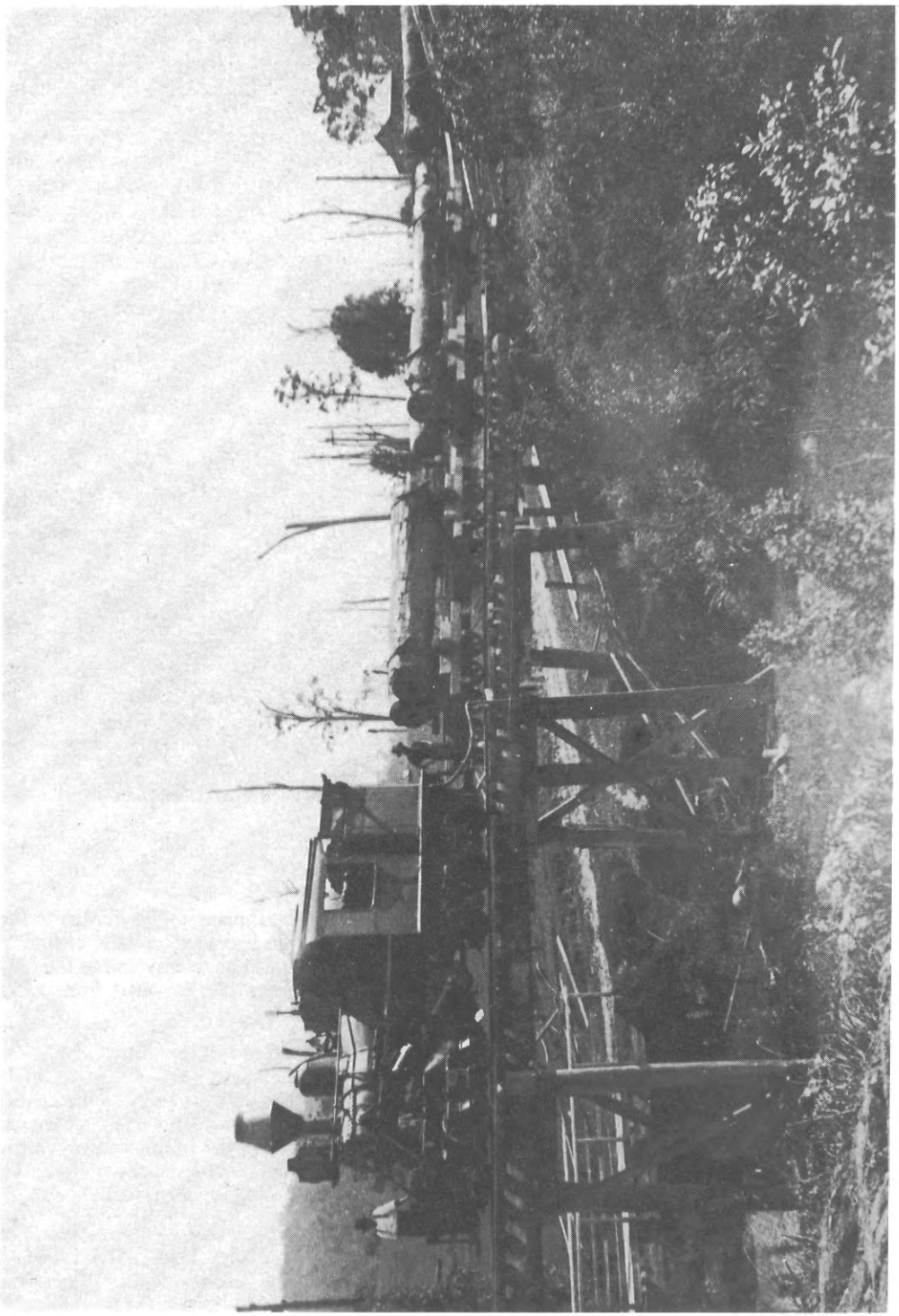
At approximately 2.30 in the afternoon, the engine approached Lester Tisdell's property at Tipperary where there was a small bridge over a dry creek bed. The Lathams stood back as the engine, with only Albert Parrish on it, pushed the test truck onto the bridge. Disaster struck when the locomotive was halfway across when a loud cracking sound was heard as a headstock broke in the mortice on top of one of the piles. The main supports collapsed and girders started to fall.

The 30-ton Climax engine and the 15-ton test wagon were too much for the defective bridge and down went four girders. The 70 lb/yd rail held the engine momentarily suspended in mid-air. With a sound like a rifle shot a fishplate bolt sheared off at the rear of the engine. Without this support the engine slowly tipped over.

Horrified, the men watched the Climax swaying, only supported by the steel rails and then it turned upside down as it plunged to the ground.

Crashing onto its roof, the loco buried itself into the earth. The massive impact shearing the whistle and safety valve off the steam dome, the escaping steam blasting a four-feet-deep hole. The fusible plug melted and sent scalding steam from the boiler through the firebox into the cabin.

Whilst working on the railways Albert Parrish had been taught not to panic in any situation. Halfway across the bridge he realised that all was not



Log train on bridge over Camden Haven River, c 1928. Photo: Courtesy Craig Wilson.

The wrecked bridge and capsized loco. Photo: Camden Haven Historical Society.

right when he felt the engine shift slightly. His first reaction was to open the regulator and try to drive the engine quickly off the bridge. As the loco slipped sideways he realised this was impossible. Ignoring his instincts which told him to jump, his years of training told him to stay within the engine and he grabbed hold of the roof supports, bracing himself for the crash.

Scalded, severely shocked and almost blinded, he recovered his senses when he heard the Lathams calling out "He's dead, he's dead!" as they ran around the wreckage searching for him. Seeing a glimmer of light through the escaping steam he was able to crawl on his stomach to safety. Albert was later heard to say "You could have knocked their eyes off with a stick" when they saw him emerge from the steam. The future of the Longworth line hung in the balance.

AFTERMATH

Longworth set about planning the repairs to the engine, but first he had to return the engine to its wheels which was not an easy task as the only motive power in the district, apart from small lorries, was bullock power.

Longworth hired one of the district's most experienced bullock drivers, Bill Cook, to assemble the most powerful teams ever seen in the district with the largest bullocks to pull the engine onto its wheels. Because of the position in which the Climax locomotive lay, it was necessary to turn it over initially before rolling it upright.

When it finally rolled onto its wheels with parts broken off, smoke stack bent and buckled, it looked a sorry sight. A temporary set of rails was laid from the front of the loco to the main line and

the struggling bullock teams finally pulled the Climax out of the creek bed. The remaining bridges had to be negotiated, so with long ropes and chains attached to bullock teams, it was a slow and tedious task. The Climax, under bullock power, arrived at its final resting place, 'Cataract', Longworth's property at Lorne some eleven miles and approximately 16 days later.

'Fardie' Gibson set about repairing the Climax. He completely stripped it. A new cabin was built from sheet steel, all holes being hand punched and riveted. All repairs had to be carried out in the open. The Climax was finally repaired and returned to operating condition except for a flexible branch pipe.

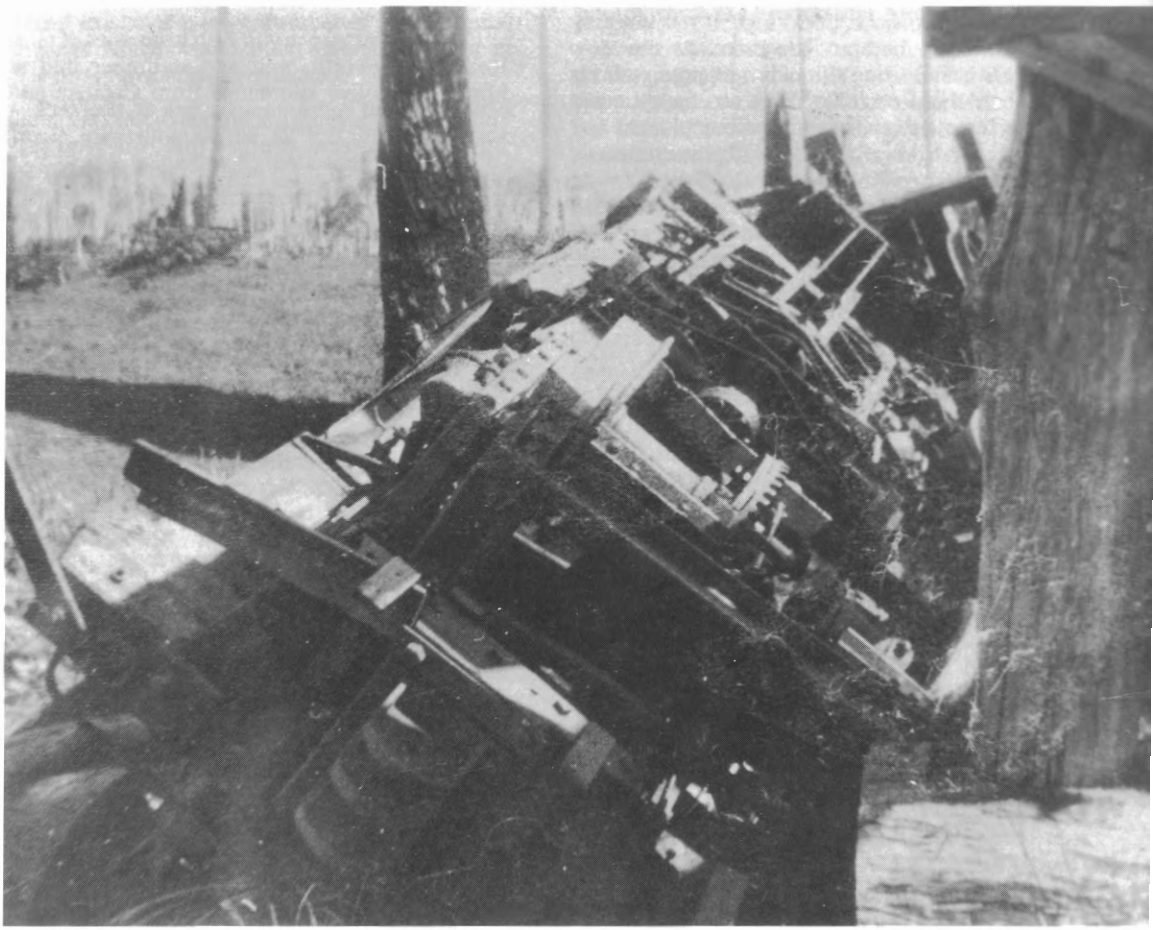
The loco never moved again. Its time had come and the need for the service it provides had passed by. In its heyday, the loco ruled supreme, but progress demanded improved and more economical methods of transport. Lorries started to appear in greater numbers and Robert Longworth could see by now that the tramway could not compete with the mobility of these vehicles.

The accident lead to a loss of confidence by the Board of Longworths in operation of the tramline and this was too much even for optimist Robert Longworth so he began to sell the rails to bring about some cash flow.

The Climax sat at 'Cataract' for some time until it was sold to a scrap dealer. The wheels went first and then Mannie Gibson heard of the sale and purchased all the steam gauges.

The whistle had an unusual brass cup on the bottom to catch moisture and at full blast, it had an

Longworth's capsized locomotive at the bridge wreck. Photo: Camden Haven Historical Society.



extremely powerful sound which carried quite a distance and because of this, it was removed and used at Longworth's sawmill at Laurieton.

After being stripped for scrap, the boiler and smokebox were the only parts left. They remain there today rusting silently in the bush, a poignant reminder of those pioneering days.

DREAM'S END

The accident to the Climax locomotive presented the Longworth group of companies with a serious cash flow problem due to the tight financial climate in 1933. Robert Longworth was under great pressure from his company board to bring about a change. In a shrewd deal, he sold the steel railway lines for more than he originally paid for them, thus re-couping some of his losses and helping to put the firm back on a firmer financial footing.

Robert let the contract for removal of the rails to a Swedish steeplejack, Lou Vinge. It was not long before Robert became concerned at the slow progress in removing the rails and expressed his opinion rather forcefully. Vinge was handicapped having lost a leg several years before, plus the fact that the men he employed were inexperienced in the new work. Robert approached Worrie and Leo Tisdell to help remove the rails. They had a good reputation as experienced bushmen known to be resourceful and innovative therefore their talents were in great demand. Robert Longworth's first offer was eight shillings a day, but they were earning eleven shillings a day cutting sleepers, but accepted when he offered eleven shillings.

The Tisdell brothers were amazed at the lack of skill being shown by the inexperienced Vinge crew. They were using hand tools to remove the dog spikes holding rails to the sleepers. The brothers soon obtained sledge hammers, 'pigs foots' (or claw wedges – a special tool used with hammers to remove dog spikes from sleepers) and with these tools greater progress was made.

A Republic truck was purchased to haul the reclaimed rails to the railhead at Kendall. Equipped with solid rubber tyres, it had difficulty with traction in wet bush conditions, but the Tisdell's solved this by welding pieces of angle iron across the tread to improve grip.

The Republic was a most unusual lorry as it had a 'jack-shaft' with a six-to-one chain reduction drive which ran from an idler shaft on the differential to a gear located on a back wheel making it an extremely powerful vehicle for that period. Each load of rails totalled three and a half tons which was equal to the carrying capacity of the largest lorries of that era.

On some hilly sections the rails could not be loaded direct onto the Republic so a flat-top trolley equipped with two sets of wheels was brought into service to transport loads of rails down the hills. This flat top, fully loaded with rails was often let run free down hill resulting in some spectacular crashes.

From the insurance and cash from sales of rails, Robert Longworth built a new timber mill at Lorne, some five kilometres from Cataract and shifted all the logging operations there. Two small second-hand steam winches that had been previously reclaimed from wrecked coastal steamers were removed from the terminus where they had been used exclusively to load logs on to the log wagons. Longworth's mill at Lorne continued to operate for a number of years as there was still plenty of timber in the district which reached to the foothills of the Comboyne. The difference between the operations at Cataract and Lorne, which was to the west, was that at Cataract, logs only were handled as it was just a terminus or depot for shipping logs to Kendall. On the other hand, at Lorne there was a fully operational sawmill, timber being carried down to the Concord Mills by lorry.

The log hauler was later shifted to a new mill at Delwood as Longworth's expanded their milling interests in the district. The shift was a major task and Bert Latham being in charge had special wagons built to take the load and a large bullock team was used to haul the heavy load.

EXPLORATIONS OF VICTORIAN PRIVATE LINES AND LOCOMOTIVES 1934-1935

by Charles Gavan Duffy

Though the attempt is to give some account of such things seen in the last six months or so, one or two introductory paragraphs may be allowed. It may be admitted that the explorations have not only been largely influenced by the example of a number of similarly minded enthusiasts in NSW, but that these gentlemen are now giving orders that the work be carried out.

Another introductory note to be made is that Victoria is almost entirely lacking in colliery lines and a great gathering ground is therefore missing. This is especially regrettable because the NSW collieries have been instrumental in keeping in active existence a large number of departmental engines which would otherwise (or at least in Victoria) have been demolished.

Previous to the present series the writer had made inspection of the ex V.R. "F" class tank (2-4-0) 184, belonging to the Earleston Sand Co., at Cranbourne, but this and the following ex V.R. locos will just be listed here. 255 D4 (4-6-2 tank) in the hands of the Electricity Commission at Yallourn; 176 "F" (Motor) late of Sunshine Harvester Works; 122 D and 267 T believed to be still on the Kerang & Koondrook Tramway.

Early in July last and on a miraculously beautiful weekend more like early October, our firm (J.C.M.R. & R.W.A.R) in the Dodge, enroute Seymour to Bendigo came across the deserted siding of the McIvor Timber Co. This company (if one can trusts one's memory) had two Baldwin Moguls that were purchased from John Robb, the contractor for the Docks on the River Yarra. One was called "McIvor" and the other "Major", this latter being Baldwin No.10075 of 1889. Readers should know that the famous Major Mitchell returning from Portland etc., 100 years ago passed just by this locality, one spot being still known as Major's Line and the Baldwin being evidently named in his honour. Later the Timber Co., bought 227 W from the V.R., another Baldwin (6655 of 1883) and costing them £1600. When bought, 227 was fitted with the tender of 211 S, a Phoenix-built Yankee 4-6-0.

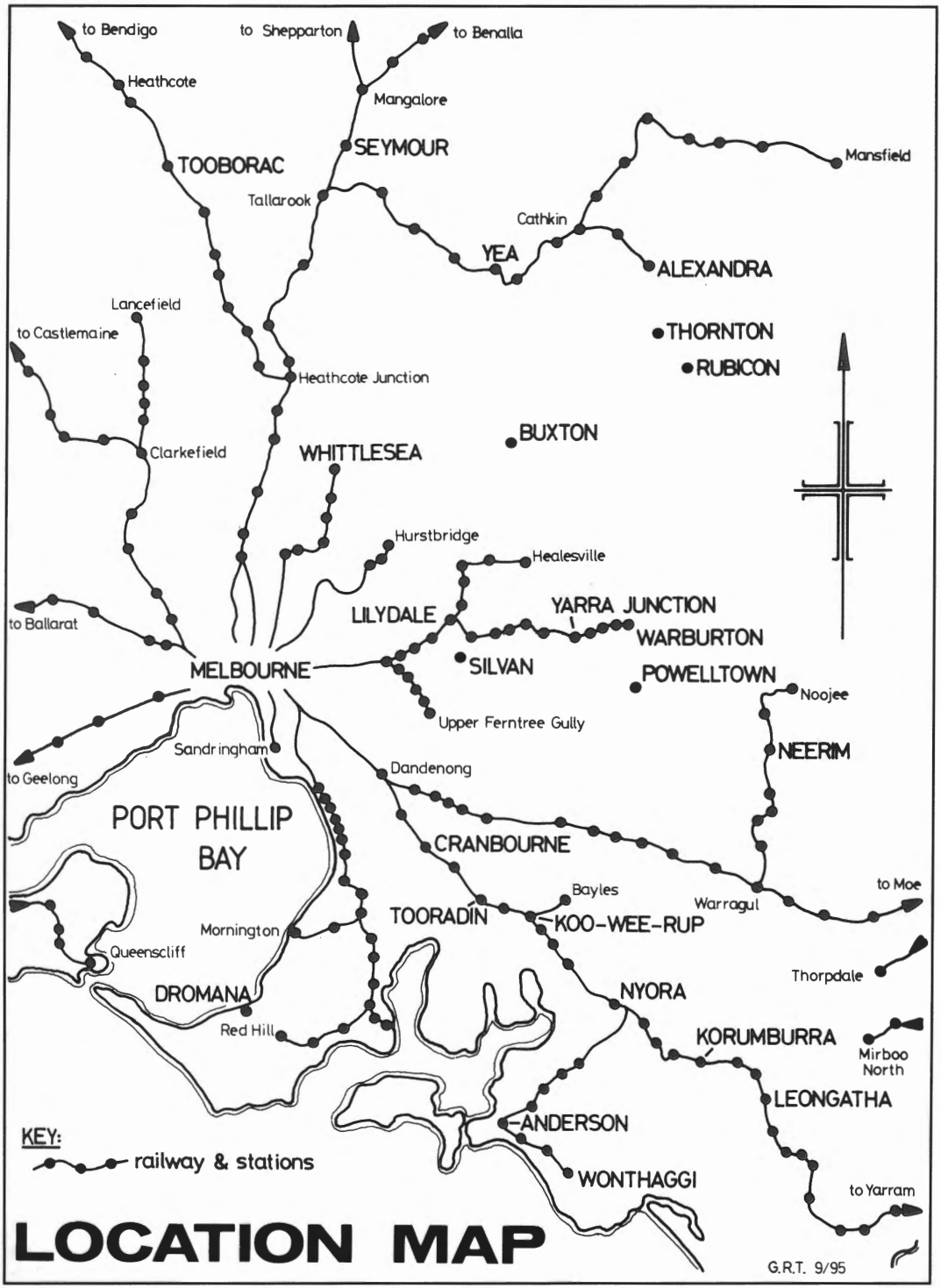
On this beautiful July morning all that were left were the tender tops of 211 and the Baldwins, so that as a discovery of private line engines, it was rather a ghostly affair. These records will, all the same, show that 227 is not quite done with yet. Another expedition left Melbourne in the Dodge on the morning of 20 November, really a much more noteworthy party for it included and was to entertain the very "High Priest" of the NSW enthusiasts and his wife. Actually it, and perhaps this applies to most of the expeditions, was more essentially a country seeing than a loco exploring one, but some atmosphere of the latter was generally present. The route was through Cranbourne and soon after passing the township the main road crossed the line in from the railway to the sand sidings which 184 F works still. She wasn't visible.

A stop was made at Tooradin to study the tidal creek geography. Further on, Grantville was passed where, on a previous occasion, a Mr. White had been interviewed regarding the tale of an old engine running from the Great Victoria Colliery to a pier on Western Port. Very little definite evidence has yet been gathered on this point and it is hoped still that some clue may be got, perhaps even as the result of these notes. The date concerned would be round about 1910, that is prior to the opening of the present line to Wonthaggi.

Word was received some little time ago that at-the-time S.M. at Koo-wee-rup remembered an old light engine being worked back to Melbourne from the colliery area about that date, but neither identification or verification have been obtained.

As Anderson was approached a light engine "C" came in from Nyora to which point it had been doubleheading the big coal trains. At Wonthaggi, Driver Stibbe was met on the pilot and a short visit was made to the electric power house (the property of the V.R.) where the new pulverised coal boilers were just passing their final tests satisfactorily.

The route lay on to Inverloch and then across to Leongatha between which point two or three collieries were noted and queried as to locomotive traction, but only ropeway working found, though the V.R. had a siding for working the traffic. These collieries are between Leongatha and Korumburra and fairly close to the latter. At Korumburra, the station and engine shed were visited where we interviewed Mr. Bell, the foreman and Mr. Glad-



stone, one of the writer's junior loco friends, who hail from the North Eastern Rly of England. It was interesting to learn that his father-in-law was connected with some of the smaller collieries near San Remo, etc., but so far no historic information has been gathered. Unfortunately two other young loco friends were missed by a few minutes – Mr. Booth having gone out from Korumburra with a rake of trucks for the colliery sidings and Mr. Tweddle having just left Wonthaggi on an up goods.

On the return journey Nyora and Koo-wee-rup were visited and here was found the inside end of a sand siding of 2 ft. gauge which runs away out alongside the main drain and in the railway yard has high staiths for loading the railway trucks. No doubt some mention should be made of the motive power which was found "huddled" in or near a paling shed. In essence, it consisted of two Fordson tractors on channel steel frame and chain coupled wheels. An even earlier model seems to have been a Ford car somehow persuaded to run and this may have been the directors' inspection saloon! The track of the explorers then led across to Pakenham, the main Gippsland line and road being followed thence to Melbourne. On Thursday 21 November, the running was to Dromana and Arthur's Seat with its wonderful panorama over the bay to Flinders Head on the real South Coast whence were seen three passing steamers and back by Hastings, Frankston and Dandenong. This was a non railway day and a much shorter round trip.

Friday 22nd was an unweatherly day and was spent about the city with in the evening a rather memorable visit to the home and model railway of Mr. K.F. Elliott. A daylight visit in due course will probably result in the issue of a more detailed description of this for comparison with readers' own layouts.

On the Saturday the NSW visitors were handed over to the Chief Legal Adviser and Recorder and had some more touring both North and South. It may be mentioned here that on their return later to Melbourne a study of the timber etc., lines in the Warburton district was made resulting in the "orders" previously referred to the local gang.

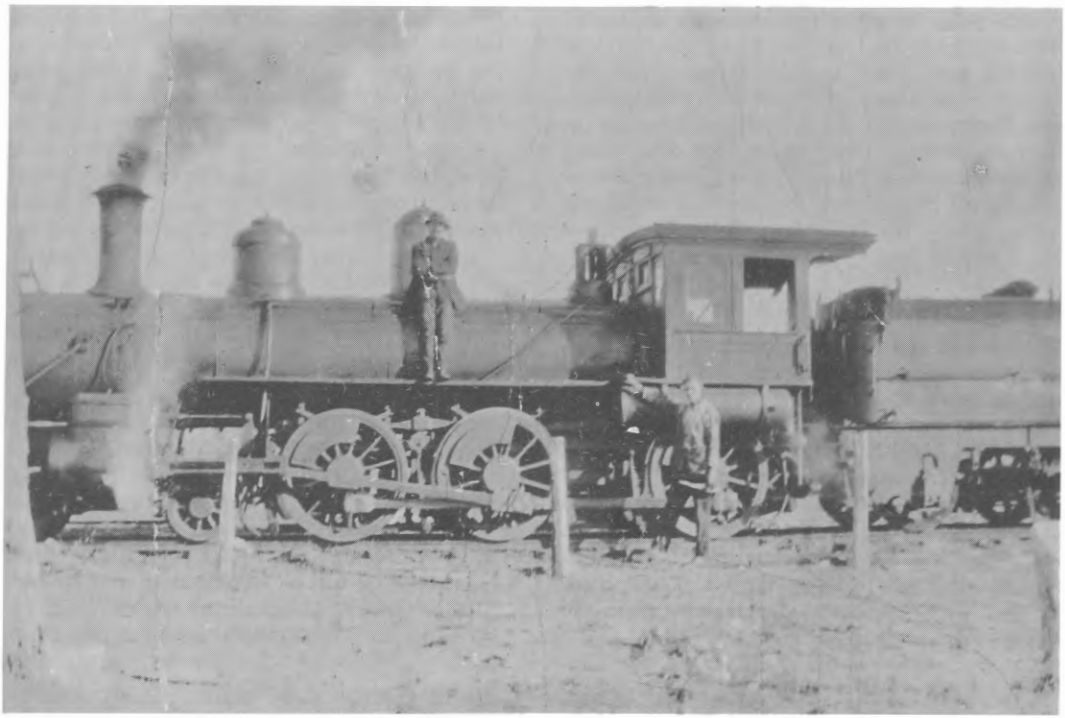
Meanwhile on the same Saturday afternoon the trusty 36564 was into commission again with R.W.A.R. as engineer and steerman and J.C.M.R. as navigating officer. Roads that had only been marks on the map to both members were now sped over with "effortless ease" and travelling via Lilydale, Healesville, the beautiful Maroondah reservoir and on through Buxton, Alexandra was reached by about 5 pm and also known country as the navigator had been here exactly ten years before with a Reso train and had made the run out to the Eildon Weir, which was now repeated, a distance of 17 miles. The Weir now complete is a very beautiful Scots Loch with steep treed slopes around its bends which go away out of sight. Below the mighty bank is an electric generating station, one of a chain controlled from the Rubicon valley, which we were to visit next morning. The only accommodation house was able to give the tourers a big tea, but no beds, so in the lovely sunset gloom of the valley a return was made as far as Thornton and great comfort and quiet rest found.

From Alexandra there runs out to Thornton along the road a rather good little timber line of two foot gauge, which was worked by the Rubicon Lumber and Tramway Co. Two of the engines were in Alexandra and one was decried with delight at Thornton with a sheet of bark weighted by a stone on top of the spindly funnel to keep it from a chill. This was a Krauss engine No.2591 of 1892. It is understood that this engine came from the Mt. Lyell Rly in Tasmania, but just at time of writing, verification details are missing. All Krauss engines known to Australia seemed to have come out of the same mould and the little Thornton engine immediately recalled the little NSW engine from Burrinjuck, 1043 or 1024. The cylinders seemed to be about 6 inches diameter. Following the regular pattern the valve gear was Stephenson link worked by outside eccentrics.

Next morning a run was made out to the Rubicon Power Station over an exceedingly bad road, the converter and control station being passed at about half-way out the six or seven miles. This is the headquarters of all the Rubicon scheme, including the Eildon Weir power house. The power station at the Rubicon is at the foot of a straight hill slope, down which two great black pipes lead the water from a top gathering reservoir (fed by others further back) to Pelton wheel power plants.

The next move was back to Alexandra itself by 11 am in time for church, which however, was not to be till 3 pm. Instead the headquarters of the Timber Co., were visited and two more Krauss engines found, one as small or smaller than the Thornton exhibit and under extensive repair and the other called the large engine in its shed with its engineer Mr. E.T.M. Rees in attendance.

It was very interesting to discover that Mr. Rees had served his time at Swindon on the Great Wes-



McIvor tramway loco W 227 at McIvors Siding. Photo: Mark Plummer Collection.

Earlston Sand Co loco, ex V.R. F184, at Cranbourne. The loco is believed to have been put out of service in 1936 and scrapped in 1940. Photo: Mark Plummer Collection.

tern Rly and at Crewe on the L. & N.W.R., but sad to learn that his time with the little Krauss engine had almost expired as a different firm had secured the lease of the line from the Shire within a fortnight or so of the date of visit, they, Messrs. Clark and Kidd installed a six-coupled Diesel engine built by Messrs. Kelly and Lewis of Springvale and said to be the first Diesel designed and built in Australia. It is learned that, at first, at any rate, this new engine showed a marked tendency to mount and leave the rails, but no doubt it will be taught the way it should go.

The next section of the route was to Yea, where lunch was taken and an inspection made of the loco shed with 103 inside (or as much as it could get in) and 108 outside both "K's" which seem to suit the difficulties in grade and curve of the Mansfield and Alexandra tracks.

Then followed a long touring run through the dividing range till Whittlesea was struck and, after a diversion to Essendon, the city.

On Boxing Day (1935), a showery day too with the same navigator and engineer, the Dodge set out eastward and was soon descending the hill side slope to Lilydale. Stopping on this viewpoint enquiry was made of a cottager, if there were any little engines working at the big Cave Hill Lime Works to be seen carved out of the opposite side of the valley and the reply being favourable though not authoritative, we rolled down into the prettily situated town and back out to Cave Hill.

Being a holiday the place was deserted and it was not long before the object of our search was descried standing desolate on a siding on the hill slope. This was a tramway type outside cylinder 0-4-0 engine and it had been used for many years running out on a line into the bush to bring firewood to the lime kilns. It was impossible to say (or the students with their limited data found it difficult to say) whether this was one of the three Phoenix-built or the five Baldwin-built engines, but a conspicuous cast lettering on a fitting B.T. Co., seemed to bear out the idea that this was from the Bendigo Tramways.

Possibly there will be no better place for grouping the data that this office has about these engines. The Bendigo trams are recorded as having imported five Baldwins arriving in 1892. The three motors from the Phoenix Foundry bore their numbers 315, 316 & 317. In 1893 the Railway Department had two 2-4-0 motors from the Foundry (possibly as a result of the building of the Bendigo three) They bore Phoenix numbers 318 and 319, though curiously enough, all these five works numbers were used on broad gauge AA locos in 1900 – just "to make it harder".

Regarding the Cave Hill engine there is this to be said in favour of its being a Phoenix engine – has or had copper firebox. One living near Lilydale a little while ago compiled these notes from local source. The engine was in use for about six years till about five years ago when briquettes supplanted the firewood. Cylinders are given as 10 x 14, driving wheels 37 inches diam and working pressure 100 lbs. The gauge was 4 ft 8 ins. Two Penberthy injectors were used drawing from two 110 gallon tanks at the rear of cab. A steam brake was employed and wood was used for fuel, the funnel being crowned still with a cage like a traction engine. Finally it was intimated that a similar engine was at Neerim.

This engine was used on the firewood-seeking lines only. On the narrow gauge tracks round the establishment now a Whitcomb oil tractor is used with some help from a Fordson tractor. The material is brought up from the open cut, perhaps 80 to 100 feet deep by cable or aerial wire working. At the bottom of the pit are more Fordsons on narrow tracks and big caterpillar shovels or excavators.

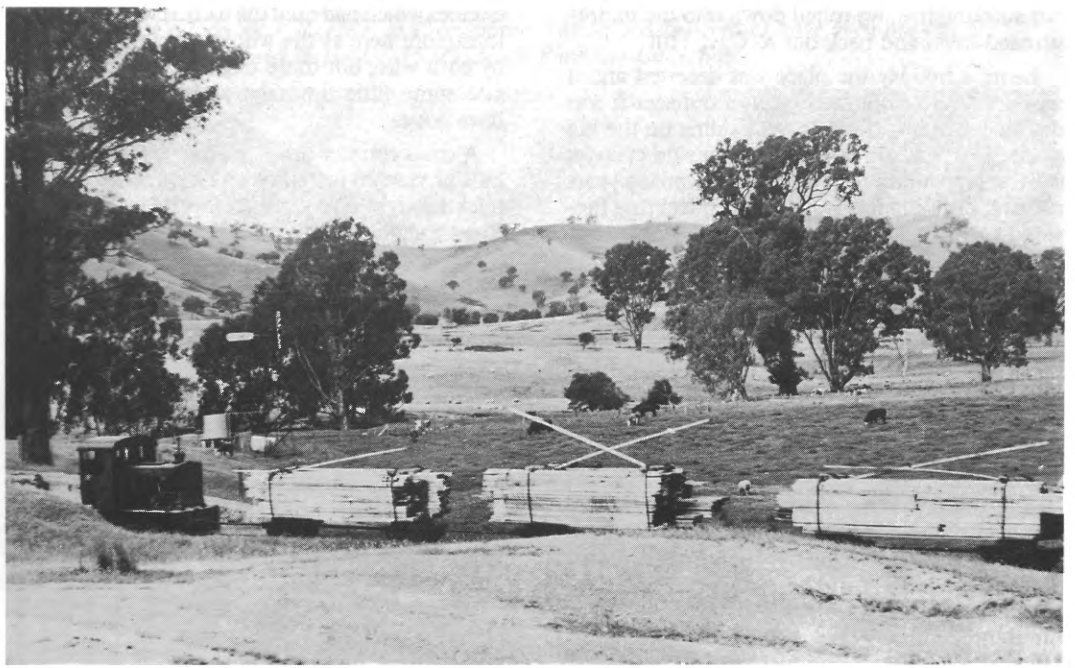
A move was now made through Lilydale and out to the Sylvan Dam where up till a little while ago, were stored quite a number of Perry (S.A.) engines which had built the dam. It was impossible to explore here as the whole place was protected by barb wire, but these engines were offered for sale some little time ago and were reported to have gone.

A cross country drive through the hills (it is all hills or valleys) including some quite treacherous track brought the party to the main Warburton Road and this, in its rapidly increasing beauty and in clearing weather was followed to Yarra Junction with many pictures of "Road Rail & River". After a stroll round the yard and some courteous guidance from the S.M., the road to Powelltown was followed with the Victorian Hardwood Co.'s line never far away. Powelltown is a typical lumber camp but afforded us a welcome meal, after which a move was made to the Company's yards, round which the township is built and above which the beautiful wood hills are close.

This company's stock of rolling stock is the best known of all such in Victoria and here was found the 2-4-0 Baldwin (37718 of May, 1912) not long back from its daily run to Yarra Junction. Pictures of this engine are published, so here it may be noted merely that it is wood burner (as might be

State Electricity Commission loco ex V.R. DDE 255 at Yallourn. Photo: Mark Plummer Collection.

Kelly & Lewis diesel loco on Rubicon Tramway near Alexandra. Photo: LRRSA Archive.



expected) and runs engine or tender first, the only turning being that of the direction of the electric headlight on top of the cab. Another small detail is that though the rear wheels are the drivers the link motion is driven by eccentrics on the front driving axle working back to link just in front of the firebox.

Nearby was powerful looking Shay loco, built also in 1912 by the Lima Works at Lima, Ohio (No. 2575). This engine does the work out beyond Powelltown where the track is much more adventurous. A sister was in the shops (as was learnt afterwards) and more or less unwanted in a shed was a little Kerr Stuart 0-4-0 tank built at Stoke on Trent (No. 643). There was also there the tender of the other English engine "Powellite" built by W.G. Bagnall & Co., of Stafford, but the engine herself was away at Newport being repaired, together with, as a matter of fact, the tender "chassis". Powellite was built in 1914 and her maker's number is 1965. She is an outside framed 0-6-0. The gauge of the line is 3 ft.

An 11-mile run took us back to the Warburton Road once more and soon after joining it another timber line transfer siding was struck, Britannia. The line coming in here from sawmills in the Britannia Creek district was at one time worked by locomotives (one was told) when Cuming Smith had a big timber chemical extracting works, but lately has been horseworked and now a number of trucks loaded with complete timber mill plant for removal elsewhere indicated an ending up.

Finally Warburton township was reached through a striking approach with a "K" class standing in the railway yard above on an excursion and the river flowing just behind the opposite row of houses and the great and beautiful hills, including Mt. Donna Buang (4080 ft) backing it all.

An extension of Warburton yard proper lies half a mile further on and is known as La La siding and into here come the three foot gauge timber lines from Big Pat's Creek. Unfortunately the bridge bringing them in was swept away a year ago and idleness reigns. The study of what was to be seen here and its identification was so much the result of a second trip, that a list of the details discovered and what has been discovered about them will be postponed till the end of the touring record. On this first occasion the V.R. engine shed was visited. A most fortunate happening was the meeting of Mr. Jones, now engaged in Melbourne, but visiting Warburton for the holiday and providentially arrived among the loco exhibits to enlighten the explorers about the ownership and habits and customs of the lines and rolling stock. He had been actively engaged for many years on the mills in the district and his general knowledge was only exceeded by his courtesy in imparting it.

The 45-mile run home was made with the driver's usual unquestioned skill.

On Saturday 11 January, the Sydney Limited brought over Mr. R.K.E. Woodhouse, one of the NSW fraternity and also the Assistant Engineer responsible for the Northern approach to the Sydney Bridge. With Mr. M.H. Clark, our chief Victorian loco research officer and the usual crew the Dodge again set off for Warburton and beyond having the Cave Hill veteran pointed out from afar, nothing of note transpired till Yarra Junction was reached. On this day, being Saturday, the Powelltown Baldwin comes in in the afternoon and there she lay smoking quietly while a "K" stood at the head of a goods waiting to meet the down passenger which duly arrived behind a D2.

Rather miraculously a Mr. Herman, owner of two engines locked up at Warburton, was located and the wiles of the navigator managed to persuade him to lend the keys of the shed to the explorers, who not only promised to return them in good time, but to convey him back to his home in Hawthorn when on their return journey.

Soon after four another attack was made on the treasures of Warburton with cameras and foot rules and scrapers and borrowed keys and finally with spoons and forks and knives. Then as promised, Mr. Herman was picked up at his brother's home in Yarra Junction and conveyed to his own home which turned out to be but a few minutes ride from the writer's own Melbourne flat. All the way down he was plied with questions as to the timber industry. My notes record the following:

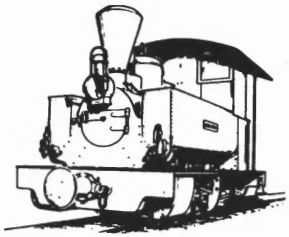
Treasures of La La Siding, Warburton

1. "Goo-goo" the nickname (by this writer) to a little double-bogie geared loco of "Climax" type, standing in the yard. It has two sets of four- coupled wheels all driven by a longitudinal, flexible shaft under the boiler, in turn driven by a transverse shaft through a gear box and run by two outside inclined cylinders with outside link motion. It is supposed to have been built by George and George, Engineers, of South Melbourne to the designs of Mr. Jack Ezard Jnr., member of a well known timber family. Drivers are 2 ft diameter and all the yard gauges are 3 ft.

2. Boiler with extended smokebox recently bought from Newport by Mr. Richards, mill proprietor, and being put on big road wheels to go to Matlock (the highest township in Australia). It is the boiler off 227 W late in service on the McIvor timber line. It had the standard regulator handle which came off 596 DD.
3. Frame and machinery of loco lying in the grass, having been brought in from mill out in the bush. It appears to be part of a 2-2-0 engine, but study reveals that the frame has been cut behind the driving axle, a cross member put in. Actually, it is the remnant of old V.R. 10 J, built as a 2-2-2 in 1859 by Beyer Peacock. This class were converted to 2-4-0's in the 1870's and in 1907 No.10 was set to work as stationary plant at the Forge extension at Newport. About 12 or 14 years ago, she was brought to work a mill out on Big Pat's Creek.
4. Alongside 10 J, buried in blackberry bush is the back cab plate and some more of what was apparently a little tank engine of their standard small type. On a plate on this is "Orenstein & Koppel, Arthur Koppel Ltd., London and Berlin, General Agents, Strelitz Bros., Fremantle, WA". This is not much of a clue to what would seem to have been an importation from West Australia.
5. In the locked shed an 0-4-2 outside cylinder tank engine bearing a plate – John Fowler & Co., Ltd., (Leeds) 13576, and
6. Another similar but larger 0-4-2 by Fowler, No.15989. These two engines are the property of our friend, Mr Herman and in their busy years, one of them was bringing 1000 tons of lumber per week. Both are typical Fowlers with two top-of-boiler sandboxes and dome, diamond top smoke stacks and solid high square side tanks giving them a box-like appearance. Each was in fine order with the dark green paint and brown edge lining still clean. Mr.Herman stated that they were acquired in 1918 and 1923 respectively. Unfortunately, they could not be photographed but pictures may yet be obtained from their owner.

Ed. Note: Article courtesy of A.R.H.S. (Vic) Archives per Ian Barkla. Readers should carefully check loco details before quoting.

Abandoned dump wagons on Sylvan dam tramway. Photo: LRRSA Archives.



LETTERS TO THE EDITOR

Dear Sir,

Grampians Tramway

I was recently on tour in Western Victoria and visited the Grampians quarry site at the end of the former broad gauge railway from Stawell. The freestone from here was used in local building projects from the 1860s but transport difficulties prevented the trade developing to any great extent.

This changed in the 1870s when proposals were made to use Grampians stone for works on Parliament House in Melbourne. The Victorian Railways were reluctant to build a railway from Stawell on economic grounds and it was left to the Public Works Department to finance this line. The railway was completed in 1882.

The quarry was operated by the Stawell and Grampians Freestone Quarry Co and other companies. A number of narrow gauge tramways were employed in the quarries over the years. The Public Works Department stopped taking deliveries in 1893 but other contracts were secured and the quarry remained in use until the 1930s.

The quarry site is now a public park and historic area. There are many industrial relics on the site including tram tracks, trucks, pressure vessels and a house. There is scope for a full history to be written on this area. I enclose a photo of one of the tramway relics.

Yours faithfully
Claude Lancashire
Belgrave, Victoria.

One of the unloading trolleys in the Grampians quarry. Photo: C. Lancashire.

Dear Sir,

LR129

I wish to confirm two points made in Ian McNeil's contribution on the Port Stephens Hardwood Timber Co.

I visited the site in November 1959 and found a tram motor ash-pan and a couple of gib keys in close proximity about 100 metres from the then main road at what would have been the outer terminus. To me, this indicated that the motor had been dismantled there either for transport or for scrap. It certainly has not been identified as being used at any other location to date. However, there is photographic evidence of at least one of these engines being used on the construction of railways in the Northern area. Others were used on breakwater construction.

One small point of correction on the motor is that it's 'in steam' weight was 14 tons 2 cwt. This increased to 16 tons 2 cwt after the cast iron footplate was added to the class to alleviate the out of balance problem subsequent to the sale of No 40.

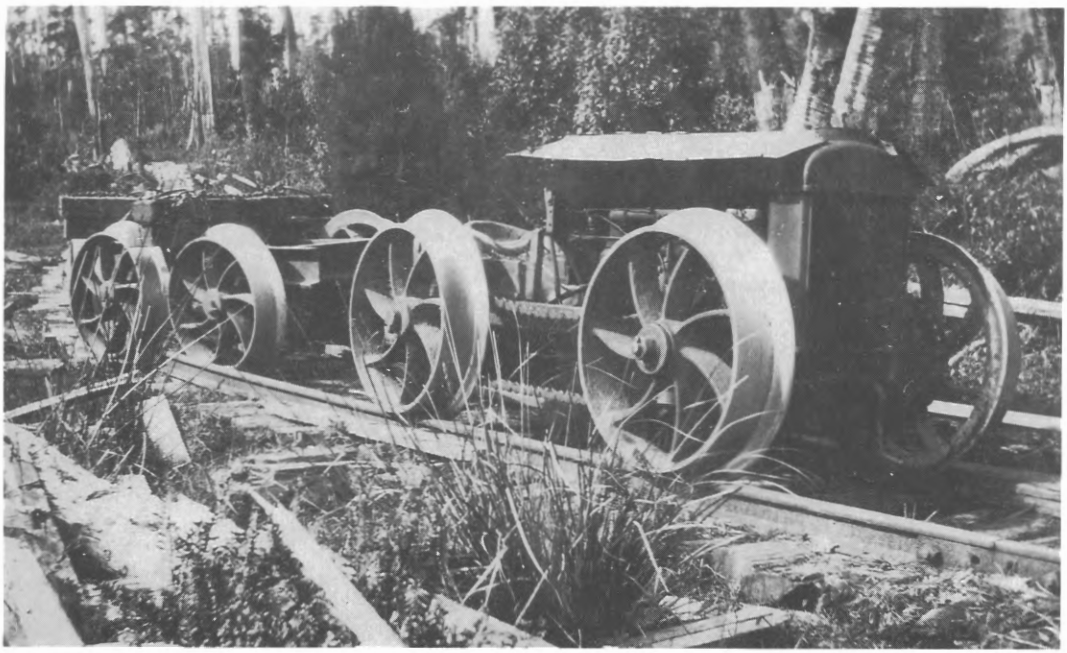
Regarding the unsuitability of the milling equipment for the local conditions and requirements, an elderly Bulladelah resident whom I interviewed at the time confirmed the view expressed in the story. However, he said that 'Americans were behind the venture and wanted to show us a thing or two'.

Incidentally, the Waterous Engine Co mentioned in the text had its beginning in Brantford (not Brandford) Ontario in 1844. On a recent visit to 'Timbertown' at Wauchope I noted some Waterous equipment so perhaps some of the P.S.H. stuff is still being recycled.

I support Phil Rickard's comment on Charles Bevan's reaction to Bruce Belbin's style of writing letters (LR 129). I interpreted the style as being a projection of Bruce's personality into a story which had deep personal and emotional involvement for him and the family. It is his natural style and it is probably further projected by his profession in the advertising business. A different style of presentation can be refreshing. Conservatism can be so dull.

Yours faithfully
Bruce Macdonald
Chapman ACT.

A view of the first Natrass tramway tractor on the Salmon River line in Tasmania. Photo: Courtesy Jim Longworth per C.B. Thomas Collection.



Dear Sir,

What is a Light Railway?, LRs 126 & 129

May I add my tuppence (or should I say five cents?) worth to the discussion as to what constitutes a light railway? When the pundits have arrived at a definition, satisfactory to all, or most, members, I suggest that the next topic for determination be 'How long is a piece of string?'

What is a light railway to me will always remain dependent on the 'eye of the beholder. What I accept as a light railway to another member could be right outside what he or she accepts.

Take, for example, Phil Rickard's observation that some confused 'light railways' with what is now termed 'light rail'— urban electric tramways. I have always accepted that tramways in the past, be they horse, steam or electric, were genuine light railways. As a general rule, their track was of light construction, their rolling stock was of light construction and they certainly had one principal function — the transport of animals, admittedly of the human variety. Here in SA, away from the capital city, we had relatively long horse goods and passenger tramways, on which the horses were first replaced by small light weight steam locomotives, thus retaining their status as light railways, then, at a later date, were upgraded to become part of the state railway system and were no longer light railways. Two such lines which come to mind are the Goolwa/Pt Elliot and Pt Wakefield/Hoyles Plains, tramways. In States where there were steam tramways, if you do not accept these lines as light railways, you introduce a further anomaly. A small locomotive, or steam tram motor, hauls light weight rolling stock carrying passengers in and around the city. It is sold, moves out into the bush, where it is employed by a timber company. It is still hauling light weight rolling stock but pulling much heavier loads than required to in the city, on possibly heavier track than it ran on down there. Notwithstanding this, some claim that its original use was not on a light railway, but its subsequent use was. Who is kidding whom?

Going off on another tangent, what is this 'common carrier' concept? I always believed that this American definition meant that the railway had to carry whatever it was offered, be it goods or passengers. If we adopted this as part of our 'light railway' definition, excluding 'common carriers', what about the Powelltown Tramway, which operated a passenger service and S.A.'s Whyalla/Iron Knob Tramway, which in accordance with its enabling Act of Parliament, had to provide passenger accommodation on its ore trains.

Another problem similar to the steam street tramway/timber tramway arises if we become involved with the legitimacy of miniature/restored railways. A good example of this is close to my own heart. Many years ago I wrote the history of the light railway that operated in the 1920s from Cobdogla to Loveday on the River Murray. In the past few years, both of the steam locomotives used on this line have been restored to working order and are being used on new light railways at Cobdogla and Red Cliffs (Vic.) in connection with local historical projects. Please do not try to convince me that these two new lines are not light railways because they are essentially passenger carriers and not involved in industry. Haven't you heard about our tourist industry? Of course, if you do agree with me, what about the 7 inch gauge line running around our local park, operated by the local Division of the Model Engineers and, for that matter, our 18 inch gauge line, operated by the Port Dock Railway Station Museum from Semaphore to Fort Glanville, with a specially built miniature steam/locomotive and rolling stock?

Finally, getting around to the question, should we suffer a name change into something rich and strange? I would strongly say 'NO'! I would object to any name including the words 'Industrial Railway' for the same reason that the present question has been raised regarding 'Light Railways'. Railways are often referred to as being an industry, or part of the transport industry, so conversely (or perversely) are not all railways industrial railways being part of the industry?

WE know what WE mean when we say we are interested in light railways and are members of the Light Railway Research Society of Australia. Our Society is known by its present name to other railway enthusiasts' societies, etc. who are also familiar with our activities, so why change it?

Having muddied the water sufficiently for the time being, I will sign off, your Devil's Advocate (pro tem),

Arnold Lockyer
Dover Gardens, SA.