The STANNARY HILLS and IRVINEBANK TRAMWAYS

An Introduction from a Modellers Perspective

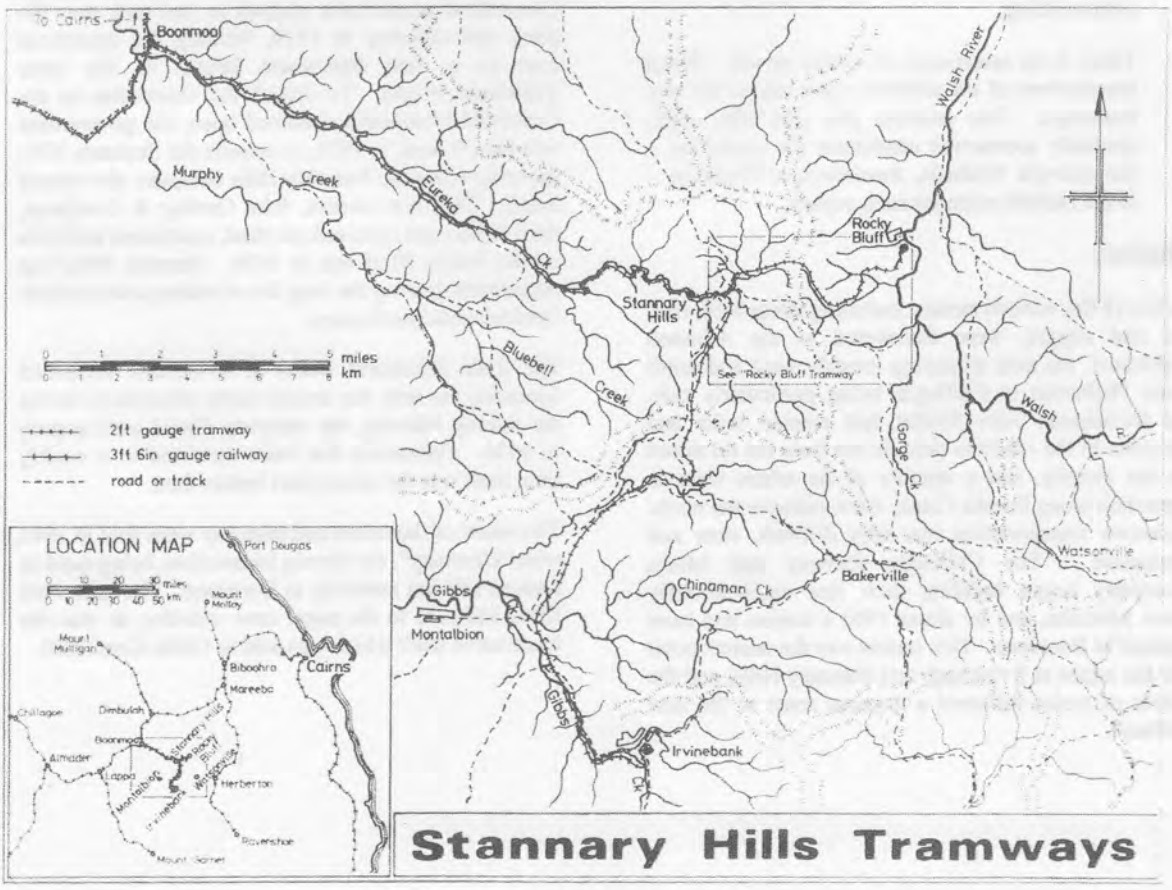
JOHN DENNIS

Introduction

When I realised that the operating sessions on my existing HOn30 layout were "lacking something", I discovered that my desire to model steam locomotives was overpowering the need for fine slow-running mechanisms, the reason the Dutton Bay Tramway (DBT) runs a fleet of diesels. A very brief flirtation with the possibility of backdating the DBT to the steam era then followed, but I remain unconvinced of the possibilities of modelling steam and having the little locomotives run as well as my existing fleet – at least not with my budget and modelling skills.

So I found myself following most of modelling friends to O scale, and began a search for a suitable prototype as I felt that the time had come to move away from freelanced modelling. My journey took me to a number of wonderful Australian narrow gauge prototypes, lines like Zeehan & North East Dundas, the Walhalla branch of the Victorian Railways, the Goondah and Burrinjuck Railway, the Mapleton and the Innisfail Tramways, before finally stopping in Far North Queensland. My ultimate destination turned out to be Irvinebank, now a tiny town on the Atherton Tableland at the end of a dirt road from Herberton. Irvinebank was once a busy mining town, with mines, mills and smelters, and was one end point of 35 miles (60 km) of a two-foot (610mm) gauge tramway system.

The map below, showing the location and extent of the tramways has been reproduced from the Light Railways Research Society of Australia's publication, Rocky Bluff to Denmark.



Attractions

What attracted me to these tramways?

- The lines terminated at spectacular locations, with Rocky Bluff mills being reached via a gravity cable tramway, and Irvinebank station being located on a hill above the town with ore arriving from two nearby mines by aerial cable car.
- The scenery, particularly along the Eureka Creek gorge, is incredibly rugged. The survey, in fact, has a gap in the gorge which was considered too difficult to explore, and during construction men were supported by cables as they hacked the ledges from the cliff face.
- The Stannary Hills station is beautifully located, on the side of a steep valley, with one immediate approach being across a curved trestle bridge. Many other interesting bridges exist on the tramways.
- The minimum radius used on the tramways was just 1½ chains – 24" in 1:48 scale.
- The lines operated as a common carrier, with passenger and general goods traffic in addition to the ore, refined tin and ingots, and the firewood traffic for the mines.
- The "on-line" mines offer a variety of structures, ranging from substantial ore bins, through sidings connected to the tramline which enter the mine, to one where the ore crosses a creek on an aerial cable car, to be loaded into hoppers at a very simple siding.
- There is an assortment of motive power. Seven locomotives of six different types ran on the two tramways. One problem (for me) with other, similarly spectacular candidates for modelling – for example Walhalla, Burrinjuck or Mapleton – is the limited scope for such variety.

History

In the 1870s, various metals, including silver-lead-zinc, tin and copper, were discovered in the Atherton Tableland, the area stretching roughly west and north from Herberton to Chillagoe being particularly rich. At Irvinebank, John Moffat had erected mills and smelters in the 1880s to process ore from his tin mines in the vicinity, and a number of tin mines were in operation along Eureka Creek, a few miles to the north. However transportation was very difficult, slow and expensive. The Chillagoe Railway and Mines Company began building their line south-westerly from Mareeba, and by about 1900 a station had been opened at Boonmoo. This station was the nearest point for the mines at Irvinebank and Stannary Hills, and the teams of mules followed a tortuous route to the new railhead.

At about the same time, mining interests in the Stannary Hills, Rocky Bluff and Watsonville areas were organized as the Stannary Hills Mines and Tramway Company, and this company began construction of a two-foot gauge line connecting with the Chillagoe Railway at Boonmoo. This was no mean undertaking, as the land was very rugged along the Eureka Creek; however the survey was eventually completed from Boonmoo to Watsonville, with a branch to the mills at Rocky Bluff.

An amendment the Mining Act allowed mining tramways to transport goods and passengers, and in 1902 the line was opened, initially as far as Stannary Hills (13½ miles), and then later on to Rocky Bluffs. Work never commenced on the original surveyed line to Watsonville, and the total distance of the Stannary Hills lines was, as a result, 21 miles.

After the Stannary Hills Mines and Tramway Company completed their tramway, the Irvinebank Mining Company began to use Stannary Hills as their railhead. The benefits of rail transportation were obvious to all, and in 1907 the Irvinebank company opened their own tramway from the Stannary Hills-Rocky Bluffs line, 13½ miles to Irvinebank.

Decline

Like most narrow gauge lines in Australia, the "glory days" were relatively short-lived. But unlike many, the tramways' decline was a very long, drawn out affair.

The first step was effectively World War I, when a downturn in mining resulted in the Irvinebank company deciding to shut down their operation. The Queensland government stepped in, and took over the plant and tramway in 1919, handing the operations over to a new department known as the State Treatment Works. To ensure the connection to the Government railways remained open, the government was then forced, in 1922, to acquire the Stannary Hills tramway when the Stannary Hills company also closed down. The then owners, John Darling & Company, demolished and removed all plant, equipment and rails on the Rocky Bluff line in 1926. Stannary Hills was abandoned, joining the long list of mining towns which have become ghost towns.

The State Treatment works at Irvinebank continued operating the mill, but despite many attempts to revive the mining industry, the tramway closed permanently in 1936. Operations had been restricted to a weekly train each way for some years before then.

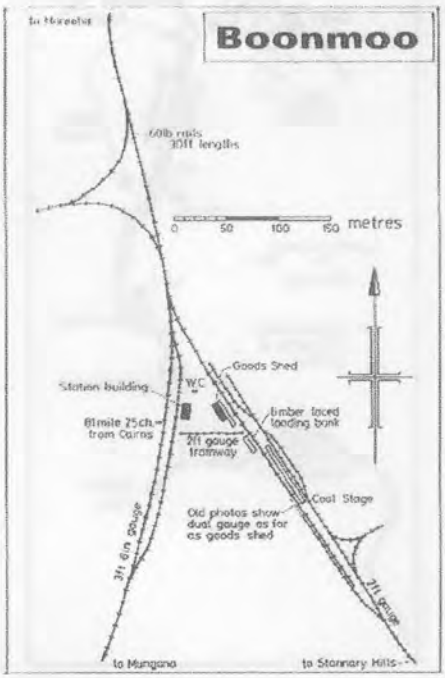
The assets of the mines and tramway were sold in 1941, with "Germany", the Borsig locomotive, being used to remove rail and materials to Boonmoo. The rails were lifted and sold to the sugar cane industry, as was the locomotive itself which was sold to Cattle Creek mill.

Features of the Lines – Layout Design Elements

I am indebted to the Light Railway Research Society for permission to reproduce the track plans included in this article. They have been copied from the publication "Rocky Bluff to Denmark" – for modelling purposes I have sized them so they are all approximately to the same scale. The diagram showing the Eureka Creek gorge is from the December 1962 ARHS Bulletin.

Boonmoo

This is the tramways' connection to the outside world. The "big" railway consisted of a crossing loop, a fork line (Queensland speak for wye, or triangle) and a siding running parallel to the narrow gauge which serviced a goods shed, loading bank and the narrow gauge coal stage. The tramway arrangement was long and drawn out, with the incoming line splitting into two, the left hand line running behind the coal stage, originally on dual gauge, to the loading bank and goods shed. The right hand track had the triangle, a run round loop, and terminated in a couple of sidings.



In most photos showing the trains at this station there are two dominant features: Jackson's Hotel and the Pinnacle. The hotel was strategically located between the two lines, and served as the refreshment rooms. Boonmoo was the lunch stop on the big railway, and those trains were met by narrow-gauge trams – it was often quite a busy place. The Pinnacle is a quite large peak, and stood sentinel over the station.

Eureka Gorge

This was the most spectacular section of the line. The line ran quietly beside Eureka Creek from Boonmoo for about ten miles before entering the gorge. Almost immediately upon reaching the gorge, the line follows Bock's Creek, a tributary, before crossing that creek at the famous horseshoe bend. Anecdotal evidence has the curve at the head of Bock's Creek being of 1½ chain radius – that's 99 feet or 30 metres and scales out at about 2' (60cm) in 1:48 scale. The "plan and section" shows no curve less than 2 chains in this section, but given the section which was not surveyed due to the difficult nature of the ground, it is not inconceivable that the curve was actually built to the radius. In any case, the line then back-tracked up Bock's Creek, just 66 yards (60 metres) away from its original alignment across the creek, to Eureka Creek, climbing continuously, and then entered the gorge proper. For a further 2½ miles the line clung tenaciously to a narrow ledge cut into the cliff face, at times so close to the cutting walls that it has been said that, with the superelevation on the curves, at times there was only six inches clearance at the top of the passenger car.

In the last four miles of the trip to Stannary Hills the line gained 400 feet in altitude at an average grade of 1 in 50 – combined with the sharp curves this proved to be the limiting grade for the line.

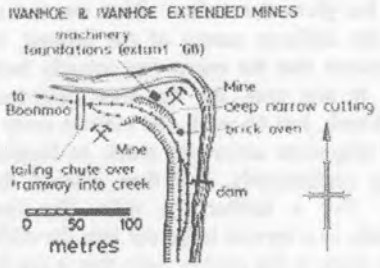
Kitchener Mine

The siding to this mine was a branch, which struck off from the main line, the junction facing Stannary Hills, in a curve which crossed the creek, and appeared to run directly into the adit. In later years, the small Stannary Hills Krauss Pompey was cut down and was able to run into the mine.

Ivanhoe Mine

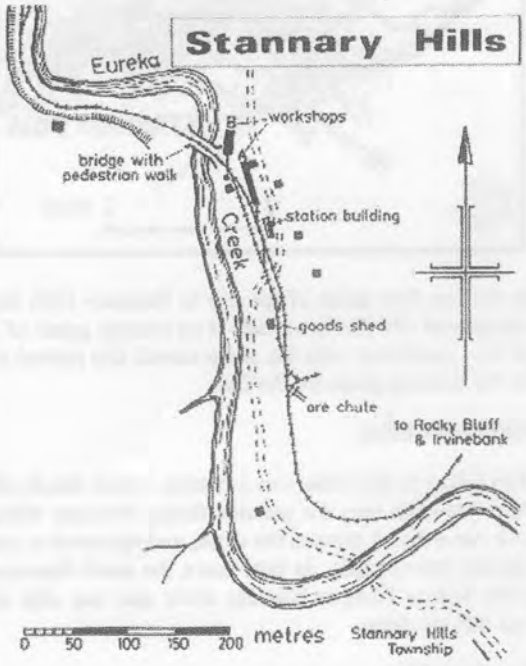
For modelling purposes, this mine is most interesting. The tramway runs on a shelf above the left bank of Eureka Creek, above the dam, before turning left (if running from Stannary Hills) through a very deep cutting. After exiting the cutting a single-ended siding is served by steeply angled loading bins. Two mines exist here – one is located up the hill, above the ore bins, while the other is above the cutting, between the tramline and the creek. Crossing over the cutting is a

structure labelled "ore bins" on old photos, but I am not certain that bins of this sort would be located on the main line. This structure crosses the line roughly at the spot and the drawing where the arrowhead points to "machinery".



Stannary Hills

The next key location on the tramways is the headquarters of the Stannary Hills Mines and Tramway Company. On the drawing here, only the Ivanhoe Mine loop siding points are shown and illustrate the relationship between the two localities. Another mine siding exists before the bridge over the creek, not shown on the drawing but clearly visible in photographs; this siding served Eclipse Mine.

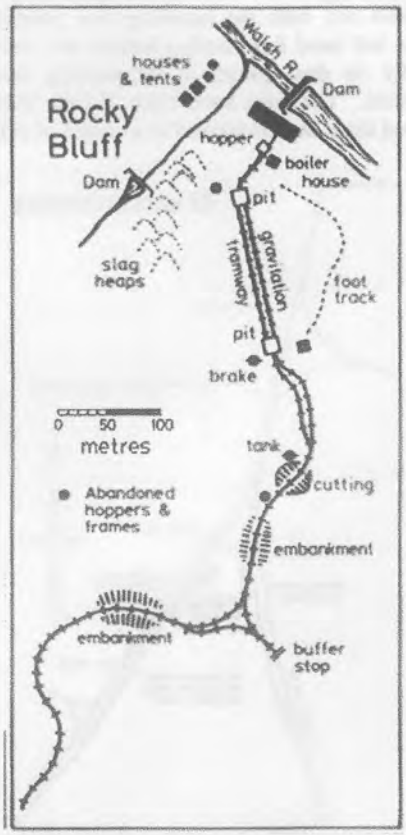


After crossing the creek on the curved bridge, the line enters the Stannary Hills yard. Two workshop buildings are on the left, before the station building. The layout of the yard showed a long, two-track arrangement with two intermediate crossovers, but photographs suggest there were three tracks (at least for some time) between the goods shed and station building. The town itself was some distance away; a rough track leads down from the line, crossing the creek and heading to the town. There were some non-railway structures though; the Station Master and Manager each had their residence adjacent to the yard.

Water was supplied for locomotive purposes from a windmill and pumping station on the creek, between the town and the station. The adjacent footbridge across the creek was locally known as the "swinging bridge".

The Junction

The tramline continued on the right bank of the creek, as always on a shelf high above the water level, for about half a mile before crossing Black Bridge. This was the largest bridge on the line at 42 feet high and 208 feet long. The bridge was straight for much of its length, but a sharp curve at the Rocky Bluff end restricted speed to just three miles per hour. A further half mile took the line to "The Junction", where the Irvinebank Company's line branched. This was an unusual arrangement too, as the newer line simply dived through a cutting wall.



Rocky Bluff

After the Junction, the line again crossed Eureka Creek and headed for the mill. This line had countless two and 1½ chain curves and crossed 31 bridges as it climbed over a spur of the Great Dividing Range to the mills at Rocky Bluff. Along the way a siding served the Arbouin Mine. The ore was transported from the mine by horse drawn tram, then across the deep ravine on an aerial cable car before being dumped into lineside bins for the tramway.

The company had located the mill at Rocky Bluff to take advantage of permanent water in the Walsh River,

water needed both for the milling process and to provide electricity. The mill was reached by a three-rail, balanced funicular incline, which dropped down 100 metres or so to river level where the battery and town were located.

The small township which developed at the site never saw a motor vehicle. Certainly up until the 1970s not even a 4WD had been able to get down to the mill site; everything – tin ore, firewood and supplies – had to be lowered down the incline.

Yorkies Cutting

After leaving the Rocky Bluff line, the line to Irvinebank crossed two branches of Jubilee Creek and shortly came to Yorkies Cutting. Located at the high point of the Irvinebank line, at about 2700', the near vertical-walled cutting was about 100 feet long and, at maximum extent, 20 feet deep.

Irvinebank

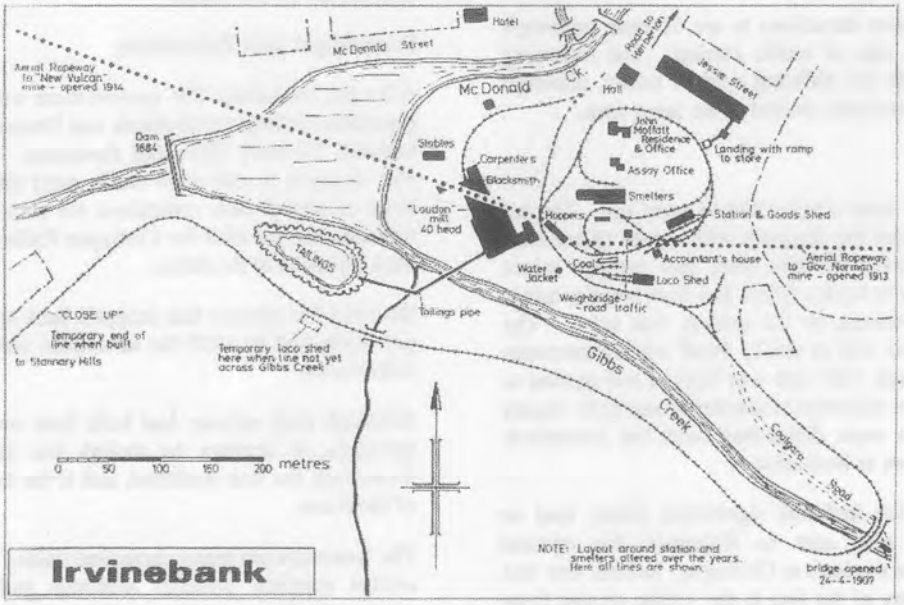
From Yorkies Cutting the line continued with a number of sidings and bridges, roughly following Chinaman's Creek, before reaching Gibbs Creek and heading upstream through the narrow gorge. This stretch, while not as spectacular as the Stannary Hills lines, nevertheless was quite rugged, with the line located on a ledge above the creek.

The line's final approach to the town of Irvinebank was achieved in a most extraordinary fashion. After passing close to the dam wall, it continued alongside Gibbs Creek with the town, mill and smelter opposite, until as the valley narrowed the creek was crossed on a photogenic curved bridge.

The line then backtracked on the other side of the creek, running behind houses, passing the turning triangle and loco shed, before completing an astonishing almost 360° circuit, passing between the 40-head Loudon Mill and the ore hoppers, with the smelters above and to the right, then around past John Moffat's residence and office, completing the circuit at the imposing tramway station, high above the town's main street.

Numerous sidings led in various directions to serve the mills and smelters, and the station area is rounded off by a balloon loop.

Although the tramway station was situated above the township, the town itself was surrounded by high hills, and two cableways brought ore from the Vulcan and the Governor Norman mines. Ore from smaller mines was delivered to the mill by the tram or mule team.



Stations, Loops and Sidings, and other Technicalities

The Stannary Hills line was built using 30 lb rail (about code 65 in ¼" scale). Half-rounded sleepers "to be cut from trees not less than 9 inches in diameter, and to be not less than 4½ inches thick" were cut from local timbers, and laid at 2000 per mile, or one every 2'6".

Loop lines or sidings were established at both 6 Mile and 10 Mile before reaching the Eureka Gorge and the mining area. Mines were served at Kitchener (13 mile), Ivanhoe and Eclipse (13½ miles) before reaching Stannary Hills at 13¾ miles from Boonmoo. The 10 Mile siding was quite important, being a loading point for significant quantities of firewood and having a telephone box to facilitate the crossing of trains.

On the line to Rocky Bluff, The Junction (to Irvinebank) was at 14¾ miles, Kellers (or Gladstone mine) siding at 15¼, and a firewood siding was at 16½. The Arbouin Mine siding followed at 18 miles, before the line reached the top of the incline, at 20½ miles.

There were a number of sidings on the Irvinebank line: Yorkies Siding (19 miles), 4 Mile siding (20½), Hales Siding (21¼), 6-Mile siding (22), Weinert's Siding (23), Humbug Siding (23¼) and Victoria Siding (26). Closer to Irvinebank temporary sidings were located at All But (26¾) and Close Up (28¼), used before the bridge over Gibbs Creek was completed, and the line reached the terminus at 29½ miles from Boonmoo.

Traffic

One of the major attractions to me of these tramways was the wide mix of traffic carried. The following description lists the different type of traffic, although not all was necessarily around at the same time.

Minerals

The tramlines were constructed to carry ore. Tin ore was carried from the Stannary Hills mines (Kitchener, Ivanhoe, Eclipse, Arbouin plus any smaller mines along the line) to Rocky Bluff, and from smaller mines closer to Irvinebank to the mill at that town. The output from the mill at Rocky Bluff was concentrates known as "Black Tin" and was bagged and carried to Boonmoo to be delivered to smelters elsewhere. Ingots of smelted tin were dispatched from the Irvinebank smelters by tram to Boonmoo.

Any ores which included significant silver, lead or copper were also sent to Boonmoo for onward transport to the smelters at Chillagoe. Indeed, this was quite a mainstay of the line in the 1920s, as slag from the old Montalbion smelters were railed from Victoria siding, three miles or so from Irvinebank, to allow extraction of any remaining silver and lead. Flux formed another significant traffic, inwards to the smelters at Irvinebank.

Firewood

The smelters and mills had a voracious appetite for firewood. Sidings existed every two or three miles as points to load firewood, which was delivered to the terminals of the respective lines. When the Irvinebank line was constructed, it is believe that in compensation for running over the Stannary Hills line from the Junction to the station, the Stannary Hills company was given the rights to firewood as far as Yorkies Cutting on the newer line. After the last train to Irvinebank left for the day, a Stannary Hills locomotive delivered empty trucks to the loading points on that line, sometimes leaving wagons on the main line, and then early the next morning ventured out to collect the now-loaded trucks.

In later years as firewood became difficult to obtain, the fuel was of necessity coal, railed to Boonmoo, transhipped, and then railed through the gorge to Irvinebank. Note that the locomotives on the tramways burnt coal, and therefore the firewood was for the mines, mills and smelters.

Equipment, Supplies and General Goods

For some years the only viable means of delivering goods, from groceries and beer to pianos, to the mining towns was along the tramways. The line curved around on the final approach to Irvinebank, and in doing so it passed behind (and above) a row of stores – the trains frequently stopped here so that supplies to the town store could be unloaded and rolled down a ramp straight into the back of the shop. As mentioned, coal for locomotive purposes would also have transported by the trains.

Passenger and Excursion

After the Irvinebank line opened there were two trains timetabled between Irvinebank and Stannary Hills, and between Stannary Hills and Boonmoo. This service was dropped to one train (each way) daily, and that level of service was maintained for some years. The trains connected with the Chillagoe Railway's trains in each direction at Boonmoo.

By 1919 the service had dropped back to three trains per week, and by 1929 the advertised service was one train weekly.

Although each railway had built their own passenger carriages, it appears as though the fully-enclosed Irvinebank car was preferred, and it ran the full length of the route.

The tramways ran many excursion trains. Football and cricket matches, athletics meetings and picnics all resulted in these popular special trains being run. A number of goods wagons were able to have seats added quickly, and these supplemented the passenger cars.

The line to Rocky Bluff had no scheduled passenger service, but as many workers at the battery lived in Stannary Hills, and children of those living at Rocky

Bluff needed to attend school at Stannary Hills, it is clear the passengers were carried on morning and afternoon ore or firewood trains. One photograph shows the small 4-wheel passenger car on an ore train on the line, but that car was scrapped after the bogie cars were constructed – presumably the passengers rode in the wagons.

General Comment

The tramways were busy operations in the early years, if for no other reason than the steep grades and corresponding short train lengths allowed through the Gorge resulted in many trains to perform the work. In fact, the passenger station at Stannary Hills was moved from the main line to the loop just to avoid blocking the many ore and firewood trains. The smelters and mill at Irvinebank required 100 tons of firewood each day – that could easily equate three or more trains daily in each direction.

Locomotives

The Stannary Hills locomotives were coal burners, but some records show that the Irvinebank locos were wood fired, at least in the early days while there was plentiful wood in the area, before switching to coal later.

Stannary Hills Mines and Tramway Company

No.1 Pompey 0-4-0WT Krauss 2196 of 1889

This locomotive was used in construction, being obtained second hand from the South Australian Government, but it had previously worked on the construction of the Victoria Dock in Melbourne. Pompey was inside-framed, with 6" x 12" cylinders and 24" diameter driving wheels. It was fitted, as were most of the locos used on the tramways, with a home made tender. For drawings, probably the closest available would be those of the Rubicon Krauss locos in Rails to Rubicon.

No.2 2-6-0T Falcon (Brush) 292 of 1901
No.3 2-6-0T Falcon (Brush) 293 of 1901

These two locomotives were built new for the tramway by Falcon, a subsidiary of Brush Electric Company. The outside framed locos had 10" x 14" cylinders, 24" diameter driving wheels and weighed 15 tons. They were equipped locally with bogie tenders. In 1912, one was taken out of service to provide parts for the other locomotive, and the remaining engine was known as Brush and eventually taken over by the State Treatment Works, becoming No. 4. Earlier articles have shown these locos as being built in 1902 and 1897, but the builder's plate (visible in the builder's photograph) of #292 clearly shows 1901.

No.4 Germany 4-4-2 Borsig 6345 of 1907

This engine, ordered to keep up with busy traffic at the time, was the only 4-4-2 (Atlantic) tender locomotive imported into Australia – and quite probably the only one of that wheel arrangement built for two-foot gauge in the world. This locomotive was very successful, the leading and trailing trucks and short fixed wheelbase being well suited to the sharp curves. The loco is reported as having 6" x 12" cylinders, although these seem very small to me, and had 2'6" driving wheels. The Germany was the most powerful of the Stannary Hills fleet, rated to haul 40 tons up the grade through the gorge, compared to the Falcon engine's 35 tons.

This locomotive was also taken over by the State Treatment Works, becoming their No. 5, and was refurbished with a new boiler in the 1930s to replace Brush which was, at the time, on the point of condemnation. Germany was used on the dismantling of the tramlines before being sold to Cattle Creek sugar mill. It was converted to a tank loco at the sugar mill, and then donated to ANGRMS where it remains today, awaiting preservation.

Irvinebank Mining Company

No.1 Betty 0-6-0T Krauss 5261 of 1905

Inside framed with driving wheels of 2' diameter and 9" x 12" cylinders, this loco was also equipped with a locally built bogie tender. The extended smokebox gave this locomotive a somewhat curious appearance. It was sold to the Innisfail Tramway in 1922, where it was known as Betty Bliss and given the classification of 6D9, but lasted only a further six years before being condemned. Keith MacDonald has produced a line drawing of this locomotive from photographs, which demonstrates the extended smokebox, but the loco was of the almost the same class as Moreton (b/n 4867 from the Moreton Central sugar mill) which can be found at the Yandina Ginger Factory. Jim Fainges' drawing of this loco is probably more accurate except for the front end.

No.2 Baby 0-4-0WT Krauss 5530 (of 1906?)

This was a tiny Krauss, but I have been unable to find any drawings or dimensions. It appears the closest "cousins" might have been those at Mt. Lyell, builder's numbers 3549, 3644 and 3729, but again I have not discovered any drawings. One difference with the Tasmanian locos is the extended smokebox found on Baby. The builders number suggests a construction date of 1906.

No.3 Old John 0-6-2T Avonside 1539 of 1907

The largest and most powerful locomotive on the tramways, one of Avonside's class NL, Old John weighed in at 19 tons, carried on 2'6" driving wheels, and driven by cylinders of 10" in diameter with a 16" stroke. Equipped with a 12' long locally-built tender, the locomotive served the Irvinebank company splendidly for many years.

Unfortunately Old John's weight and length counted against it when the Stannary Hills line was acquired. Too long and too heavy to run on the Stannary Hills track through the gorge without causing damage, the

loco was restricted to the Irvinebank-Stannary Hills section, and eventually sold to Marian Mill in 1938.

This loco has escaped the attention of the local draughtsmen, but I have found a drawing at the Avonside archives in the UK. Unfortunately, at the time these notes were being prepared, the drawing had not yet arrived.

Modelling the Locomotives

From a modeller's perspective, there is no easy way to duplicate the locomotive fleet of these two tramways. All locos will need to be either scratch built, or possibly kit-bashed, but there are very few remotely similar machines available.

The easiest starting point might be Irvinebank #1, Betty the 0-6-0 Krauss. The driving wheel diameter of 24" is a perfect match for the Bachmann HO 0-6-0ST, while the wheel spacing of the model of 3' and 2'6" is probably acceptable for the prototype's 2'6½" and 2'3½". The overall length of the Bachmann is 16'6" (in 1:48) which compares to Moreton's 17'6" (without the extended smokebox) so there won't be any length problems. I haven't yet had the opportunity to see whether the mechanism can fit, although certainly the side tanks are long enough to help conceal the motor etc. It's hardly a kit-bash, as it requires building a new body, but a styrene body on a Bachmann mechanism would at least be cheap.

Another approach, admittedly much more expensive, would be to take the Hanovale 0-6-2 Bundy-Fowler kit, and use the mechanism, again with a scratch built superstructure, to come up with a model of the Avonside. The Bundy had 28" drivers and a fixed wheelbase of 66" compared to the Avonside's 30" and 74", and the trailing wheels of each are located within a few inches of one another. These are within my limits of "acceptable", however the larger loco's driving wheels were located further forward than the Bundy. It's an expensive kit to use just the mechanism, but the alternative is scratch building.

To my knowledge, there are no candidates for even a "near-enough is good enough" kit-bash or suitable "mechanism donors" for the other locos. The Borsig is unique, and the wheel spacing is such that an HO scale 4-4-2 would not be remotely suitable even ignoring the outside frames. The Falcon or Brush locos are relatively plain looking 2-6-0Ts, but the driver spacing and outside frames are likely to demand scratch building. The two smaller Krauss locos are too small to be represented by either the Fleischmann "Magic Train" loco or the Bergs' Burrinjuck Krauss, even if they had been produced in ¼" scale. British OO scale 0-4-0 locos typically lack the outside valve gear of the Krauss, but they may be suitable starting points.

As you can see, building a model of these tramways is not going to be a quick and easy project.

Rolling Stock

Stannary Hills was originally equipped with small ore trucks from Koppel of Germany, but later used their own workshops to build their rolling stock. By 1903 the tramway listed two passenger cars, an explosives van, four box wagons, three bogie flat tops, 50 ore trucks, eight ballast trucks, 17 firewood trucks, four bogie low-sided trucks and three timber wagons with five further firewood trucks and three bogie low-sided wagons under construction. More rolling stock was completed in later years.

It would appear that all the bogie wagons were in fact built on a pair of four-wheel hopper underframes, rather than the "traditional" bogies.

Examples of the wooden-framed hopper still exist, abandoned beside the line to Rocky Bluff when it was closed in the 1920s. The hoppers measured 5' x 5' and were 3' deep, although a photograph I have would tend to suggest that the hoppers might have been less than 5' long. The wooden underframe appears to be maybe 7' long but quite narrow, – which is hardly surprising considering the (outside) axle boxes were simply attached to the side frame – no more than 3' wide.

Irvinebank also built much of their own stock in their 'shops. Again, numerous four-wheel vehicles were constructed, along with larger 20' long bogie wagons. The four wheel wagons had a capacity of four tons, while the bogie wagons could carry up to ten tons. Their bogie rolling stock was much more orthodox than the Stannary Hills variety, being constructed of wood, with iron fittings and wooden frames and "proper" bogies.

Both tramway companies constructed passenger cars. SH originally used the underframe from an ore skip to build a tiny four-wheel car, but it was soon replaced by two toast-rack styled cars, each with a capacity of 24 passengers. Irvinebank's car was a fully enclosed end-platform car, and was the preferred car for through trains from that town to Boonmoo. Jim Fainges has drawn this car (from a previous drawing by Mike Loveday) and he indicates it was 28' in length.

Modelling the Rolling Stock

Again, there is little available which could be used. The Innisfail Tramway open wagon is the correct length, and a model is available, but otherwise bears little resemblance to the Irvinebank vehicles. In appearance, the North East Dundas or Burrinjuck 16' wagon seems closer, albeit "stretched" by 4 feet, and with four hinges per door, rather than three. Once again scratch building is the only solution.

The Stannary Hills hoppers are a fairly close match in size with those offered by Roy. C. Link in his 7mm scale range. These are available without the underframe, and will be used for the ore hoppers I will be building. They are small though – 5' x 5' is only 1¼" square in 1:48 scale – and very light.

The Irvinebank passenger car has certain similarities to the North East Dundas cars, but at the moment there are no commercially available models of the Tasmanian cars.

Planning the Layout

These two tramways totalled only 35 miles (60 km) but the scope for a layout is immense. If modelled in HO I believe I could build a layout centred on Stannary Hills, extending back through the gorge to the 10-Mile siding, and ideally finishing in representations of both Rocky Bluff and Irvinebank – and fit this into my 20x16 feet shed. Having the incline at Rocky Bluff, and the two overhead cable cars feeding into Irvinebank could make quite a stunning layout. Mind you, I haven't actually tried to draw such a plan . . .

In O scale though there a number of challenges. Obviously the amount of space is going to allow only a small number of the Layout Design Elements described previously, and one challenge concerns attempts to construct a "pure" layout, with only one track through the scene, and where the direction trains travel is consistent – because of the bridges over Eureka Creek around Stannary Hills. The arrangement of creek, railway line running on a ledge above the creek, with the scenery climbing up above the track, is perfectly set up for a linear scene with the creek nearest the aisle. However, through the Eureka Gorge section the creek is to the tramway's left, but switches sides through Stannary Hills, re-crossing the creek before The Junction. In my view the bridge at the entrance to Stannary Hills and the Black Bridge, on the Rocky Bluff/Irvinebank end are important features, and need to be preserved, however it is impossible for the aisle (and following operators) to simply swap sides.

I will most probably fix this by "mirror imaging" the Ivanhoe and other Eureka Gorge section which I build This will mean the creek is on the wrong side, but at least it will keep the aisle (and the operators) all on the same side of the layout. It will also mean a new bridge to be built somewhere between Ivanhoe and Stannary Hills.

It's very early days. I won't be building any layout until I have some rolling stock to run, and then I will try and fit in what I can. Ivanhoe and Stannary Hills are important, beyond that it all depends on what fits where . . .

Further Reading

Railway Enthusiast Publications

- ARHS Bulletin – No. 138, April 1949 and No. 302, December 1962
- Light Railways – No. 30, Summer 1969
- *Rocky Bluff to Denmark* – Light Railway Research Society of Australia, 1986, ISBN 0 909340 22 6

A new book is expected to be published to coincide with the centenary of the opening of the line to Irvinebank.

General Publications

- Two White Swans – compiled by Ray Langford – ISBN 0 9581006 0 8
- John Moffat of Irvinebank – Ruth Kerr, 2000 – ISBN 0 9595072 7 2
- John Moffat's Empire – Ruth Kerr, 1979 – ISBN 0 9595072 0 5
- God Bless John Moffat – Ruth Kerr

The following two books have small sections covering the tramways:

- *Conquest of the Ranges* – Glenville Pike, 1984 – ISBN 9 95953785 1 0
- *Pioneers' Country* – Glenville Pike, 1976, 2nd Edition 1980 – ISBN 0 9598960 7 4

In addition, the following fictional books provide useful information relating to Tin mining in Far North Queensland, the first (at least) with a chapter concerning Stannary Hills, Irvinebank and the tramways:

- *Back o'Cairns* – Ion L. Idriess, 1958
- *The Tin Scratchers* – Ion L. Idriess, 1959

Additional References

- Unpublished Manuscript – The Stannary Hills Story – Daniel V. Donoghue
- http://www.geocities.com/scribble67/history/callaghan.htm - A History of Irvinebank, Mike O'Callaghan, c1968
- Paper presented at the Fifth National Conference on Engineering Heritage, 1990, Ruth Kerr, *The Stannary Hills and Irvinebank Tramways in Northern Queensland: A Window into Our Mining Heritage*
- Personal Notes – Bert Paull
- Personal Notes – Gerry Verhoeven

THE STANNARY HILLS and IRVINEBANK TRAMWAYS

A Selection of Photographs

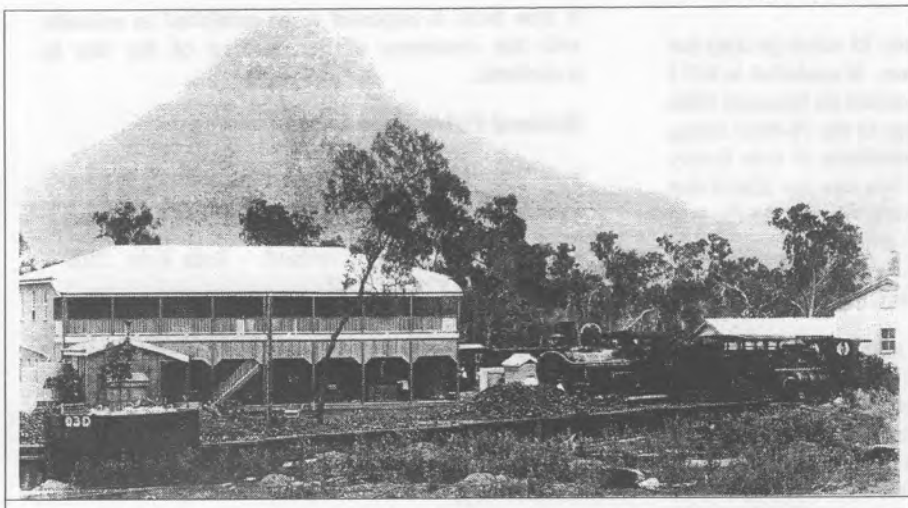


Photo 1:

The "Big" and "Little" trains are in together at Boonmoo, with the Pinnacle looming over Jackson's Hotel and refreshment rooms. - *Two White Swans*

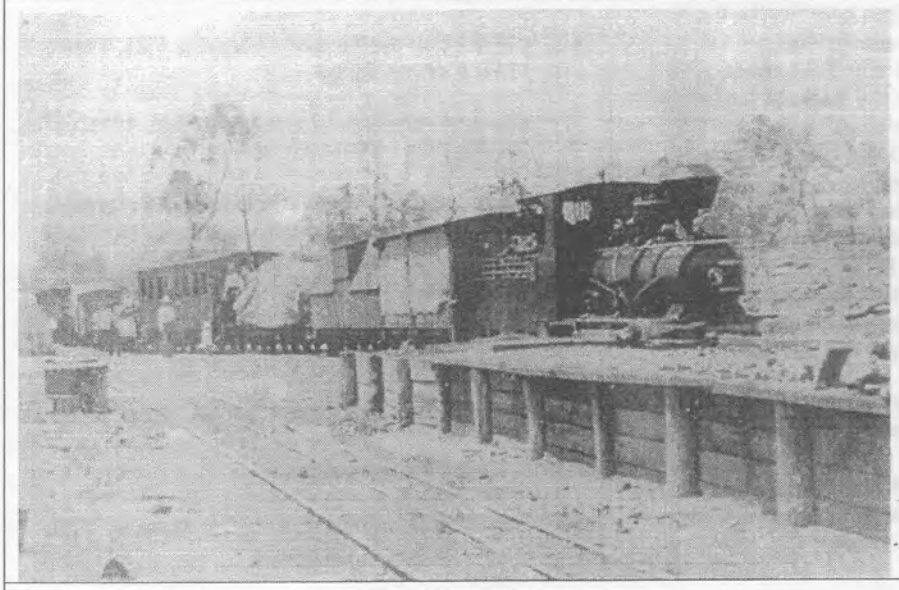


Photo 2:

The *Borsig* and train preparing to depart from Boonmoo station – *Loudon House Museum*

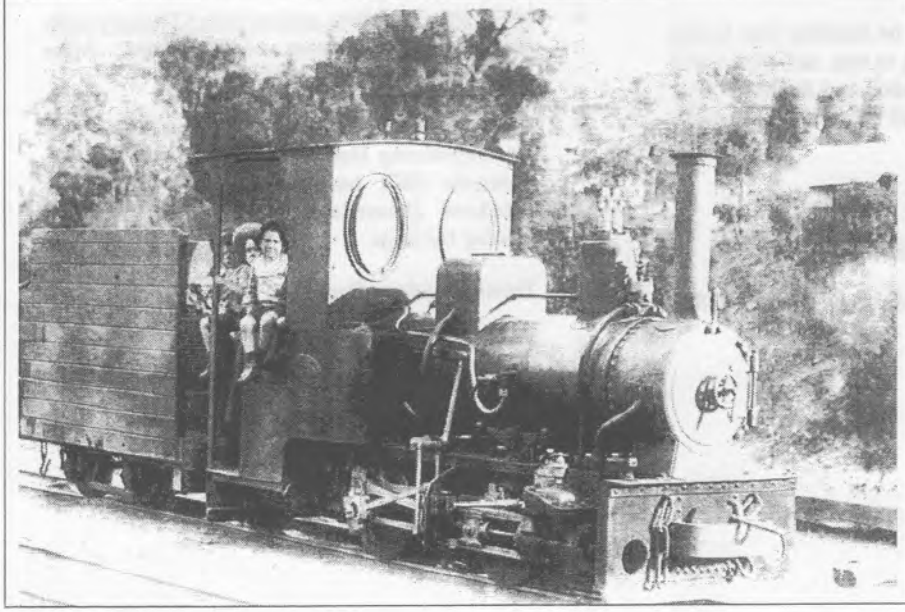


Photo 3:

Stannary Hills loco No. 1 *Pompey – Loudon House Museum*

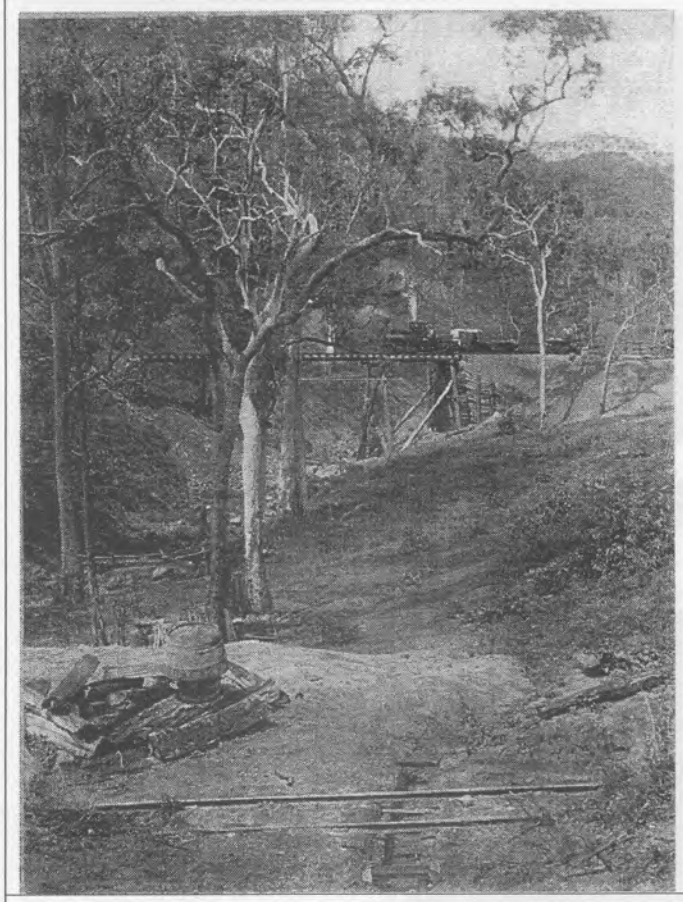


Photo 4:

Pompey and bridge over Bock's Creek at the Horseshoe Bend – *Loudon House Museum*

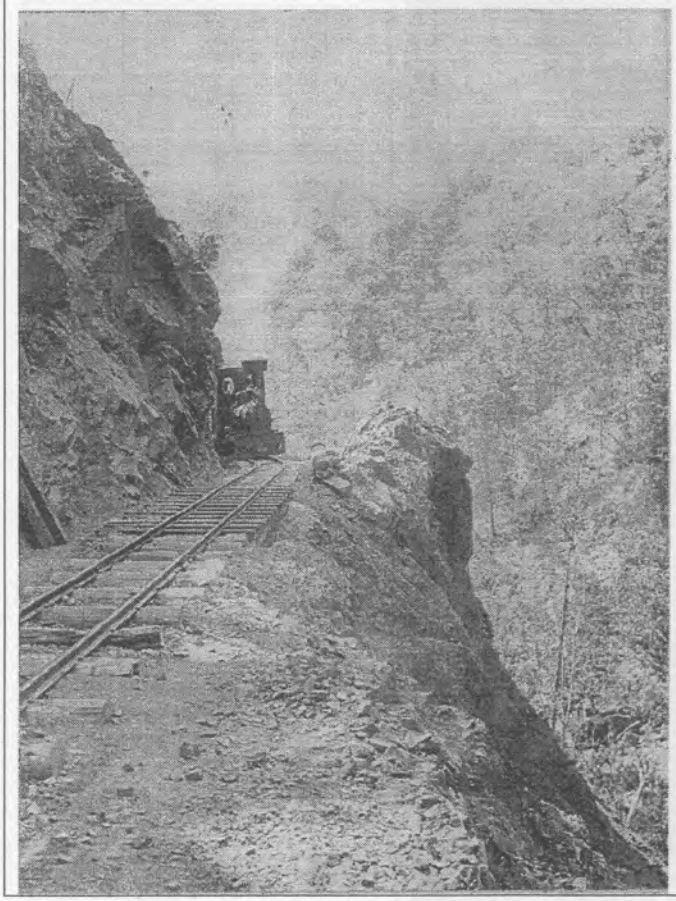


Photo 5:

Pompey rounding a tight curve high above the creek, in Eureka Gorge - *Loudon House Museum*

Photo 6:

Ivanhoe Mine and headframe – *Loudon House Museum*

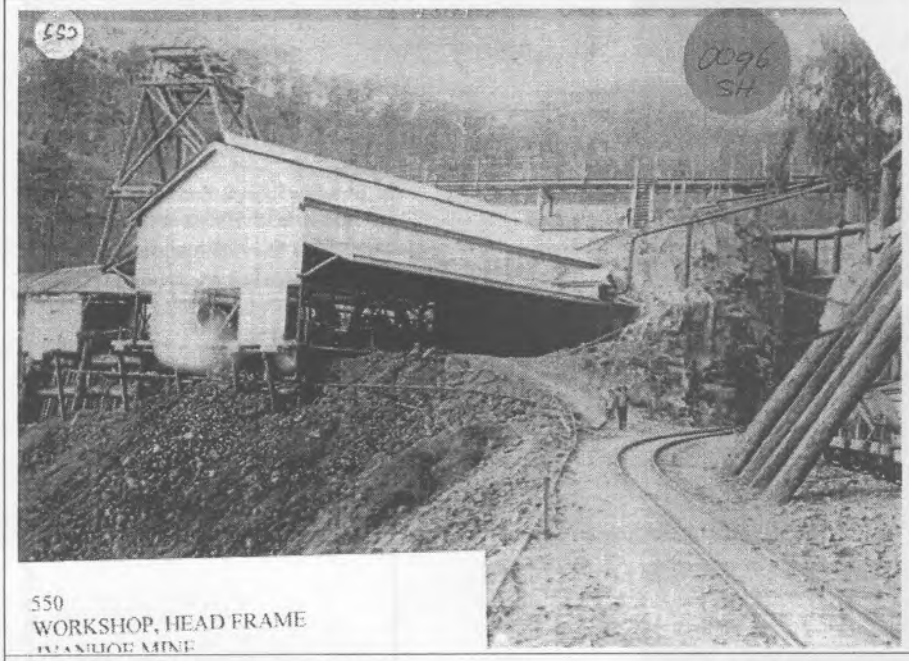


Photo 7:

Ivanhoe Mine workshops and headframe, with the loading bins to the right – *Loudon House Museum*

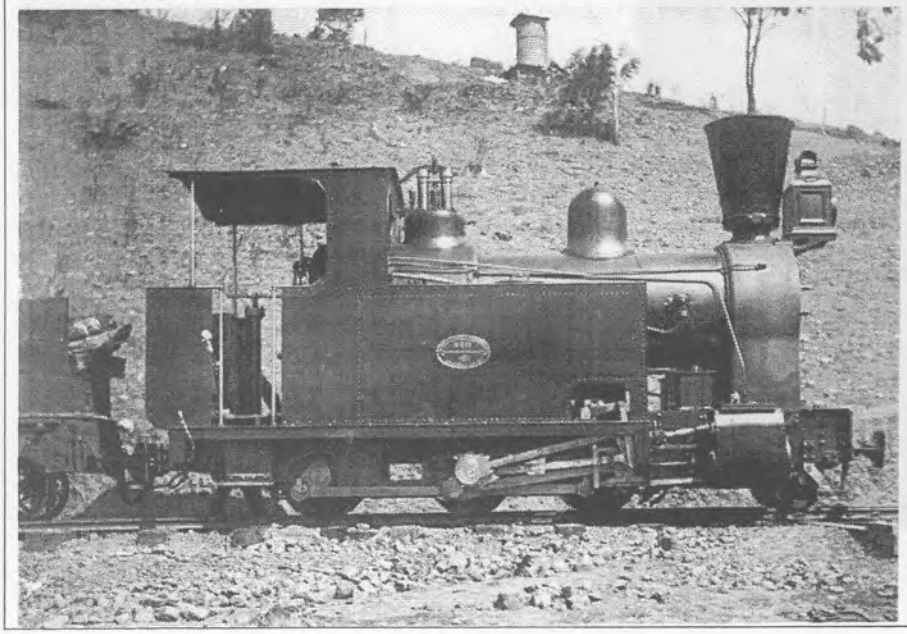


Photo 8:

Stannary Hills loco 2, Falcon b/n 292, seen soon after delivery – *Rocky Bluff to Denmark, LRRSA – credited to G.Bond collection*

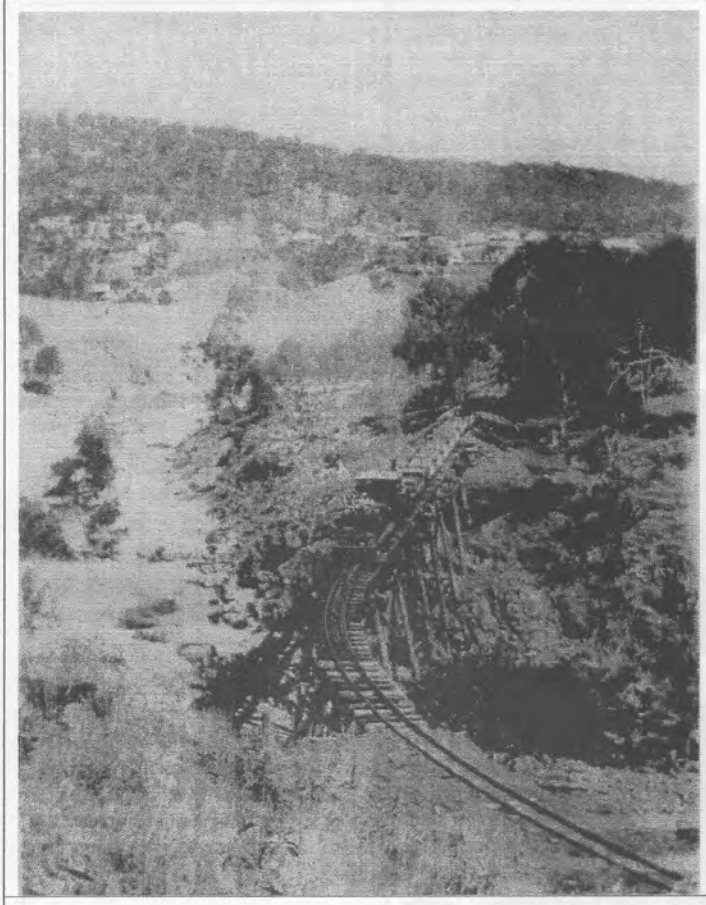


Photo 9:

Train on Black Bridge with Stannary Hills in the background. This photo shows the sharp curve leading off the bridge – *Loudon House Museum*

Photo 10:

Tram arriving at Stannary Hills from Boonmoo. The ore hoppers are standing on the Eclipse Mine siding – *Loudon House Museum*

Photo 11:

View of Stannary Hills workshops and station from the Boonmoo end – *Loudon House Museum*

Photo 12:

A *Falcon* loco and *Pompey* at Stannary Hills station, with the workshops and bridge over Eureka Creek leading to the mines in the background – *Rocky Bluff to Denmark, LRRSA*

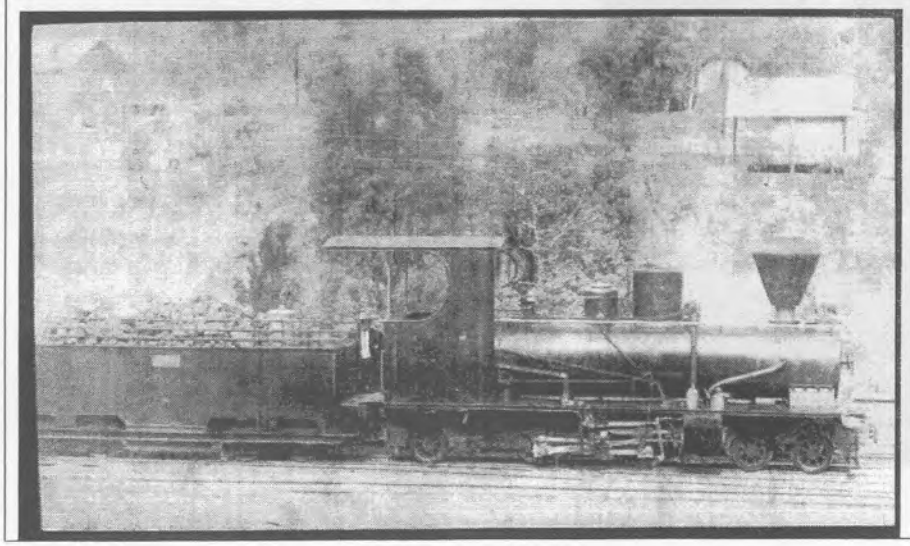


Photo 13:

Stannary Hills Loco No. 4, Germany – Borsig 6345 of 1907 – *Loudon House Museum*

Photo 14:

Empty ore train from Rocky Bluff waiting at The Junction with a *Falcon* loco. The line to Irvinebank leads through the cutting to the right. Note the four-wheel passenger car behind the locomotive – *Loudon House Museum*

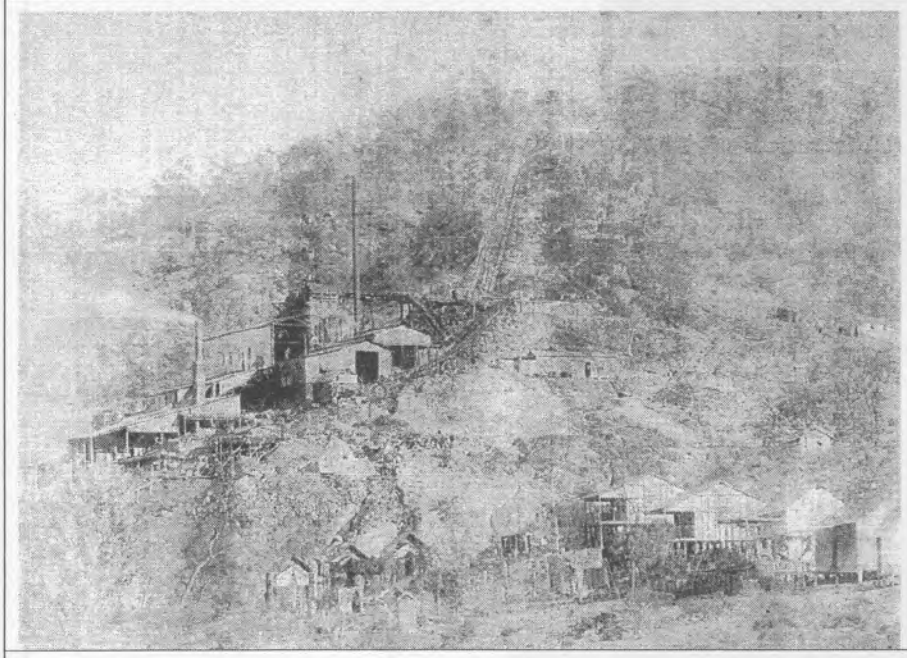


Photo 15:

Rocky Bluff battery, with the "township" in the foreground and the gravitation incline in the background – *Loudon House Museum*

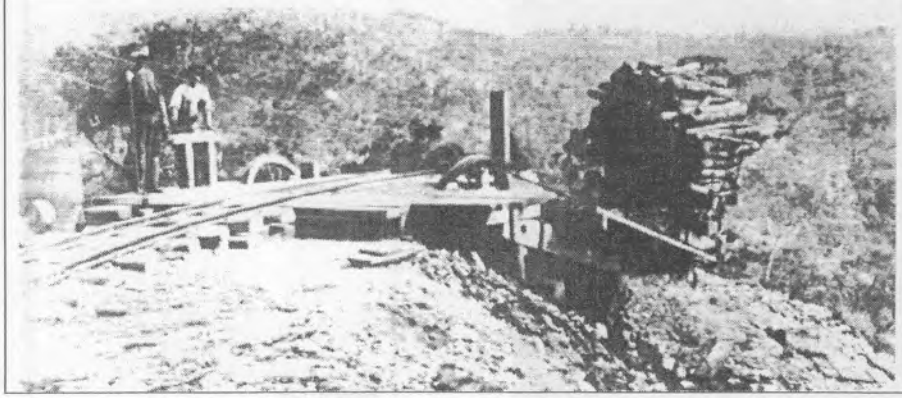


Photo 16:

A firewood wagon beginning its descent down the gravitation tramway, Rocky Bluff – *Two White Swans*

Photo 17:

Irvinebank No. 3, Avonside *Old John* photographed in Yorkies Cutting – *Rocky Bluff to Denmark, LRRSA, credited to G. Bond collection*

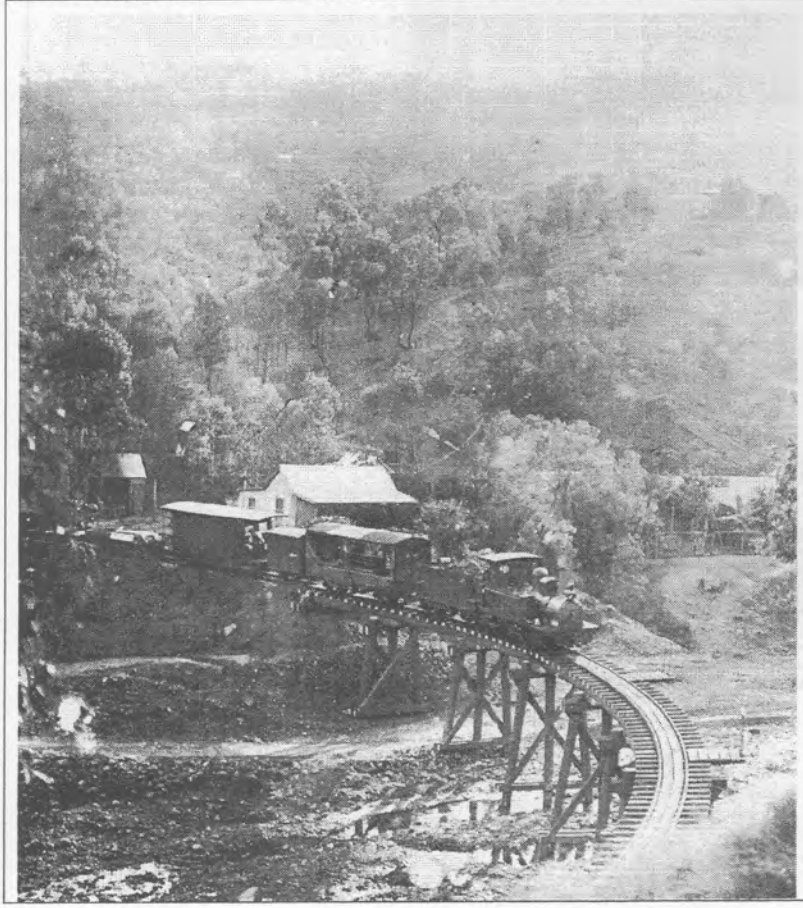


Photo 18:

Old John, the Avonside 0-6-2T leads a train away from Irvinbank and across Gibbs Creek – *Rocky Bluff to Denmark, LRRSA, credited to G. Bond collection*

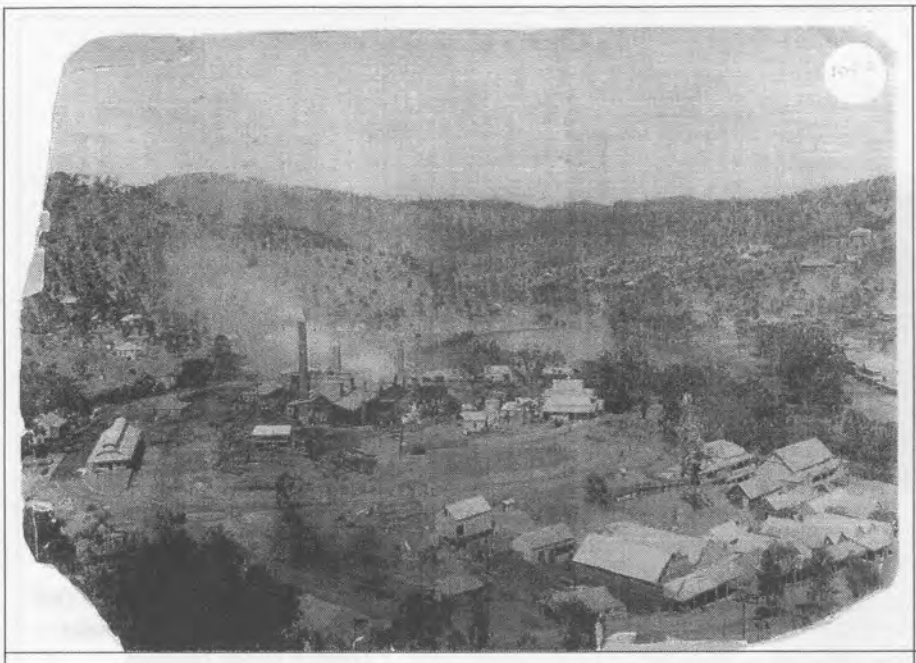


Photo 19:

An overall view of Irvinebank, showing the station to the left, the smelters in the centre, and the tramline running down from the station in the middle foreground, running behind the stores, and curving around Loudon House almost in the centre of the photo. In the distance the town dam can be seen, the tramway ran slightly above the water level before heading through the gap in the hills towards Victoria Siding – *Loudon House Museum*

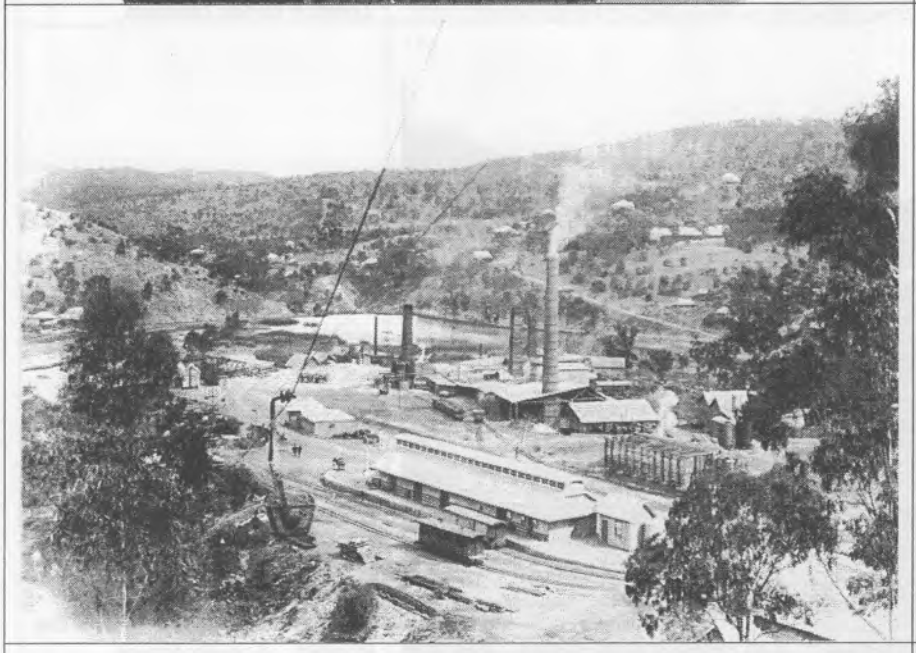


Photo 20:

Another view of Irvinebank showing the imposing station building, with the smelter and battery beyond, with the dam below them in the distance. The cableway is that to the Governor Norman mine. – *Rocky Bluff to Denmark, LRRSA – credited to G.Bond collection*

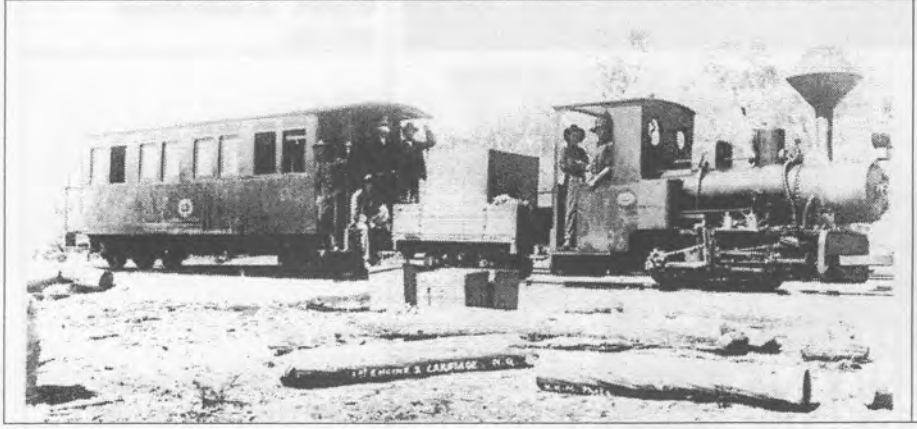


Photo 21:

Irvinebank No. 1 ***Baby*** and the passenger car – *two White Swans*

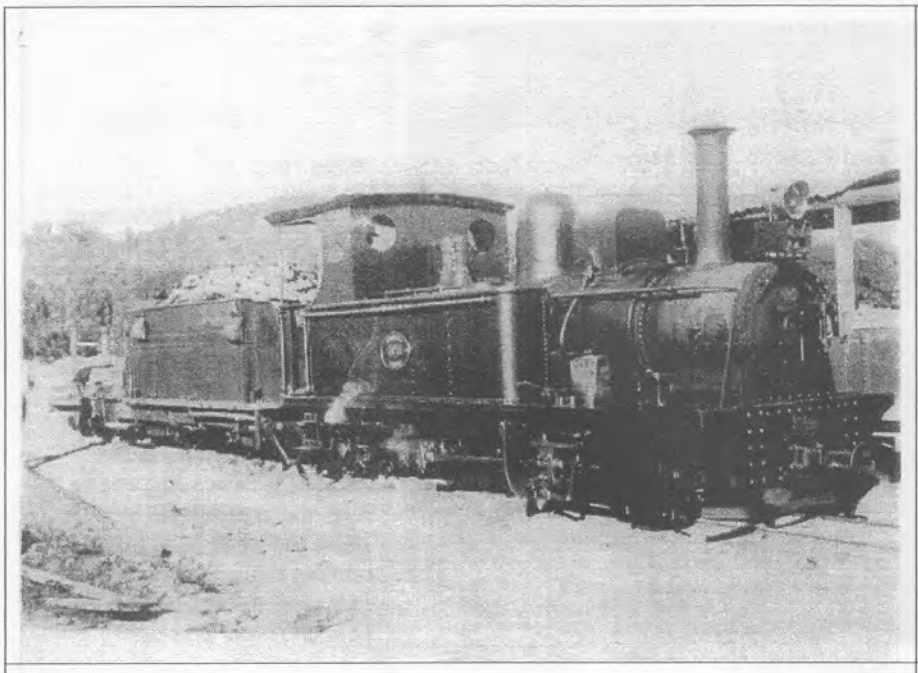


Photo 22:

Irvinebank No. 3, Avonside *Old John* with locally built tender – *Loudon House Museum*

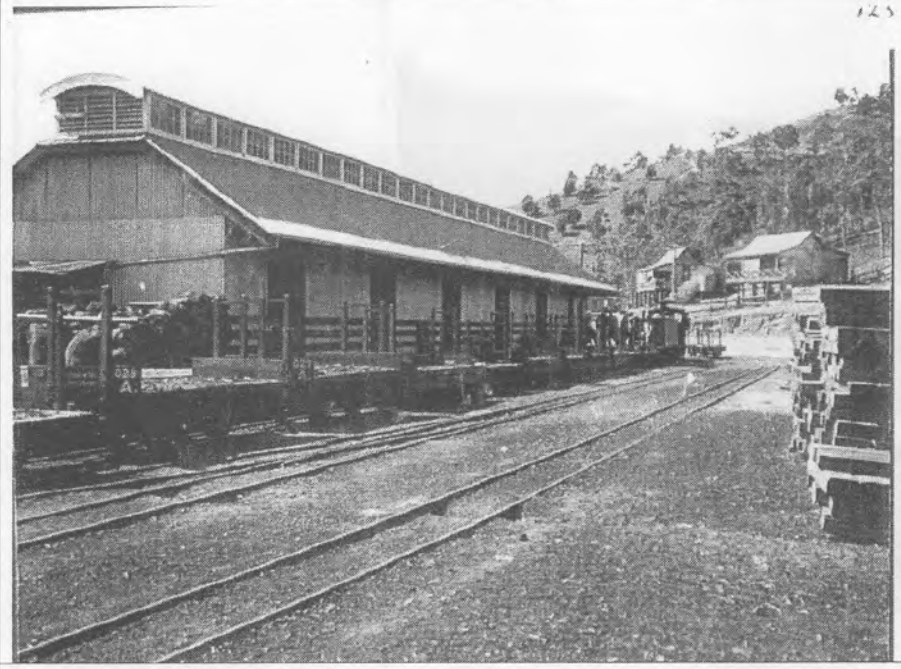


Photo 23:

An empty firewood train waiting to leave Irvinebank station. Note the four-wheel flat wagons – *Loudon House Museum*

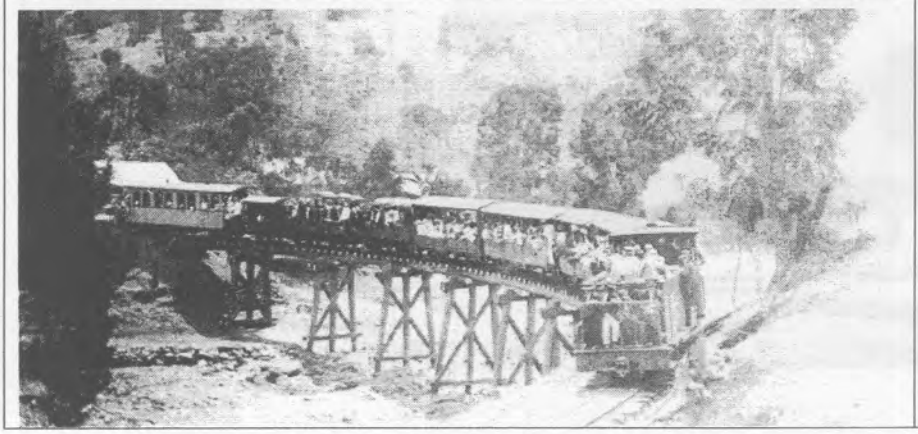


Photo 24:

Conbined churches Sunday School picnic train on Gibb's Creek bridge, Irvinebank – *Two White Swans*