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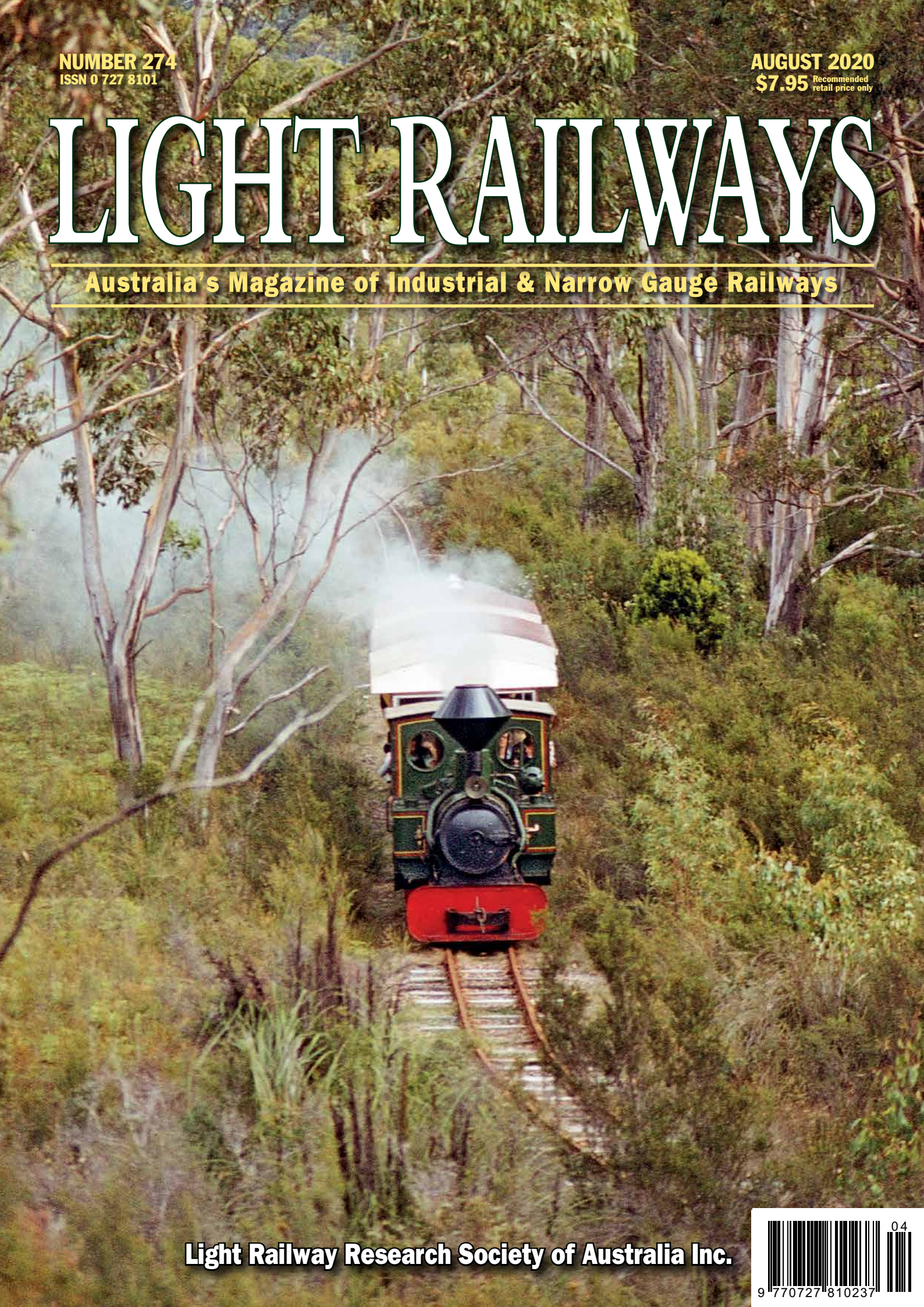
LIGHT RAILWAYS

Australia's Magazine of Industrial & Narrow Gauge Railways



Light Railway Research Society of Australia Inc.

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Editor: Richard Warwick
PO Box 21, Surrey Hills Vic 3127
editor@lrrsa.org.au

Associate Editors: Mike McCarthy, Frank Stamford and Phil Rickard

Field Reports Editor: Peter Evans
fieldreports@lrrsa.org.au

Industrial Railway News Editor: Chris Hart
industrial@lrrsa.org.au

Research Editor: Stuart Thyer
research@lrrsa.org.au

Heritage & Tourist Editor: Andrew Webster
heritagetourist@lrrsa.org.au

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COUNCIL
President: Bill Hanks (03) 5944 3839
Secretary: Phil Rickard (03) 9870 2285

New South Wales Division
c/o PO Box 674 St Ives NSW 2075
President: Jeff Moonie (02) 4753 6302
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Tasmanian Representative
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Ken Milbourne (03) 6272 2823

SUBSCRIPTIONS
Contact the Membership Officer,
PO Box 21, Surrey Hills, Vic 3127;
e-mail: subscriptions@lrrsa.org.au
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Imperial to metric conversions:

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

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Contents

Editorial

The Covid-19 crisis has eased across Australia and the harsh restrictions on lockdown have been gradually reduced. During the lockdown the LRRSA has been able to keep operating almost as normal.

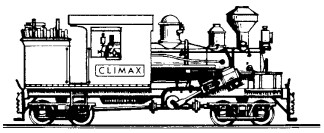
On the book publishing front there has been a lot of activity recently with the reprinting of Peter Evans' *Rails to Rubicon* and the release of Ross Mainwaring's magnificent book titled *Beneath the peak of Lyell* – both are selling well. As set out in the magazine, we are also about to publish Mike McCarthy's next book titled *In the shadow of the Prom* covering the tramways of the South Gippsland area of Victoria. This book is currently at the printers and will be available in mid-August.

An interesting aspect of light railway operations in this edition is the various reports and photos in the Industrial Railway News section. It reflects what happens on the narrow gauge sugar rail networks during the off season and shows some unusual workings.

And, don't forget that all previous editions of *Light Railways* up to LR 260 are available free from our website as pdf files.

I trust that you enjoy this edition of *Light Railways*, and that you purchase one or more of our excellent books that we are publishing. *Richard Warwick*

Front Cover: *The disused 2 ft gauge, Ida Bay Railway used to transport limestone, was purchased by the Tasmanian Government in 1977 for use as a tourist railway. In 1985, when the line was being operated under lease by Michael Williams, the opportunity was taken to run steam on the line instead of the usual Malcolm Moore diesels. In March and April of that year the Second River Tramway's 0-4-0T Krauss (B/N 5800 / 5682 of 1907) was temporarily relocated from Karoola in the north of the State. Photographed on Saturday 13 April 1985, the Krauss looks right at home in the scenery for which the line is renowned. The railway is currently out of use, but it is to be hoped that the recently formed Ida Bay Railway Preservation Society is successful in its endeavours to reopen the line and that this scene may be repeated in the future. Photo: Colin Harvey*



Light Railway Research Society of Australia Inc. A14384U
PO Box 21 Surrey Hills Vic 3127
www.lrrsa.org.au

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

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

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Articles, letters and photographs of historical and current interest are welcome. Contributions should be double spaced if typed or written. Electronic formats accepted in the common standards.

Material is accepted for publication in *Light Railways* on the proviso that the Society has the right to reprint, with acknowledgement, any material published in Light Railways, or include this material in other Society publications.

A once common scene that has been forever erased. Pictured at Stanford Main No.2 colliery at Paxton, NSW, the hostler leads the handsome mine horses back to the stable after their feed. The colliery buildings are in the background with the miner's bathhouse on the left. The tall steel headframe was above the 17 ft diameter down cast shaft which penetrated the Top Greta Coal seam at a depth of 345 ft. Although underground haulage was by main and tail, direct haulage and storage battery locomotive the horses operated from the coal face to the various flats on the haulage roads. The mine worked from 1922 through to 1961 when economics forced its premature closure. Photo: Ross Mainwaring Collection

Of Boxer and Bruiser.. Tiger and Trooper

Horse haulage in coal mines – the animals, men and vehicles

by John Shoebridge

Background

This article was written by the late John Shoebridge some time ago. He was arranging to get the photos and illustrations at the time of his passing, but they were not submitted to the Editor. Accordingly, publication of the article was held over until we could get suitable photos. Ross Mainwaring has been liaising with John's family to obtain the photos and has also been able to get several suitable photos from various sources, including Ed Tonks. We trust that readers enjoy this fascinating look at a long gone practice of using horses to haul skips in underground coal mines in NSW.

Introduction

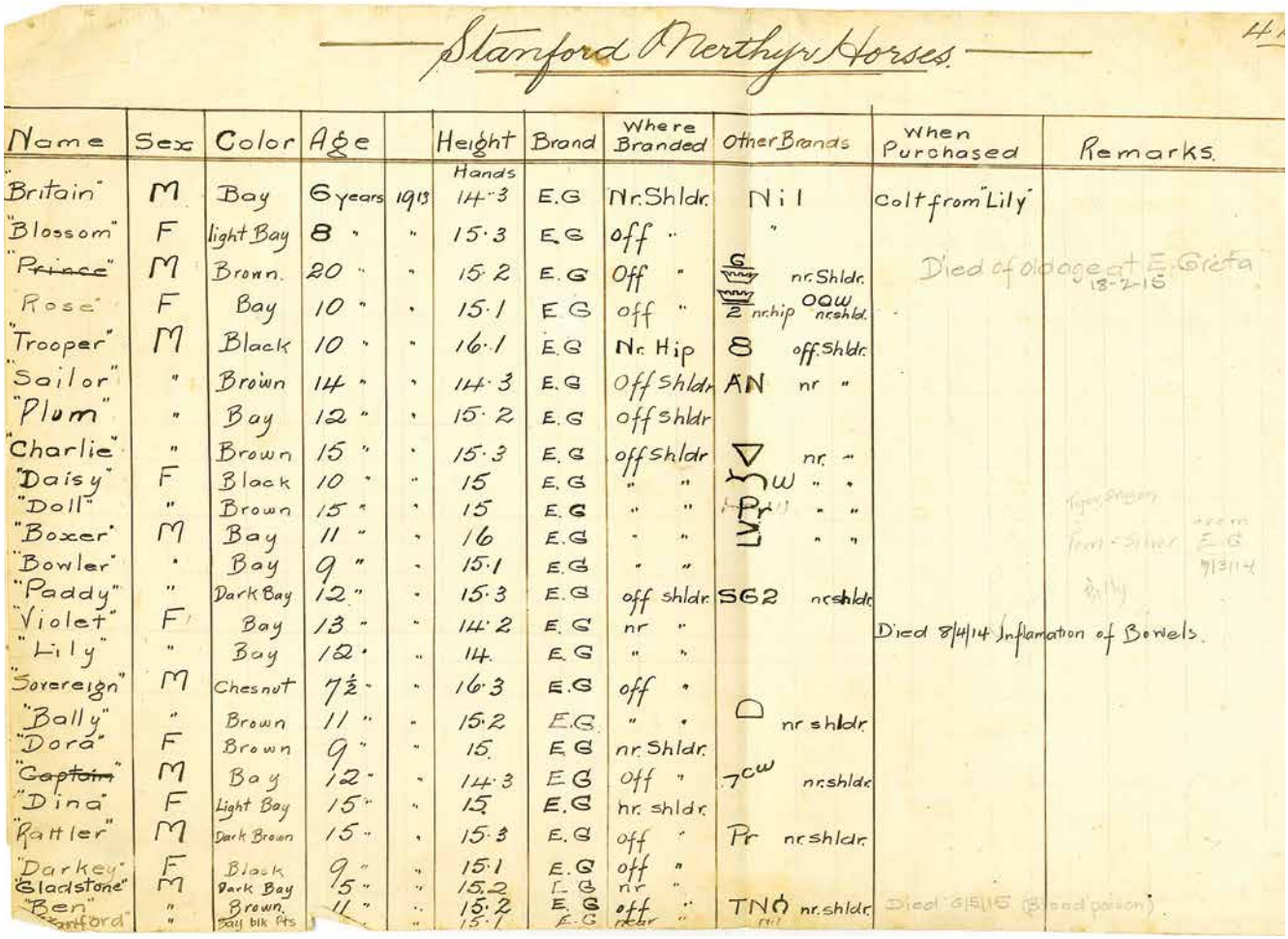
Numerous articles have appeared in *Light Railways* and elsewhere relating to the use of electric and diesel locomotives underground but for some reason, the far more numerous use of horses, which provided the motive power for countless miles of underground light railways, have been so far overlooked. I have long felt it appropriate that some memory be recorded, devoid of romance, recounting the manner in which these long-suffering, uncomplaining slaves, lived, toiled and died. The article must, of necessity, also tell of the men who drove them and the vehicles they hauled.

Although the article will make some mention of mines elsewhere, in general they refer to conditions and practice on the NSW northern coalfields.

Beside me as I write, is the Horse Register from Stanford Merthyr Colliery. This record commences in August 1913, although the mine opened in 1901. The initial pages give details of 25 horses then employed at the pit, plus *Tiger*, who worked around the streets of Kurri Kurri for the company's electricity reticulation section. By 1924 there were 26 horses working underground, and the final entry was made in December 1957, when the colliery closed, and the last two animals, *Punch* and *Sailo*r, were sent to Richmond Main.

Pre-History

Horse traction in NSW coal mines persisted for just over one hundred years. As far as I can determine, horses were introduced by the Australian Agricultural Company at its 'D' Pit in around 1852 with the last horse actually engaged in wheeling coal, retiring from Ulan Colliery in around 1960. For myself, I entered the coal industry in 1953, just in time to see the last of horse haulage of coal, although I had quite a deal to do with horses in their snigging capacity (*see page 7*).



Stanford Merthyr Horses

Name	Sex	Color	Age		Height Hands	Brand	Where Branded	Other Brands	When Purchased	Remarks
"Britain"	M	Bay	6 years	1913	14"3	E.G	Nr. Shldr.	Nil	Colt from "Lily"	
"Blossom"	F	light Bay	8 "	"	15·3	E.G	off "	"	"	
"Prince"	M	Brown.	20 "	"	15·2	E.G	Off "	S nr. Shldr.		Died of old age at E. Griffa 18-2-15
Rose	F	Bay	10 "	"	15·1	E.G	off "	2 nr. hip OQW nr. shld.		
"Trooper"	M	Black	10 "	"	16·1	E.G	Nr. Hip	8 off Shldr.		
"Sailor"	"	Brown	14 "	"	14·3	E.G	Off Shldr	AN nr "		
"Plum"	"	Bay	12 "	"	15·2	E.G	off shldr			
"Charlie"	"	Brown	15 "	"	15·3	E.G	off Shldr	nr. "		
"Daisy"	F	Black	10 "	"	15	E.G	" "	W " "		
"Doll"	"	Brown	15 "	"	15	E.G	" "	Pr " "		
"Boxer"	M	Bay	11 "	"	16	E.G	" "	LV " "		
"Bowler"	"	Bay	9 "	"	15·1	E.G	" "			
"Paddy"	"	Dark Bay	12 "	"	15·3	E.G	off shldr.	S62 nr. shldr.		
"Violet"	F	Bay	13 "	"	14·2	E.G	nr "			Died 8/4/14 Inflamation of Bowels.
"Lily"	"	Bay	12 "	"	14.	E.G	" "			
"Sovereign"	M	Chesnut	7½ "	"	16·3	E.G	off "			
"Bally"	"	Brown	11 "	"	15·2	E.G	" "	nr. shldr.		
"Dora"	F	Brown	9 "	"	15.	E.G	nr. Shldr.			
"Captain"	M	Bay	12 "	"	14·3	E.G	off "	7 CW nr. shldr.		
"Dina"	F	Light Bay	15 "	"	15.	E.G	nr. shldr.			
"Rattler"	M	Dark Brown	15 "	"	15·3	E.G	off "	Pr nr. shldr.		
"Darkey"	F	Black	9 "	"	15·1	E.G	off "			
"Gladstone"	M	Dark Bay	5 "	"	15.2	E.G	nr "			
"Ben"	"	Brown.	11 "	"	15·2	E.G	off "	TNO nr. shldr.		Died 6/5/15 (Blood poison)
Stanford	"	Bay blk Pts		"	15·1	E.G	nr "			

First page of the Stanford Merthyr colliery Horse Register. *John Shoebridge collection*

In Britain in 1776, Northumbrian Viewer (ie, mine manager), John Curr introduced the use of railed tubs at his mine hauled by a horse-powered capstan on the surface. In a book which he published in 1797, he states that by such means a single horse could haul a train of 12 corves a distance of 250 yards, delivering 250 tons of coal per day from the face to the shaft.

Indeed, some time prior to this in 1788, we find a reference in a book (*The Compleate Collier*) where 'A Practical Miner' offers guidance to a mine owner on the selection of horses for use on these devices. He also speaks of coal hauled by horses in wooden sledges through the mud from the faces to the shaft. In one place he states that the use of 'whole' (ie, ungelded) horses was undesirable due to their being less manageable, advice that continued valid right up to the end of their use.

Around this time, an anonymous author writing in a book of verse *The Pitman's Pay*, gives mention of the replacement of sledges by railed tubs, to the obvious relief of the hand-putters.

> Auld-time putting's lang-forgotten, trams now run on iron rails.
> God bless the man wi' peace and plenty who first invented metal plates,
> Draw out his days to four and twenty
> And slide him thru the Heavenly gates.

Before long it was realised that where roadway dimensions permitted, it was more efficient to take the horses below and directly haul the vehicles. However, it was not until human haulage by women and children was forbidden by legislation in 1842, that horses came into general use underground. After all, the animals had to be fed and cared for even when the mine was not producing whilst workers, paid by results, were left to fend for themselves.

Woodcut of the Pit Bottom of the AA Company's 'B' Pit colliery. The shaft was sunk in 1837 and reputedly this was the first Newcastle colliery to use horses underground. Naked flame lamps are in use – the wheeler has a short-spout tallow lamp attached to his hat for illumination while two long-spouted oil lamps either side of the shaft 'illuminate' pit bottom. *John Shoebridge collection*

Horse Gins

These devices, where one or two horses circle a central post harnessed to a cross arm were in common use to raise minerals at small primitive shaft mines. A few survived into the 20th century. I have never seen a gin at work although as a small boy, my father showed me the remains of one at a disused pit on Stockade Hill, East Maitland.

Early days in Newcastle

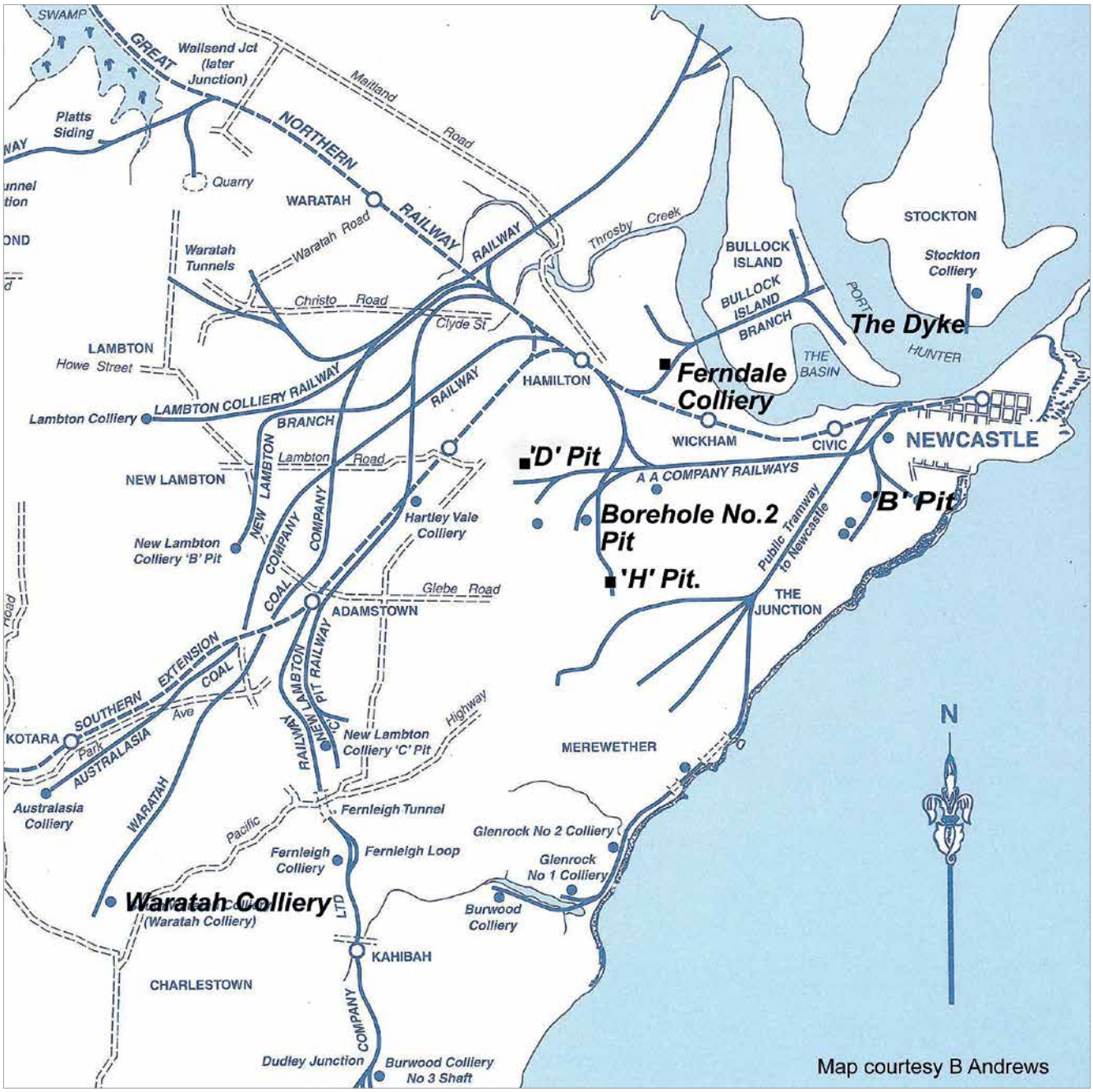
At its B Pit close to Newcastle, the AA Company employed horses along with gravity to work its inclined railway. One unusual feature was the use of a 'dandy cart', which the horse hauled uphill along with the train of empties. On the return journey downhill, the cart was attached to the rear of the loaded train with the horse riding in it. Although this practice was commonplace in Britain, this is the sole instance that I have come across in NSW. Several of the surface mining tramroads in the Glebe Valley used a horse to haul the empties uphill and then allowed the loaded vehicles to gravitate back, but with the horse trotting behind.

When Prince Alfred, the Duke of Edinburgh briefly visited Newcastle in 1868 and was escorted on an underground visit to the AA Company's Borehole No 2 pit, his attention was directed to a number of 'small ponies from Batavia' drawing coal skips.

On examination, some old plans of these mines still show haulage roads described as 'Gallyroads' derived from 'Gallaway' the Northumberland term for a horse. West Wallsend Colliery plans bear the enigmatic annotation 'Horse-Pump Hill' with no indication if the device was on the surface or underground.

Another North Country term for horse, was 'Dilly' (as in 'Wylam Dilly'). At Bellbird, right until the pit closed there was special length of rope, a hook at either end (almost identical to the railway tail rope). On asking its purpose, I was told by the old hands that it was a 'Dilly Rope' used to shunt haul mine cars on one track by hooking it to those on the other road. Truly, tradition dies hard in the pits.

Somewhat earlier, the records of the Newcastle Coal and Copper Company give some indication of its animal-powered operations. In 1853 it had six horses in the care of a stable boy.



They were housed in a slab-built stable with an attached harness room situated near the Burwood Smelter in Murdering Gully. With the opening of its Beach Mine on the northern side of the Merewether Ridge later that year, a 12-stall stable was proposed closer to the entries. At the same time a ten-acre paddock near the smelter was put under cultivation to provide fodder. Two years later the manager reported that although the company now owned 16 horses, the new stables had not been completed so that a deal of time was wasted each day walking the animals around a mile to and from their tasks.

At the same time, he reported that the Company's horses were employed as follows...

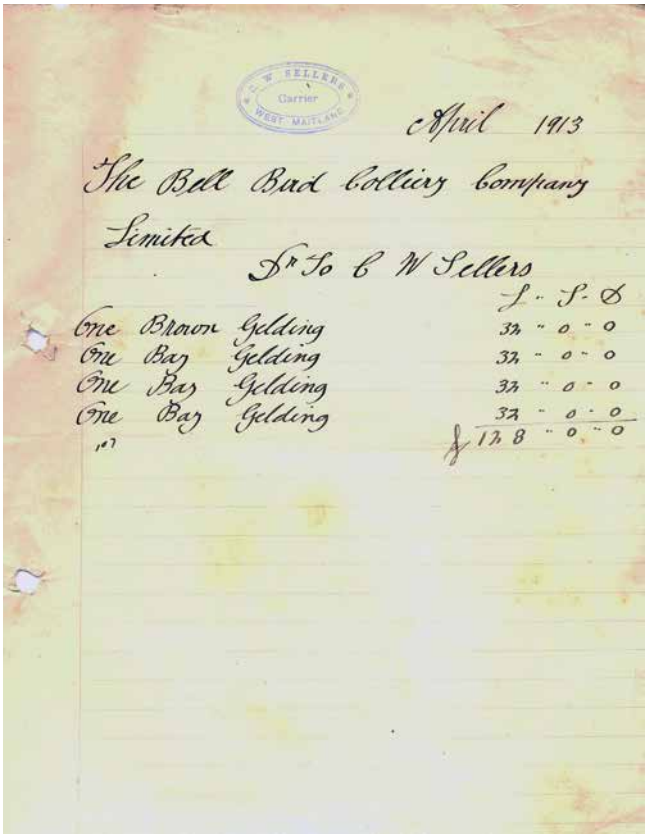
One horse worked underground at the Beach Mine and one at the Victoria and one worked the Glebe Railway. Eight worked in two teams of four on the Public Tramroad. Two carted bush timber, one was being broken in, another was the manager's 'hackney' and the remaining animal was stated to be 'of no use'. His report recommended that two more horses be acquired to haul a second dray, four more for a third tramroad team, and one as a spare.

Acquisition

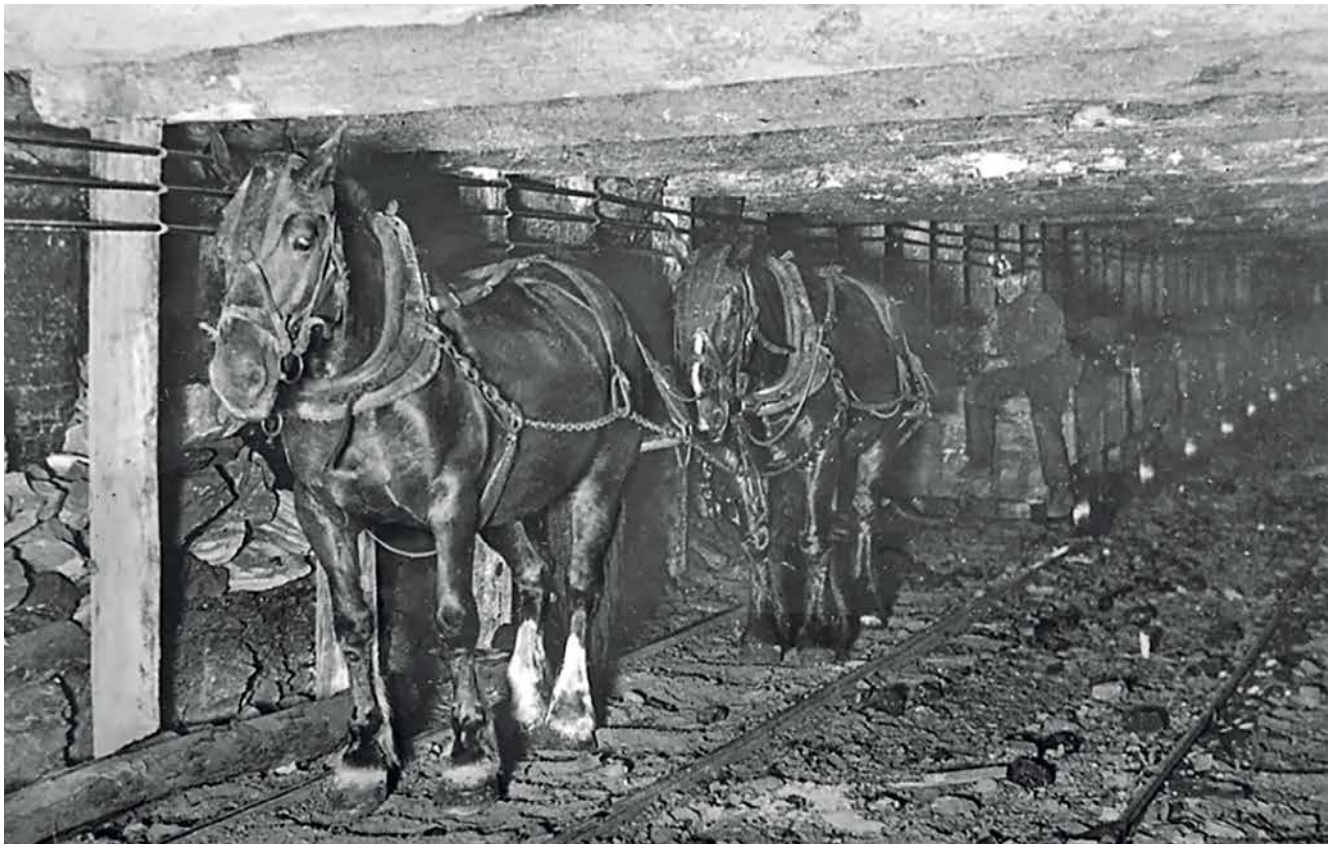
As a general rule, pit horses were bought by tender from local stock and station agents, although at times, the colliery hostler and manager would attend an auction in person to make a selection.

In 1913 Bellbird Colliery bought four horses from CW Sellers of West Maitland at 32 pounds each, and in 1963 accompanied by my daughters, who were awarded naming rights, I bought *Fred*, the last pit horse for Maitland Main Colliery, at auction in West Maitland Saleyards.

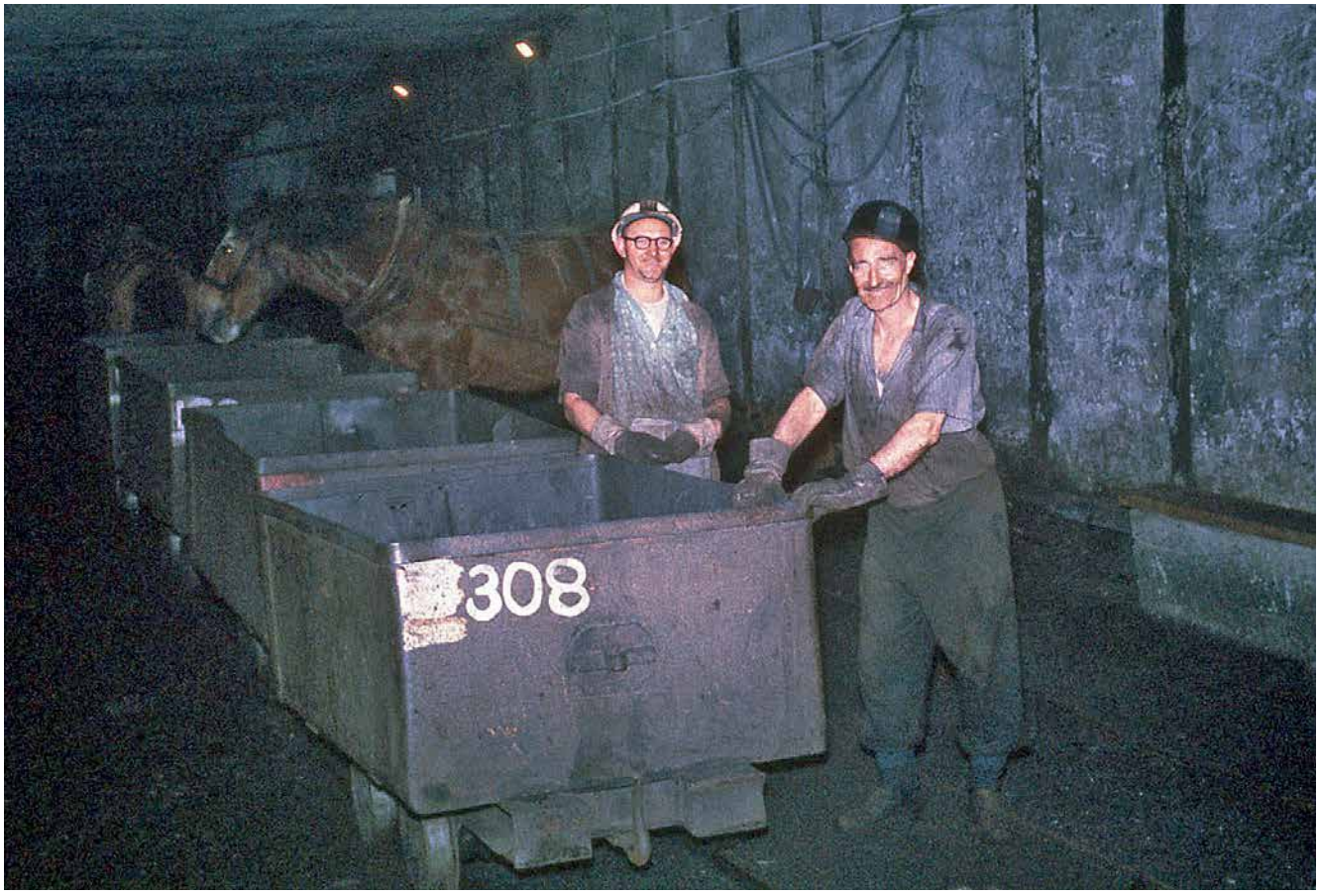
Speaking generally, underground horse haulage fell under three categories: Wheeling, Driving and Snigging:



Opened in 1912, this is the account rendered to Bellbird Colliery in 1913 for the first horses purchased for use underground. The Top Greta Coal seam outcropped on the property so the horses could walk down tunnels to their place of work; the coal of very best quality, varied from 14 feet to 30 feet in thickness. John Shoebridge collection



'Double Headed.' Two horses on a long train of skips, said to be at Aberdare Colliery near Cessnock, NSW. Note the electrical cables attached to the props beside the roadway. Electric coal cutting machines were used in this mine. The Top Greta Seam was 500 ft below the surface and averaged 25 ft in thickness. The mine closed in November 1960. John Shoebridge collection



In 1953, 61 horses were still on the horse register at BHPs John Darling colliery. Photographed in about 1960, man and beast stand around empty 2 ft 6 in gauge 1½ ton capacity steel skips. The skips, as used by the contract miners, were so constructed to minimise leakage of coal dust onto the roadway. Contract mining in the Borehole Seam ceased in 1963 and the rail track was regauged to 3 ft 6 in where required. Courtesy E Tonks

Wheeling

Most commonly a wheeler and his horse took empty skips from the haulage 'flat' in trains of four to six towards the coal faces, delivering them one at a time to the mining 'pairs' at their individual working places, returning with the "fulluns". Shunting near the face was performed by "copeing" (ie tipping) the empty clear of the rails, while the full skip was manhandled past. Meantime the well-trained horse reversed in the restricted roadway at the command of 'Geee !'

Once hooked on, the word 'Giddup!' set things moving, the wheeler running beside to sprag or slew as the road required. Once on the straight he usually mounted the buffers of the rear skip. Some early photos show wheelers armed with whips, I cannot recall this being common as horses were usually urged on verbally, or by a few pieces of small coal thrown at the rump. On occasions especially where the gradients were severe a wheeler was in control of two horses. The traditional 'Whoa' hopefully brought things to a standstill.

Driving (or Sidling)

Less commonly used, a 'driving horse' collected trains of loaded skips from several wheelers and delivered them along a single main road to a haulage flat, or in some small mines right to the surface.

Snigging

Long after hand mining ceased, 'snigging horses' were retained in many of the older pits where they proved invaluable to haul or drag supplies, especially timber and machine cables from the rail track end to the face.. A few mines that were mechanised at their commencement, introduced horses for this purpose.

Wheelers

The person in control of the horse was known as a "wheeler". Generally a youth commenced work underground as a "clipper" (attaching and removing skips from haulage ropes) on day-wages, straight from school. His progression to "wheeler" meant the lad was now on "contract rates" (ie his wages depended on the coal hauled). Henceforth, he could next progress to go 'on the coal' as a 'learner' working alongside an experienced man who was often a family member or friend. As an example, towards the end of 1935 there were 120 miners (60 pair) at Hebburn No 2 Colliery along with 16 wheelers. The miners earned on average 38 shillings and 6 pence per shift and the wheelers not a deal less at 38 shillings and 3 pence. This was at a time when the State daily wage averaged 17 shillings and 6 pence and the mine produced some 620 tons per day.

Earning such good money and having few family responsibilities these youths were well known for initiating irresponsible industrial action often laying the mine idle on some small pretext. A common problem exacerbated by wet and muddy wheeling roads, was an infection of the fetlock known as 'greasy heel'. The obnoxious smell arising from this ailment often led to wheelers refusing to take the horse from the stable and was the source of many an industrial dispute.

Wheeling roads varied with gradient and length. They increased as 'solid' faces advanced or reduced in length as 'pillar' work retreated. They were allocated to wheelers, as were the coal winning faces to the miners, by a quarterly 'cavil' or ballot. Skips were exchanged one at a time from the miners, and at times made into trains of up to four loaded vehicles.

In 1900 the *Colliery Managers Handbook* had this brief comment:

> As to work the performed by horses, much depends on circumstances. On a favourable road, having a slight decent for the full tubs, a 14-hand pony may be able to draw ten tubs at a time.... where a horse works up a steep road a considerable jerk and strain are necessary to start the load especially if the back wheels near the face and rest on a miry or uneven floor. Such strains are very injurious to the animals.
> The useful performance of a horse underground is to convey about 45 tons one mile per day. Some horses travel 20 to 25 miles in a shift underground, others do not exceed six. The heavier the gradient and more irregular the roadway, the less will be the distance travelled.

The same reference in 1950 noted the average life expectancy of a British pit horse was from five to ten years, with statistics indicating that six percent could expect to be killed underground each year.

The Vehicles

Mine horses hauled coal skips and timber trolleys. The former varied in capacity from 15 to 30 cwt and their bodies were originally constructed wholly of timber. From the 1950s onwards steel skips were mandatory to reduce the deposition of coal dust on roadways and many older wooden bodies were lined with sheet metal for temporary compliance.

Skips and trolleys were built on similar underframes with twin solebars extended to form solid buffers. A central steel drawbar with coupling hooks (or eyes) forged at each end ran the length of the vehicle. The four cast-steel spoked wheels were shrunk and forged onto steel axles. These ran in cast iron 'pedestal' blocks bolted to the solebars, and were retained in place by "U" shaped 'keepers'. Lubrication was provided by stationary 'greasers' installed at intervals in pits between the rails. Skip grease, a commercial product marketed by several oil companies was a specially compounded tenacious black slime, and as anyone who has inadvertently stepped into a greaser will testify... it certainly preserved one's boots!

The load on a timber trolley rested on two timber cross members into the ends of which four, removable, vertical steel uprights ('horns') were dropped in place. Long timber was handled with a considerable overhang each end.

As an indication of how rapidly commonplace items become memories, I could neither find an illustration nor an abandoned timber trolley and had to photograph one all prettied up, glass top and all, in use as a display piece at Munmorah Colliery office.

None of these crude vehicles were fitted with any form of braking. Retardation was achieved by the placement of timber or steel sprags in the wheel spokes and it was amazing the degree of skill by which some mineworkers could unerringly thrust an armful of sprags into the wheels of a speeding set as it 'screeled' past.

Horse Care and Welfare

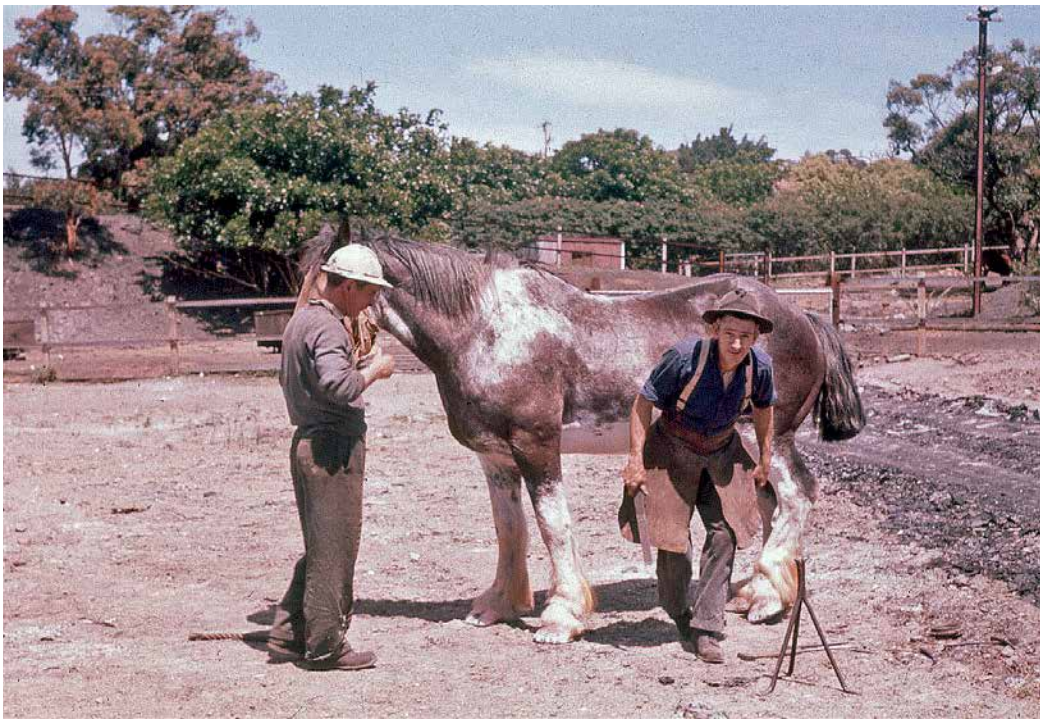
The NSW Coal Mines Regulation Act provided legislative guidance regarding the welfare of pit horses, including the construction of underground stables, hours of work and general handling, with the District Colliery Inspector tasked to keep an eye on such things. In Britain, Her Majesties Mining Horse Inspectors had the job. Also, in Britain between 1927 and 1970, the Pit Ponies' Protection Society kept up a running propaganda battle with mine owners but as far as I know, no such body existed in New South Wales.

Pit horses were always well shod, indeed the conditions under which some wheeling horses worked, often required that this to be done monthly. Most pits had dedicated shoeing forges, some fitted with crushes. In their heyday Richmond Main and Bellbird each had four farriers, constantly at work.

J and A Brown grew its own horse feed on a farm near Minmi, Bellbird had a farm at Hexham, and no doubt there were others, although I cannot recall having heard of them. Browns stored the fodder in a very large iron shed near Richmond Vale Junction, (later the home of several derelict locomotives) and at Richmond Main there were brick silos adjacent to the surface stables for the storage of oats and corn. Hebburn had a similarly large feed shed, also served by an internal railway siding adjacent to the No. 1 colliery stables. There were, in my time several ancient horse drawn harvesters in this shed, so it may be that Hebburn proposed to cultivate feed at one time.

Tunnel mines walked their horses to the surface each day. Indeed, the horses employed at Abermain No 3 shaft walked the long distance out via Abermain No 1 Tunnel and in the

View of the timber yard at Stockton Borehole Colliery, owned by BHP Collieries, in the early 1960s. On the racks are timbers of various lengths used for underground roof support. The yard horse's job is to pull the timber trolley to the main shaft where the slabs will be loaded into the shaft cage. Track gauge was 2 ft 2 in. Courtesy E Tonks



In the horse paddock of BHP Collieries John Darling Colliery, Messrs E Cross and P Evans are shoeing a customer. Photographed in November 1960, the last horse was retired in 1969 and the colliery, south of Newcastle, closed in November 1987. Courtesy E Tonks

case of Aberdare, a dedicated tunnel was driven close to the outcrop for horse access. Hebburn No 1 and Pelaw Main also had horse tunnels leading directly to the stable yard.

Otherwise most shaft mines raised the horses each week, the steel cage floor covered in bags. At times, the horses were merely restrained by their halters, but in general, special temporary gates were fitted. This proved of no avail at Hebburn No 2 sometime in the 1940s when a young horse going below for the first time, panicked, kicked his way through the gate and fell down the shaft spraying the pit bottom and the men working there with gore and entrails.

Pit horses were in the care of a horse-keeper (usually referred to as the "Hostler")... at a small mine he may have had other duties and at a large pit, several assistants. For instance, at John Darling Colliery, the Hostler had five assistants to tend the 130 or so horses which were raised to the surface stables every day. It was the Hostler who made up his charges' daily feed as instructed by the manager as below:

Elrington Colliery
20 February 1947

INSTRUCTIONS FOR HORSE FEEDING

The following quantities consist the feed for one large horse:

CHAFF:- 4 Kerosene Tins.
OATS:- Slightly less than ½ Kerosene Tin.
BRAN:- Slightly less than ½ a Kerosene Tin to be mixed with Chaff and Oats on Tuesdays and Fridays.
HAY:- Twice a week at night in addition to usual feeding.

These quantities to be strictly adhered to until further notice
.

J Hindmarsh
Colliery Manager

Also at his disposal were various salves and drenches kept in mysterious bottles and cans at the rear of the stables. Some names on an order form in my possession include: Liniment; Spirit of Turpentine; Physic Worm Balls; Condy's Crystals, Sweet Nita; Bluestone; Boracic Acid Power and Arnica.

Most pits retained the services of a veterinarian who made regular visits to check and treat the livestock and to file their teeth distorted by hard feed.

I well recall, on one occasion, observing the manager at Waratah Colliery in earnest consultation with the hostler, manually extracting manure from its place of origin then breaking and sniffing the clods to aid diagnosis.

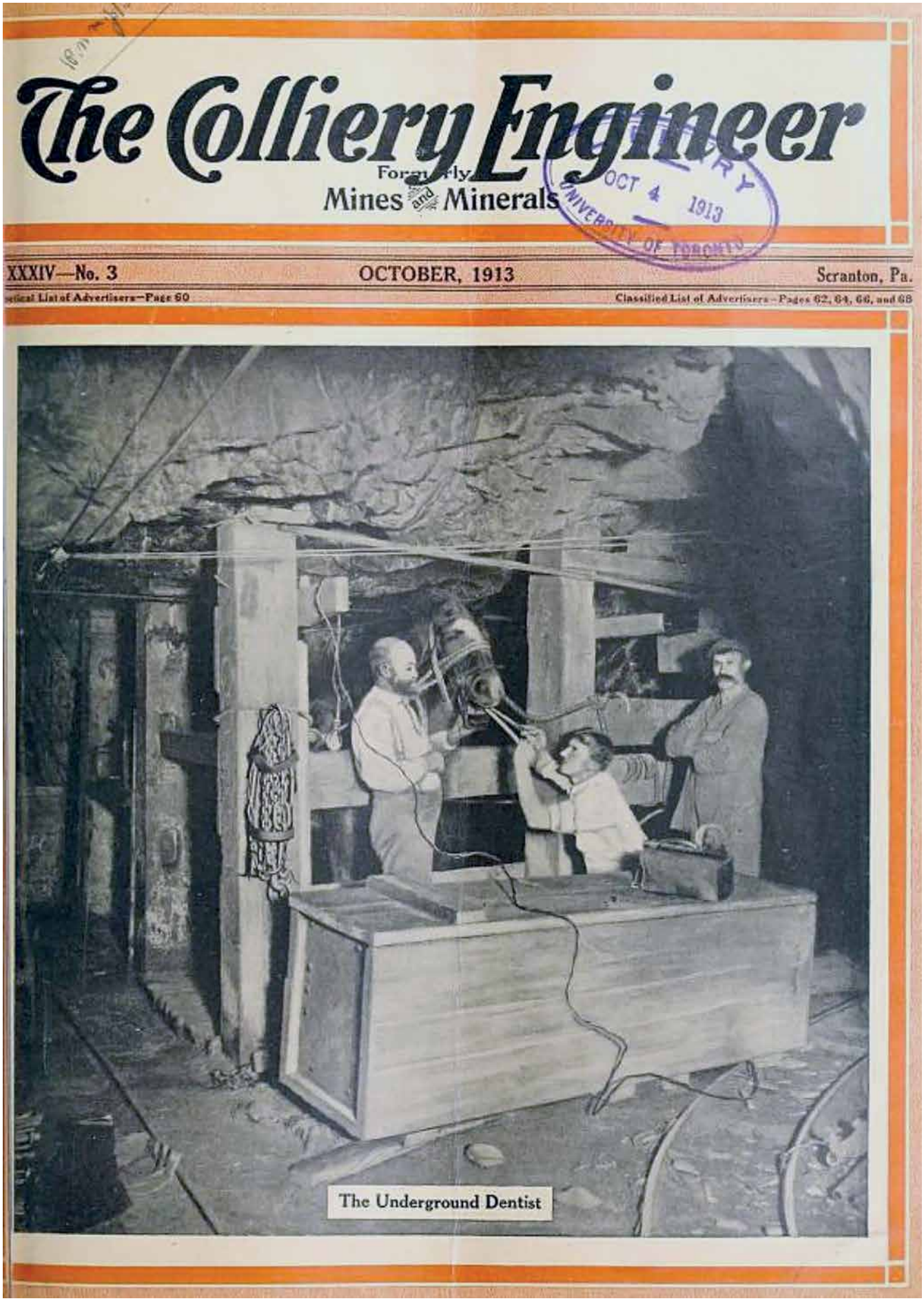
Nor was compassion wholly lacking, in 1916 it is recorded that *Charlie* (suffering bad hoofs) *Rose* (strained loins) *Violet* (rheumatics) and *Bally* (strained loins) and unfit for work were retired in the East Greta paddocks. Such horses, their teeth ground down by years of artificial feed, could generally not sustain themselves grazing, and still had to be fed. Should a horse suffer a minor strain or injury, he would be "spelled" and allowed a week or so to rest in the horse paddock.

When the time came at Bellbird to retire our remaining three horses, as mine manager, I could not bring myself to sell them for dog food. Instead they were donated complete with harness to the adjacent Pelton Colliery. A few years later, when Pelton also made the decision to mechanise its timber handling, the half dozen old horses were left to see out their days in the pit paddocks with mineworkers coming in their own time to attend them. On a similar vein, mine historian Brian Andrews purchased *Tiger* the last horse at Stockrington Colliery and retired him to pasture.

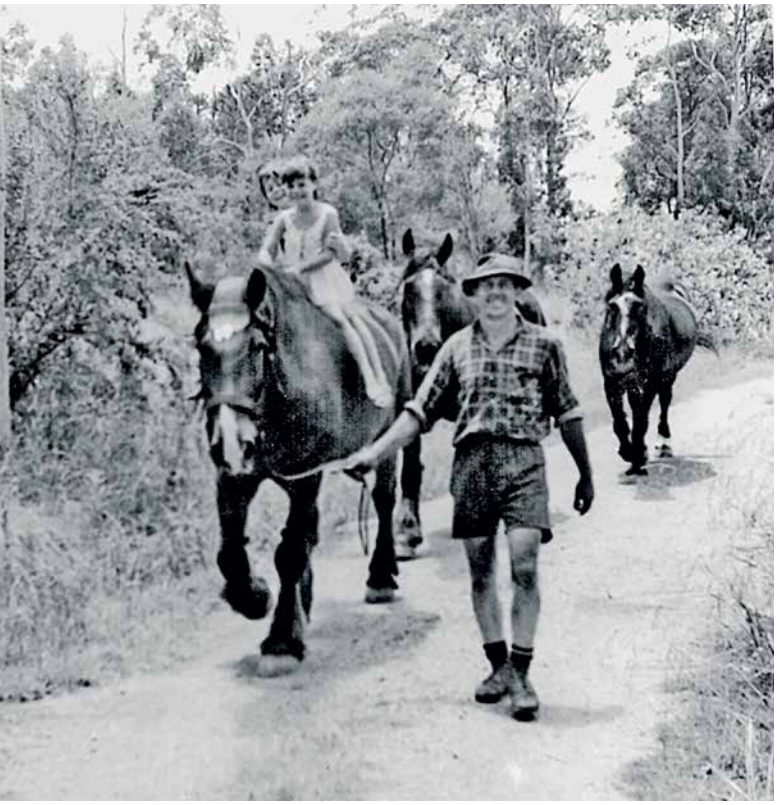
Annual Spelling

The Northern District mines shut down for three weeks over Christmas with many employees trekking to their regular haunts at 'The Lake' or the 'Twin Towns' (Tuncurry-Forster). The pit horses had a similar change of venue. BHP leased spelling paddocks near Belmont, Hebburn sent its horses to Bishops Bridge, whilst Browns had its own large property near Mulbring, and there are references to horses from the Aberdare pits being spelled at Sandy Creek (near Millfield).

As a small boy, I can recall seeing the Hebburn horses herded by mounted hostlers, headed for their 'annual leave' tearing a virtual direct route through the scrub, leaving a trampled path of destruction.



Equine dentistry underground. I have never encountered such treatment during my career, and by the contents of the magazine it was an innovation in the USA at that time. *John Shoebridge collection*



Maitland Main Colliery Hostler, Max Sneesby, leads Fred *back to the stable while* Rowdy *ambles behind, and the Boss's daughters get a bareback ride. It all ended in tears when the mine closed. The horses went to the knackery and our good friend Max was killed shortly after, in an underground accident.* *Photo: John Shoebridge*

Injury, Death and Disposal

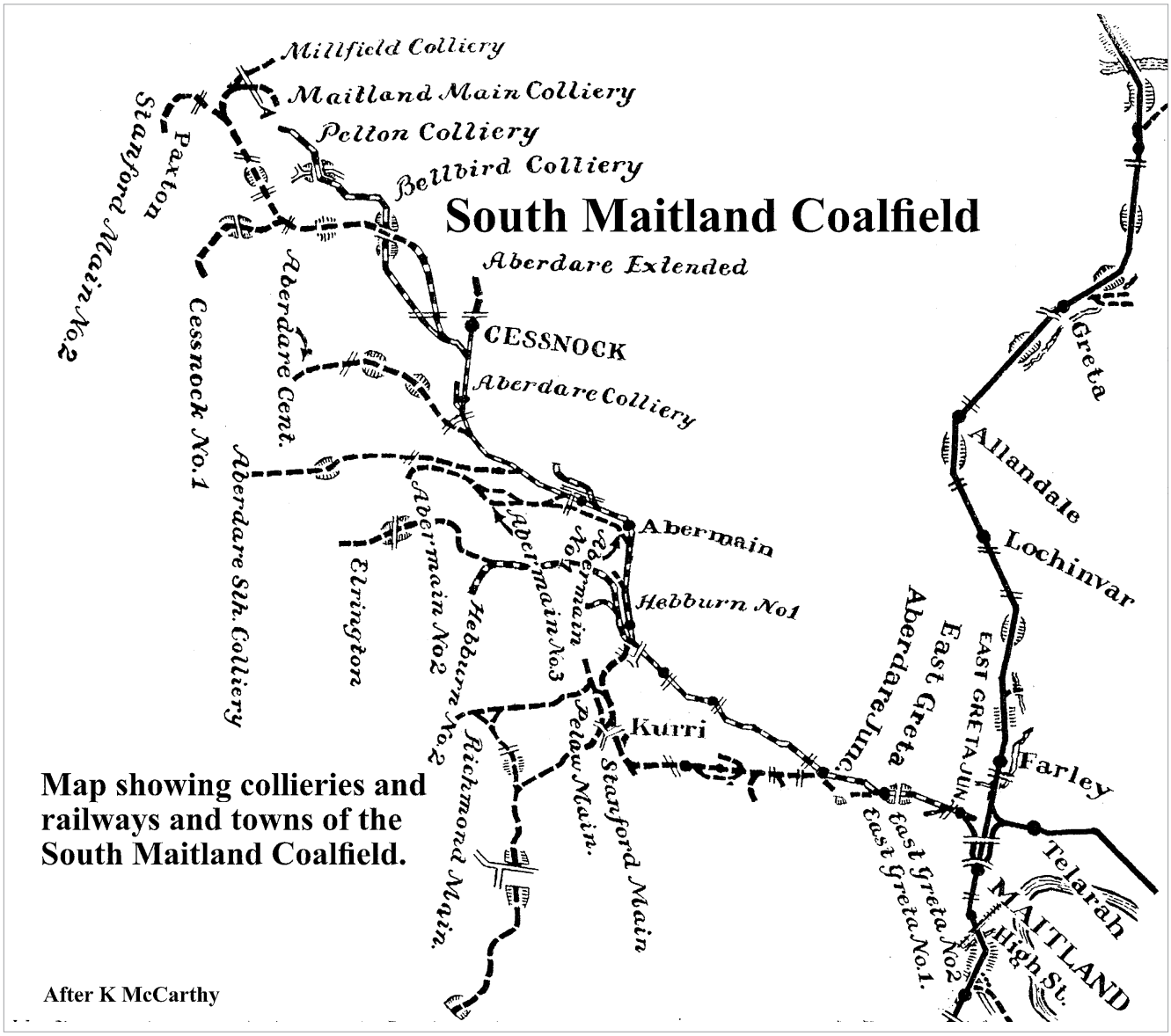
Surprisingly, few horses fell victims to falls of ground in the mines and it was often said that some sixth sense alerted them to danger. More likely when roof movement was imminent, wheeling had ceased... also a horse could withstand a blow on the body that would prove fatal to its human companion.

Many more were injured in haulage accidents by runaway skips and entanglement in machinery. Minor cuts and tears were crudely sewn up by the hostler and the veterinarian was called for serious surgery, but broken bones and internal ruptures invariably led to destruction.

Wilful or negligent ill treatment of horses was strictly dealt with by both management and unions. Whilst I was in charge of Maitland Main Colliery one of our snigging horses was badly torn when left hitched against the continuous miner cutting head which was inadvertently started. Fortunately, the wound was in the flank with no vital organs exposed and the vet managed to sew it up. After a week's recuperation in the stable he was back at his work. I reprimanded the persons responsible for their negligence and each donated two days' pay to Cessnock Hospital.

A badly injured horse was commonly put out of its misery by a sledge-hammer blow to the forehead or a detonator fired in an ear. Some mines eventually utilised a 'Patent Humane Destroyer' where an explosive cartridge drove a captive steel bolt into the skull. The corpse then had to be disposed of, and wherever possible it was dragged into a disused roadway, covered with half a ton or so of quicklime and brick walls built either side. Otherwise the ghastly business of reducing the body to fit on a timber-trolley involved dismemberment with axes. On the surface, injured horses were destroyed by the office revolver and the corpses sold to the boiling down works or incinerated on a timber pyre.

After a hard shift underground, the thirsty horses were in need of a good, long drink. This rustic water trough alongside the mine stable was photographed at Stanford Main No.2 colliery at Paxton. The trough appears to be a long log, suitably hollowed out with fresh water laid on. *Photo: Ross Mainwaring*



Multiple Fatalities

Several incidents on the South Maitland Coalfield resulted in multiple equine fatalities. The Bellbird Colliery disaster in September 1923 claimed the life of 23 men and six horses. Their bodies were only recovered after some twelve months of arduous work by breathing apparatus teams. The horses were badly burnt with the remains of two of them being merely charred bones and were covered with lime and then brought to the surface on specially made skips before the area was thoroughly disinfected.

In July 1943 there was a major underground fire in the Aberdare Central Colliery. In a heroic rescue effort, 81 horses were blindfolded and led one at a time to the cage. Ten that could not be subdued perished in the fire area, which was eventually sealed off along with their bodies.

Aberdare Extended Colliery was suddenly flooded in June 1949. At the time 11 men and 62 horses were descending the tunnel on their way to work. The men made an amazing escape through the torrent, whilst 52 horses survived, trapped in an elevated area. Their hostlers volunteered to return, calming and feeding them for several days until the water level dropped and the debris was cleared. The other ten unfortunate animals were washed down the main tunnel and their grotesquely broken bodies jammed between roof and floor in an incredible manner.

Before the mine could reopen, these decaying remains had to be extricated and walled up. The work was done by members of the Mines Rescue Team, wearing Proto breathing apparatus. The dreadful smell lingered on their persons for months, so much so, it is said, that they all slept on their verandas, with a special area set aside for them in the local pictures!

Many years earlier, at Redhead in August 1907 all save two of the 21 horses owned by Lambton "B" Pit at Redhead died when its surface stables caught fire. The dependence of the mine on 'horsepower' is clearly illustrated by the manager's desperate letters to stock and station agents, offering to purchase broken-in horses at virtually any price. At the same time an appeal was circulated to neighbouring collieries, (indeed as far afield as Hebburn at Weston) for the loan of any horses they could spare. In spite of all efforts, it was some months before the mine resumed full production.

Accidents to Wheelers

Few pit horses were disposed to be vicious but there were exceptions. It is said that horses retained the memory of any mistreatment. Many a wheeler was kicked, bitten or stood on and the author himself was deliberately 'leaned on' by one big bruiser to the detriment of several ribs.

Waratah Colliery used short horse-hauled trains of dedicated skips to transport workers to far inbye places. One evil beast

employed on this duty regularly waited his moment before backing the train onto a closed ventilation door (so no one could escape to the rear) and then lashing out with his heels at the front skip and its passengers.

More common injuries to wheelers through no fault of his horse were heads crushed between skips as they coupled, fingers jammed and mutilated between and under the buffers, or more commonly, between a sprag and the skip body. Even though most wheelers were young men they suffered more than their share of hernia strains and back damage, from slewing, copeing and re-railing.

'Riding the limmers' instead of standing on the back buffers or running alongside was a forbidden and potentially fatal practice, should the horse stumble or the skip derail.

At crib (meal) time, tethered horses, usually edged as close to the men as they could, in the hope of getting a few crusts or some fruit. Many men brought an extra apple especially for the horse, but occasionally some mean-spirited character saw it as a joke to feed Dobbin first one apple, then a second, followed quickly by a lemon!

It has been stated that a pit horse could find his way in total darkness. I have some doubts, and generally found when a horse was straying underground the best way to halt him was to turn off all cap lamps. However, it has been related that when Ferndale Colliery was flooded by a tidal inrush in 1886 one of the young wheelers risking his life to warn fellow workmen, was trapped in the torrent his light extinguished, only managing to escape by holding the tail of his horse which brought them both to safety.

Seam Height

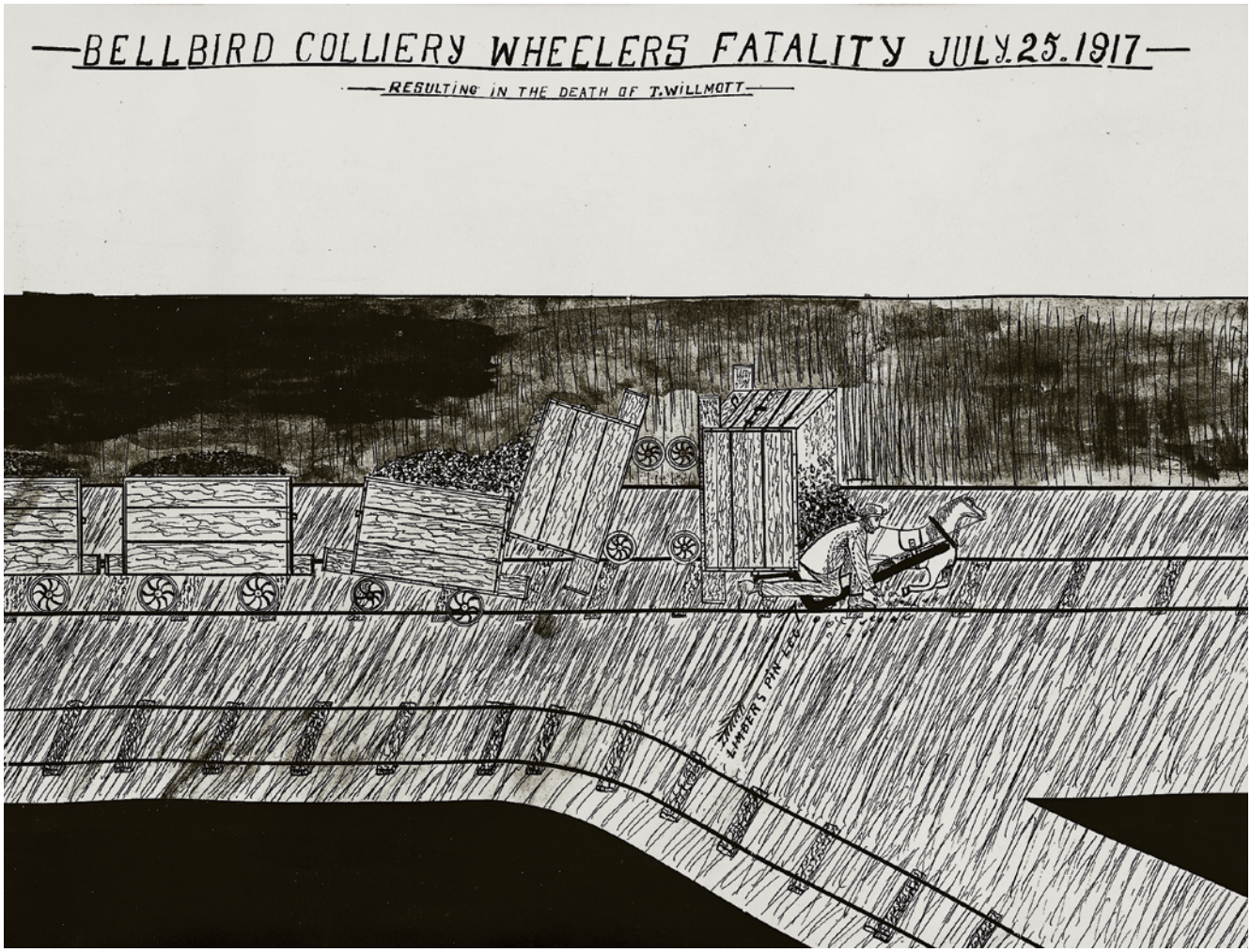
In the South Maitland field, seam height was rarely a problem although some horses wore protective leather skullpads. Elsewhere hand wheeling remained in use at many small mines. Other collieries, (eg Stockton Borehole and Katoomba) did use ponies. If the decision was taken to increase the roadway height, the roof was "brushed" or the floor "dinted" the latter practice being more labour intensive and avoided where strata conditions permitted.

Horse Harness (Limmers)

An essential component of the whole operation was the horse harness with the requirement that a wheeling horse had not only to haul, but also retard his load. Firstly, there was the collar, solidly made from leather stuffed with straw buckled beneath the neck. This permitted the horse to apply tractive effort from the vicinity of the shoulders. Steel 'Hame Hooks' were part of the collar. Next a light saddle suspended the remaining harness from the animal's back.

The "Crupper" strap encircled the tail, lower down a broad "Breeching" strap encircled the rump and was securely attached to the limbers. By this means the horse was able to retard or brake the following vehicles.

Caledonian Collieries employed a full-time saddler at its Waratah Colliery and J&A Brown had a similar employee at Richmond Main. It made and repaired all the horse harness for the company mines, along with miners' belts, shin pads and the like.



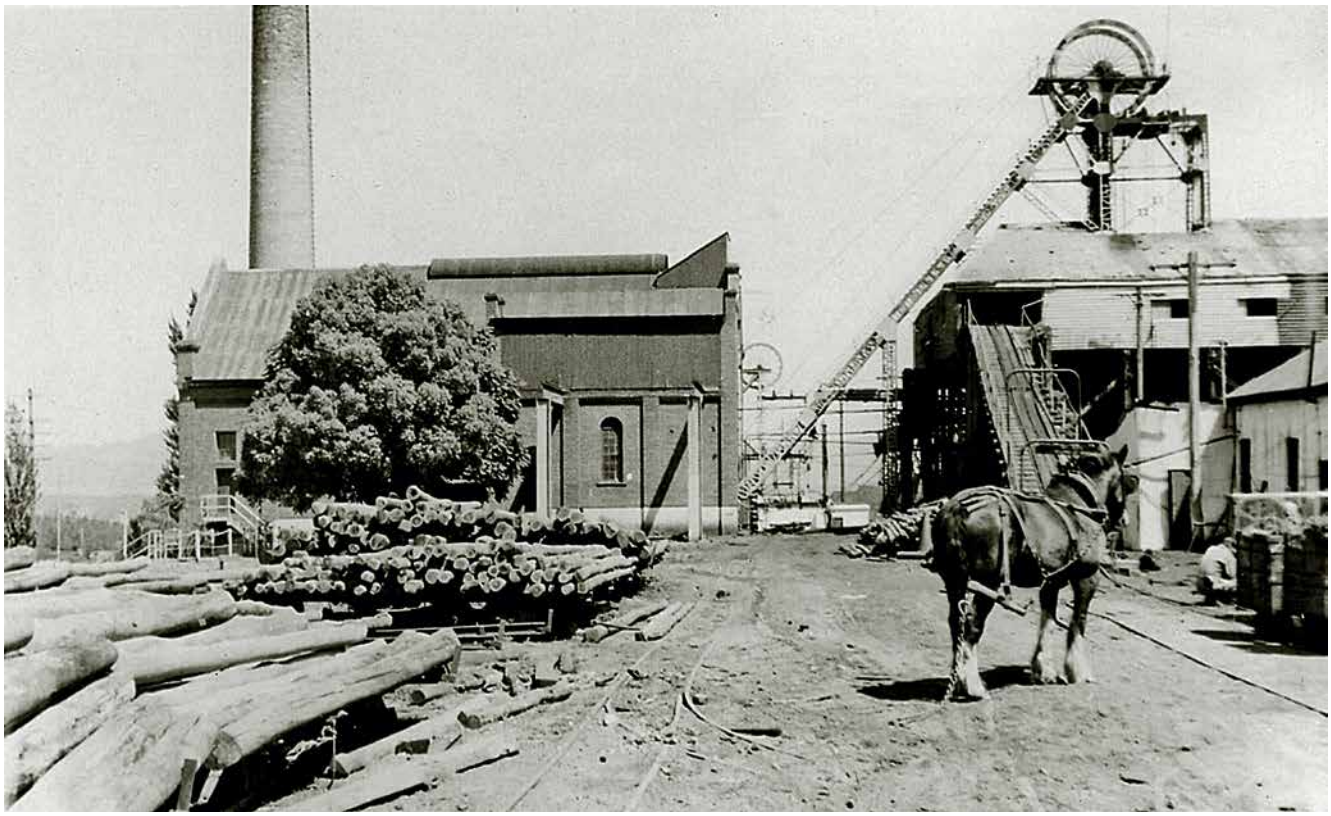
Companions in 'Death in the Darkness.' The skip derailed, the wheeler, illegally riding the limmers died, and the poor horse was destroyed. This drawing was prepared by the Bellbird Colliery surveyor and presented as evidence at a Coroner's Inquest. John Shoebridge collection

Underground at BHPs Burwood Colliery in August 1963. The horse is wearing a skull cap to offer some protection against hitting the steel supports across the roof of the roadway. As well as horses, this mine used storage battery and trolley wire locomotives. Courtesy E Tonks

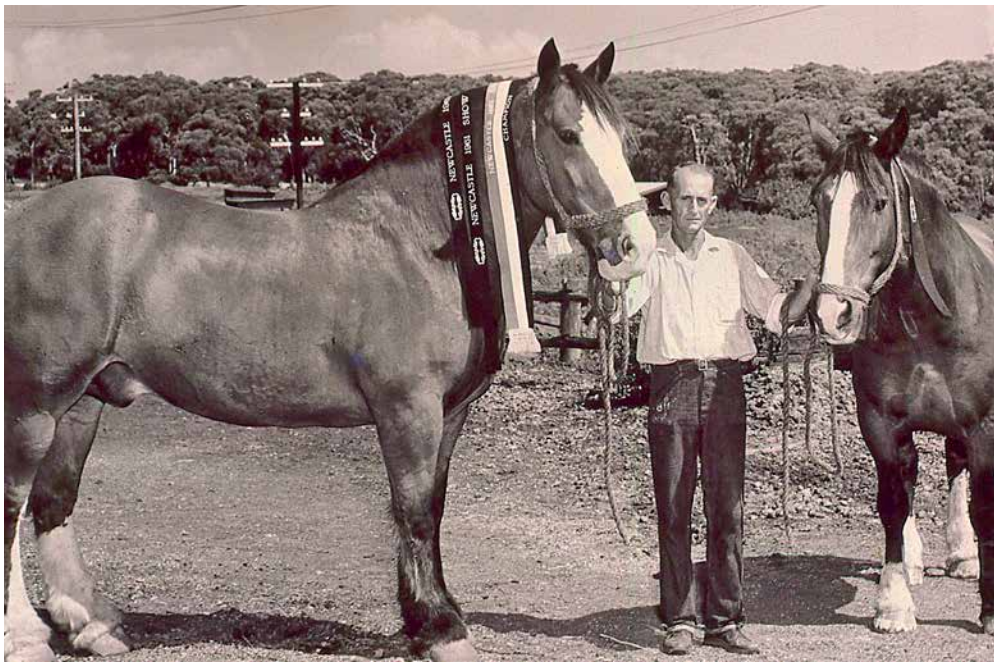
So much for the leather gear. The timber shafts and steel U-section of the 'Limbers' (pronounced limmers) hung from the saddle and were chained to the hame-hook. This was the means by which the horse was attached to the skip. A swivelling 'limmer-pin' fitted into the steel-strapped 'Cock Hole' on the skip body, retained by the 'Cotteril' (a spring steel, flat cotter pin). Like so many other terms, the reference is an ancient one going right back to the time when the 'Cock Horse' was the lead horse in a harnessed coach, bus or tram team.

Horse Harness (Trace Chains)

Some mines used trace chains where the horse had no rigid connection to the hauled vehicle. Twin traces were hooked directly onto the collar and combined to a single chain by means of a 'swingle bar' at the rump. When an additional horse was used due to excessive grades or loads, this was the method used to 'double head'. The horse was thus able to walk beside the track but it depended on the wheeler's placement of sprags to retard the skips. A trace chain was also used in snigging and when the snigging



The Aberdare Colliery yard horse awaits his turn of duty, probably to haul a loaded timber trolley to the gantry winch rope. Its harness is chase chains and 'swingle bar.' The lattice-steel headframe stands above the 17ft diameter brick-lined downcast shaft which is 500 feet deep. The Greta coal seam was nearly 30 feet thick at this mine, hence the extra-long timber props on the furthest rack. The brick building houses the shaft's electric winding engine while the brick chimney once served the steam winding engine boiler house. Aberdare Colliery worked from 1907 to November, 1960. Photo: John Shoebridge



Two BHP Collieries horses from the company's Burwood Colliery proudly pose with their Ostler, Toby Smailes in 1961. These handsome beasts, Sleepy *and* Hardy*, took out awards at the Newcastle Agricultural Show in the category for draught horses. Courtesy E Tonks*

horse had to shift a timber trolley. Generally, when a contract wheeler had to deliver a load of timber, (for which additional payment was made) the horse was attached to an empty skip (in which the wheeler rode) and the trolleys were coupled behind, a sprag in the last vehicle keeping the couplings taut.

It was well known that some horses could tell how many skips were in the train they were being asked to haul (probably by listening to the clink of the couplings) and would refuse to move if they decided they were overloaded. Cunningly, their wheelers would put the last skip in motion by hand.

Left to their own devices, horses could negotiate very steep gradients. At Stanford Main No1 Colliery, the Greta Seam (and thus the access tunnel) was on a gradient approaching one in three but despite this the horses managed to journey down and up each day. The actual wheeling roads were of course driven on the strike (level course) of the seam and graded downwards away from the face.

On the Surface

Most large mines had a yard horse who handled timber trolleys and skips set aside for repairs. He would at times be called to assist with the movement of a coal hopper when no locomotive was at hand.

Still in the coal industry, although not at an actual mine, the NSW Railways employed horses to move coal hoppers around The Dyke hydraulic ship-loading cranes in Newcastle Harbour. In February 1924 the first two Caterpillar kerosene tractors arrived which eventually replaced the 72 animals then in use.

When underground haulage wire ropes had to be renewed, in many cases several miles in length, the new ropes were spliced to the old and the haulage engines used to wind the old cable off and the new one on. To dispose of the rope, horse teams were utilised to drag into nearby bushland where it was used for fencing or left to rust in peace.

During the 1930s, Katoomba Colliery employed two ponies underground, one being named Smokey*. Bronze statues at the portal of the old colliery depict horse* Creamy *and his wheeler Arthur B with a skip of coal. The skip is original; it was found lying in the bush and was restored. This exhibit is near the valley terminus of the Scenic World tourist railway. The mine workings in the Katoomba coal seam (about 5 ft 10 in thick) extended back under the town of Katoomba and coal was supplied to the boilers of the municipal power house situated in the town. During 1945 the mine was closed. Photo courtesy Phil Hammon*

Around 1910 at Hebburn No 1 Colliery, the original managers residence required to be relocated so that coal below could be mined. A track was cleared through the scrub and four parallel sets of rails laid down. Then a team of pit horses aided by rope tackle skidded the timber structure to its new location, turning it through 90 degrees. As a result of the move, some of the doors were afterwards difficult to open and close; quite apparent when I lived there for several years.

In the early days, of course, there were many miles of horse-worked surface tramroads around Newcastle. The last to close in the late 1940s (having survived into living memory) ran downhill beside Myall Road bringing coal from Myall Colliery near Kotarah, to a rail loading point close to the present-day Newcastle Road roundabout in South Cardiff.

Socialising

Apart from giving extemporised bareback rides, pit horses interacted with the community in numerous ways. During the 1914-18 War, the Purple Heart charity (for the care of military animals) sought funds by parading pit horses through city streets carrying panniers to raise their own weight in coins.

Commencing in 1939, Cessnock Rotary Club organised 'Pit Horse Derbies' on the local sports ground. The untrained horses were ridden by mineworker amateurs and after several crashed through the barrier into the crowd, subsequent events were held at the more secure showground. Attracting crowds of up to 10,000 with proceeds going to Cessnock Hospital, they continued up to the 1960s, the horses then ridden by racing identities.

On occasions, horses were led in street processions with children riding behind in a skip (the wheel flanges removed to save damaging the bitumen).

And finally, there is the story of unfortunate pony *Sharpo* the sole survivor of the 1889 Hamilton Pit Disaster, trapped below ground for 13 days. He died three days after being rescued and his skin was stuffed for display around the Newcastle Hotels to raise funds for the widows and orphans of the 11 humans who had perished.

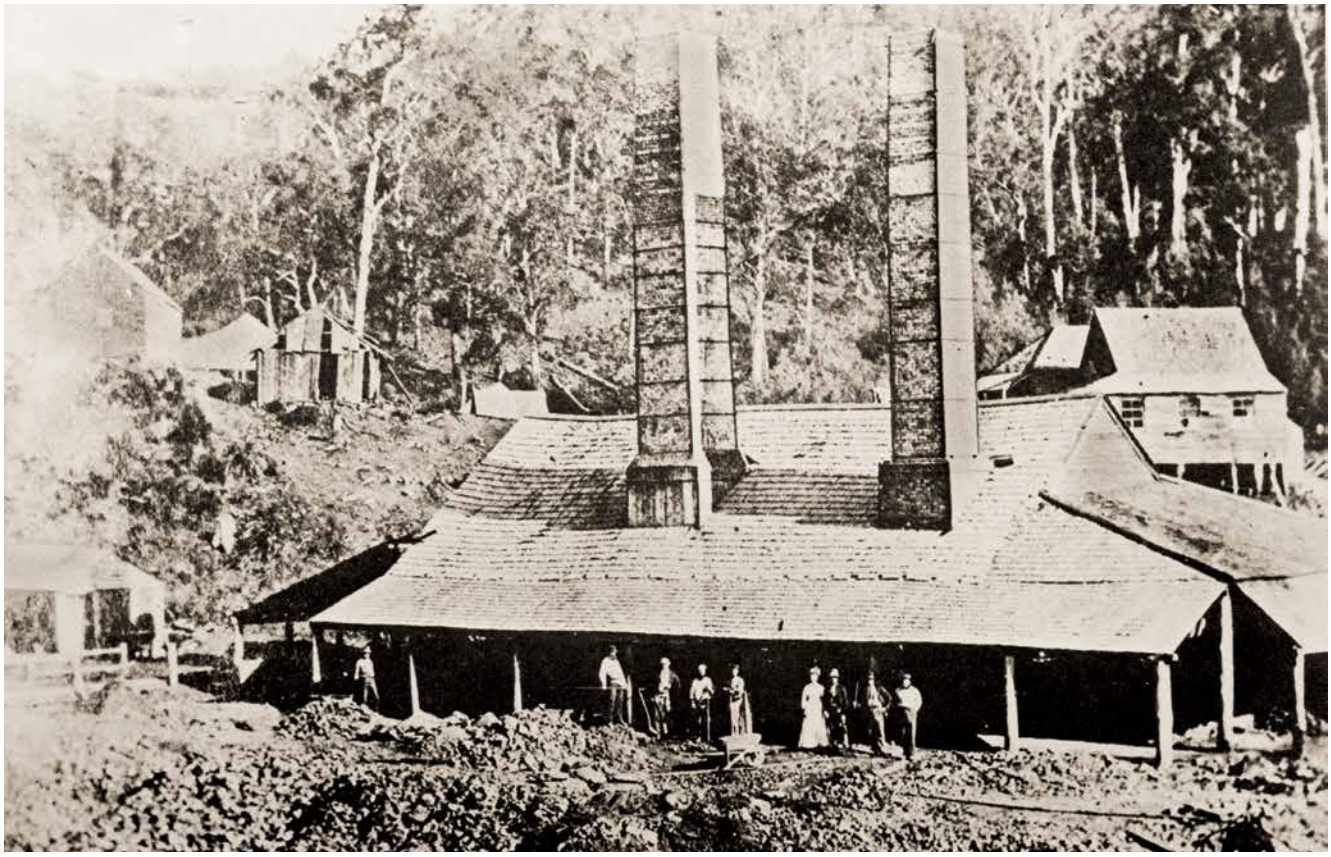
Epilogue

They are now all gone, and I for one, have no regrets. It was a brutal life and they will be remembered by those of us old enough to have lived through the era, as our fellow mineworkers and daily companions of the underworld.

A life-sized bronze statue of a horse, wheeler and skip is in place near the portal of the disused Katoomba Colliery and another at Collinsville in Queensland. Similar memorials are proposed for Kurri Kurri main street and 'Pit Pony Park' near Kahiba, and one hopes they may lead future generations to ask what it was all about.

Acknowledgements

The invaluable assistance from friends and fellow historians especially Brian Andrews, Bill Chapman, Phil Hammon, Ross Mainwaring and Ed Tonks, and also from our equine expert Jill Mather, is acknowledged with gratitude.



The smelting works of the Walhalla Copper Mining Company circa 1877. Ore was transferred from open cut and upper adits to an ore bin at the lower adit, then transferred across a bridge over the Thomson River to the smelter on the western bank. There seems to be limited stores of firewood for the smelters, so most of it must have been fairly green. Photograph courtesy J. B. Griffiths and C. W. Davis, from Cochrane (1982), plate 1.

Copper, Platinum, Gold and Lime:
The mines and tramways of Coopers Creek, Victoria.

by Peter Evans

Tucked away in the mountains of Gippsland is a series of mining sites linked by almost forgotten tramway systems feeding the Moe – Walhalla narrow gauge railway.

Coopers Creek copper mine 1864-1971

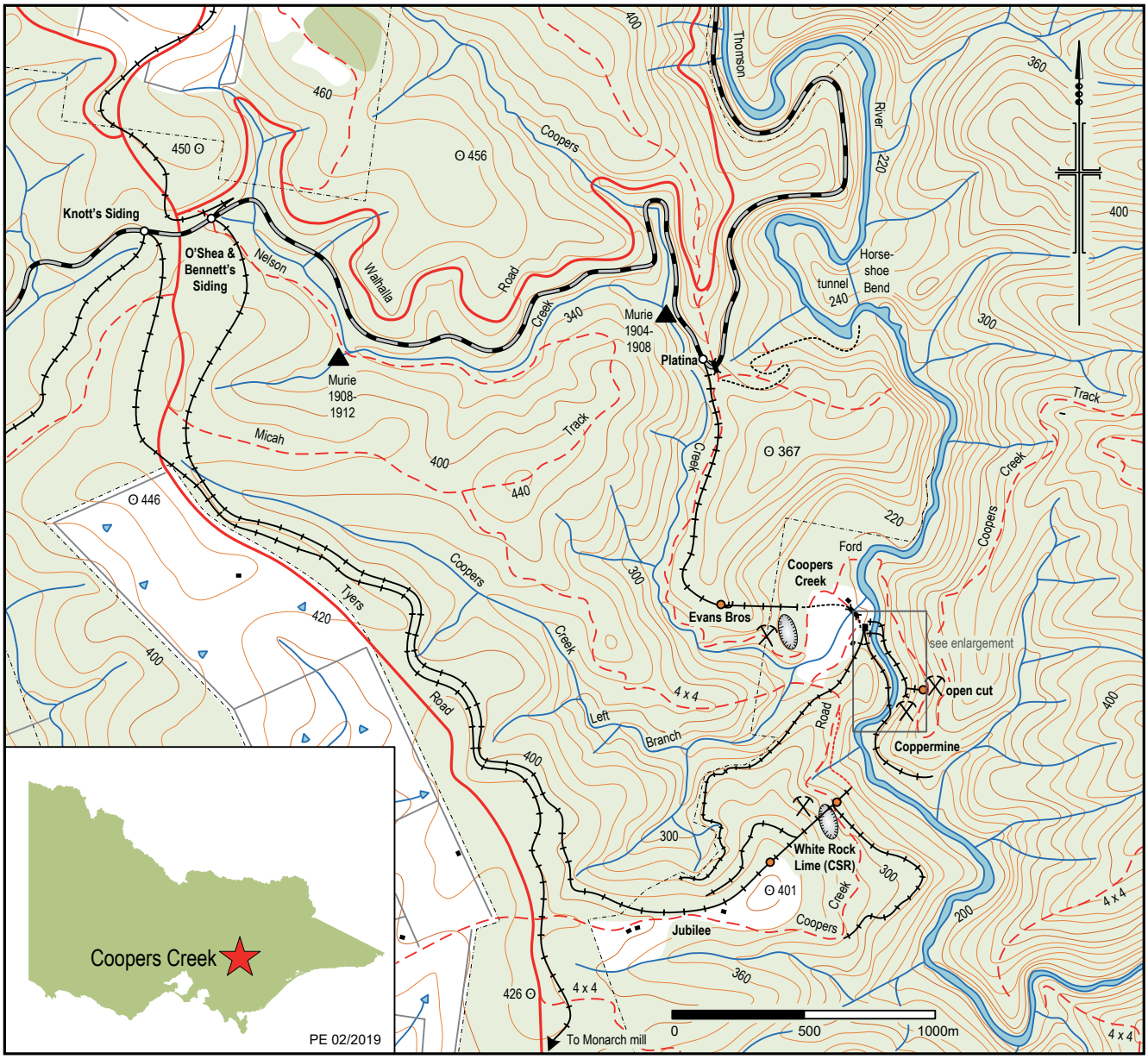
Copper occurs widely in Victoria, but only in small amounts. At only one site has there been extensive commercial mining, at Coopers Creek, a tributary of the Thomson River south-west of Walhalla. This exploitation occurred intermittently for over a century (usually in conjunction with the import of expertise from South Australia) and, today, there are remains of almost every period of mining at the site.

Copper was discovered as an outcrop of ore on a spur east of the Thomson River around April 1864. The discoverers were said to be Harry 'Snowy River' Ireson, James Day and George Craig. They were probably prospecting for gold, and may have been surprised by their find. A small number of claims were taken up, and Coopers Creek miner Lockhardt Morton sent samples to Melbourne for assay. The results led to the formation of the Thomson River Copper Mining Company.[1] Shortly afterwards, limestone deposits were also discovered at Coopers Creek.[2] This was fortuitous, as limestone was a flux (needed to remove unwanted minerals and waste rock in the copper ore). There was also a deposit of clay suitable for the manufacture of fire-bricks for kilns.[3]

For over a century, the deposits of copper, lime and clay were to be worked both separately and in conjunction. As a result, the small settlement of Coopers Creek grew up to service these industries. The great challenge prior to the construction of the railway to Walhalla was transport. At first, the output of the mines had to be packed out of the steep-sided Thomson Valley by horse for trans-shipment to bullock drays and thence to either Port Albert or Sale, and, after 1878, to the Moe Railway Station. Return trips brought supplies of the mine. The situation was slightly improved when a track was cleared from the mine to the Walhalla-Toongabbie Road in 1866. The cost of the work was £250 for 500 chains of clearing to a width of 25-ft, and the work took three months to complete. A little later, in 1871, the mine was connected to the west side of the Thomson River with a bridge constructed under contract by James Day.[4] Despite these improvements, lack of efficient transport hindered the mines until the Victorian Railways' (VR) narrow-gauge line arrived at Platina in 1910. (The station receiving its name from the presence of Platinum in the copper ore at about five pennyweight [dwt] – a quarter of an ounce - to the ton).

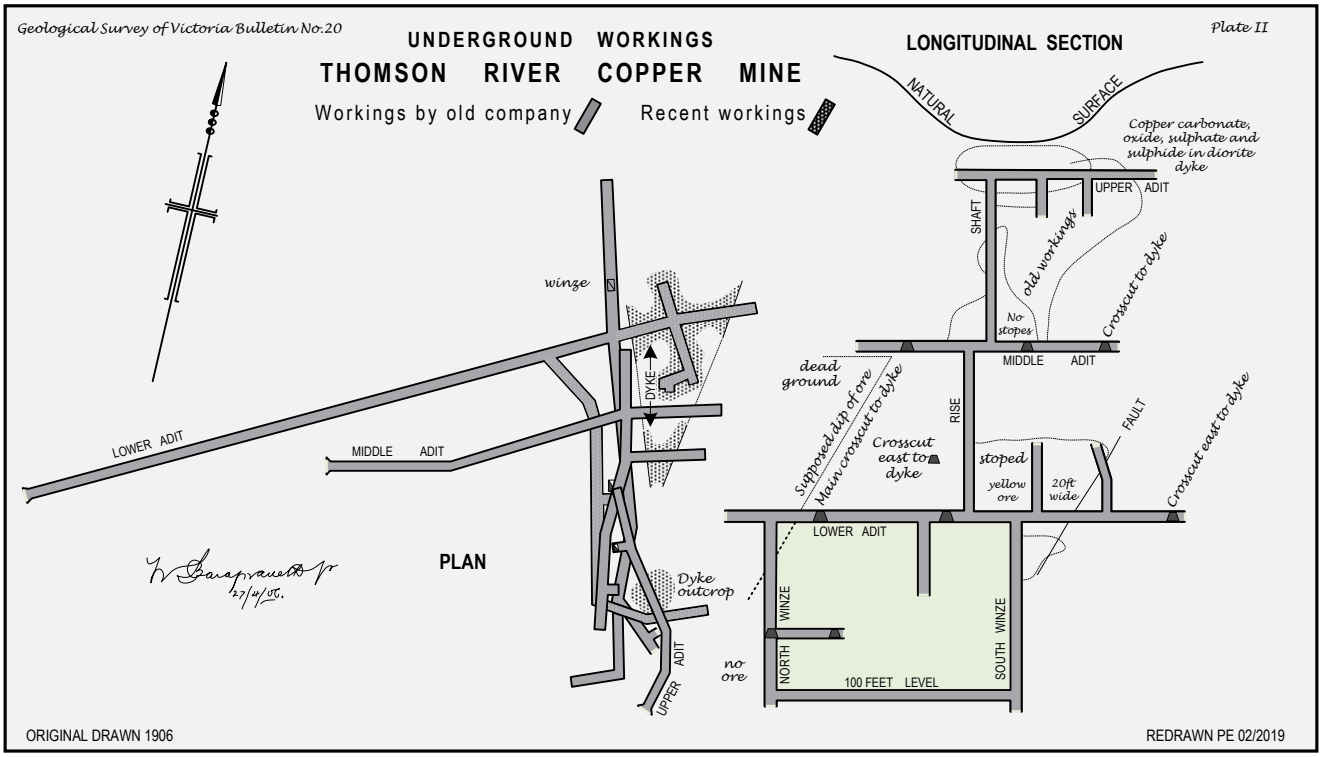
Thomson River Copper Mining Company (1865-1867)

A number of companies were formed to work the Thomson River copper lodes including the Advance Copper Company and the Vulcan Copper Company, although by far the most energetic and successful was The Thomson River Copper



Left: *Rail supplied by the Victorian Railways to the Walhalla Copper Company in the late 1870s. This particular length is on the Jubilee town dump, and would have been originally laid on the Geelong and Melbourne railway in 1857. Photograph by Peter Evans, April 2007.*

Mining Company. This Company was formed in February 1865[5] with the intention of investing £25,000 in a smelting works. By late 1865, fine specimens of ore were obtained from an open cut, and a tunnel was being driven across the reef. However, progress was hampered by the hardness of the rock and a steady influx of water.[6] The first Coopers Creek copper was smelted by Walhalla blacksmith Sam Hester in April 1865[7] and made into a small copper pick which was exhibited in Sale, arousing much interest. Copper-mining expertise in the shape of Captain Osborne was imported from South Australia. The diorite dyke containing the copper ore was at least 30 ft wide, and consisted of iron-bearing quartz, sulphides and oxides of iron, and sulphides, carbonates and oxides of copper. For those familiar with the copper mines of Devon and Cornwall, the lode would have been instantly recognisable. The main lode had a bearing of N 15° W with an underlie east of about 20°.[8] In April 1866 the mine was let on tribute to Ambrose Halifax & Party (ex Kapunda, South Australia) registered as the Gipps Land Copper Mining Tributers Company and,



shortly afterwards, this Company exported 220 bags of picked copper ore from Port Albert via the ship *Samson*.[9] However, transport over the intervening distance was so expensive that any attempt to make the mine pay would require some treatment of the ore at the mine to reduce the weight that had to be carried. That treatment would have to be carried out using locally-sourced firewood (often 'green') rather than coal, a fact which would render efficient smelting a difficult proposition.

By 1867, the main lease covered 640 acres with another lease of 390 acres adjoining. An upper tunnel was driven 140 ft into the steep hillside and the lode followed down with a shaft for 40 ft. A further crosscut from this level proved that the body of ore continued at depth. Two reverberatory furnaces were erected on the west bank of the Thomson River and connected to the mine by way of tramway and ore shoots. The first ore to be treated was obtained by stoping upwards from the roof of the upper tunnel, and 300-350 tons were broken out for treatment. Timber to fuel the furnaces was easily obtainable in the vicinity, and tramways promised an efficient method of conveying it. By late 1867, a little over forty tons of smelted regulus (impure metallic copper) had realised approximately £1,160.[10] However, at this point the mine was let 'on tribute' to a group that would work the mine at its own risk and 'tribute' a percentage of the metal won to the company that owned the mine.

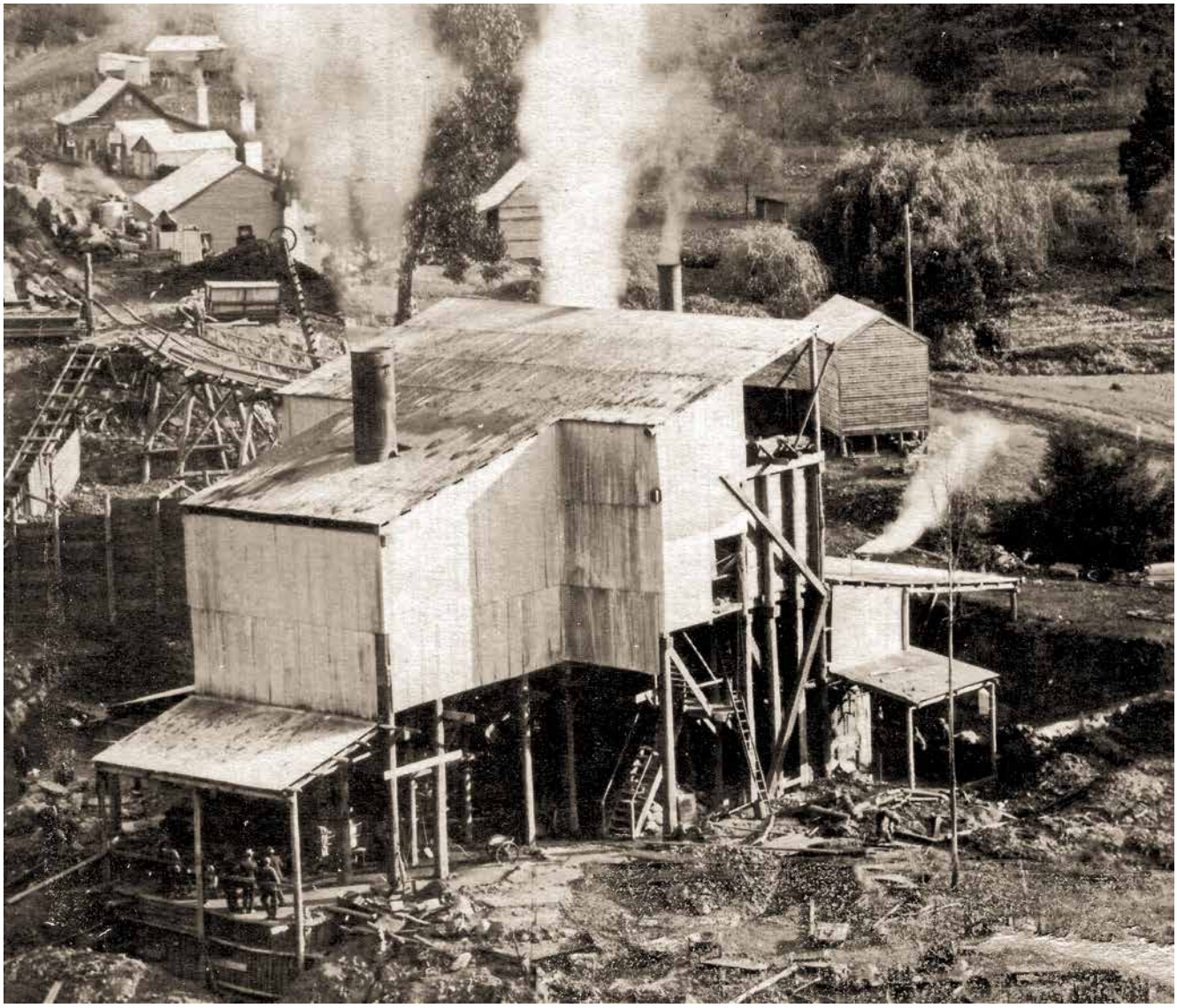
Thomson River Copper Mine Tributers Company 1867-1874

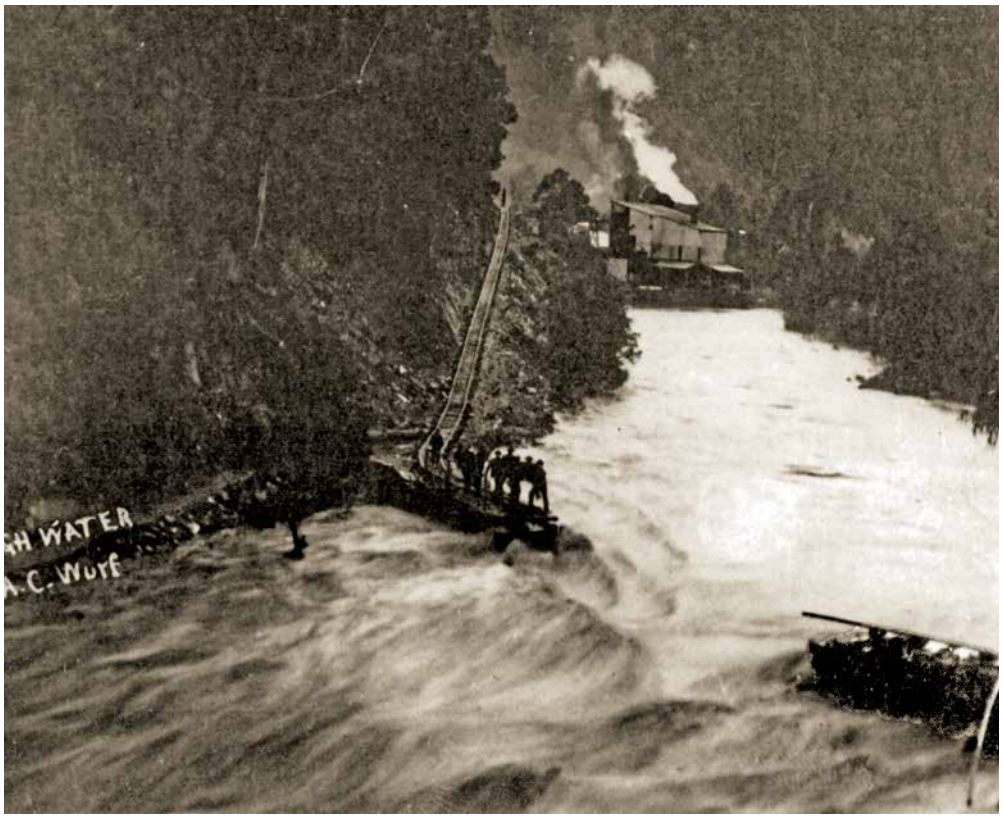
The Thomson River Copper Mine Tributers Company would ship its output via the Gippsland Lakes instead of Port Albert in order to save £2 or £3 per ton on the bullock teams hauling its product to the port.[11] In September 1867, the Company re-lit the furnaces on the western side of the river, which were soon working 'very satisfactorily'. Ninety-six bags of regulus were landed in Melbourne in early October, and the first parcel of this was exported to England in December. The regulus was 41% copper and sold for £27 per ton. In the past, ore raised had been left out in the weather for several months, resulting in the leaching of oxides. Unweathered ore had produced regulus as high as 61% copper, and would fetch a higher price.[12] During 1868, 24¼ tons of 'concentrates' had been exported along with 17½ tons of smelted copper 90% pure.[13]

Around 1870, Evans and Party ('The Welshmen') repaired the furnaces and treated some of the slag from previous smelting operations but, like their predecessors, were defeated by the remoteness of the site and the consequent expense of transport.[14] In the mine, the leads of ore were still proving to be narrow, but extremely rich in copper. By June 1872, the tributers had produced 6½ tons of copper, but were much hampered by the cost of firewood. In order to reduce this, two tramways were being constructed for the delivery of firewood to the smelters.[15] Development of the mine continued under the direction of the tributers until 1874, when the Walhalla Copper Mining Company was formed.

Coopers Creek Sluicing Company 1871-1873

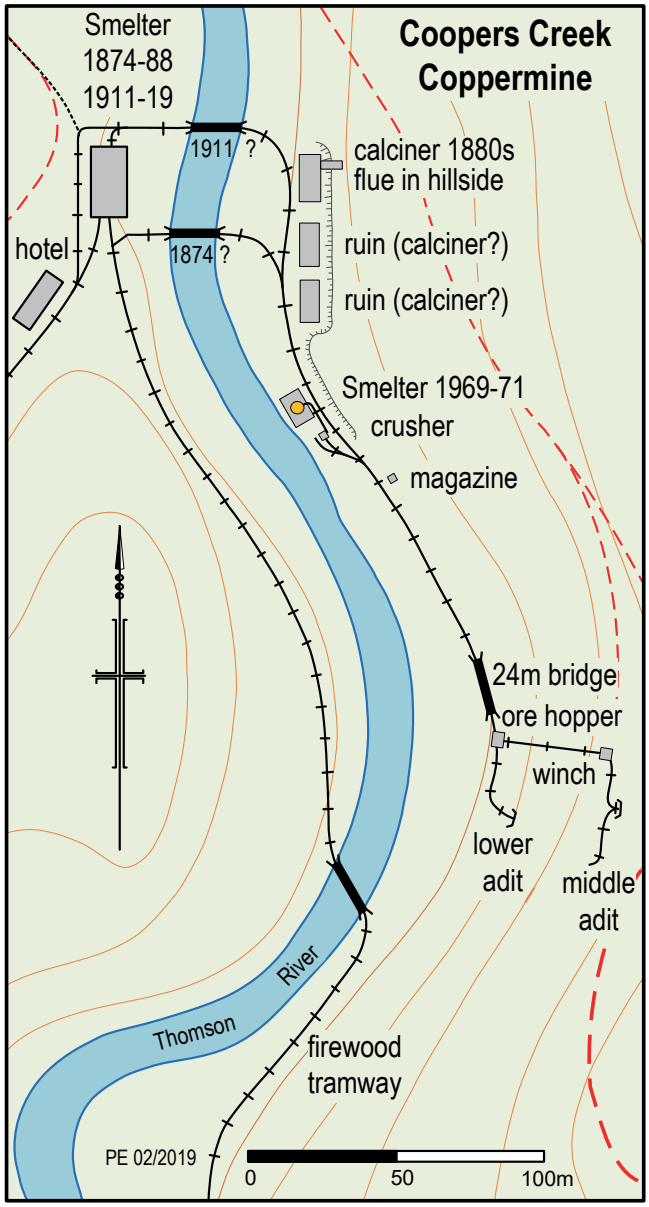
A reminder that copper was not the only metal of interest at Coopers Creek was the operations of the Coopers Creek Sluicing Company from 1871-1873. The intention of its Directors was to drive a tunnel through bedrock for the purposes of working the small flat at Coopers Creek, which was thought to be part of a former bed of the Thomson River.[16] The Company was registered in December 1871 with a capital of £1000 in 1000 shares of £1, of which a total of only £100 was paid up. The shareholders were mostly Walhalla and Coopers Creek men with practical experience in mining. The first half-year of operations saw heavy calls upon the shareholders to finance the work. In December 1872, the capital of the Company was more than doubled to £2 10s 0d per share, and the calls on the shareholders continued to mount. In late 1872, new mining trucks were ordered from the Fulton Foundry in Melbourne, and the shareholders continued to pay for progress in hard cash. The Company posted its last return in July 1873 having won gold valued at only £56 15s 8d while under Company direction, and £29 15s 5d in the hands of tributers.[17]





Above: *The smelter of the Gippsland Copper & Platinum, Gold Mining & Smelting Company in 1912. Note the firewood tramway running left of the smelter and behind the Coppermine Hotel. This followed high above the left hand branch of Coopers Creek for some distance. Photograph by William Harrison Lee.*

Left: *What would have been termed the 'eastern tramway' leading south from the smelters of the Gippsland Copper & Platinum, Gold Mining & Smelting Company (seen in the distance) to the Thomson River. The tramway bridge, which appears to have been a fairly primitive affair, has been washed away by a flood in the Thomson, probably that of June 1911. Photograph by A. C. Wurf, courtesy Stephen Watson, Moe Walhalla Railway Museum.*



At least one source attributes the 220m tunnel cut to divert the Thomson River at Horse-shoe Bend to the Coopers Creek Sluicing Company, but it was actually driven in 1911-1912 by the Thomson River Alluvial Gold & Tailings Recovery Company.[18]

Walhalla Copper Mining Company (1874-1881)

The Walhalla Copper Mining Company No Liability was formed in June 1874 with a capital of 30,000 shares of £1 each. At last, it seemed that the lode might be properly tested by a company of means.[19] Twenty-seven thousand shares were taken up by a wide range of individual shareholders including Melbourne businessmen, local businessmen, and Gippsland squatters and graziers. The manager was well-known local mining manager Frederick Cranch Tricks, and the Company's office was located in Walhalla.[20]

Up to this point, the lode had been worked via an adit driven high above the river in a north-easterly direction. The Walhalla Copper Mining Company now put in a second adit lower down the hillside to cut the dyke formation at depth. Unfortunately the adit intersected the lode at a point where it was almost barren, but a drive put into the south along the lode proved that, after only twenty feet, it opened out to a 'considerable width'. The ore from this wider part of the lode was of particularly high quality. Thus encouraged, the Company drove a third adit only 40 ft above the Thomson River. The lode was cut at a point 365 feet in from the mouth of the adit, and followed north and south with drives. The northerly drive gave disappointing results, but the southerly drive proved that the lode opened up to a width of 15 ft and contained up to 15% copper.[21]

By the beginning of 1875, capital was being called-up and £319 10s 0d had been expended on the lower tunnel. Throughout the year, further capital was called up to continue the work. By December of the same year, another £523 13s 9d had been expended on the lower tunnel. New work included a drive south off the middle tunnel, a drive south and a rise off the lower tunnel, and the installation of a plat (an enlargement of a level where it intersects with a shaft). During 1876, a south winze, and a north winze were driven (winzes connect levels but do not reach the surface). Assay fees of £10 in the Company's accounts indicated that some ore was being raised and tested. The list of expenditure continued to rise: £65 0s 0d on the firewood tramway [probably that along the Left Hand Branch of Coopers Creek], £63 5s 0d on a spalling shed, £386 18s 0d on a bridge, £1,014 10s 0d on furnaces, £60 0s 0d on office buildings, £45 0s 0d on the 'eastern' tramway [probably that leading south and crossing the Thomson River], and £887 18s 8d on firewood. It would seem probable that both firewood tramways were worked by horses, although the tramway crossing the Thomson River may have required a winch to haul firewood up from the river crossing to the smelters. Plats on both river banks had been excavated for new smelters and calcining chambers (the latter would enable the ore to be 'roasted' efficiently to drive off the sulphides prior to smelting). During the following year a further £305 15s 0d was expended on the 'eastern' tramway. Firewood remained a major cost at £1,409 12s 6d.[22] In June 1876, the old smelters, which had proved unsatisfactory, were being pulled down so that new ones could be erected. Smelting was expected to recommence in January 1877 once a new bridge over the Thomson River had been completed. All this activity resulted in quite a sizable community developing in the locality.[23]

The work was not without result. By the middle of 1877, 14¼ tons of copper had been exported via the *Northumberland*, 22¾ tons of copper was in transit to Melbourne, with 14 tons of copper still at the works. Including the value of the copper in the furnace bottoms (estimated at £360), the total value of the copper produced to date exceeded £2737 10s 0d. Total assets over liabilities were £1386 2s 3d, a satisfactory result for three years' work. The following year produced equally good results despite further expenditure on improvements to the plant and the extension of the 'eastern' tramway. By the end of 1878, copper shipped to England had raised £3367 18s 11d.

Development of the mine was still underway, but exploratory work had so far failed to reveal additional bodies of valuable ore. Mr Pascoe was in charge of the mine and Mr Williams was in charge of the smelter, while Captain Robert Sanders was the mine's engineer. Erection of a new crushing plant and calcining furnaces was proceeding. In the half-year to December 1878, 554 tons of ore had been broken for 53 tons of 90% copper, an average value of 9.5% copper per ton of ore. The cost of mining, breaking and calcining the ore (all done on the eastern bank of the river) was 17s per ton which, with the cost of smelting (all done on the western bank of the river - including fuel and labour of £3 5s per ton), meant that the overall cost was about £4 2s 0d per ton

The Copper Mine Hotel circa 1900. Photograph by Michael J. Drew, State Library of Victoria image H2012.171/516.

Reopening the No.2 (middle) adit at the copper mine in 1968. Close timbering was required because the adit crossed the main shear zone in which the No.1 (or western) ore shoot was developed. Photograph courtesy J. B. Griffiths and C.W. Davis, from Cochrane (1982), plate 12.

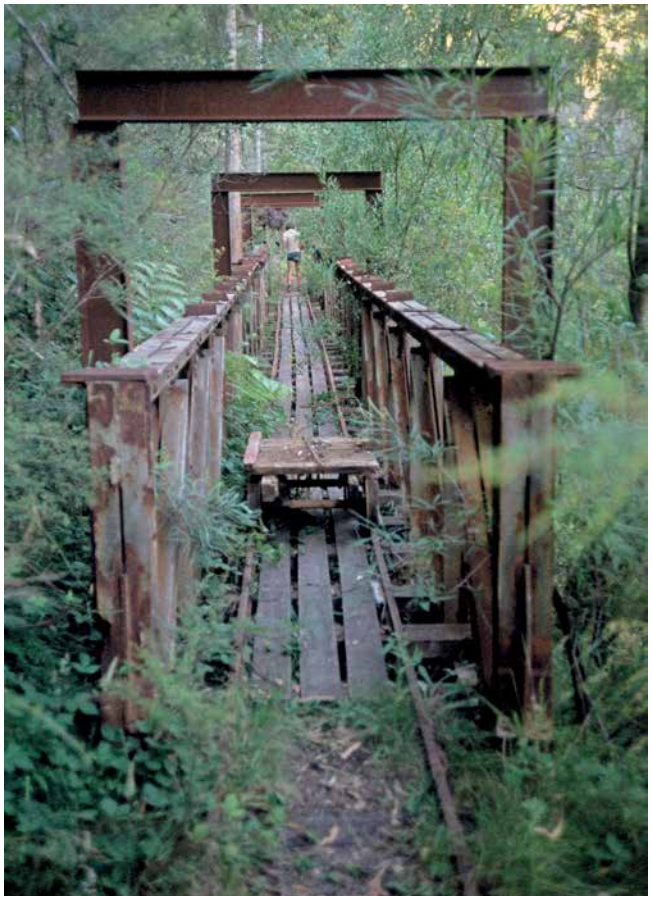
of ore processed. Experiments had shown that lowering the crown of the No.1 furnace and reducing the draught outlet had reduced the smelting time by 20%. The No.2 furnace was three-feet longer and six-inches wider than No.1, and a third furnace was being constructed the same size as No.2. Both the second and third furnaces would have the same low crown as the No.1 furnace. Three calcining kilns were in use, and capable of handling 75 tons of ore at a time. These, along with the new crushing plant were located on the eastern side of the river, along with blacksmith and carpenters shops.

The new crushing plant (to replace manually breaking the ore) had finally arrived and was being erected. The shell and flue of the boiler were being riveted together and, when complete, the plant would be capable of treating sixty tons of ore per week for a copper output of approximately six tons per week. These improvements to the plant were expected to result in a significant saving of 18s per ton of ore treated. Unfortunately, this would be the last of the good news for the Company for the next year-and-a-half. Ongoing costs including heavy bills for firewood and the transport of copper to Melbourne exacted their toll. A drop in the price of copper left little money to further develop the mine. The death of the mine engineer Captain Sanders occurred just when his advice was most wanted, and was a definite blow to the Company.

By the end of 1879, the position was improving. An increase in the price of copper turned loss to profit, although a temporary shortage of firewood cut the number of smelters in operation to two. Almost two cords (two stacks 4 ft x 4 ft x 8 ft – about five tons), of firewood were required to smelt each ton of ore. One thousand five hundred and fifty tons of ore had been stoped, and proved reserves of ore were enough to keep the smelters going for eighteen months. Since the first furnace had been lit on 16 February 1877, 4631 tons of ore

The lower adit of the Coopers Creek copper mine in October 1984. Photograph by Peter Evans.

From the bottom of the ore hopper, ore was delivered via a chute to trucks running on a 2 ft gauge tramway at the lower adit level. Photograph by Simon Moorhead, February 1979.



Shortly after leaving the ore hopper the tramway traversed a 24 metre steel lattice-girder bridge. Photograph by Simon Moorhead, February 1979.

had been treated for 450½ tons of copper, consuming 10,711 cords (roughly 27,000 tons) of firewood. This represented a yield of 9.04% copper per ton of ore. A new calcining kiln was under construction, and repairs were being carried out to the main flue of the kilns.[24] (In common with South Australian practice in steep country, the flue ran up the hillside to a stubby chimney. The remains of the flue can still be seen today).[25]

By September 1880, the body of ore worked for the previous five years was almost exhausted, and fresh bodies of ore had not yet been discovered. Consideration was given to letting part or the entire mine on tribute.[26] During the early 1880s costs remained high, and the output of copper slowed so, by 1881, the mine was losing money. The Company posted its last return on 30 June 1881, and must have folded shortly afterwards.[27] The Victorian government put down some diamond drill bores over the ensuing years but little else happened.[28]

One interesting aspect of the Walhalla Copper Mining Company's operations was its application to the Victorian Railways in September 1878 for assistance in the construction of a 24-mile tramway from the mine to Moe. This was refused, as the VR did not want to have anything to do with the construction of a tramway for a private company. At the same time, the Company applied for '10 tons of old flanged rails', which the VR could supply at £10 per ton[29]. Presumably, this small amount of rail was to be used in connection with ore or firewood tramways, and was very likely the source of the short section of old Barlow rail (probably off the Geelong line) still lying on the hillside behind the Copper Mine Hotel, with another longer length on the Jubilee town dump.

After being crushed, the ore was transferred to a short 18 inch gauge tram and fed into the upper level of the blast furnace. Photograph by Peter Evans, October 1984.

Remains of a 2 ft gauge Atlas Copco bogger at the calcining plat. The debris is all that is left of the 1968-1971 mine buildings after they were removed to the Long Tunnel Extended tourist mine in Walhalla. The stone walled structure in the background is probably the remains of the southernmost calcining kiln from the 1880s. Photograph by Simon Moorhead, February 1979.

Walhalla Copper Mines No Liability (1899)

A succession of companies tried to re-open the Thomson River copper mine with little success. Walhalla Copper Mines No Liability was formed in July 1899 with a capital of 4500 shares of £2 each. The mine was valued at £5500 and 3000 shares were taken up, mostly by gentlemen investors from Melbourne. The manager was William Pemberton Jarrie. The Company never achieved anything except a little extra exploration, and never posted a return.[30]

Coopers Creek Copper Mining Company No Liability (1901)

The Coopers Creek Copper Mining Company No Liability was formed in September 1901 with a capital of 3000 shares of £1 each. Two thousand seven hundred shares were taken up by local businessmen and ordinary miners but, by this time the value of the mine had fallen to £3000. Like its predecessor, the Company never posted a return.[31]

The Walhalla Copper, Platinum & Gold Mining Company No Liability (1912)

The Walhalla Copper, Platinum and Gold Mining Company No Liability was formed in January 1912 with a capital of 1,000 shares of £1 each, of which 880 were taken up, mostly by Melbourne businessmen. By this time the value of the claim had fallen to £2000. Like its two immediate predecessors, the Company never posted a return.[32]

Gippsland Copper & Platinum, Gold Mining & Smelting Company (1910-1919)

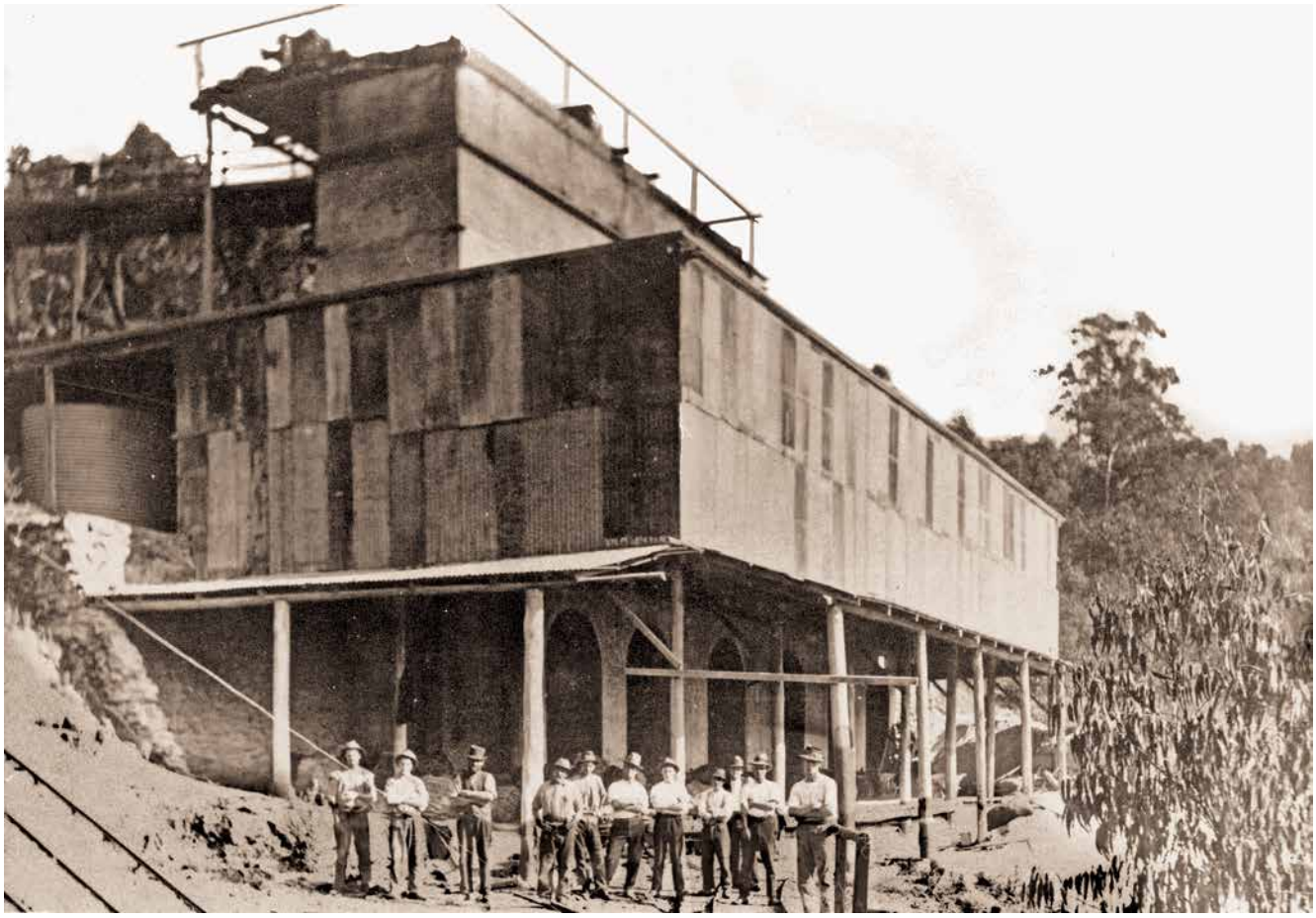
The arrival of the VR narrow-gauge railway at Platina in 1910 (initially named Copper Mine Siding)[33] heralded another opportunity to try and make the Coopers Creek copper deposit pay. The Gippsland Copper & Platinum Gold Mining & Smelting Company obtained a lease at Coopers Creek in 1910 and commenced development work from the surface down to the 300-ft level. This convinced the shareholders that sufficient ore remained to justify the erection of a new smelter, and work commenced on surveying and clearing a site.[34] The smelter was complete by 1911 and, while fresh ore was being raised, the old mullock dumps were re-worked. A tramway to connect the smelters with the newly installed sidings at Platina was constructed and worked by bullock teams.[35] (By arrangement with lime merchants Evans Brothers, the latter's tramway was made to serve both enterprises).[36]

Despite a large jump in copper prices during the First World War, this mining company, too, saw little success, and the plant was put up for tender in July 1919. Listed amongst the equipment for disposal was a smelting furnace, engines, boilers, winch, pumps, a five-head battery, concentrating table, tanks, piping, tools, stores, housing and various sundries. This list included the battery of the nearby Happy Go Lucky Mine (the mine was purchased to provide acidic quartz flux for smelting), so it is not possible to say conclusively just what the plant at Coopers Creek was.[37]

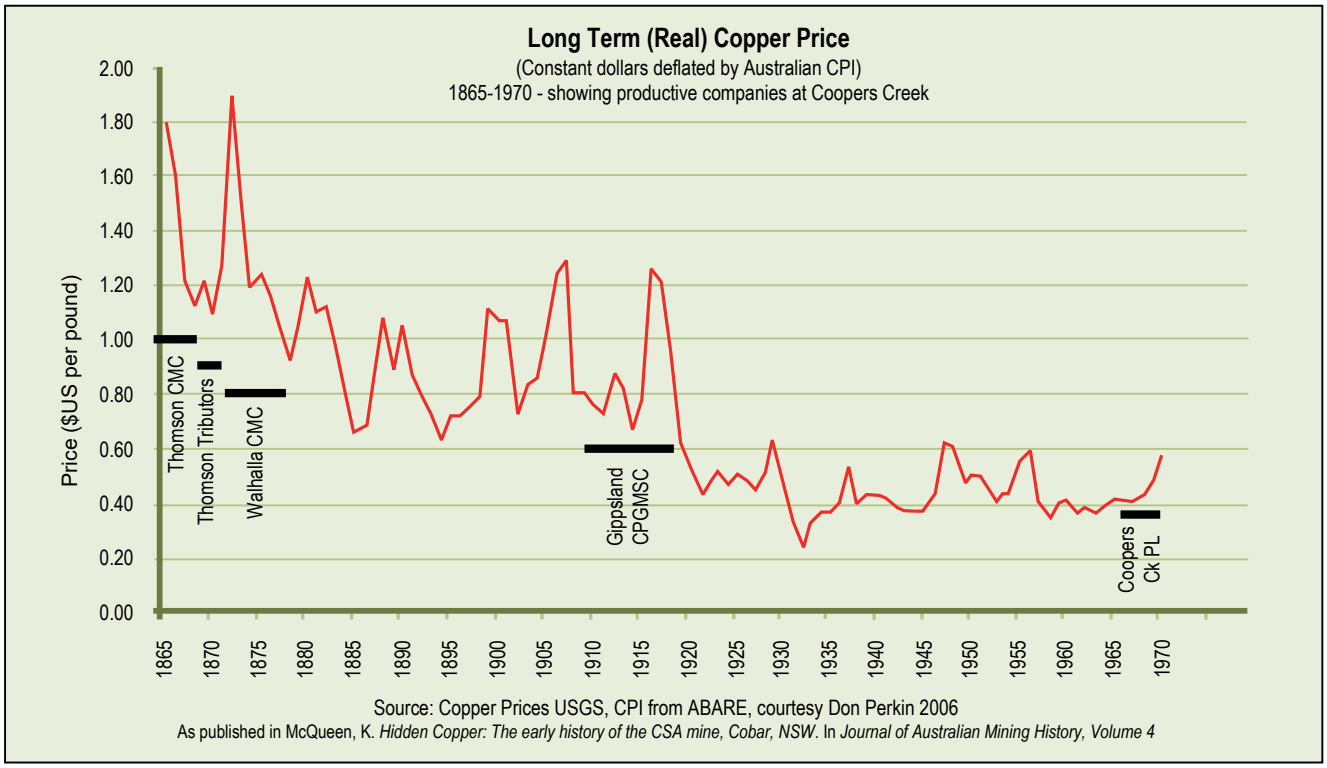
Coopers Creek Pty Ltd 1968-1971

There was a brief revival of interest in the copper mine in 1927, with platinum being the target metal rather than copper. However, after some prospecting, little further was done.[38] The final company to endeavour to make the mine pay was Coopers Creek Pty Ltd. This Company was formed in 1967 and a small smelter was installed on the east bank of the Thomson River. Tramways (all 2 ft gauge except a short line from the crusher to the smelter, which was 18 inch gauge) and a flying fox were installed to transport the ore, but a drop in

The bullock hauling this truck indicates that it is working part of the tramway extension between Evan's Bothers' incline and the copper mine. It is to be sincerely hoped that the contents of the kegs on which the children are sitting is beer for the pub rather than gunpowder for the mine! Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.



Evans Brothers' lime kilns high above Coopers Creek. Note the incline tramway on the left. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.



the world price of copper and the small scale of the operation make the proposition uneconomic, and the mine closed in 1971, just over a century after it was first worked.[39] The most visible remains at the site are those of this latest venture.

The settlement of Coopers Creek

The settlement of Coopers Creek began in the late 1860s when James Day opened a general store and the 'Copper Mine' Hotel to service the needs of the growing numbers of miners. The 1870s were the busiest era at Coopers Creek, with a population of up to 200 people. Access remained difficult, with supplies having to be packed in on horseback, but a market garden on the flats helped to sustain the town. It was only when a dray track was cut to link the town with the track between Walhalla and Toongabbie, and Bruntons Bridge was constructed across the Thomson River in 1886 that the town obtained direct communication by coach with the more settled areas of Gippsland. Still, the journey remained difficult and fraught with danger from a coach tipping over or running out of control down a steep hill. By the early 1880s, Jane and Robert Templeton were running the hotel and, in 1884, the licence was taken over by Charles Norman. By 1894, the hotel was in the hands of the Earle family, but it burnt down in October of that year, and another hotel had to be moved from Erica in 1896 to service the needs of the Coopers Creek community, which had been proclaimed a township in 1891. The new hotel was run by Jimmie and Annie Rogers.[40]

The arrival of the railway at Platina in 1910 saw the cessation of the coach service. Once lime production started at Evans Brothers kilns, additional houses were needed, tennis courts were built, and a cricket club established. An annual sports day was held using the school grounds. However, the closure of the Copper Mine in 1919 saw the town decline, halted only briefly by the establishment of the White Rock lime kilns. The last licensees of the Copper Mine Hotel were the Dilks, but the establishment only survived the closure of the White Rock Lime kilns by a year and the hotel was delicensed in 1952.[41] The 1896 hotel burnt down in 1999 and the present structure is a replica (but uses the original chimneys).

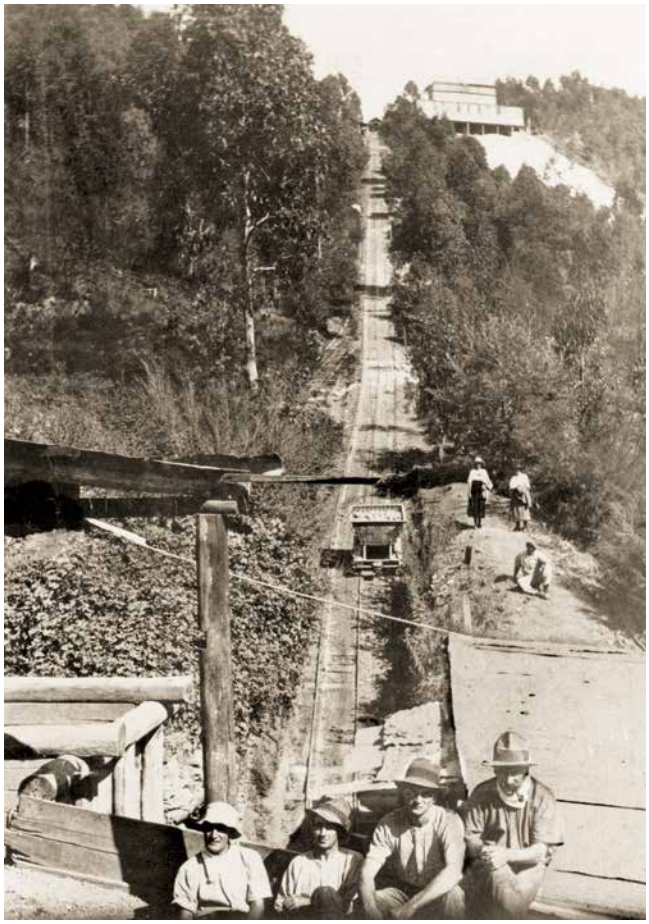
Analysis of copper mining at Coopers Creek

The accompanying graph shows world copper prices in constant-dollar terms plotted against major mining activity at Coopers Creek. Some of the effects on mining at Coopers Creek are obvious, and others not so obvious. In the earliest period of mining from 1864-1867, copper prices were high. Excitement for copper production (spurred on by the riches won in South Australia) no doubt fueled the boom. However, the remoteness of Coopers Creek inevitably led to high production costs and, as soon as the price of copper fell, the Thomson River Copper Mining Company put the Tributers into the mine from 1867 to 1870.

If the Tribute Company had hung on for a little longer, it might have done better. The excitement caused by booming copper prices and the widely publicised copper mine at Cobar in north-central NSW predictably led to the Coopers Creek mine being re-opened. Despite the problems caused by the remoteness of the mine and a continual slide in copper prices, the Walhalla Copper Mining Company hung on from 1874-1881 and was the only Company to profit from the mine. Once again, if it had been able to stay the distance, it may have been saved by another surge in copper prices.

The period from 1881 to 1910 was characterised by reasonably stable average copper prices and a number of companies were formed, but did little or nothing to develop the mine. It was the arrival of the VR narrow-gauge railway at Platina in 1910 that tipped the scales in favour of re-opening the mine. An initial drop in copper prices was quickly reversed by the booming demand for the metal during the First World War, and kept the Gippsland Copper, Platinum, Gold Mining & Smelting Company afloat until the end of the war, when a rapid collapse in prices put paid to the venture.

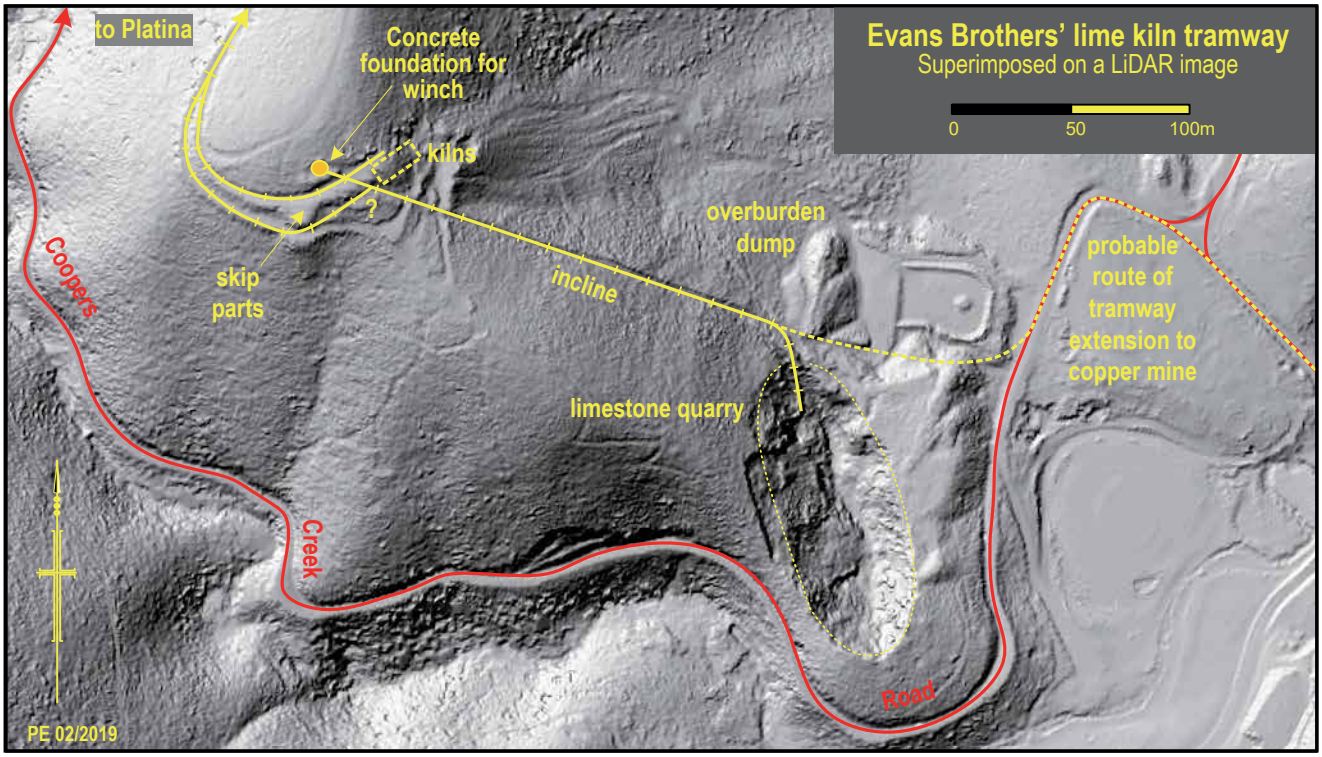
The mine's final fling in 1967-71 in the hands of Coopers Creek Pty. Ltd. took place during a rise in prices, but the small-scale of the venture and a drop in copper prices in 1971 (not shown in the graph) meant the end for copper mining at Coopers Creek for the foreseeable future.



Evans Brothers' incline tramway provided lime to the kilns above, general goods inwards to the township, and an export route for copper. Photograph courtesy Stephen Watson Moe Walhalla Railway Museum.

Skip descending what is probably the incline from Jubilee to the White Rock Lime Company's quarry. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.

Skips in one of the limestone quarries at Coopers Creek. That on the right is a standard Robert Hudson (UK) product. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.



Coopers Creek lime kilns 1865-1951

Lime has been burnt in Victoria since 1835, principally for making mortar. Lime was largely displaced by cement in the early 1900s, but a large quantity continued to be produced for chemical, agricultural and industrial purposes. As already mentioned, limestone was discovered at Coopers Creek shortly after the existence of the copper deposit was known.[42] Little documented evidence survives of the early exploitation of lime at Coopers Creek. We do know that it received regular use in early copper smelting operations, but the first attempt to exploit the lime as a product in its own right appears to have been in 1888, when Neil Leitch of Moondarra applied for a three-acre site for burning lime on the south side of Coopers Creek. Leitch burnt about four tons of lime before finding out that the industry would not pay in this remote location.[43] The lime industry at Coopers Creek would have to await the arrival of a more efficient means of transport before being set on anything like a sound economic footing. The arrival of the VR narrow-gauge railway at Platina in 1910 provided just such an opportunity to exploit the nearby limestone deposits as a resource quite separate from the Coopers Creek copper deposits.

Evans Brothers

In September 1909, the Walhalla Marble Quarry Company applied for a tramway licence for 60 chains of tramway linking Platina to its 'Marble Quarry'. The application was signed William Myers, quarryman. It soon transpired that the real company behind this application was Evans Brothers (late A A Smith & Company), lime, cement and firebrick merchants of 372 Flinders Street Melbourne (corner of Queen Street). The principals of the firm were brothers Charles Carty Arnell Evans and William Henry Evans. The Company listed amongst its products 'Lilydale', 'Waratah', 'Heads', 'Lara', and 'Comadai' lime. By January of 1910, the Company sought permission to lay its tramway as soon as possible as the work at the quarry needed to be pushed-on with urgency. The sum of £1 was paid to secure the tramway licence, and the line was presumably completed shortly thereafter.[44]

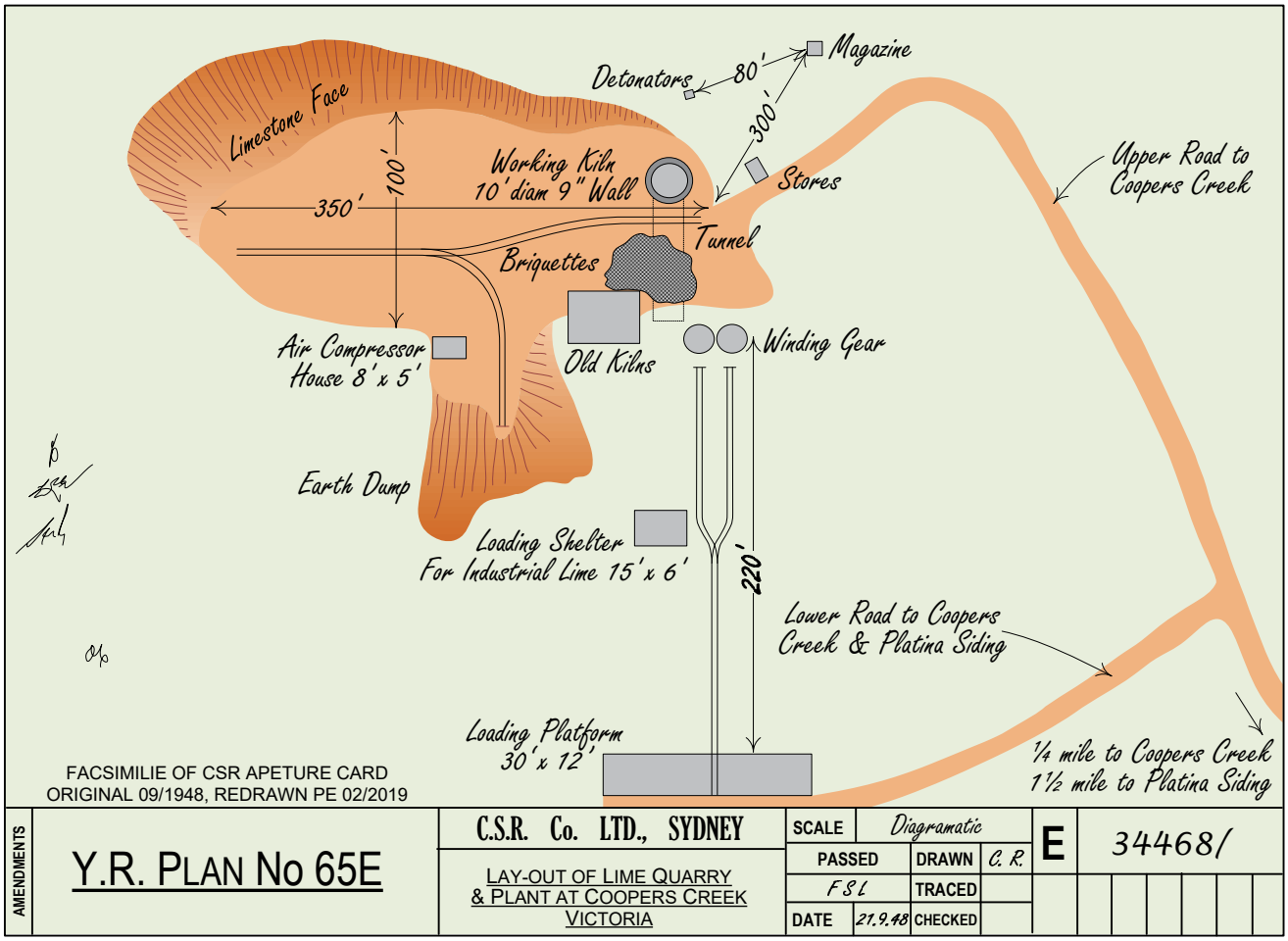
There was apparently much two-way traffic on the tramway, which was laid to the gauge of 2 ft with lightweight steel rails. Photographs show the line being worked by a team of three horses hauling trucks of bagged lime to the siding. All supplies for the township of Coopers Creek were also hauled from Platina over the tramway and lowered down the incline to the town. This service was provided free of charge until late in 1927 when a fee was charged for such conveyance, raising the prices of all goods required by those living in the valley.[45]

Three kilns, each 10 ft in diameter and 50 ft deep, were built with bricks hauled in from Platina, and then the bagged lime was taken out in the opposite direction. Firewood to burn the lime was cut nearby and, as the area adjacent to the kilns was cut out, firewood operations shifted further away, moving as far as Knott's Siding on the Tyers Road. Firewood was hauled to a central point by sledge and then delivered via chute to the nearest road, then loaded onto a motor truck for transport to Platina station, where it was offloaded onto the tramway for transport to the kilns. Most of the firewood was split timber about five feet long; heavy work, and not for the faint-hearted.[46] Photographic and archaeological evidence shows that limestone was quarried and crushed some distance below the kilns and, then hauled up an incline of about 3 ft gauge by a winch, after which it was top-loaded into the kilns.[47] The incline's operations were controlled using a telephone line running alongside the haulage, evidence of which was still visible in the 1980s.[48]

Tragedy struck in September 1915 when the works manager, Mr. William Pratt, was drowned trying to save his young son who had fallen into the rain-swollen Thomson River. Both father and son were swept away with Pratt's wife and daughter helpless witnesses to the event.[49] By this time, the limes listed on Evans Brothers Company letterhead had been reduced to just two – 'Waratah' and 'Snowflake', the latter presumably being the trademark applied to the lime produced at Platina. Operations seem to have settled down to regular production, with the tramway licence being paid up until at least January 1926.[50] Lime appears to have been both railed direct to customers and consigned to Evans Brothers' own depot at Brighton.[51]

A three-horse team hauls trucks loaded with bagged lime to O'Shea and Bennett's siding on the Walhalla railway. Judging by the young regrowth forest in the background this photograph would have been taken a few years after bushfires in 1932 but before 1939. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.

Loaded trucks of lime arriving at O'Shea and Bennett's siding on the Walhalla Railway prior to 1939. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.



The kilns were still in use under Evans Brothers' control in early 1928.[52] Deterioration in the limestone supply is thought to have led to the closure of the works. The kilns may have re-opened briefly as Proudfoot's[53] lime works, which were considered a tourist attraction for a traveller on the railway to Walhalla. The kilns were finally dismantled in the 1940s and the high-quality Hoffman bricks, brought at such expense from Melbourne, were removed and used to build two houses, one in Commercial Road, Morwell, and one in Hickox Street, Traralgon.[54]

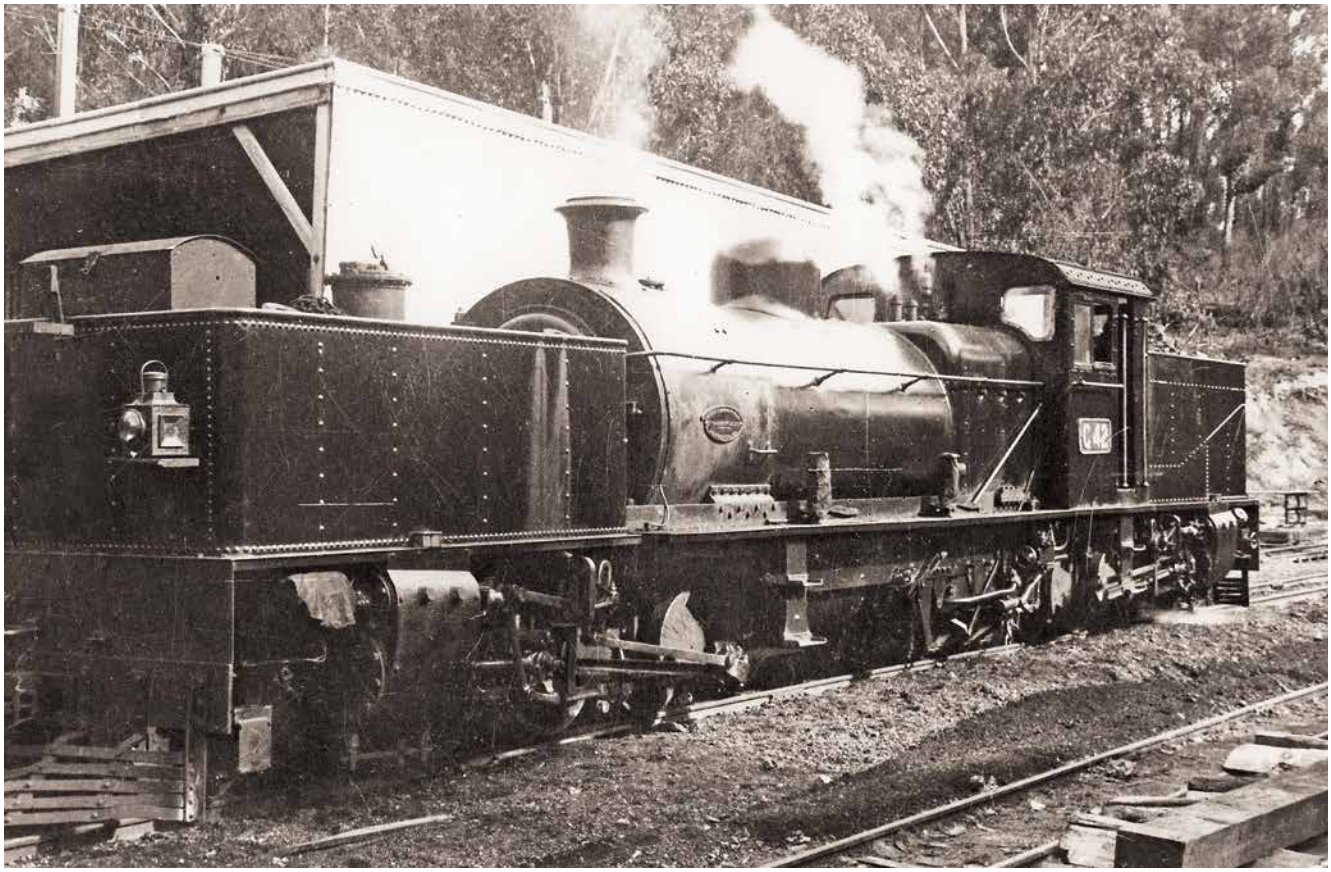
Today, there are substantial remains at the site of Evans Brothers lime works. The site is on three quite distinct levels. The upper level has extant concrete machinery foundations (probably those of the tramway winding house) and some skip parts. Between the second and third levels are the remains of the dismantled kilns with their wing-walls, collapsed barrel vaults and filled-up shafts. Below the kilns, the formation of the incline tramway has been severely eroded by trail-bike riders and four-wheel-drive heroes pitting themselves and their machines against our fragile industrial heritage. The most remarkable aspects of the site are its huge dump of waste lime (demonstrating the longevity of operations at this site), and a spectacular view over the Thomson River Valley.[55]

The White Rock Lime Company

There was a lime kiln at what would become the White Rock Lime Company site south of Coopers Creek as early as 1906.[56] Its ownership is presently unknown. The White Rock Lime Company (a metropolitan company based at 330 Flinders Lane) had started work by early 1926, but a major setback caused by the fires of February 1926 and the breakage of a winch delayed the work.[57] The kilns were completed in mid-1926, slightly pre-dating the construction of a road between Coopers Creek and Platina.[58] As such, the Company initially shared the same challenges of lime export and firewood procurement as the copper mine. The works must have been in full swing by 1930, since the White Rock Lime Company had a firewood area situated south of the kilns and served by a tramway about two miles long in 1933.[59] This firewood would not only have been required for the kilns, but for a W Anderson & Sons of Richmond under-fired boiler installed in 1933.[60]

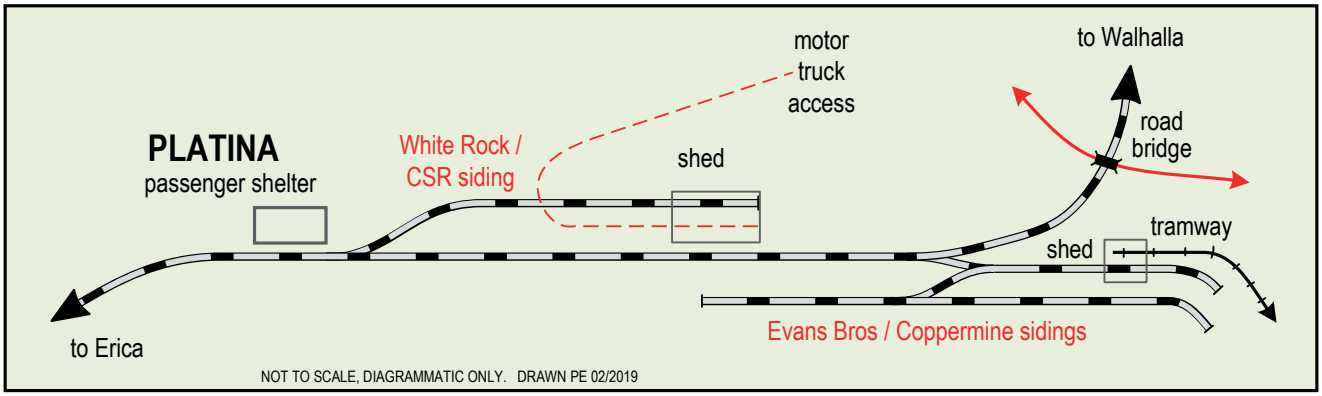
The output of the kilns was sent to O'Shea & Bennett's Siding on the Walhalla railway over an extensive steel-railed tramway system. From the kilns, the bagged lime was hauled up a steep incline tramway to the top of the hill near the small township of Jubilee. About two-thirds of the way up, what is clearly a firewood tramway junctions with the incline and runs west below the township, allowing firewood to be fed back down to the kilns. A steam winch was located at the top of the incline (although the winch is long gone, a part of the water supply system can still be seen). From the top of the incline the tramway formation winds through the township in a westerly direction along a narrow ridge. A little beyond Jubilee, the line curved to the north around the headwaters of the left branch of Coopers Creek and headed towards the railway siding. A short distance north of this point the tramway met with and paralleled that of the Monarch Sawmills.[61]

Monarch Sawmills was owned by Edgar Fullwood, who applied for scattered and fire-damaged timber south of Jubilee in May 1933. This was approved by the Forests Commission, and the mill was installed in the head of Rintouls Creek in late 1933. Fullwood already owned a sawmill at Telbit, and this mill was to be the No.2 or 'Numbruk' mill. The mill commenced cutting in December 1933 and, in May 1934, Fullwood applied for permission to construct a tramway between the mill and



Locomotive G42 at O'Shea & Bennett's siding. The shed behind the locomotive was used to store bagged lime ready for dispatch on the railway. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.

Platina siding in the last years of the Walhalla railway, when it was served by road from the lime kilns. The shed over the siding on which NQ88 truck is sitting protected bagged lime from the rain while waiting for the truck to be collected. The truncated main line to Walhalla is on the right. Photograph courtesy Stephen Watson, Moe Walhalla Railway Museum.



Knott's Siding. The line was to be laid to a gauge of 2-ft 6-in with wooden rails laid on timber packing. Construction of the tramway started as soon as the line was approved. Because the White Rock Lime kiln tramway pre-dated that of Fullwood, his line followed closely to that of the White Rock Company almost all the way to the railway. The Numbruk Mill closed shortly after the bushfires of January 1939.[62]

Those same bushfires wrought havoc at the White Rock Lime Company and led directly to a change in its operations. On the morning of Friday 13 January 1939, aware of dangerous bushfires to the north, many of the Italian community living at Jubilee and working at the White Rock Lime kiln evacuated down the hill to the relative safety of the Thomson River. Here, some prompt back-burning towards the main fire created a refuge of burnt ground. Most of the township of Jubilee was destroyed along with a lot of the plant of the White Rock Lime Company, including the winch at the head of the incline and the horse-worked tramway to the railway siding. The tramway was abandoned and, once the kilns were back in operation, they were fired primarily with briquettes brought by motor truck from the railway siding at Platina (although it would seem some firewood was still required).[63] Lime was taken out on the return journey, and the siding at Platina was officially re-named White Rock Lime Siding.[64]

A day's work could involve two loads of lime to the railway station at 60 bags of 160-lbs each, a total of around eight tons, and all loaded and unloaded by hand. Then there were the briquettes to contend with, which had to be shoveled loose from the railway trucks. Hard work at a weekly wage of £3 10s 0d per week.[65] Work at the kilns was also arduous. Limestone, wood and briquettes were loaded by hand into the top of the 10-ft-diameter kiln mouth. When the kiln was filled, the fire was lit in the chamber lower down the hillside. Once the lime was burnt, it was raked out through the tunnel leading to the fire chamber and bagged ready for dispatch. At the end of each workday, the men working at the kiln would be ghost-like figures covered by lime, and often had burns to their skin.[66]

It would seem that the Colonial Sugar Refining Company took over the operation by August 1948, and the White Rock Lime Company went into voluntary liquidation in July 1949.[67] Subsequently, most of the lime was railed out to CSR for use in purifying sugar as it struggled to rebuild production after the Second World War.[68] In August 1948, this fact was recognized when the siding at Platina was officially re-named 'Colonial Sugar Refining Company's Siding'.[69]

In 1951, there was a serious accident at the kilns. Clinker had built up in the kilns and was proving difficult to remove, and CSR urgently required fresh supplies of lime. A large quantity of water was added to the kilns from above and then they were fired up with briquettes from below. The men then all went home. This was extremely fortunate as, later that evening, the kilns exploded, probably due to the combination of heat, water and volatile gases from the briquettes. Local houses were violently shaken and windows rattled as far away as Erica. A corrugated iron shed was destroyed and a truck obliterated. The hillside had been shattered by the explosion, and mining was no longer safe.[70] The operation was closed and, with it, went the remaining traffic on the VR line beyond Erica. The siding at Platina was officially closed in October 1952 and, a year later, the line beyond Erica was pulled up.[71]

Today, the site of the White Rock Lime kilns is marked by the large quarry and brick kiln mouth on the western side of the road, and the formation of an incline tramway leading down the slope on the eastern side of the road. This incline was clearly steel railed and, from a wheel-set found on site, of 2 ft 6 in gauge. At the foot of the incline are the remains a tramway truck with bulkhead-style ends, clearly suited to carrying either bags of burnt lime or firewood.[72]

Heritage significance

Today, remains of almost every facet of the 100-year production of copper and lime at Coopers Creek abound as shown in the accompanying photographs. Because of such extensive remains, most of the industrial sites in the Coopers Creek area are recognised by Heritage Victoria as being of State Significance and are now in a designated historic area. If visiting the sites, please take care to leave any relics exactly as they are. Under the provisions of the *Heritage Act 2017,* it is an offence (under Section 123) to knowingly uncover or expose, or knowingly disturb or excavate any archeological site whether or not it is recorded in the Heritage Inventory. Please also be warned that entering abandoned mines is dangerous.

Acknowledgements

My thanks to Richard Warwick and Colin Harvey for their comments on the text (and to Colin for access to LiDAR images); and to Mike McCarthy, Stephen Watson of the Moe Walhalla Railway Museum, Simon Moorhead and Barry Sheffield for photographs.

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White Rock Lime Company firewood tram below the township of Jubilee in April 2007. Photograph by Peter Evans.

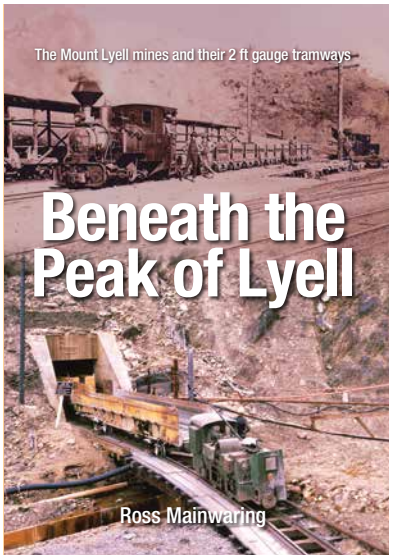
Book Review

Beneath the Peak of Lyell

by Ross Mainwaring

A4 size hardback, 264 pages. 96 monochrome and 103 colour photographs, 34 maps, plans and diagrams, glossary, bibliography, references and an index. Published 2020 by Light Railway Research Society of Australia.
Available from the LRRSA online bookshop – $66.00 plus postage ($49.50 plus postage for LRRSA members)

The Mount Lyell mine's lifeline to its port, the 3 ft 6 in gauge railway with its rack sections, is justifiably famous and today the line has been recreated as the West Coast Wilderness Railway, an international tourist drawcard. Far less attention has been given to the network of 2 ft gauge railways that originated from Queenstown, although they have been featured in Lou Rae's books, and in LR 232 Jim Stokes gave an excellent history of the 2 ft gauge Krauss locomotives.
In this book, Ross Mainwaring addresses the deficiency in telling the story of the narrow-gauge lines that successively brought ore, flux and firewood to the smelters, and then ore to the treatment plant, also serving the mine's hydro-electric power plant and carrying the necessities of mining to wherever they were needed. Carried up steep inclines, through the rugged forest slopes, and deep underground, these lines were the lifeblood of the mining process for 92 years, and served scattered settlements of mining families, conveying men to their workplaces in the often inhospitable weather of the West Coast. Steam, overhead-wire electric, petrol, diesel and battery electric locomotives all saw use, as well as horse and cable haulage, in a microcosm of the development of 2ft gauge mining railways.
The author has devoted many years of research to the Mount Lyell mine. His comprehensive understanding of the development of the extensive operation enables him to tell the story in the most lucid way. He expertly weaves together the mining, transport and processing aspects, making this far more than a simple railway history. The magnificence of the achievement of the creators of the enterprise in the remote Tasmanian bush



is matched by the grandeur of the author's prose as he describes the environment they faced and their efforts to subdue it. The many hours of interviews he has conducted with former employees enables his descriptions of more recent operations to be replete with real-world practical experience and the wry humour that it generates.
A great strength of the book is the way in which it shows how the economics of mining, particularly the hugely fluctuating world price of copper, determined technical developments, resulting in the utilisation of the varied mineral resources of the field and the ability to process vast tonnages of low grade ore as the richer deposits were worked out. The investment of large sums of money to maximise mining efficiency was an ongoing feature of rail transport development, with the 1928 opening of the 2-kilometre long North Lyell tunnel, with its English Electric locomotives, being the momentous event that secured the future of the mine and on which all subsequent underground development hinged. Finally, other forms of ore transport superseded rail only in the 1980s when it had become obvious that the exhaustion of reserves no longer justified a long-term view.
The author defers to Jim Stokes for the detailed history of the 2ft gauge steam locomotives, making LR 232 a vital companion to this book. He intentionally concentrates on the history of the "main line" overhead-wire electric locomotives and their operations, and does so very well. This tends to highlight the less thorough treatment of the petrol, diesel and battery electric units and their operations on possibly mundane but no less essential tasks, often in more obscure reaches of the rail system, for example the Comstock and Lake Margaret tramways. As a railway history, this is the area that might have benefitted from more attention.
The book is superbly produced. There is an excellent range of photographs including many modern colour shots, some taken underground. Technical explanations are generally clear and comprehensible. Textual blemishes are hard to find.
Any further suggestions for improvement must be muted when considering such a fine work as this. It would have been nice to see one or two specially-produced detailed maps of the kind for which LRRSA is rightly famed, rather than relying on original plans that were not intended for use in a 21st century publication. I also found it frustrating (and this may be a hobby-horse of mine) that a more comprehensive listing of all the 2 ft gauge locomotives used at Mount Lyell was not included, giving builder's numbers and disposal details. I would be surprised if such information was unavailable.
Overall, the author must be most heartily congratulated. This book must surely be seen as a major contribution to mining history in Australia as well as to railway history. Highly recommended.

John Browning

Industrial Railway NEWS

Please send contributions to:
Industrial Railway News Editor, Christopher Hart
15 Dalrymple St, Ingham, QLD 4850
Phone: (07) 47766294
e-mail: industrial@lrrsa.org.au

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

QUEENSLAND

BUNDABERG SUGAR LTD, Bingera Mill
(see LR 273 p.23)
610 mm gauge
On 21 April, EM Baldwin B-B DH *Moorland* (5565.1 10.74 of 1974) was seen on a rake of bins at Cellas Hill, heading towards the mill. Outside the loco shed on 19 May were Com-Eng 0-6-0DH *Burnett* (AH2967 of 1963) and EM Baldwin B-B DH locos *Delan* (5800.3 7.75 of 1975) and *Miara* (8988.1 6.80 of 1980). Com-Eng 0-6-0DH *Invicta* (A1513 of 1956) was seen with the ballast train and a bridge wagon in tow at Angels Junction on 10 June. It was heading for Bush Paddock.
Mitch Zunker 4/20, 6/20; Brian Bouchardt 5/20

BUNDABERG SUGAR LTD, Millaquin Mill
(see LR 270 p.28)
610 mm gauge
EM Baldwin 0-6-0DH 66 *Perry* (6/1576.1 8.66 of 1966) was seen on the ballast train at Dahls Road on the main line to Calavos and Clayton on 4, 6 and 8 June. Ballast had been laid along Dahls Road and Three Chain Road. On 5 June, 66 *Perry* was moving bins in the mill yard for the hi-rail herbicide spraying truck.
Mitch Zunker 6/20; Carl Millington 6/20

FAR NORTHERN MILLING PTY LTD, Mossman Mill
(see LR 273 p.23)
610 mm gauge
Com-Eng 0-6-0DH *Mossman* (B1719 of 1957) with three 4 wheeled ballast hoppers numbered 1 to 3 and the ballast plough were seen at Golf Links Loop on 27 May.
Gregorio Bortolussi 5/20

ISIS CENTRAL SUGAR MILL CO LTD
(see LR 273 p.23)
610 mm gauge
By mid April, there was about three kilometres of track to lay between the rail head and Promiseland Road on the new line to Booyal and Duingal. Thirteen piers were complete on the Woco Creek bridge with five to go. This line branches off the New Valley line near Promiseland Road. Early in May and on 13 May, earthworks were seen to have been completed in this area and preparations were underway to install the level crossing in Promiseland Road. Progress on the long curved Woco Creek bridge on 6 June showed the piers to be largely complete. They are of timber with some of the original material being reused. 60 lb/yd AS rail, ex QR's Monto to Gladstone line, is being used on this line. By 13 June, the level crossing in Promiseland Road was under construction with 90 lb/yd rails being utilised. Nearby were the junction points, ready to be cut into the New Valley line. The Gemco resleepering machine (R853 of 1987) was at the "new" navvies area of the former Aides truck dump sidings on 10 May.
Brian Bouchardt 4/20, 5/20, 6/20; Carl Millington 5/20; Ron Stitt 5/20; Brad Cook 6/20; Jack Dempsey 6/20

MACKAY SUGAR LTD, Mackay mills
(see LR 273 p.23)
610 mm gauge
EM Baldwin B-B DH *Inverness* (10123.1 5.82 of 1982) was seen on ballast train duties at the Benholme ballast pile early in May.
Mitch Zunker 5/20

MSF SUGAR LTD, Mulgrave Mill
(see LR 273 p.24)
610 mm gauge
The frames of Com-Eng 0-6-0DM 4 (A1004 of 1955) and Clyde 0-6-0DH 15 (58-190 of 1958) were still here early in June. Clyde 0-6-0DH 14 (56-86 of 1956) is being used for spare parts. The Plasser KMX-12T tamping machine (432 of 1997), Clyde 0-6-0DH 19 *Redlynch* (65-435 of 1965) and Com-Eng 0-6-0DM 5 (A1005 of 1955)

Millaquin Mill's EM Baldwin 0-6-0DH 66 Perry *(6/1576.1 8.66 of 1966) with the ballast train at Dahls Road on the main line to Calavos and Clayton in early June. Photo: Mitch Zunker*

Above: *Mossman Mill's Com-Eng 0-6-0DH* Mossman *(B1719 of 1957) propels a ballast train past Golf Links Loop on 27 May. Photo: Gregorio Bortolussi*
Below: *Tully Mill Com-Eng 0-6-0DH 14 (AK2663 of 1963) and the new tree trimming wagon at Landau Road, Feluga on 30 May. Photo: Luke Horniblow*

with two ex Hambledon Mill ballast hoppers were seen parked overnight at Kanimbla on 9 June while on their way to Redlynch. The tamping machine is apparently incapable of moving itself between jobs at present and needs a loco to tow it around.
Chris Stephens 6/20; Gregorio Bortolussi 6/20; Andrew Sues 6/20

MSF SUGAR LTD, South Johnstone Mill
(see LR 271 p.29)
610 mm gauge
South Johnstone Mill has scored 100,000 tonnes of cane from Tully Mill in the East Feluga and El Arish areas and a roll on, roll off truck dump siding was being built for their bins at the southern end of the Walter Hill Range in May.
Luke Horniblow 5/20; Andrew Sues 5/20

TULLY SUGAR LTD
(see LR 271 p.31)
610 mm gauge
Walkers B-B DH locos 3 (643 of 1970 rebuilt Tully Sugar 2013), 4 (622 of 1969 rebuilt Walkers 1996), 5 (650 of 1969 rebuilt Walkers 1993), 6 (653 of 1970 rebuilt Walkers 1993), 7 (657 of 1970 rebuilt Tulk Goninan 1994), 8 (606 of 1969 rebuilt Bundaberg Foundry 2004), 9 (618 of 1969 rebuilt Tully Sugar 2010) and Tully Sugar bogie brake wagon BV3 built in 1996 were seen lined up on display in number order near to the road into Tully town centre on 29 and 30 May. All these locos and brake wagon were fitted with Bradken design Willison couplers during the slack season. A new tree trimming wagon has been built on the frame of a 4 wheeled 10 tonne bin. It has a large elevated platform with a stairway up the centre and is probably the most elaborate unit for this job in the industry. On 30 May, it was seen at Landau Road, Feluga along with Com-Eng 0-6-0DH 14 (AK2663 of 1963). On the same day, the Plasser KMX-12T tamping machine (433 of 1997) and Com-Eng 0-6-0DH 17 (AH52100 of 1966) with the ballast train were stabled at Pantovics Loop at the El Arish Depot. The ballast train consisted of the two new hoppers and one old hopper. 17 had the plough fitted at the cab end of the loco. There is talk of rebuilding stored Walkers B-B DH CC01 (586 of 1968), originally Queensland Railways DH4, within the next couple of years.
Tully Mill has lost 100,000 tonnes of cane to South Johnstone Mill in East Feluga and El Arish. In May, a truck dump siding for roll on, roll off bins from South Johnstone was being built at the southern end of the Walter Hill Range beside the Tully Mill line to El Arish.
Luke Horniblow 5/20; Beatrice Bosworth 5/20; ABC Far North and North Queensland Rural Report 1/5/2020; Andrew Sues 5/20

WILMAR SUGAR, Burdekin Mills
Thirty-five locos at these four mills are to be fitted with forward and rear facing cameras over the next two years after it was successfully trialled at the Herbert mills in 2019.
North Queenland Register 21/5/2020

WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills
(see LR 272 p.31)
610 mm gauge
Macknade Mill's EM Baldwin B-B DH *Selkirk* (6750.1 8.76 of 1976) went to Victoria Mill on 20 April for work to be performed on it. The air conditioning unit had already been removed from the roof and replaced by an in-cab unit. It will return to Macknade for the crushing season. EM Baldwin 20 (7070.4 4.77 of 1977) was fitted with AD6A final drives during the slack season this year to replace the AD5's. This was probably the last EM Baldwin bogie loco in the industry with AD5's. Two ballast hoppers from the Herbert had arrived at Proserpine Mill by 9 April. One of

Lined up at Tully Mill on 30 May are Walkers B-B DH locos 3 (643 of 1970 rebuilt Tully Sugar 2013), 4 (622 of 1969 rebuilt Walkers 1996), 5 (650 of 1969 rebuilt Walkers 1993), 6 (653 of 1970 rebuilt Walkers 1993), 7 (657 of 1970 rebuilt Tulk Goninan 1994), 8 (606 of 1969 rebuilt Bundaberg Foundry 2004), 9 (618 of 1969 rebuilt Tully Sugar 2010) and Tully Sugar bogie brake wagon BV3 built in 1996. Photo: Luke Horniblow

Above: *Tully Mill's Plasser KMX-12T tamping machine (433 of 1997) at Pantovics Loop at the El Arish Depot on 30 May with Com-Eng 0-6-0DH 17 (AH52100 of 1966) and ballast train in the background. Photo: Luke Horniblow*
Below: *Com-Eng 0-6-0DH 17 (AH52100 of 1966) with the ballast train at Pantovics Loop at Tully Mill's El Arish Depot on 30 May. Photo: Luke Horniblow*

Millaquin Mill's EM Baldwin 0-6-0DH 66 Perry *(6/1576.1 8.66 of 1966) stabled at Dahls Road on 6 June. Photo: Carl Millington*

these was originally at the long-closed Goondi Mill. The Plasser KMX-12T tamping machine (445 of 1998) returned from Proserpine Mill during April. Some of the ballast hoppers and the ballast plough built on the frame of Motor Rail Simplex 3717 of 1925 returned from parts unknown during May. The hopper doors had been fitted with hydraulic motors powered by the hydraulic unit on the ballast plough via hydraulic hoses running from hopper to hopper. The plough built on the frame of Motor Rail Simplex 10381 of 1953 was spotted at Plane Creek Mill early in May along with two ex Herbert ballast hoppers. EM Baldwin B-B DH *Maitland* (7070.1 3.77 of 1977) and one of the Solari bogie brake wagons were seen in use for RSU remote control training and refreshers at the Victoria Mill sugar hopper late in May. Victoria Mill's EM Baldwin B-B DH *Gowrie* (7135.1 7.77 of 1977) departed from rebuild at Proserpine Mill on 4 June. It has also been fitted up for RSU remote control working. Three hundred and fifty 11 tonne bogie bins were assembled in the Macknade Mill truck shop during the slack season and will be used at Victoria Mill during the crushing season. Late in May, two 8 tonne bins were sent to Plane Creek Mill for trial there.

Ray Toscano 5/20, Editor 4/20, 6/20; Tom Badger 4/20, 6/20; Carl Millington 5/20; Luke Horniblow 5/20

WILMAR SUGAR PTY LTD,
Inkerman Mill, Home Hill

(see LR 271 p.31)

610 mm gauge

Clyde 0-6-0DH *Kalamia* (67-569 of 1967) which was on loan from Invicta Mill in November was transferred to Kalamia Mill mid slack season. It is not known if it had been returned to Invicta in the intervening period of time. Inkerman Mill is trying to resurrect Com-Eng 0-6-0DH D8 (FC3777 of 1964) from storage at Pioneer Mill. It may not have come here from Plane Creek Mill in December as previously reported. Five elevating tipper semitrailers are to be used from this year to feed cane into the Mt Inkerman terminus siding from farms further south.

Luke Horniblow 5/20, 6/20; Bruce Hills 6/20

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

(see LR 273 p.24)

610 mm gauge

Clyde 0-6-0DH *Kalamia* (67-569 of 1967), which was on loan to Inkerman Mill in November was

Above left: *Ruston & Hornsby 4wDM (296070 of 1950) in a loop along the AGL Hydro Partnership, Bogong Creek, aqueduct maintenance line on 2 April. Photo: Jack Daly* ***Above right:*** *Motor Rail Simplex 4wDM (7366 of 1939) at the AGL Hydro Partnership, Bogong Creek, depot on 2 April. Photo: Jack Daly*

transferred to Kalamia Mill mid slack this year. It is not known if it came back to Invicta in the intervening period. Walkers B-B DH locos *Scott* (711 of 1973) and *Jarvisfield* (647 of 1970) were delivered from rebuild at Pioneer Mill during the latter part of May. The *Scott* was formerly 7349 from the stored locos at Pioneer Mill and the *Jarvisfield* was Pioneer Mill's original *Jerona*. These two locos have been the first in the Burdekin to be fitted with forward and rear facing cameras.
Gary Vaughan 5/20; Kieran Koppen 5/20; North Queenland Register 21/5/2020; Luke Horniblow 6/20

WILMAR SUGAR (KALAMIA) PTY LTD, Kalamia Mill
(see LR 273 p.24)
610 mm gauge
Clyde 0-6-0DH *Kalamia* (67-569 of 1967) was transferred here mid slack season and will be used as an RSU remote control loco. It is not known if it came here from Inkerman Mill or Invicta Mill.
Luke Horniblow 6/20

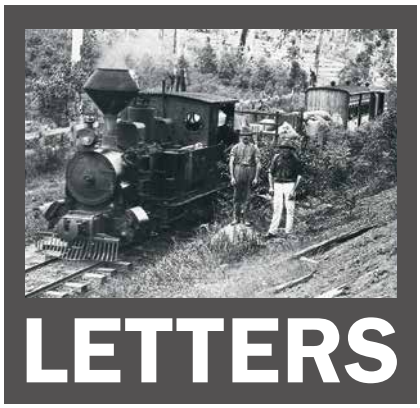
WILMAR SUGAR PTY LTD, Pioneer Mill, Brandon
(see LR 272 p.31)
1067 mm gauge
Walkers B-B DH locos *Scott* (711 of 1973) and *Jarvisfield* (647 of 1970) have been rebuilt for Invicta Mill and were delivered there during the latter part of May. The *Scott* was formerly 7349 from the stored locos at Pioneer Mill and the *Jarvisfield* was Pioneer Mill's original *Jerona*. Also rebuilt here during the slack season was Plane Creek Mill's Walkers B-B DH *Allan Page* QR1 (594 of 1968 rebuilt Bundaberg Foundry 1995). It was still here late in May and has been fitted up for RSU remote control working. Clyde 0-6-0DH 11 (65-383 of 1965) has probably been in storage here since leaving Proserpine Mill after the 2019 crushing season. Clyde 0-6-0DH D1 (56-101 of 1956) was transferred to storage here from Plane Creek Mill between late May and 8 June. Ex Plane Creek Mill Com-Eng 0-6-0DH D8 (FC3777 of 1964) was seen in storage here in June.
Garry Vaughan 5/20; Tom Badger 6/20; Kieran Koppen 5/20, 6/20; Bruce Hills 6/20

WILMAR SUGAR (PLANE CREEK) PTY LTD, Plane Creek Mill, Sarina
(see LR 271 p.32)
610 mm gauge
Items of interest at Shannons Flat early in May were the ex Victoria Mill ballast plough built on the frame of Motor Rail Simplex 10381 of 1953, two ex Herbert ballast hoppers fitted with hydraulically operated doors, Tamper ballast regulator (557 of 1977) and Tamper tamping machine (559 of 1975). The top quarter of the cab of the ballast regulator has been painted green. Plasser KMX-08 tamping machine (415 of 1995) was at Shannons Flat on 5 May.
Walkers B-B DH *Allan Page* QR1 (594 of 1968 rebuilt Bundaberg Foundry 1995) was rebuilt at Pioneer Mill during the slack season and was still there late in May. It has been fitted up for RSU remote control working. Clyde 0-6-0DH D1 (56-101 of 1956) was seen here late in May but by 8 June, it had been transferred to storage at Pioneer Mill. Com-Eng 0-6-0DH D8 (FC3777 of 1964) which left here on transfer on 9 December was in storage at Pioneer Mill in June. It is not known if it spent time at Inkerman Mill before ending up at Pioneer Mill. From this year, there are to be no more locotrol distributed power workings at Plane Creek Mill. Late in May, two 8 tonne bins were sent here on trial from the Herbert district.
Carl Millington 5/20; Kieran Koppen 5/20, 6/20; Bruce Hills 4/20, 6/20; Luke Horniblow 5/20

WILMAR SUGAR (PROSERPINE) PTY LTD, Proserpine Mill
(see LR 273 p.24)
610 mm gauge
Clyde 0-6-0DH 11 (65-383 of 1965) was transferred away from here after the 2019 crushing. Two ex Herbert area ballast hoppers had arrived here by 9 April. They had been fitted up with hydraulic operation for the doors and were less couplers. One of them was the unit originally at Goondi Mill.
Plasser KMX-12T tamping machine (445 of 1998) returned to Victoria Mill during April. EM Baldwin B-B DH locos 9 (6626.1 7.76 of 1976) and Victoria Mill's *Gowrie* (7135.1 7.77 of 1977) were rebuilt here during the slack season with the latter departing on 4 June. They were fitted with Mercedes Benz V8 motors, Allison transmissions, new cabs and fitted up for RSU remote control working. The cabs are Pilbara style with a single sheet of glass at the front and two large sheets at the rear. 9 was close to completion on 3 June.
Editor 6/20; Tom Badger 4/20, 6/20

VICTORIA

AGL HYDRO PARTNERSHIP, Bogong Creek
(see LR 271 p.33)
914 mm gauge
The line beside the aqueduct was walked from Clover power station to the landslide on 2 April. It is just over seven kilometres long and is still in use for maintenance purposes on the aqueduct. The line runs for another one or two kilometres beyond the landslide. New rail cars are used as motive power with Ruston & Hornsby 4wDM (296070 of 1950) and Motor Rail Simplex 4wDM (7366 of 1939) on standby. The R&H was in a loop at the five kilometre point and the Simplex in a shed at the depot.
Jack Daly 4/20; Peter Bass 4/20



LETTERS

Rails to Woomera (LR 271)

In his letter to the Editor, John Dennis is correct about the timetabling error. In the article I wrote that the Budd railcar departed Woomera at 4.45am on Mondays, Wednesdays and Fridays. This was incorrect, according to the *Gibber Gabber* it was on Saturdays, rather than Fridays that it departed at 4.45am.

Richard Horne also wrote a letter about my Woomera article and the Fowler diesel locomotive. I am curious to find out where he discovered the photograph of the Fowler locomotive being unloaded at Port Adelaide.

PS: I appreciate his compliment.

Mark Langdon
via email

Richard Horne's response re the photo:

The Woomera print was sent to me by my old friend, Arnold Lockyer, but came from Doug Colquhoun's collection. I see I have a second one from another old friend, George Sweetapple. He and Arnold were mates in Adelaide, so the two prints are no surprise. Sadly, all three of these enthusiasts are now dead. There should be a copy in the NRM, Port Adelaide archives. The previous history of the loco is from the Industrial Railway Society's '*Industrial Locomotives of West Glamorgan*' (1996).

AA Company nameplate, Newcastle (LR 272)

David Campbell states that the abbreviations of the Australian Agricultural Co. 'AA Co' and 'AAC' are both recent and ahistorical. The attached 1967 photo shows the water tank at Weston (with South Maitland Rlys 31 passing on a coal train) and quite clearly cast in it is 'A.A.Co.' This would have been some 60 years old at the time, so clearly this abbreviation, which included the full stops, was used by the Company itself.

Richard Horne
South Croydon, UK

Caribbean Gardens railway (LR 273)

I was extremely glad to see images of Caribbean Gardens on the rear cover of LR273 June 2020, especially as it mentioned the unit based on Motor Rail 'Simplex' bow-frame, 3711 of 1924. This was the centre piece of my Pleasure Island Amusement Park article in LR234, December 2013. Pleasure Island Amusement Park was a small-scale version of Disneyland which operated at Carrara on Queensland's Gold Coast from 1959 until its closure in 1962. John Browning's follow up letter in LR 235 revealed its heritage before the Carrara Gold Coast rebuild as CSR's Lucinda Jetty near Ingham, Qld until 1959. The Caribbean Gardens 'Simplex' unit and associated bodywork is a rebuilt version of the Carrara Gold Coast version which carried the title *Funlander* on the locomotive's nose as it was reminiscent of QR's long distance air-conditioned trains such as the *Sunlander*. Its Carrara appearance resembled a QR 1200-class diesel electric locomotive as used on some of these QR trains.

A Youtube version of the Simplex with its *Funlander* bodywork, plus some of the other Pleasure IsIand attractions can be found at: https://www.youtube.com/watch?v=2DSmPTZyF1E&feature=c4-overview&list=UUGDo7vjCgs4Afc2_7LXbyvg

Peter Cokley
Via email

Henry Vale industrial locomotives – an overview (LR273)

I was very interested in the Henry Vale article in LR 273. To add to the information in the article, there are two of his locomotives preserved in NSW. Ex-NSW Government Tramways No 28A is Vale 52/1891, preserved in the Powerhouse Museum and incorrectly restored as 1A BLW 4617/1879. I have pointed this out to the Museum together with No 1 RS 959/1855 actually being locomotive No 2, in 1989, but no action seems to have been taken!

The other locomotive is Ex-NSWGR 1042, a 2-4-0T Vale 38/1887.

It would be interesting to see a complete roster of all of the locomotives built by Henry Vale.

David Rollins
Kingston, Brisbane
via email

Early internal combustion locomotives in Australia (LR 272)

I have just finished reading LR 272 and found the article titled "Early internal combustion locomotives in Australia" very interesting as it reminds us of the achievements of the previous generation who used their minds/efforts to develop this country often with extreme conditions. The research required to develop the feature is very much appreciated. The photo on page 9 (lower) is a great example of ingenuity and use of basic materials. The corrugated iron roof is a classic, as is the 44-gallon drum which I presume is the engine's radiator.

Vic Tucker
Parmelia, WA

Maryvale Locomotive (H&T report LR 272)

I read with interest the letter in LR 272 Heritage and Tourist report about the Malcolm Moore locomotive, built in South Melbourne for Australian Paper Manufacturers (APM) at Maryvale. It would have been a long slow trip down from Port Melbourne to Morwell on its delivery run at 15 to 25 mph in January 1939 as it apparently was not up to the task.

In June 1940 APM purchased condemned locomotive K42 from the South Australian Railways, which was an 0-6-4 tank loco, a product of Beyer Peacock, Manchester, UK (Builders No. 1936 of 1880). In light of a report in the Morwell Advertiser in 1939 about the mill acquiring DD 552 (or D1 552, as it was after the 1923 renumbering), maybe the K was only a stopgap pending the availability of D1 552. Maybe K 42, like the Malcolm Moore was not suitable either, as on 15 October 1941 they took delivery of the D1. It was built at Newport Workshops in April 1915 as DD 944 and later numbered D1 552. The K was probably broken up on site – I have yet to see a photo of K42 at Maryvale but I have seen a shot of it at the Adelaide Railway Station. The D1 must have been suitable as in June 1948

South Maitland Railways 31 passing the A.A. Co. water tank at Weston, 22 July 1967. Photo: Richard Horne

it was converted to an oil burner and was the motive power until the arrival of the first of the Whitcomb locomotives in 1949. (It would be almost two years before the Victorian Railways received its first diesel-electric locomotives with the arrival of the English Electric F-class shunting loco).

The second Whitcomb locomotive was received and in service in 1950. I was told the Whitcomb locomotives arrived in crates and were assembled at the mill. They were powered by two Hercules engines and generators, the engines were later replaced by two GM 671 engines; each bogie was equipped with a traction motor driving the other pair of wheels initially by chains which were later replaced by side rods.

I am not sure what year the D1 was broken up, but by 21 February 1956 APM had purchased D2 604. It was another product of Beyer Peacock (Builders No 5548 of 1912) and it, like all the DDs, had a number of changes before becoming D2 604. I have often wondered why APM purchased another steam locomotive at that late stage; maybe it was as a standby to back up the Whitcombs or as an emergency steam source for the mill. It was fitted with the oil burning equipment from 551 and in 1961 or 1962 the D2 was donated to the ARHS and resides in the railway museum at North Williamstown.

By 1987 the Whitcomb diesels were becoming unreliable on account of the continuing traction motor problems and APM management approached the VR and by late April 1987 had hired T-class diesel-electrics nos 342 and 334. With the arrival of the T's the Whitcombs were both sadly scrapped by September 1988. T342 was painted yellow at Bendigo North Workshops in late January 1987 at the request of APM. T 334 was usually kept at the Traralgon locomotive depot and went to the mill when 342 required an exam. In mid-September 1989 the T's were replaced by Y-class nos 173 and 168, and later 143 replaced 168 on account of some bogie problems. Y173 was repainted in the yellow livery at the request of APM and the spare was usually stabled at Traralgon. On 6 December 1993, Y173 was severely damaged in a shunting accident at the mill and was later scrapped, being replaced by Y135. In early 1996 the loading ex the mill was containerised after a loading slab had been constructed at the Up end of the mill sidings and thereafter all the loading was handled there and the tracks around the mill were no longer used. The traffic was handled by V/Line locomotives until privatisation.

These details were gathered from various sources.

Geoff Pianta
Traralgon, Vic
via email

Victorian Goldfields Railway (LR 272)

In response to my query in Heritage & Tourist News (pages 43 and 45, LR 272) regarding the four-wheeled motorised 'thing' bearing the number '6-45-002' that I photographed at Muckleford station in early December last, a reader has kindly made contact.

The machine is an ex-Victorian Railways' Sleeper Bed Scarifier. These machines were used by sleeper renewal gangs to clean out ballast before a new sleeper was slid into position. My thanks to Geoff Oliver for the information.

Phil Rickard
Ringwood, Vic

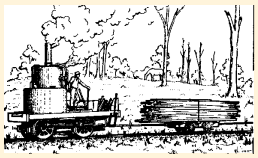
Lune River railway (H&T LR 273)

Congratulations on the quality magazine. After a second absence of a few years I am once again a keen subscriber. I have also contributed articles, letters and photos over the years, starting around 1980.

I recently came across a Kodak Instamatic photo (below left) of the Ida Bay depot that I took at Easter on 13 May 1979; this year I took a digital photo from the same spot (below right). Maybe these will be of interest to readers.

Not too much has changed in 41 years, but it is sad to see the greenery slowly taking over after almost two years of neglect. Note the Malcolm Moore locomotive lurking in the background in both pictures.

James Shugg
via email



LRRSA NEWS

ENTERTAINMENT MEETINGS

At the time of writing, all of the meetings in Adelaide, Brisbane, Melbourne and Sydney proposed for August 2020 have been cancelled until further notice due to the Covid-19 virus. With the gradual easing of restrictions, this may change and the meeting schedule will return at some stage, but we will always follow government guidelines.

If the situation changes, the Society will make any announcements in the "Members News and Sales List" supplement, and on our website www.lrrsa.org.au, and our Facebook Group: facebook.com/groups/LightRailwaysAustralia.

The LRRSA Committee is also considering having online meetings for members, using Zoom. Further details of these developments will be made in the same places listed above.

Heritage & Tourist NEWS

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

GENERAL

As most tourist railways are still closed due to the Covid-19 virus, there is very little to report for the last two months. However, some railways have announced their re-opening dates and a few of these are reported below. It is expected that all lines will announce their re-opening times in the coming weeks and months.

QUEENSLAND

ARCHER PARK RAIL MUSEUM, Rockhampton

1067 mm gauge

Phase 2 of the easing of restrictions allowed Archer Park to reopen the Museum on Sunday 14 June 2020. As with all other tourist railways, a special safety plan will need to be followed.

Tram Tracks: Volume 14 Number 4 June 2020

NEW SOUTH WALES

PETE'S HOBBY RAILWAY, Junee

610 mm gauge

Pete's Hobby Railway is proposing the sale of its 2 ft gauge Perry steam locomotive. Previous progress reports have detailed the major overhaul being undertaken in-house of its 0-6-0 TT steam locomotive, CSR Victoria Mill's *Perth*, built by John Fowler and Co. in 1900 (Builder's Number 8766) referred to as *the Fowler. The Fowler* overhaul has reached a stage where the frame, wheels and motion are ready for re-assembly, while the boiler has been the subject of a satisfactory inspection and replacement boiler tubes obtained. Replacement side tanks (with coal bunker) are already on-hand and await fitting to an overhauled and reassembled main frame. The frame has now been moved under cover within the new PHR storage shed where further works can be undertaken.

A quotation has been received for the works on the Fowler to be completed commercially, however, it is considered that the works could be completed for considerably less than this amount in house; even so, PHR is not able to finance this at this time. Hence, a very reluctant decision has been made to consider raising some of the funds required, by the sale of PHR's third steam locomotive, an Australian built 0-6-2T (Perry Engineering) of 1938 known as *the Perry*. This decision has been assisted, as it would seem that even if restored to working order, *the Perry* would not be able to operate around PHR's sharp radius curves.

The details appear in the advertisement on the PHR website, but basically it is inviting expressions of interest for the possible purchase of *the Perry*. The railway is looking for serious offers and the locomotive is provided "as is, where is". Whatever dismantled parts are in PHR's possession would be included in the disposal, together with some builder's plans and an original builder's plate. Local town craneage is available, at cost, for loading on to the buyer's road vehicle although Pete can recommend a professional hauler if required.

The Perry is rather unusual as it is equipped for haulage of rolling stock of two gauges, the other being 3 ft 6 in (1067mm).

While the original Perry side-tanks are no longer available, an original version bogie tender, once fitted to Colonial Sugar Refining Co. sugar mills' Hudswell Clarke locomotives, could also be sold to a prospective purchaser if desired. This would allow the purchaser to rebuild the Perry loco into a tender-type engine.

As a minimum, PHR is looking at using the funds raised from the sale of *the Perry* to permit reassembly of the wheels and motion to the Fowler underframe, or total retubing of the boiler and refitting of the various ancillaries.

Pete's Hobby Railway, 24 April 2020

VICTORIA

WALHALLA GOLDFIELDS RAILWAY, Walhalla

762 mm gauge

This railway was due to re-open on Wednesday June 24. However, due to changes in Covid 19 restrictions the WGR management postponed the re-opening. When the line does re-open the train consist will be all four carriages, hauled by the class 10 locomotive to ensure that a maximum of 50 passengers can be carried and the required physical distancing covered. Train crews will be required to clean the train in between trips and before and after the day's running. An extra volunteer will be rostered to clean other aspects of the Railway. Tickets will be sold as return trips only and Thomson station will remain closed. Passengers will be able to alight at Thomson while the locomotive runs around the train, but the refreshment room and toilets will be closed.

PUFFING BILLY RAILWAY, Belgrave

762 mm gauge

While the Railway is in shutdown, many projects have continued including the Lakeside Signal Box and the Discovery Centre at the same location. No decision has been made as to when the railway will re-open, but operating plans are being made by management for when this decision is made. What is certain is that the next timetable will be very much contracted from previous timetables. The reason for this is that the majority of passengers before the virus were Chinese and as no Chinese tourists are currently coming to Australia, fewer trains will be run. If the Chinese tourist situation becomes permanent, then a reduced timetable will become permanent, at least until the tourist situation reverts to something like normal.

KERRISDALE MOUNTAIN RAILWAY, Kerrisdale

610 mm gauge

Andrew Forbes is at present painting and re-assembling the steam locomotive *Douglas*. Photographs and reports are regularly posted on his Facebook page and progress appears to be steady and trials of the locomotive are anticipated this year.

TASMANIA

IDA BAY RAILWAY, Lune River

610 mm gauge

The century-old Ida Bay Railway in Tasmania's far south was used to haul limestone until 1976, and then became a tourist railway. Trains stopped running in 2018 after the rail safety regulator withdrew accreditation and the Parks and Wildlife Service took back control of the site.

The not-for-profit Ida Bay Railway Preservation Society, formed in early 2020, says it has private funds to get the track operating and wants to take responsibility for the line and rolling stock.

James Shugg and 24 other heritage rail enthusiasts, who make up the Ida Bay Railway Preservation Society, are hoping to restore the century-old line and its rolling stock. It suggests that the railway could be running this summer on a limited timetable and operation. The Society has suggested that from within its own resources it has found enough funds to get a third of the track restored to safety accreditation standard and be able to run small tours in the coming summer, if permission is granted. The Society expects that the entire seven kilometres of track could be back in use and comply with safety standards within a few years.

In special news just before the magazine went to print, the Ida Bay Railway Preservation Society proposal to restore the heritage- listed Ida Bay Railway and historic site was endorsed by the Minister for Parks and Environment Mr. Roger Jaensch. This is subject to reaching an agreement with the Tasmanian Parks and Wildlife Service for the community-based group to begin rebuilding the Railway to safe operating standard, begin the process of restoring the buildings and facilities and recommence passenger operations as soon as possible.

There was considerable community concern that the endorsed "Green Lens" art installation – also proposed for the Ida Bay State Reserve – had scuttled the proposed restoration of the historic Railway and site. This Project X bushfire relief program project – jointly funded by Federal, State and private funding – with works to be undertaken by the MONA subsidiary

Left: *IBRPS members hard at work in April 2020 restoring various buildings at Ida Bay. Photo: David Collins*

Below left: *This Malcolm Moore locomotive, together with other historic rolling stock, has been left out in the weather at Lune River in April 2020 awaiting a decision on the future of the railway. Photo: D. Hanlon*

Below: *The steam locomotive driving simulator in the SA Light Railway Centre at Milang. It is based on the cab of a 1913 Decauville locomotive that used to work at Tailem Bend. Photo: Peter Lucas*

'DarkLabs' – was yet to undergo an assessment on likely benefits and effects on the Reserve and surrounding communities.

Assurance has been given by the Minister's office that the heritage values and operations of the historic Ida Bay Railway and associated sites would be considered in this assessment. In the meantime, the community funded not-for-profit volunteer group continues planning and preparation for the considerable challenge of restoring the Railway and historic site so that it can once again contribute to the benefit and enterprise of Huon communities.

The Society can be contacted on:

Ida Bay Railway Preservation Society, PO Box 278, Dover TAS 7117 or ring Dave Collins on 0447 373 673

Email - idabaytrain@gmail.com

SOUTH AUSTRALIA

MILANG RAILWAY MUSEUM, Milang

610 mm gauge

The volunteers at the Milang Railway Museum have completed the construction of a steam locomotive driving simulator in the South Australian Light Railway Centre. It is based on the cab of a 1913 Decauville locomotive that used to work at Tailem Bend. Visitors can select forward or reverse gear, sound the whistle and open the regulator whilst watching their progress around the two-foot gauge railway at Cobdogla. They pass two whistle signs, cross a road and have to try to stop accurately at the station platform. The steam driving simulator is now operational. You can see it at https://youtube/6T3DpMXMg9k

On the cab side is a reproduction works plate, which shows that the loco was a French Decauville Ainé design but was manufactured by Orenstein & Koppel at its Nowawes works in Germany in 1913. It had the works number 6519 and a boiler pressure of 12 atmospheres.

Peter Lucas 7 April 2020

COBDOGLA IRRIGATION AND STEAM MUSEUM, Cobdogla

610 mm gauge

Over the last 12 months, it became obvious that the Bagnall loco (B/Nº 1801 of 1906) needed some heavy maintenance. The issues included increasing leaks past the regulator, leaks past the slide valve on the right cylinder, the left rear cylinder drain apparently blocked, the brake blocks reaching their use by date, and an excessive knock in the

Bagnall locomotive 1801 at Cobdogla on 8 March 2020 on its last run before the Museum closed down due to the Covid shutdown. Photo: Denis Wasley

left connecting rod. The locomotive was taken out of service for an overhaul in mid-2019, a decision not made lightly with the number of open days in the calendar.

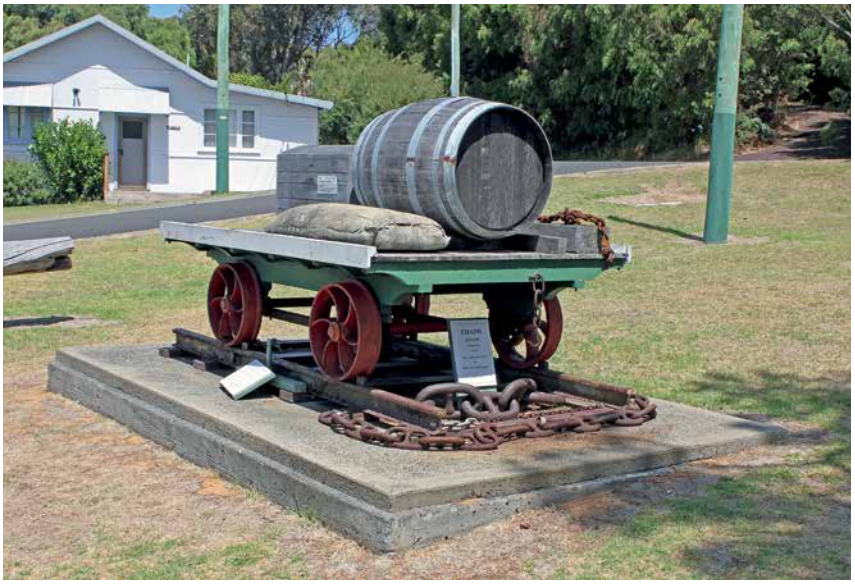
The regulator and its housing were removed, and both were milled and surface ground to give a steam tight fit. The opportunity was taken to remove the oil bunker from the tender, clean it out and install an immersion heater element so the oil can be pre-heated before a running day. The slide valve covers were removed from both cylinders for checking and it was found the right valve rod nuts had been tightened too much and the valve was not able to float. One side of the valve had not been making full contact with the valve face. This was a simple correction to make.

New brake blocks were cast by a local foundry, then machined in house and fitted. The machining was done on a small Taiwanese mill, which stretched its capabilities to its limits. Not long after this job was completed, a good second hand commercial sized mill was donated to the Society. On dismantling the left rear cylinder drain, it was discovered the steam passages in the moving part had not been drilled fully in line with passages in the fixed part, meaning the valve only fractionally opened when the operating handle was held in the fully up position. This fault could have been from new but is more likely to have occurred when the loco was restored in 1988. All other cylinder drain valves were checked and found to be okay. A new bearing and spacer were made and fitted for the rear bearing of the left connecting rod. The bearings in these are not one of the split types and there is no way of taking up for wear, something that needs to be addressed one day.

The Bagnall was returned to service in time for the March 2020 open day and only a couple of days later, the Museum was directed by the landlord to cease operations due to the COVID 19 pandemic. The boiler, along with those in the traction engines, were put into long term dry storage.

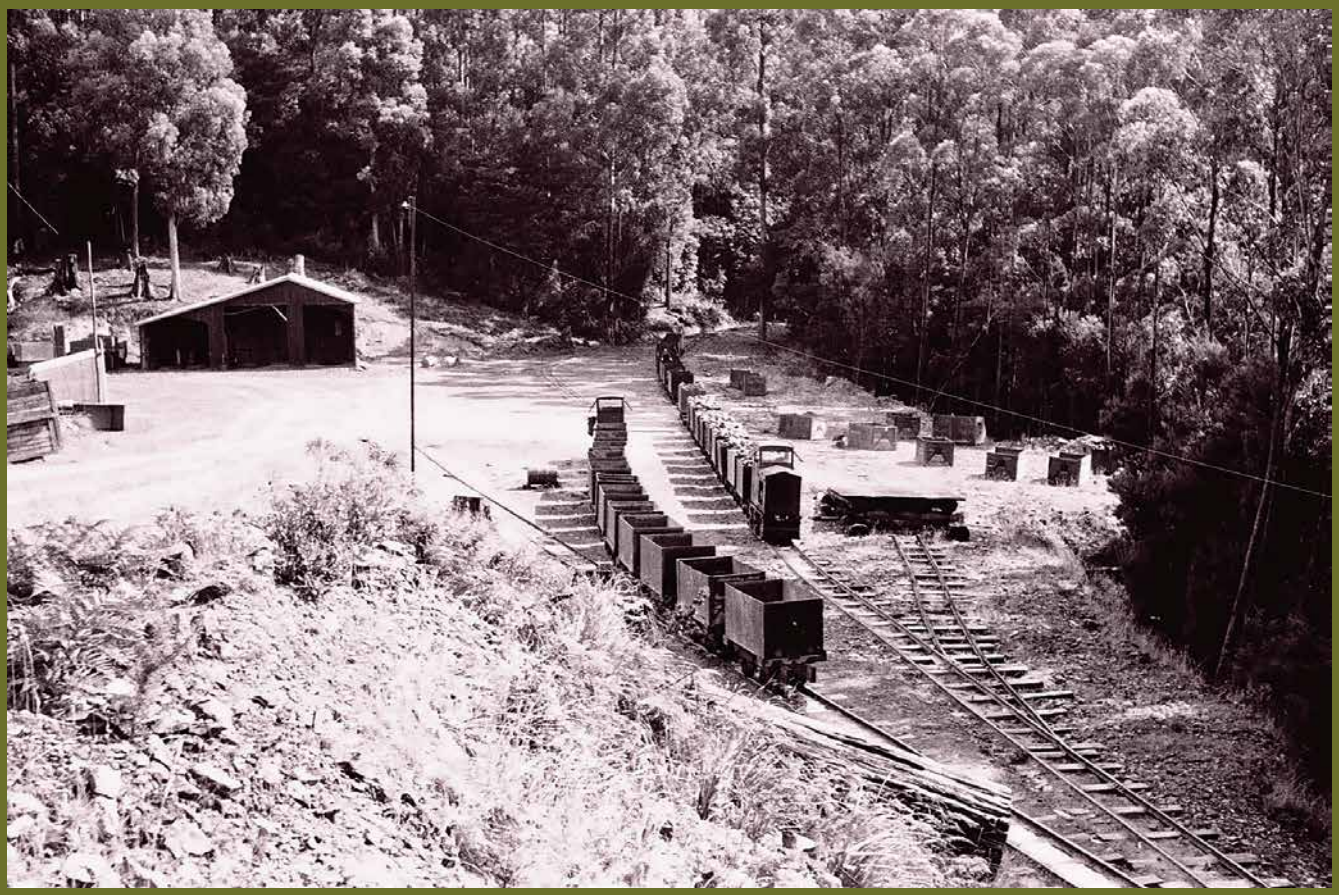
The best news for the museum is that SA Water has finally commenced the repairs to the Humphrey Pump building. Concrete contractors are currently repairing the concrete cancer in the operating floor and tenders have been called for the replacement of the corrugated iron walls and roof, along with repairs and upgrading to current standards of the wall columns and roof trusses. Workers had been conducting a series of training sessions for new operators of the pump back in January when SA Water Engineers shut down operations due to their concerns with the building safety. Hopefully, these repairs will be completed soon, and Museum operators can once again demonstrate the world's only working Humphrey Pump.

Denis Wasley, Cobdogla Irrigation and Steam Museum



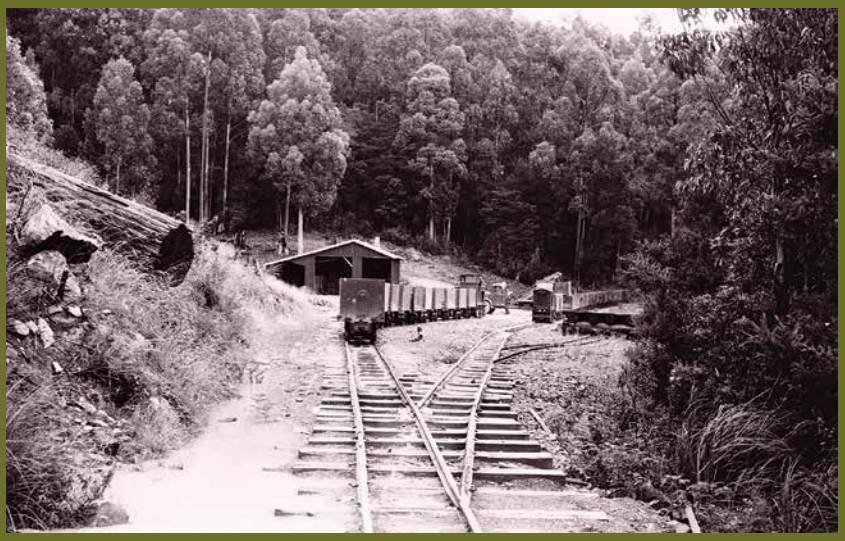
Flinders Bay was initially the port for M C Davies & Co.'s Karridale district mills but became the terminus of a W A Government Railways line from Busselton in 1925. The long jetty at Flinders Bay was by then almost derelict. The railway closed in 1957. The site of the WAGR yard is still largely a cleared area and contains a memorial and historic photograph display for the timber industry and port. Among the display items is this replica of a four-wheel jetty trolley, with original wheel sets. Photographed on 20 February 2020 by David Whiteford.

Above: *Krauss locomotive No 4 simmers at the platform at the Redwater Creek station at Sheffield on 7 March 2020 before taking on passengers as part of the Tasmania Steamfest 2020.*
Right: *Ex-Babinda Mill (Qld) Malcolm Moore locomotive awaiting restoration at the Redwater Creek railway on 7 March 2020 as part of Steamfest 2020.*
Below: *The newly restored Ruston 4wDM locomotive No 2 on show and being admired at Steamfest 2020.*
Below right: *Rear view of Krauss locomotive No 4 at the Sheffield station platform, awaiting passengers during Steamfest 2020.*
All photos: Ian Crellin



Jim Stokes visited the Ida Bay Railway on 13 March 1964 and took all of these photos at the workshops near the Ida Bay township.

There is a comprehensive history of the line in *Light Railways* 157 (Feb 2001). In summary it was built in the early 1920s, to 2-foot gauge, to bring limestone from the Ida Bay quarries to a jetty on Ida Bay at the entrance to Lune River, from where it was taken to the Commonwealth Carbide works south of Hobart by small sailing ships. The line was extended in 1950 to a new jetty at Deep Hole on Southport to give the ships a deeper water berth. This gave a total length of circa 13 km.



The line's headquarters and workshops were at the Ida Bay township where it crosses the Hastings – Catamaran road. The line had three, second-hand Krauss locos and one new Hunslet, but they were replaced in the late 1940s by Malcolm Moore internal combustion locomotives. Limestone traffic ceased in 1975 when the carbide works closed and the Tasmanian Government took over the line to operate it as a tourist operation.

Since then it has been run by various lessees, but they have generally found it hard to cover maintenance and other costs and it is currently closed.