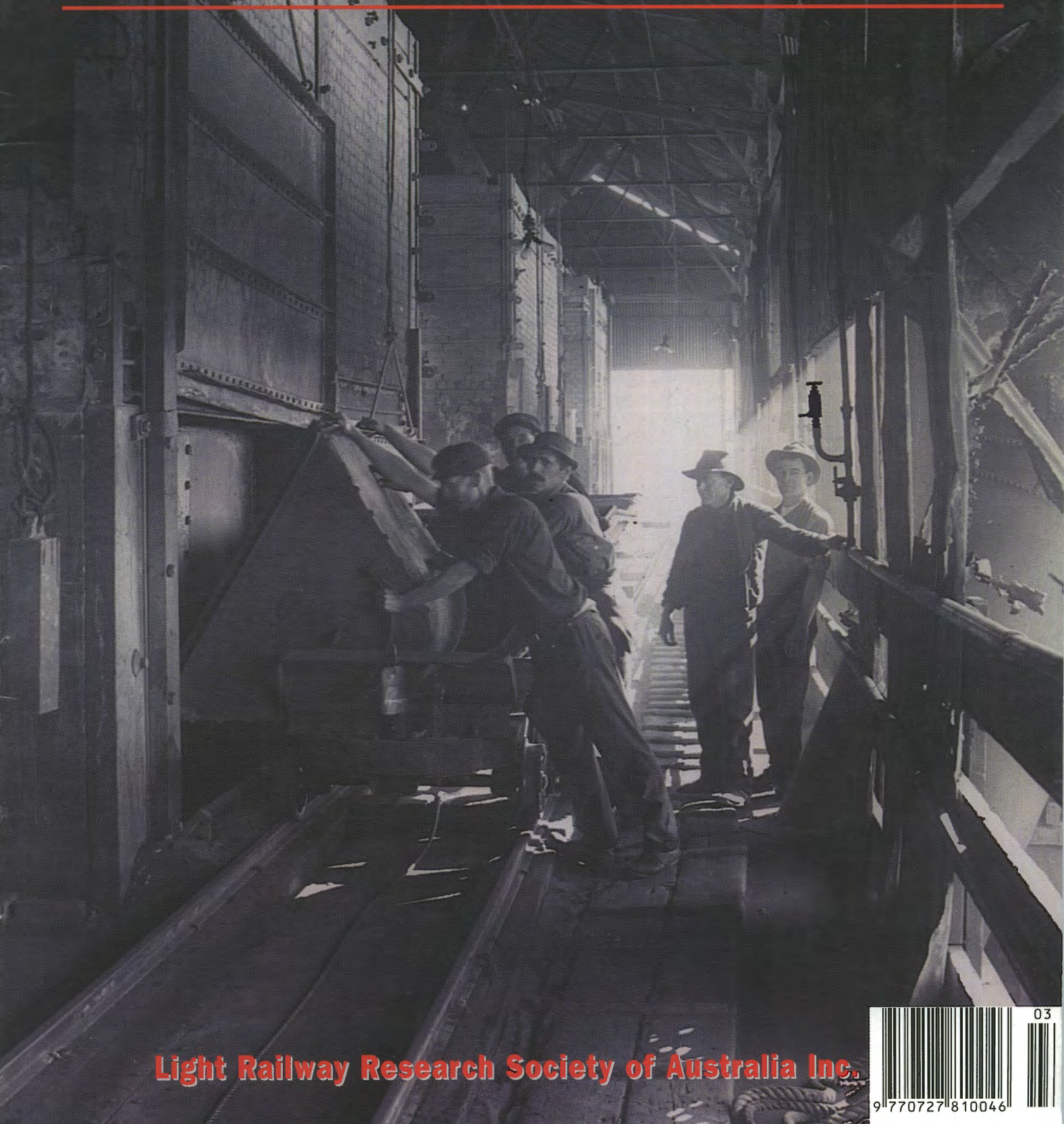


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LIGHT RAILWAYS

Australia's Magazine of Industrial & Narrow Gauge Railways



Light Railway Research Society of Australia Inc.



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Editor: Bruce Belbin,
PO Box 674 St Ives NSW 2075.

Research, Heritage & Tourist Editor:
Bob McKillop,
c/o PO Box 674 St Ives NSW 2075.

Industrial Railway News Editor:
John Browning, PO Box 5646
Rockhampton Mail Centre QLD 4702.

Distributor:

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

COUNCIL

President: Bill Hanks (03) 5944 3839

Secretary: Phil Rickard (03) 9870 2285

New South Wales Division

18 Rodney Avenue, Beecroft, NSW 2119

President: Jeff Moonie (02) 4753 6302

Secretary: Craig Wilson (02) 9484 7984

South Australian Group

6 Dunedin St, Dover Gardens, SA 5048

Secretary: Arnold Lockyer (08) 8296 9488

South-east Queensland Group

54 Aberdare St, Darra, QLD 4076

Secretary: Bob Dow (07) 3375 1475

Tasmanian Representative

11 Ruthwell St, Montrose, Tasmania 7010

Ken Milbourne (03) 6272 2823

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For dates, times and locations of future meetings, see LRRSA NEWS, page 26.

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1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metre
1 mile	1.60 kilometres
1 super foot	0.00236 cubic metre
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

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Comment

Does anyone out there actually read Editorials? And if they do read them, do they take any notice?

If not, I couldn't really blame them. It's not unusual for magazine Editorials to be long-winded, and esoteric in their choice of topic. Sometimes they can be rather patronising. In extreme cases, they may even border on the supercilious. If you've parted with your 'hard-earned' to be entertained by the magazine of your choice, you're not likely to enjoy being preached at or bored witless!

Of course, like all Editors, I have my own personal 'axes', which I try to avoid grinding too often, though there's little to suggest that a 'hard hitting' Editorial produces any real result. I certainly don't kid myself that my 'Rust Never Sleeps' offering in LR 155 provoked a flood of orders for machinery sheds, tarpaulins and drums of fish oil. However, I am pleased to see the stand I took in LR 151, regarding the updating and republishing of interesting material, vindicated once again, in this case by the appearance of the third instalment in Bob McKillop's and John Shoebridge's superb series on the Mining Railways at Cobar.

Bob and John have provided us with a perfect illustration of why light railway research is a 'never-ending story'. That even a much admired piece such as John's ARHS *Bulletin* article of thirty years ago can still be made even better, and presented for a whole new generation to enjoy.

Bruce Belbin

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 the forests.

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

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

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

Front Cover: The workman in the industrial landscape of the new Great Cobar smelting works, complete with a light railway application, is captured in this wonderful promotional image taken for Great Cobar Limited in June 1912. Narrow-gauge side tipping railway skips are being manually handled on the "feeding floor", where the ore will be fed into the huge furnace. The scene sets the theme for our major article on the 1907-1914 era of the Great Cobar Copper Mine, commencing on page 3. Photo: Cobar Regional Museum

Back Cover: With the Illawarra escarpment rising ahead, BHP Port Kembla's General Electric Co of Australia Bo-Bo DE D43 (A.271 of 1974) arrives at the Kemira loader with empties while A E Goodwin Co-Co DE 103 (84179 of 1963) brings up the rear, 1 December 2000. Photo: Brad Peardon

Mining Railways at Cobar

by John Shoebridge and Bob McKillop

3. Great Cobar Limited, 1906-1914

Introduction

The development of the Great Cobar copper mine into one of Australia's most successful mining ventures by the Great Cobar Syndicate was covered in *Light Railways* 154. That account concluded with the sale of the mine to the English company Great Cobar Limited for £1,006,000 and its formal transfer to the new owners on 22 August 1906.

The new owners were English investors who issued a prospectus with a capital of £750,000 in shares and £750,000 in debentures. To service this investment demanded major increases in output from the mine and smelter. To this end the Company proceeded with a lavish expansion plan, probably unsurpassed in Australia. However, their profit expectations were never met.

This article examines the grandeur of the plans and the shortcomings of their execution up to the failure of the Company and the second closure of the mine in 1914. One particular feature of interest to the industrial railway historian is that this was the site of the Australia's first standard gauge electric railway and accordingly this aspect is covered in some detail.

The following assessment draws on the field work undertaken by John Shoebridge and Ken McCarthy between 1963 and 1969 and updates/revises the article by John Shoebridge in the *ARHS Bulletin* in 1969¹ with additional research undertaken by Bob McKillop.

New Dawn-False Start

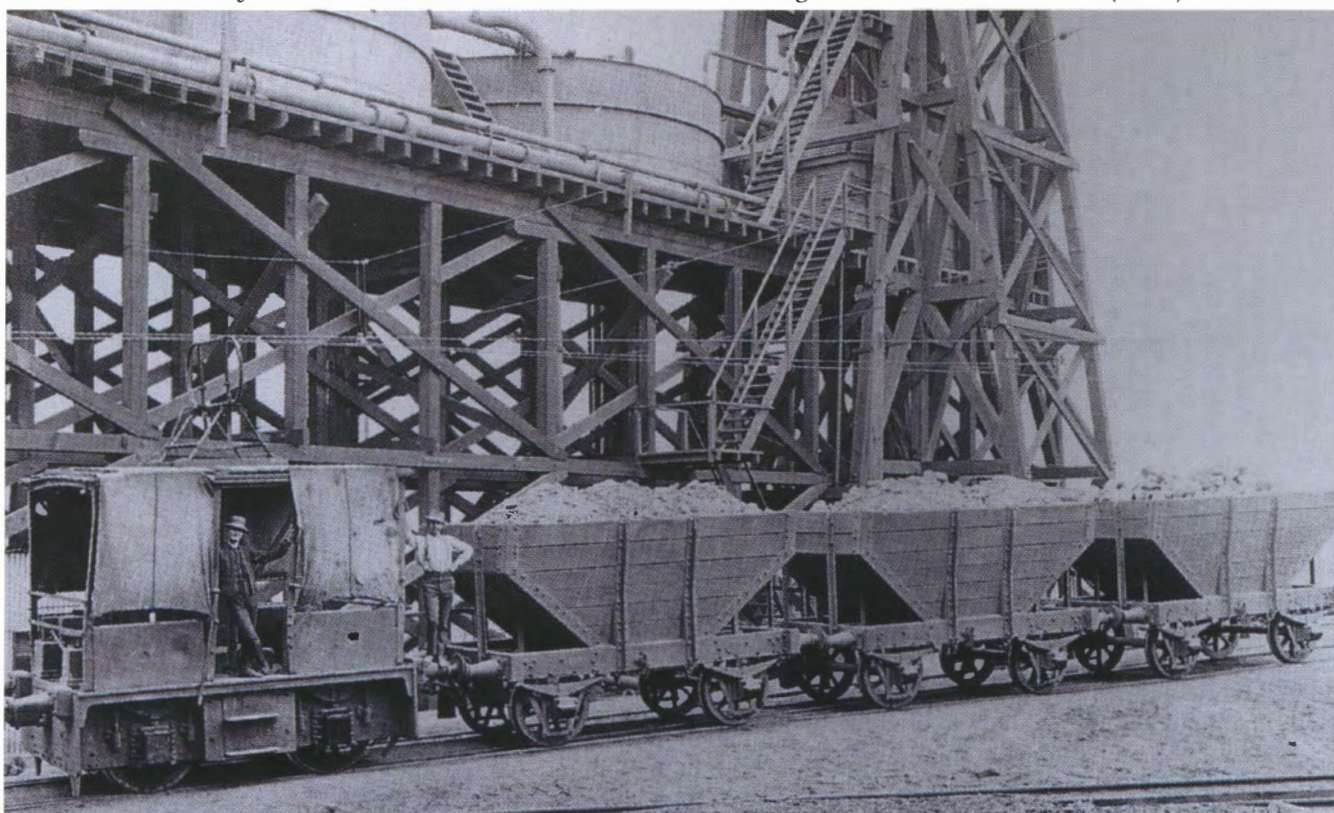
To take possession of the mine, Great Cobar Limited sent their technical adviser, John D Kendall to Australia². He arrived

in Sydney on 24 August 1906, via the USA, and proceeded to Lithgow where he was joined by George Blakemore (the Syndicate's general manager since 1905)³. Together, they continued to Cobar where they inspected the site preparatory to making specific plans for "very extensive additions" to the processing works that would put through two-and-a-half times the then 600 ton daily output of the Great Cobar and Chesney mines.

Kendall outlined these plans at a press interview in September 1906. However, his candid opinions of the Australian working man failed to impress his audience. He made it clear he was about to change work practices, stating: *The attitude of the workmen in the district appears to make it necessary for us to spend a great deal more in order to dispense with men. When I came here I thought we could go on for some time with the same plant, but I find that in all probability we will have to take steps pretty soon to introduce labour-saving machinery unless the attitude of the men undergoes a change. If you go up any day, you will see men standing supporting uprights at the furnaces for 10 and 15 minutes at a time, and they think, I suppose, they are working. This is a condition not conducive to successful arrangement*⁴.

One of the recurring themes in the history of the Great Cobar is the shortage of skilled workmen and, though Kendall appears to have lacked skills in industrial negotiation, it is difficult to see how the huge expansion could have been managed without extensive mechanisation.

On returning to Lithgow, Kendall confirmed the new Board's confidence in their key officials. Blakemore would remain as general manager (based in Lithgow), with Armstrong as mine manager at Cobar. However, Kendall's pronouncements on Australian workers had caused a storm at Cobar, where miners felt they had been put down by a brash interloper who had little appreciation on the difficult conditions faced by workers in the harsh Australian outback. Soon the Amalgamated Miners Association (AMA) and the mine



A battered electric 'motor', circa 1912, with three hoppers of ore from the Peak Branch, which would have been pushed to the mine by a Government steam locomotive. They will now be placed over the furnace bins. The tanks at the rear maintain the cooling water supply to the four blast furnaces.

Photo: Great Cobar Ltd

managers were in dispute over a number of grievances⁵. The Great Cobar management indicated a willingness to grant a "fair increase" in wages, but in May-June 1907 a miners' strike closed all mines in the Cobar district. A visitor reported:

Visiting this wealthy copper mine at the time of the strike, a depressing picture was to be seen in the smokeless chimneys of the smelting furnaces, the silent engines, the general air of an abandoned mine. When in full swing, the surface operations present a most attractive scene of activity⁶.

The Mighty Plant

Even prior to 1906, George Blakemore (then general manager for the Syndicate) and John Kendall (consultant engineer to the purchasers) had each been occupied with their own plans for a major expansion to the Great Cobar mine and smelter. Blakemore had developed grand visions for the future of Cobar and he was determined to make Great Cobar the greatest mine south of the equator⁷.

Blakemore and Kendall were now called upon to work together in the speedy erection and commissioning of a massive new plant "of total cost exceeding 160,000 pounds" so the mine could justify the new shareholders' immense investment. Although Kendall followed American practice in his plant design, he was working with a British Board and, when the orders were placed, the majority of the machinery came from Great Britain⁸.

There were several significant exceptions, the brick-lined steel chimney stack, towering 210 feet over the mine, was designed, fabricated and erected by Walkers Ltd, of Maryborough Qld, (it featured in their catalogues for years to come) and, as noted later, the large electric slag-pots came from the USA.

To a large degree, the location of the new works had been determined by Blakemore when he commenced sinking the New Main Shaft in 1903. Despite its close proximity to the

line of lode, the additions were laid out adjacent to the north-east side of the surface lease and by mid 1907 the new surface works were well under way.

Among the items included in this work which arrived by rail to be erected and put to work during the hectic years 1907-08 were:

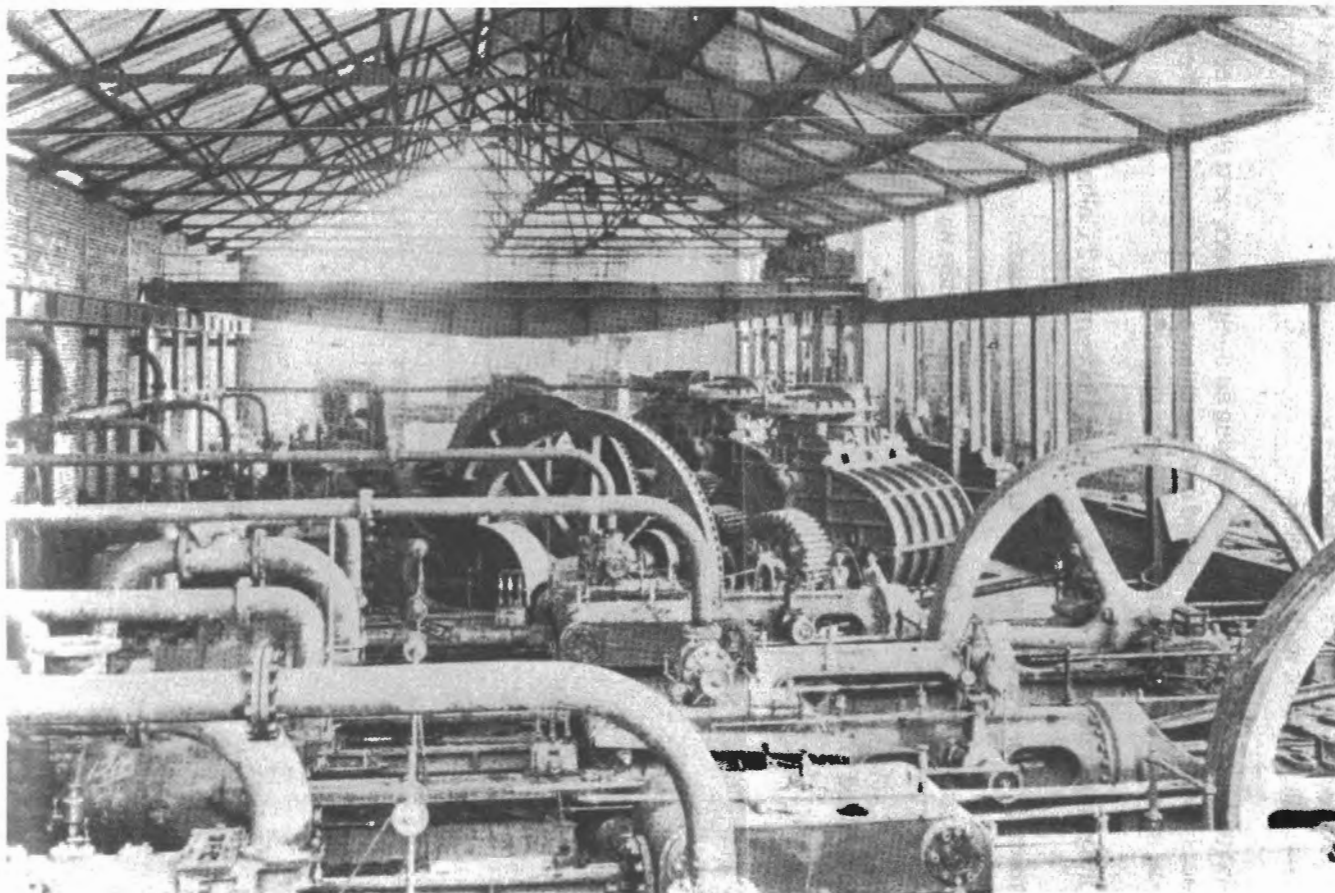
- Steam winding engines (Andrew Barclay, Kilmarnock) and steel headframe.
- Two gyratory crushers (Hadfields, Sheffield) each with a 100hp electric motor.
- Steel-plate conveyor (Babcock Wilcox)
- Two electric locomotives (British Westinghouse, Manchester)
- Four slag-pots and six rail hoppers (Dewhurst, Sheffield)
- Four slag-pots (Pollock, Youngstown USA)
- Scales and truck weighbridge (Pooleys, Birmingham)
- Three water-jacket blast furnaces.
- Three Bessemer-type copper converters
- One 40-ton gantry crane (Babcock Wilcox)
- Two 20-ton gantry cranes (Andrew Chaplin)

Constructed on site from squared timbers were the main-shaft brace and ore bins, the furnace bins and sample mill and the ramps up to the furnaces. To supply air and electricity for the machinery handling the ore and slag was a massive power station, the very heart of the plant. It was one of the largest collections of steam plant in the State at the time. Epitomising the heyday of the reciprocating steam engine, in this one brick-walled steel-framed building were:

- Two direct-acting compound air compressors (Walker Bros, Wigan) supplying underground rock drills, pumps etc.
- Three engines (Cole, Marchant and Morely, Bradford) geared to Roots blowers providing blast air for the three water-jacket furnaces.
- One direct-connected blowing engine (Walker Bros) feeding the three converters.



The Great Cobar Mine and Smelters, as they appeared in 1908. Some idea of the magnitude of the operation can be gained from this view of the works under construction. In the foreground an old siding is being removed and the electric line constructed. Photo: Great Cobar Ltd



The "heart" of the works was the power station, surely one of the State's largest installations of steam engines under one roof. This view was taken in 1908, looking north, whilst the plant was in the course of erection (note the brick walls had not been completed). Closest to the camera are the two direct-acting air compressors, next the three Roots-type furnace blowers and their engines and, in the distance against the end wall, the three vertical compound engines driving the electric generators. The travelling crane survived till the 1960s at Hebburn No.2 Colliery. Photo: Great Cobar Ltd

- Three vertical triple-expansion engines (Browett-Lindley, Patricroft, Manchester) direct connected to alternators comprising the electric power plant.
- One motor-generator set (Siemens) and the main switch-board.

Superheated steam at 170 psi came from the adjacent boiler house, with its six Babcock Wilcox boilers. They were each rated at 450 horsepower and also supplied the Main Shaft steam winder. The coal for these boilers came (generally from Lithgow) in Government trucks. From a bunker beneath the rail siding it was raised by bucket-conveyor into the overhead hoppers feeding chain-grate stokers, while ashes were conveniently disposed of down a mullock pass into the mine.

Despite the massive investment, the installed plant capacity soon proved insufficient for the required output, forcing the management to again approach the Board to approve further capital expenditure. Thus between 1908 to 1911 the purchases continued as the following major items were added:

- Bedding bins, another picking belt and rubber belt-conveyor and tripper.
- A third electric locomotive, second motor generator set and eight new slag pots.
- Blast furnace No 4, requiring also its own engine and blower.
- Another copper converter (No 4) and a new 40-ton gantry crane.

This second round of spending was not confined to items required for production. In this period, extensive new workshops, a forge and foundry were constructed and a large brick office building was built so the head office could be moved from Lithgow.

By this time it was stated that the total investment on the new machinery had exceeded £500,000, a very large sum indeed. It was all very well that miners, management and townsfolk alike viewed the works with justifiable pride; now the mine had to repay this investment and make a profit.

'Teething Problems'

Despite hectic construction activity it was soon apparent that all was not well with the new venture. The new plant was apparently completed in September 1908, but the operation of the new smelter was plagued with problems. It was just as well that the old (Syndicate) smelters had been retained in operating order, because now they carried the plant whilst modifications were made to the new furnaces. The director's report to the London shareholders' meeting in June 1908 was:

...remarkable for its lack of information on points of interest to shareholders and for its laboured attempt to make the best of a thoroughly bad situation. Much space is devoted to photos and descriptions of the new plant and machinery, where this could have been more profitably employed in furnishing more specific details of last year's work⁹.

Nevertheless, the chairman, Andrew Haes, was optimistic and assured shareholders that once the new plant was operational, there would be a dramatic improvement in profits. He said: *The production of metals will be far greater, and the execution so much better, whilst the economies effected in cost will be such that no comparison [with the old plant] is possible¹⁰.*

Some of the problems were of poor design and under-capacity, while some were caused by the inexperience associated with such a sudden expansion with a totally new plant. In January 1909 the local paper reported that the furnaces gave those connected with them some trouble managing during



This mood scene depicts an electric 'motor' on the track beside the 6000-ton "Bedding Bin", while a horse providing more traditional transport surveys the scene. The steel-plate conveyor from the crushers to the bin dominates the scene. Note discarded refuse on the left and the "picky boy" in the process of adding to the pile from the window on the left.

Photo: University of Melbourne Archives via Colin Harvey

the first three months¹¹. Although it was claimed that the furnaces were now "giving the greatest satisfaction", Great Cobar Mine was still having serious problems dealing with its refractory ores and was then under suspension.

It emerged that on commissioning, the jackets of the furnaces bent outwards after a few days operation allowing molten matte to escape. When Kendall arrived to inspect the new plant, he found No.3 blast furnace out of commission undergoing extensive repairs¹². Several of the lower brackets had been burnt through and had to be patched. Nos 1 and 2 furnaces were in blast but in very dangerous condition. The problems could be traced back to several underlying factors, among them:

1. The pressure from the absentee shareholders for a quick return on the immense capital they had committed. Thus management from Kendall downward, were all under a deal of pressure to get the new smelters up and running.
2. There were obvious errors in the design of the plant, and insufficient capacity had been allowed in several areas.
3. With the rapid expansion of the mine and plant, many of the workmen recruited were not experienced in this method of smelting.

Kendall, however, considered George Blakemore to be at fault for allowing all three furnaces to be put in blast without adequate attention to the initial fault, thereby subjecting them to damage and the expense of extensive repairs. Although many fresh starts were made, constant breakdowns occurred. Kendall advised the Board that he was dissatisfied with the management in Australia and it dispensed with Blakemore's services. As a highly-regarded mining engineer, George Blakemore was to remain in Cobar as manager of the Occidental mine and technical adviser to several other mines including the CSA. He later entered into rigorous debate over the problems of the new plant, claiming that it was plagued by faulty design and that the Tennessee plant from which Kendall had based his design "was a failure from the day it was blown in until it was reconstructed"¹³. A new manager, Herman Bellinger from North America, took charge at Great Cobar on 1 February 1909. He quickly recognised that Kendall's

plant was faulty in many ways and unable to achieve its intended performance levels. This of course was a considerable embarrassment to the Board, which had so strongly relied on Kendall, both for the advice initially to purchase the mine and then to invest so heavily in the new smelters. The outcome was that Kendall became the second scapegoat. His resignation was requested and he departed from the scene in June 1909¹⁴. Having gained the confidence of the Board, Bellinger drew up plans for remodelling the new plant. In order to maintain production, the old plant developed by the Syndicate was required to remain in use as the reconstruction program would take several years¹⁵.

When the furnace-tappers commenced a strike in November 1909, Bellinger was apparently in no haste to negotiate. After ten weeks they were ready to return to work, but by then a State-wide coal strike blocked fuel supplies. In 1909, the quantity of ore treated was 30,000 tons less than the previous year due to breakdowns and closure of the smelters during the last seven weeks of the year due to the coal strike¹⁶.

Bellinger took advantage of the shut down to speed up the plant reconstruction program¹⁷. A new (No 4) blast furnace was constructed, the other three were rebuilt and their water jackets replaced, water connections were renewed and all the hot-metal vessels were relined. At the same time large 5000 ton timber bedding-bins were erected, close to the main shaft and picking belts added whilst on the dumps the rail tracks were relaid. The locomotives and all of the slag pots had their tyres renewed. The lines to No. 2 and 3 furnaces were relaid with turnouts at an improved angle.

By May 1910 there were rumours in Cobar that the mine was failing and the management were desirous of closing down¹⁸. In London, the chairman responded by boasting that the company has now entered upon "the profit earning stage which will result in substantial earnings to shareholders"¹⁹. Possibly as a symbol of the company's confidence in the mine, a new administrative building was completed in 1910. It was claimed to be the best finished and equipped commercial building in the Southern Hemisphere.

Industrial problems continued into 1911. Early that year considerable unrest amongst the employees of the Great Cobar copper mine resulted in a mass meeting of 500 men at Oddfellows Hall in Cobar²⁰. The company claimed it was unable to reach the commercial capacity of its plant on account of labour conditions. Herman Bellinger stated that

The company has, in the past two years, made every effort to secure the men required for the production and have succeeded in importing a large number. However, on account of Cobar appearing to be a favoured field for recruiting by localities that are more fortuitously located than us, they have succeeded in drawing from us more than we imported²¹.

At the fourth annual general meeting of the company, the chairman again had to defend the non-achievement of targets. He blamed the poor performance on the:

Unrest and unsatisfactory conditions among the working classes under which the whole work had been suffering. Strikes had been frequent and it had proved a very anxious time for all concerned. The frequent and irritating stoppages at the furnaces from one cause or another had naturally not enabled the management to get the costs down to the figure indicated²².

The reconstruction program was eventually completed during 1912. Townspeople and visitors alike gazed in admiration at the magnificent plant, "hailed" as one of the largest and modern concerns of its type in the world²³. The fifth annual meeting of shareholders on 30 December 1912 was told that the net profit for the year was £168,617, though this was inadequate to yield a dividend²⁴.

Finally, "after continuous struggle", Herman Bellinger was seen to have made the mine into a paying proposition and, by the end of the year, the Cobar community was "at the high point of its existence"²⁵. The hopes were premature. The new plant had cost the company £500,000 rather than the expected £160,000 and analysis showed that the welcome profit was due almost entirely to the higher price ruling for copper and not to any improvement in management. The Sydney spot price of copper had risen from £58 per ton in December 1911 to £79 12s in June 1912 and remained around this level for the remainder of the year.

Underground Operations

By the time of the 1906 takeover, the Great Cobar was already a mature mine requiring deep-level mining technology to exploit the massive ore body. Bartons Shaft, then 1000 feet deep, raised most of the ore. Its hoisting capacity of 600 tons per day was the limiting factor in the expansion of the mine.

The Syndicate had commenced a new shaft in 1903. After the takeover, this work was expedited with sections being simultaneously sunk and raised from three levels underground and as a temporary expedient, a new winding engine was fitted at Barton's Shaft. By 1907, the upper section was down to 700 feet and there remained some 40ft of solid ground above the lower section, which had bottomed at 1004 ft. When this was excavated, ropes, guides and cages were fitted and a steel headframe, brace and winding engine commissioned. In 1908 winding commenced from 10 level.

The rectangular (15ft x 8ft) "New Main Shaft", had three compartments, two for cages and one for pipes, cables and a ladderway. Now the Company stated that all output would be wound up this shaft and the other two progressively dismantled.

Overall, conditions of work underground were generally considered favourable compared with other mines of similar depth. There were no faults, the ground in general stood well and the lode was of sufficient width to allow stoping without excessive "dead-work". The mine was worked from levels (100 ft apart) from which internal shafts were sunk downward ("winzes") to intermediate "sub-levels" and driven upwards ("raises") to form open stopes from which the ore was extracted. The stopes reached a maximum height of 25 feet and despite their timber supports, the stability of the mined ground depended on efficient backfilling ("mullocking") with waste material. This fill was dropped down a special shaft from the surface and trucked along the 300 ft level to mullock passes above the stopes.

In 1911 it became evident that these arrangements were insufficient for the increased output. An open pit was opened on the western side of the property to augment the supply of mullock, a new shaft was sunk and horses were utilised to



A group of miners pose for the camera underground with a compressed-air rock drill, circa 1910.

Photo: Cobar Regional Museum



The huge scale of the Cobar furnaces and the various modes of transport for industrial waste products are evident in this classic scene of the 'slag road' on the eastern side of the furnaces. Two electrified rail sidings serve each of the five 'settlers'. Slag pots are being charged from the 'settlers', while an electric 'motor' waits on the far right to haul a pot to the slag dump roads. Reclaimed dust was collected from the chutes above the rail sidings, and the horse and cart is presumably engaged in transporting this product back to the furnace bins. Photo: Cobar Regional Museum

handle the mullock skips. The Mines Inspector was still not assured of the sufficiency of these arrangements and in 1913 he was proved correct when a massive ground movement ("creep") extended from No 9 level to the surface, destroying most of the upper workings.

As the huge mine expanded, ventilation became more difficult. The Inspector first drew attention to this problem in 1911, evidencing excessive temperatures in working places, and again in 1912, when the Company agreed to sink a new shaft "towards the North of the property". Nothing was done and in 1913, a compulsory order was issued requiring Great Cobar and the North Cobar Company to jointly drive through the intervening 420-foot barrier and connect the two mines.

Above all, production ruled. Day-in, day-out, ground was broken, ore was trucked and raised and it was all done the hard way. Despite the huge investment in mechanisation on the surface, the only machines below ground were compressed air rock-drills and the electric pumps.

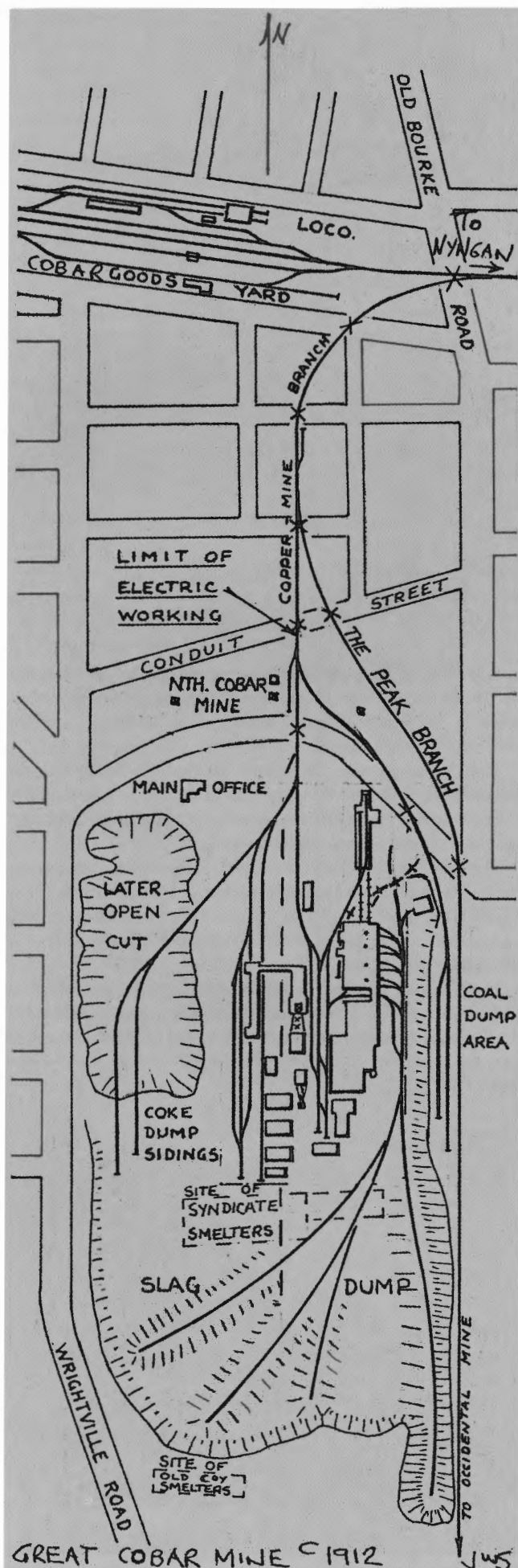
In the stopes, miners drilled the ore and shot it down with gelignite, "spallars" broke the lumps then "boodlers" shovelled it down the "ore-passes" to the level below. Here "truckers" loaded their skips from overhead gates and "trammed" them on slightly descending rails to the shaft landing ("plat"). The broken ore was trucked in one-ton capacity underground rail skips and run down to the plat, and when a sufficient number of trucks accumulated, they were sent up in the cage and the corresponding number of empties returned²⁶. Usually between 1150 and 1500 trucks of ore were hauled per 24-hours. Miners and truckers worked on "contract", (ie they were paid for the mineral they mined or moved); spallars and boodlers were on "day-wages", a source of many industrial disputes²⁷.

The short distances from ore passes to the shaft allowed

hand-tramming of ore so that horses were generally used only for handling mullock. From the plats, the big steam winder raised the ore, two one-ton skips in each cage. Lines of ore trucks marshalled on each plat awaited hoisting under the control of the "flatman" and his assistants. All landings had been fitted with electric light in 1909. By 1912 shaft capacity was again limiting output, and electric signals and telephones were installed in an attempt to alleviate the problem.

As the mine deepened, the length of the ore bodies diminished slightly and though their width and copper values remained constant there was a disturbingly smaller proportion of acidic (siliceous) ore in sight. Acidic and basic ores complemented each other for efficient smelting, but overall the Great Cobar lode contained more basic ore than acidic. This was the reason for the Syndicate's earlier acquisition of the Nymagee, the Chesney and the Great Peak mines. Now in 1910, the new Company recognised this trend in their ore reserves and purchased the Cobar Gold Mine to ensure continuity of its siliceous ores to add to the furnace feed²⁸. No.12 level was opened in 1910 and No.13 in 1911, with ore values improving slightly. Most production came from 8, 9 and 11 levels in the upper sections of the mine.

In 1912, the Main Shaft was sunk a further 350 feet, a considerable yardage of development headings was driven, and the Company stated that sinking would continue to the No.16 level. Stopping in the upper levels maintained output and by the end of the year Levels 6 to 9 were virtually depleted. The shaft was winding from 14 level by 1913, with most of the production coming from 10, 11, and 12 levels. Development work was reduced although good values were said to be still in sight. The shaft was just below 1500 feet and No.12 level was extended to meet North Cobar workings.



Little development was done in 1914 until April when the mine closed; then despite recommendations from the consultants, (ie that development and mullocking be continued for the time being) nothing more was done underground. Once in the hands of the receiver, the workings were allowed to deteriorate, pumping ceased and the lower levels commenced to fill with water.

In Syndicate days, compressed air pumps handled the underground mine water. By 1909, three electric plunger-pumps had been installed and these raised 40,000 gallons per day direct to the surface, fed by subsidiary pumps in the bottom levels. On the surface this water was usually run into huge saline lakes to evaporate; in droughts, by dire necessity it was used in the blast furnace water-jackets despite corrosion and encrustation problems.

Surface Railways

On the takeover of the mine in August 1906, the standard gauge track on the mine property was limited to a nest of sidings at the end of the NSWGR Coppermine Branch, which ran from the east end of Cobar station yard up a slight rise to the mine. Fuel, timber and (imported) ore arrived along on this line and the copper ingots departed on it. All internal transport (ore and coke into the furnaces and slag to the dumps), however, was by means of a system of 2ft 6in industrial railways utilising rope, horse and steam traction.

These lines, described in LR 154, had grown in an unplanned manner with the mine. It would have been obvious to Kendall and Blakemore as they worked on the design for the new plant that a more modern internal transport system would be necessary to meet the tonnages which the plant was designed to process. To achieve their targets would require 1500 tons of ore and 130 tons of coke fed into the furnaces and 900 tons of slag drawn off and dumped, every day of the year.

For this immense round-the-clock task, a standard-gauge electric system was specified and, in 1907, work commenced grading and laying the new track. Orders were placed in England and America for modern motive power and rolling stock.

The new internal railway was in use by the end of 1908, although the narrow-gauge lines (with both horses and steam locomotives) continued to serve the Syndicate smelter. This continued to operate during the construction of the new works and when unexpected problems arose in their commissioning. Evidence of continued use of steam locomotives and horses comes from Mines Department accident reports. For instance, in May 1908 a locomotive fireman broke his arm when it was caught between the cab and a shed and later the same year, a horse-driver suffered a broken leg when a slag pot ran on to it.

Although steam eventually succumbed to new technology and the little locomotives were laid up behind the workshops, horses were never completely dispensed with. They appear in many photos "between the shafts" on general yard work around the plant, then during the smelting problems of 1909 a narrow-gauge line was laid through the converter house and horses were used pull the old Syndicate slag-ladles along this short track to the adjacent "matte ring".

Electrification details

The standard gauge surface rail system was necessary to achieve the planned output from the new smelter and no doubt the need for round-the-clock slag disposal was a major consideration in the decision to utilise electric traction. Based on the design tonnages and assuming a 3 percent copper content in the ore, slag disposal would have amounted to around 1450 tons per day.

In the event, although only a modest affair (with some 3½ miles of track at maximum extent), the Great Cobar mine railway was the first electrified standard gauge railway (as opposed to a street tramway) in Australia and is worthy of description in some detail.

The overhead was based on tramway practice. In the works area, the span wires were attached to wooden poles or adjacent structures; on the slag dumps, steel poles (water pipe with a length of rail inside) carried side arms, which in turn supported the contact wire. These poles were cemented into massive steel bases (old boiler flues etc) so they could be moved (albeit with great effort) as the dump roads were extended.

The 250volt direct current for the railways came from the two 260kW Siemens motor-generator sets in the powerhouse. These also supplied the three overhead hot-metal cranes and the tilt motors of the converters.

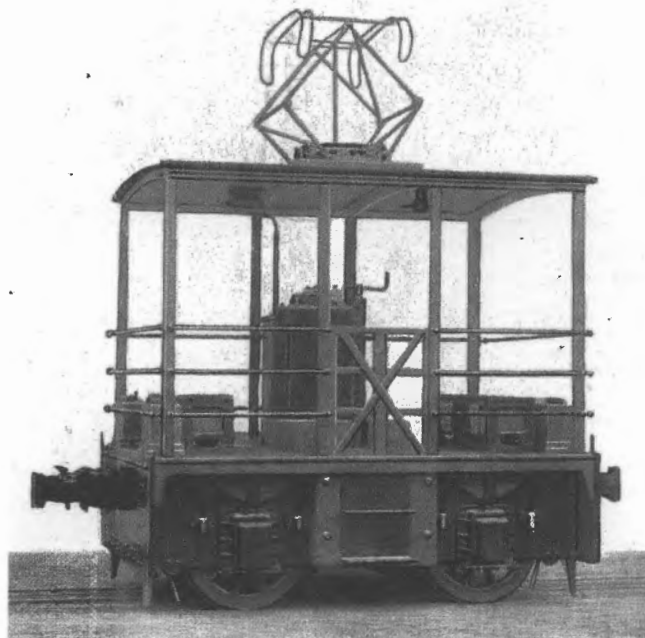
Stranded copper conductors bolted outside the fishplates electrically bonded the rails, though in places there appear to have been dual contact-wires. The low supply voltage must have presented problems out on the dump roads as there is no evidence of feeder cables. During site investigations in the late 1960's, a complete pole and side arm was discovered on the slag dump. More remarkably (in view of their constant theft when the railway was working) one solitary traction bond was found to be still in place on a short section of bull-head track close to the North Cobar points.

Electric locomotives

There were three identical locomotives, which were generally referred to as "motors". As is evident from photographs, when they were delivered they were of Spartan appearance, devoid of all superstructure save for an iron roof mounted on eight angle-iron supports which also carried the railing around the driving position (it could hardly be called a cab!).

Although the deep, fabricated frames, massive headstocks and cast ballast weights were representative of American practice, in fact the locomotives were built in England. They were supplied jointly by the British Westinghouse Electric and Manufacturing Co Ltd of Manchester (motors and electrical equipment) and Messrs Bagnalls Limited of Stafford (frames and running gear).

It appears that the orders were placed with British Westinghouse (for two locomotives in April 1907 and a third



A 'Type-"Cobar"' locomotive, as featured in Messrs WG Bagnall's locomotive catalogue of the period. At this stage, no buffers were fitted but, in true British tradition, tail-lamp brackets are in place on the headstocks. One wonders if any others were sold to this design.

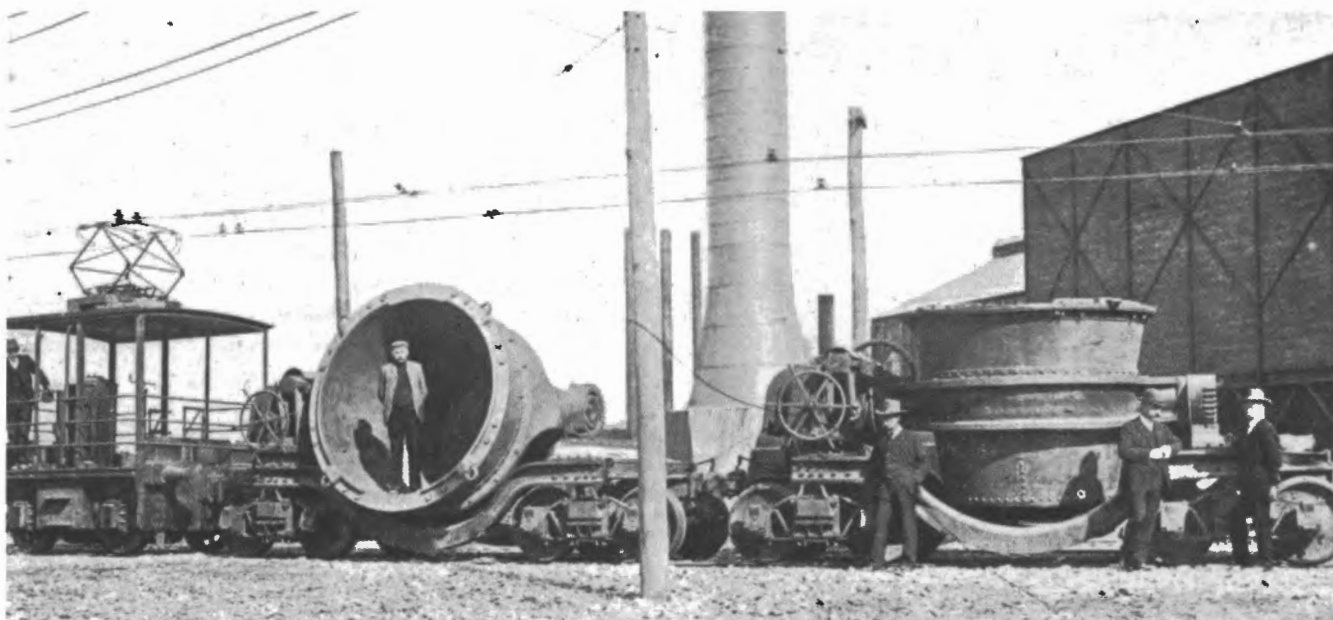
Courtesy: Allan Baker

in July 1908) with Bagnalls as sub-contractors. This is evidenced by the fact that Bagnalls did not allocate builder's numbers, while a surviving general arrangement drawing is titled "British Westinghouse".

The 'motors' were, however, erected at Stafford, (the builder's photograph is recognisable as being taken at the Castle Engine Works) then exported via Liverpool. Bagnalls' Despatch Book records the following:²⁹

- General Order No 54C 6/4/1907: "Two electric Locos, new, British Westinghouse Electric Manufacturing Co Ltd"
- General Order No 550C 22/7/1908: "One electric Loco, body and truck, exactly as o/54c 6/4/1907 British Westinghouse Electric Manufacturing Co Ltd, Shipment FOB Liverpool."

The Drawing Register indicates they were destined for "Great Cobar Mines NSW". Subsequently this photograph appeared in the Bagnall catalogue, described as a "Cobar" Class locomotive.



One of the electric locomotives and two Pollock slag-pots soon after assembly at the mine, in 1908.

Photo: Great Cobar Ltd

A similar illustration in The British Australian Machinery Co's catalogue is captioned:- "a type of Electric Locomotive supplied to Australian Mines..." but there is no indication this firm was involved in the transactions.

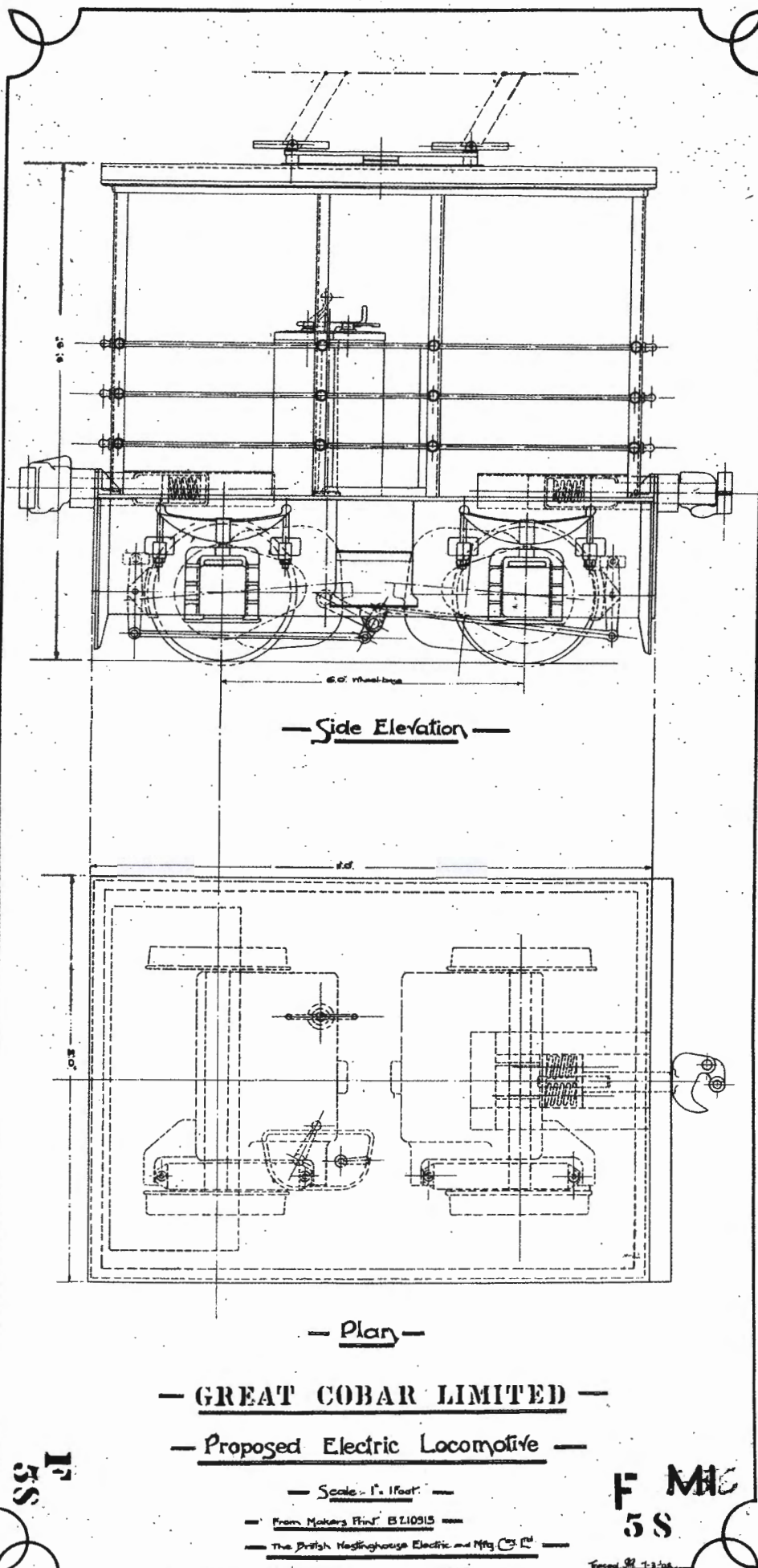
The locomotives, which weighed 25 tons, had two motors and a drawbar pull of 12,000lb. No reference has been found regarding the motor ratings, but given the above tractive effort, the locomotive would have required around 140 horsepower. Power was collected by means of a twin-pan pantograph; under the roof was a line-breaker and the supply cable ran straight down between the roof supports to a tramway type controller. Opposite the controller was a pillar-mounted hand brake. Also on the footplate were the four sand-boxes and two banks of resistance grids.

It was all very basic: there was not even a seat for the driver, there were no lights or power brakes and the warning bell was sounded by hand.

The builder's photograph indicates that they were supplied with automatic couplers only (an Australian first?). Before they were put into service, buffers were added, and although photos are not clear, it can be assumed that the couplers had cast slots to accommodate a chain coupling link.

Whilst in service, the driving positions were enclosed by makeshift "cabs", bow collectors replaced the pantographs and basic headlights (bare globes with streetlight shades) were fitted but surprisingly (in view of the massive loads handled) it appears that no power brakes were ever provided. As the locomotives carried no numbers, it has been impossible to determine what modifications were done to which machines or even the year in which they were carried out.

No running shed or covered stabling was provided. In any case they would require only minimum maintenance (contacts cleaned, brushes replaced and brakes adjusted). Some photographs show a motor standing near the derrick crane behind the electrical shop; perhaps that is where they were serviced.



The motor drivers were paid 11s 6d per shift, (a labourer earned 9s), and were required to hold a NSW Mines Department Electric Locomotive Driver's Certificate. At a time when electric locomotives were somewhat of a mystery to the local Mines Inspectors, Mr Corner (Asst Electrical Engineer) from the NSW Tramways travelled all the way to Cobar to examine candidates.

Specialised rolling stock

An impressive array of specialised rolling stock was necessary to handle the molten copper and slag. While the majority of the new plant came from Britain, significant and successful exceptions were four bogie slag pots, described as "Berg Patent Cinder Cars" imported from United States, being a product of Messrs William B Pollock of Youngstown, Ohio.

For their day, these slag pots were "state of the art". They were fitted with automatic couplings, arranged to discharge by electric power, and could carry 200 cu ft (around 25 tons) of molten slag. They had no buffers and (as is usual for this type of service) no brakes. Electric power for the turning gear (there was hand gear for emergencies) was fed via a jumper cable carried on the locomotives and plugged into a socket on the vehicle. When the controller on the casing was operated, the ladle could readily be tipped to either side of the track. These vehicles appear to have been a success and a further eight were ordered from the same makers in 1908.

Not so successful were two English-built slag pot cars, also part of the initial order, supplied by the Dewhurst Engineering Co of Sheffield. These had conventional couplings and (peculiar headless) buffers and they relied on an arrangement of chains to dump the load. With the car chocked or chained to the rail, the locomotive uncoupled and hooked onto one of two tipping chains and then backed away tightening the chain and tipping the ladle. These were massive bogie vehicles with fabricated plate-frames and square cast ladles, with a tare of 20 tons and a capacity of 35 tons. It may well be that their

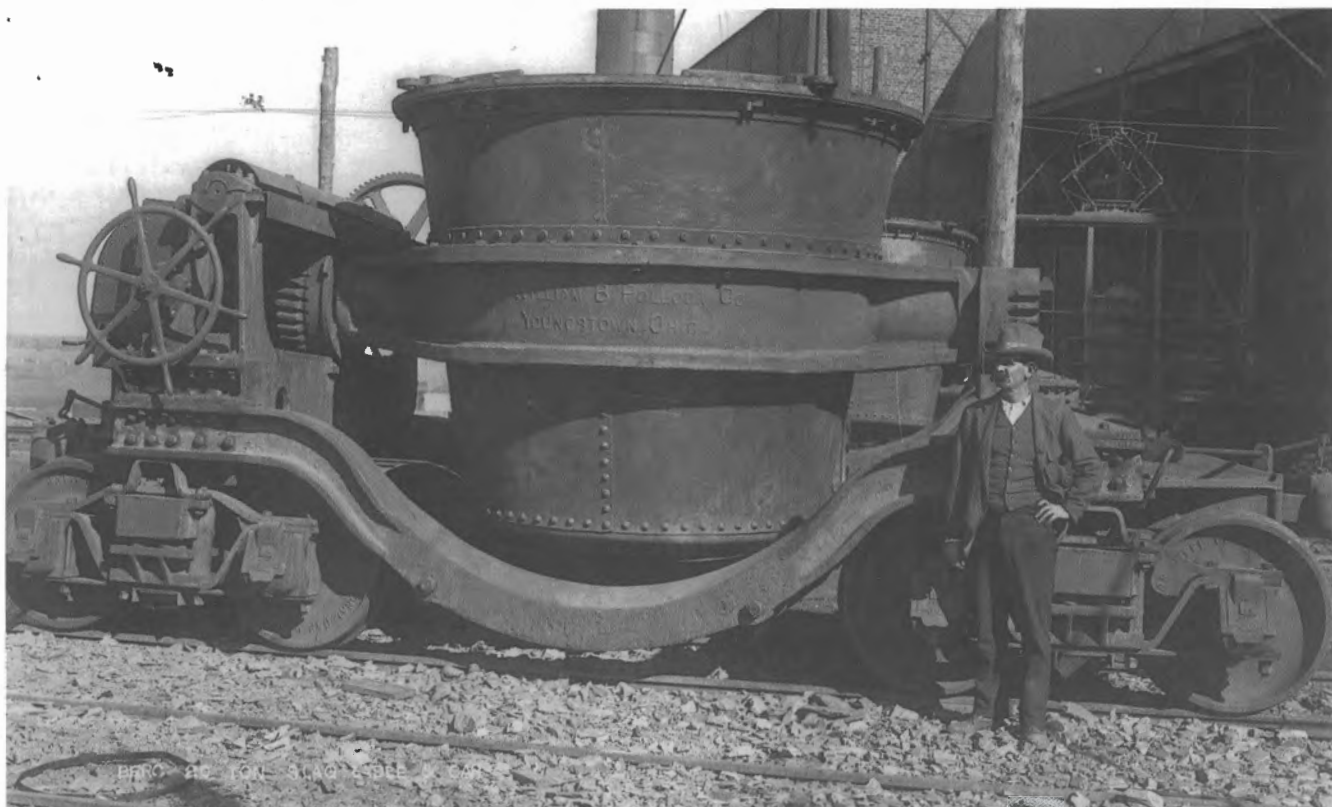
very size made them unsuitable for the roughly laid dump tracks. In the event, anecdotal evidence is that they were prone to derailment and were soon laid aside full of solidified slag.

Dewhurst also supplied three of their end-dump "patent" slag wagons. These were much smaller four-wheeled cars, which carried only ten tons. They had buffers and a coupling hook at one end only and were also chain tipped. They were essential to extend the dump roads as the tip progressed so, in contrast to the larger vehicles, they remained in use until the final closure of the works. There is also a mention of two Dewhurst "matte-ladle" cars; apparently these were similar in size to the end dump cars but they had couplings at either end and the ladles could be lifted free by an overhead crane. These do not appear in any photos, so they may not have been much used, no doubt due to difficulties of the operation of overhead cranes near the electric wires - which would explain the use of horses to move the matte-pots in the converter house.

A number of steel ore hoppers were also imported from the Dewhurst works. These impressive bogie-vehicles weighed 12 tons and could carry 30 tons of ore, which was unloaded by screw-operated bottom-dump doors. They had lever handbrakes and buffers and (one assumes) hook couplings. The number supplied has not been ascertained (probably no more than six), but they appear to represent another first for the Great Cobar, the first steel bogie hoppers in New South Wales (and probably Australia). It appears these big hoppers were mostly on the ore run inside the works, though one photo appears to show one of them at the Cobar Gold mine (so perhaps this is why they were not fitted with automatic couplings.)

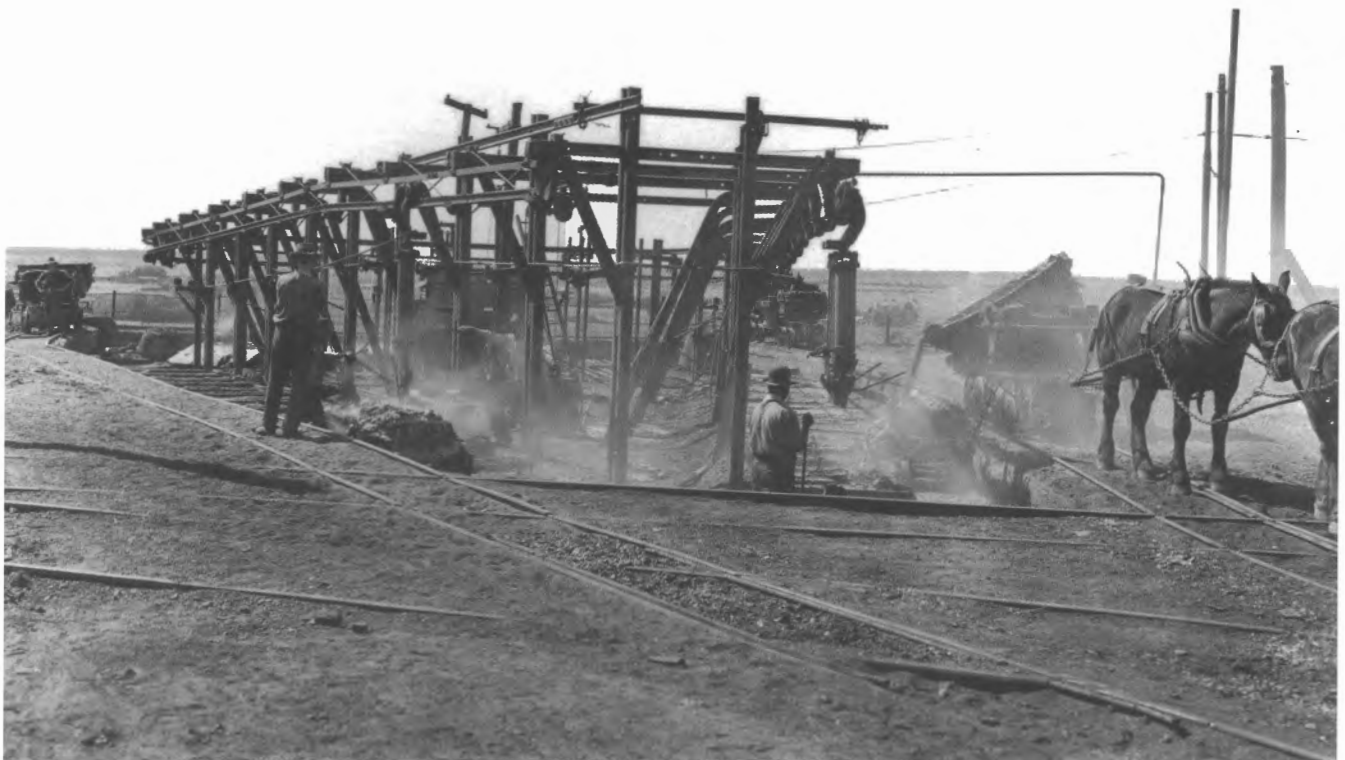
Along with the use of these new vehicles, some of the wooden hoppers from the Syndicate days remained in use and of course the ubiquitous Government 4-wheel trucks appear in several photos of the works.

This then was Australia's first standard-gauge electric railway, which, for around 12 years, worked virtually unnoticed in the New South Wales outback.



A newly delivered Pollock 25-ton bogie slag pot at the Great Cobar mine. Note the electric motor in original condition in the background.

Photo: Cobar Regional Museum



The "matte ring" was a discharge point for low grade matte to be cast in moulds for later reprocessing. The matte was transported to the ring in 2ft 6in gauge rail pots hauled by horses, providing an ongoing application of the Syndicate era narrow gauge railway operation. Standard gauge electrified lines cross the older railway application in the foreground. Photo: University of Melbourne Archives via Colin Harvey

The Process

The railway system performed transport tasks at various stages of the ore mining and copper smelting processes. Ore and coke fed the furnaces, whilst water, coal and pit-timber were needed in great quantities to keep the mine in production. Except for the water (and in times of drought, that also) all these arrived on the Government line and were shunted by their locomotives up the short Coppermine Branch from the end of Cobar yard. Once inside the mine property, Great Cobar's own internal railway system took over the movement of materials. Unlike many other industrial railways, where only one type of material was handled, the Great Cobar railway was much more involved, and a description of the process will assist with the understanding of the railway operations.

From the Main Shaft cages, mine cars loaded with "green" (ie basic) copper ore ran out onto the brace where they were tipped into a 450-ton shaft bin and quickly returned below. Twin crushers pulverised the ore which fell onto the steel-plate conveyors where obvious refuse was manually removed by disabled miners or young lads, ("picky boys" in the Cornish vernacular). Crushed and picked, the ore moved into a 6000 ton "Bedding" bin, designed to segregate the ore according to the stope from which it had been mined.

This bin (added during the 1908 modifications, prior to which date rail trucks loaded directly from the shaft bin) was divided into a number of compartments filled by means of a rubber belt conveyor and tripper. One compartment was set aside to feed the sample mill and through this went one tenth of the ore, to be crushed, ground and reduced for assay.

At this point the railway took over from conveyors. The 30-ton bogie trucks were loaded under chutes either side of the bedding bin, then one of the electric "motors" shunted them along the sidings and up a timber ramp onto twin parallel tracks atop the "furnace" bins. Here they where they discharged through their bottom doors, again into a specific compartment.

The 2000-ton furnace bin stored all the feed for blast-furnaces. This comprised green ore from the mine, imported siliceous ore from The Peak branch, recycled dust and matte from the furnaces and the coke which had come along the main line from Nyngan. This was all marshalled in rail trucks and shunted up by the "motors". Limestone flux (which appears to have come by horse team from quarries on the Nymagee Road) had been necessary when the furnaces commenced operation. However, as more experience was gained with ore mixtures, its use was virtually eliminated.

Under the bin compartment were 24 doors, each fitted with a set of scales. Here the furnace charges were accurately loaded, two tons at a time into narrow gauge side-tipping skips. There was a track on either side of the bin and four skips at a time were hauled by electric winches up to the furnace "feeding floor" where the charges were manually tipped through doors on either side of the furnaces.

Seven men worked here each shift, a leading-hand "furnace feeder", three first-hand furnace feeders and three second-hands. It must have been a hellish place during a Cobar summer. It was one of these men who, in evidence before a Commission of Enquiry, stated that his greenhide-soled workboots lasted around two weeks around the furnace tops.

The smelting process now commenced, with the four furnaces operating ("in blast") around the clock. Into the flames went ore, coke and air and from them came slag, copper and fumes. The fumes, heavily charged with dust and sulphur dioxide (some ore contained up to 20% sulphur), went into a filter house then up the main stack, while the slag and copper were tapped off in molten state at the bottom of the furnaces. In the filter house near the stack base, most of the dust was reclaimed and returned at intervals to the furnace bins in rail trucks.

The major impurity in "basic" copper ore was iron. At high temperature this combined with silica from "acidic" ores as a heavy ferro-silicate slag which was drawn off at the base of the

furnace. On one side of the blast furnaces were the slag sidings, on the other, the "converter house". The furnace bases themselves, set on massive concrete foundations, were intricately inter-woven with cooling water pipes and blast-air connections.

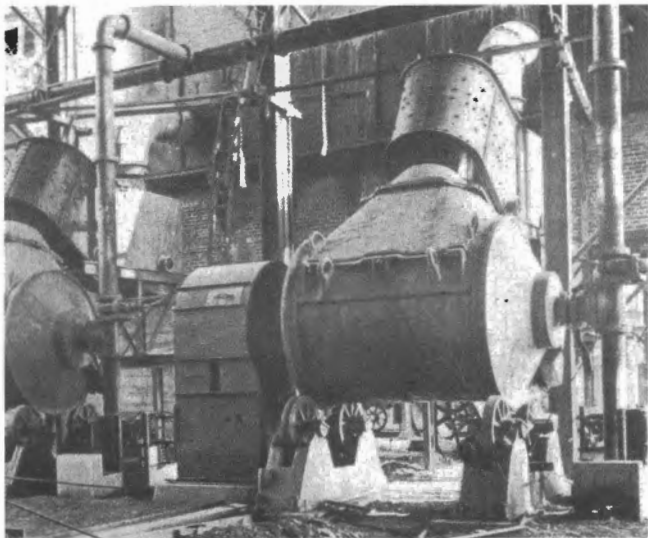
On duty here each shift were six "tappers" who ran off the slag and matte and three "tuyere punchers". They were asbestos-clad stalwarts who patrolled their searing domain to maintain the blowing-air connections free from slag encrustation. This was no place for the faint-hearted. As well as the sparks, heat and fumes from the routine tapping of molten slag and copper (dangerous enough in themselves), high temperatures, unequal expansion, and corrosion played havoc with the water jackets and there were many unpredictable explosions and eruptions (some fatal) as molten metal met cold water.

The copper "matte" was tapped off at intervals inside the converter house and flowed into ten-ton ladles. These were moved by one of two 40-ton overhead cranes to the four copper converters (one of the cranes and one converter was added in 1910). In the Bessemer-type converters, air (at 15psi) was blown through the molten charge, oxidising most of the remaining impurities. Each converter was shielded by a hood which directed these fumes into a longitudinal flue and eventually up the stack. Along the way, much of the dust was filtered out and (as with the furnace-dust) taken back in rail trucks to the furnace bins.

When the "blow" was completed the converter was tilted by its own motor and the charge flowed out. The small amount of "converter slag" went to the matte ring (see below) and then back to the furnace bins while the purified product (now known as "blister copper") was cast into 2cwt ingots.

Copper below assay requirements, known as "low grade matte", did not go to the converter stage but was tapped directly into narrow-gauge rail pots (the old Syndicate slag trucks) then hauled through the converter house by a horse to the "matte ring". Here it was cast in moulds and mechanically broken for return to the furnace bins. Although it appears that the matte ring was served by an electrified siding it is not evident how the material was re-loaded for reprocessing.

Slag made up the remaining molten material (up to 60% of the initial ore charge) and was run off into large firebrick-lined tanks or "settlers". There were five settlers on the "slag-



Two of the Bessemer-type converters seen under construction, circa 1907, with the fume hoods (above) and the blast air pipes (on the right) clearly visible. They were filled from an overhead crane ladle and, when the 'blow' was finished, were rotated by the motor and gearing (under the covers on the left) so the purified copper could run out into moulds. Photo: H Lowell, NSW Govt Printer Office



Ore for the blast furnaces in narrow gauge side-tipping skips being hauled by electric winches up to the furnace "feeding floor".

Photo: University of Melbourne Archives via Colin Harvey

road" (Eastern) side of the furnaces and each had an electrified dead-end siding on either side. They allowed the flow of slag to be diverted from side to side and the pots changed without stopping the slag run from the furnace

Once filled, the slag-pots were pulled out by a locomotive and propelled out onto the temporary dump road that was in use at the time. These tracks were laid like radiating spokes towards the south of the furnaces and eventually covered the sites of both the old smelters and their slag dumps. The locomotives with their crude cab sides rattled and clattered and the dump-pots groaned and protested over the uneven dump tracks. Every second trip, day or night, the ladles had to be bumped heavily on the frames to dislodge the build-up of slag. Two thumps then a third, followed by the rumble of the falling skull added to the medley of sounds which tormented local residents lying awake on hot summer nights. Over the plains at Canbelego, those there who could not sleep could see the glow in the sky from the slag tip at Cobar.

On summer days, conditions on the barren slag tips were almost unbearable. The sun heated the motor from above and radiant heat came from the slag pot in front, while the hot wind seemed always to direct the sulphurous fumes over the driver and dumpman.

The electric railway also had sidings serving the coal and coke dumps. As insurance against interruption to fuel supplies, the company maintained large coal and coke stockpiles. Despite this precaution, on more than one occasion these vital supplies failed (during state-wide coal strikes) and the smelter had to shut down.

The volume of traffic on the railway system was impressive. Coal arrived at Cobar almost every day by rail from the company's Smelting Works Colliery in Lithgow together with coke from their Rix's Creek Colliery (near Singleton). When the demand exceeded the output of the Rix's Creek ovens, coke was purchased from many other sources in Lithgow,



One of the Pollock end-dump pots being emptied at the Great Cobar slag dump. The car has been chocked to the rail and the motor has moved away to pull the tipping chain. At night, the glare could sometimes be seen from over 25 miles away. Photo: Cobar Regional Museum

Newnes and Illawarra. There was a weighbridge close to the main store building and one would assume that the incoming fuel trucks would be shunted over this siding on arrival.

The plant never attained its planned capacity, even so, tonnages handled in 1912 (the year of best production) are impressive:

Arriving via Nyngan Branch

Coal	22,600 tons
Coke	30,300 tons
Explosives	625 tons
Mine Timber	2,129,000 super feet

Ore from: Budgery	4,400 tons
Canbelego	400 tons
Mt Boppy	100 tons

Via The Peak Branch:

Ore/slimes from Chesney	50,900 tons
Ore/tailings from Cobar Gold Mine	45,900 tons
Ore from Gt Peak Mine	1,500 tons

Otherwise:(Horse team)

Ore from CSA	2,500 tons
Young Australia Mine	750 tons
Block 51 Mine	50 tons

Raised from Great Cobar shaft: 255,900 tons

Total ore smelted: 321,090 tons

Daily shunts from the railway station were operated by Government locomotives, usually one of the veteran Cg-class, built as 2-4-0 by Beyer Peacock between 1865 and 1870 and

converted to 4-4-0 tender locomotives from 1903. The traffic generated by the Great Cobar mine was a significant contributor to the revenue of the NSW Railways. In the year to 30 June 1910, the revenue collected at Cobar railway station (£99,739) was the highest in the State outside the metropolitan areas. By 1911 this had increased to £121,636³⁰.

Great Cobar also operated as a "custom smelter" processing parcels of ore delivered by small mines and even individual miners.

The product of the smelting process, the solidified copper ingots from the moulds, were loaded by a small crane directly into Government 4-wheel railway trucks to go to Lithgow for refining. The refinery, established by the Syndicate in 1896, operated until 1911. It will be described in a subsequent article.

Accidents

For the reason alone of the heavy mining death roll we have no regrets at the passing of 1913, in Cobar and Canbelego, the number was a record, totalling eleven. Perhaps it is misleading to attribute the lot to mining - only one at Canbelego and three at Cobar lost their lives down under in the work that is called mining, the balance being killed on the surface³¹.

So began the first editorial in *The Cobar Herald* for 1914, headed "Mining Death Toll". It had indeed been an horrific year. Mining has always been a dangerous business. The Great Cobar had its tragic share of fatal and serious accidents over the years and many men were killed or maimed in and around the mine. Undoubtedly, 1913 was the worst year and shown below is the manner in which the seven men killed at the Big Mine met their death.

- Jan 18 U/GROUND: W McEvoy, miner, killed by explosion of blasting gelignite.
- Jun 11 U/GROUND: G Piter, miner, killed by rock from rill slipping on him

- Jul 14 SURFACE: A Sara, engine driver, whilst endeavouring to cross in front of a moving motor, caught his foot in points and was crushed when run over by the motor.
- Aug 10 SURFACE: T Hutchings, shunter, crushed whilst attempting to run between a moving motor and a standing truck.
- Nov 8 U/GROUND: T Burn, miner, smothered by falling into a rill of ore.
- Dec 17 SURFACE: W Edwards, labourer, killed by bale arm falling on him at the converters.
- Dec 29 SURFACE: W Wardle. Died suddenly from heart failure in smelter.

Note: Shunter T Attwater was killed when he fell between a slag pot and a "mine locomotive" in December 1911. With the two noted above, these are the only fatalities directly attributable to railway operations between 1906 and 1914.

Although the local press from time to time railed at absentee shareholders gaining their profits at the cost of workers' lives, an objective examination (in retrospect) of the official figures from NSW Mines Department Reports, indicate that the fatal accident rate actually improved in the years following the takeover.

While not in any way detracting from the serious nature of the many non-fatal accidents, it is more difficult to draw any conclusion regarding these, especially as the parameters for the reporting appeared to vary. In some years a fractured wrist would be worthy of mention, on other occasions one had to be seriously damaged indeed to be included in the statistics.

From 1899 to 1906 (ie over the last seven years of Syndicate ownership) on average 310 men were employed and there were in all 25 fatal accidents at the Cobar mine and smelter. During the seven years 1907 to 1914 under the British company, there were 31 deaths. Against this must be



The new Main Shaft dominated the Great Cobar complex. An electric 'motor' and a 4-wheel ore hopper are in the foreground.

Photo courtesy Cobar Regional Museum

set the fact that the average workforce for these years increased to over 800, peaking at 1000 men in 1910.

So some of the increase in the actual number of fatal accidents would be a normal flow-on from the increase in exposure (ie more men were employed and more ore was won). There was however a failure to learn from tragedy, for the reports show a sad repetition of the same type of accident. To give two examples:

- In the consecutive years 1910, 1911, 1912 and 1913, five deaths were reported of men who fell into underground shafts, winzes and ore passes.
- There were eleven reports of serious burns (two proving fatal) from molten copper or slag between 1908 and 1911. Most coincided with the commissioning problems associated with the new water jacket blast furnaces.

Although the extensive mechanisation adopted for materials handling, should have distanced humans from physical contact with hot and hazardous materials and processes, in practice, new technology and an inexperienced workforce all too often proved to be a deadly combination. Manpower shortages were a common theme in both government and company reports and it was often difficult to recruit any men, let alone those with mining or smelting experience.

All the above taken into account, things should and could have been better. Many accidents were no doubt due to the increased tempo of construction and production necessary to meet the returns demanded by the British investors not to mention the destabilising effect of the several changes in top management.

Cobar and the Mine

The Great Cobar mine continued to dominate the economy and social life of Cobar during the 1906-14 period. As the main employer in Cobar, with the mine wages pumping some £6000 into the local economy each fortnight by 1910, the Great Cobar was the mainstay of life in town. During strikes (and there were many) the families of ordinary workmen suffered.

There were high expectations of continued prosperity following the takeover of the Syndicate operations and the workforce rose during the construction period. Community leaders maintained a strong pride in the "progress" the mine was making. In 1910 Alfred B Campbell reviewed the history of the district and stated:

*As the visitor arrives in town, he gazes with mingled feelings of wonder at the enormous works connected with the Great Cobar Mining Company. There are many flourishing industries and fine buildings in the town, the solidarity of which shall proclaim to the outside world the importance of "the city of the west."*³²

There were a number of occasions when closure of the smelter, albeit temporarily, meant the laying off of workers, causing financial distress for them and their families. In 1910, the tappers then the coal strike caused a cessation of work, although Bellinger took the opportunity to increase the rate of maintenance and refurbishing work to provide work and cash flow for families.

By 1912, Great Cobar Limited employed a total 2200 people, of whom 960 worked at the Copper Mine and smelter, and paid out £600,000 per year in wages and salaries (£23,000 per fortnight)³³. Faced with the difficulty of maintaining skilled labour in an isolated location, Herman Bellinger initiated direct measures to support miners and their families. In April 1912, the company arranged for the supply of both bread and meat for employees³⁴. A company butchery opened in Marshall Street, Cobar on 9 September 1912. Regular advertisements in the *Cobar Herald* offered special cash only prices to Company employees, including: fillet steak, 8d/lb; lamb chops, 5d/lb; and sausages, 4d/lb.

From the perspective of the Cobar working community, the ownership of the company by faceless investors in England was the cause of friction between town and mine. From the outset, there was an "them" and "us" attitude between management and workers that led to frequent industrial disputes. Management restricted information about the problems of the new plant, which fed rumour and conjecture about what was really happening. And when the Board finally ran out of managers to blame for the problems of the plant, they reported to shareholders in late 1913 that "there is good reason to believe that some of the breakdowns are due to deliberate acts of violence on the part of malicious persons"³⁵.

Company Failure

By 1913, Great Cobar Limited shareholders were becoming increasingly concerned over the poor performance of their investment. A group retained Mr CW Herzig, mining engineer, to report on the position and prospects of the company's mine. He reported that the further prospects of the mine was one of great promise, a conclusion greeted by mirth in Australian mining circles. *The Bulletin* commented:

*The situation at Cobar is this. In spite of increased gold value per ton, smelted in a plant that cost 500,000 lovely sovereigns, with the assistance of an imported manager, an imported metallurgist and engineer, and an imported underground manager, and with a fair price for copper, Great Cobar Limited cannot make 'real money' profit... Economy has been lost sight of in the mad endeavour to find ore for the maw of the remorseless plant. The furnaces yell for basic ore, and they haven't got it to give them*³⁶.

Things were coming to a head. The Sydney spot price of copper had slipped to a range of £65-70 during 1913 - which was below the cost of production at Great Cobar according to several analysts - and £5 shares in the company were trading at 6s 3d in January 1914³⁷. The Directors advised Herman Bellinger that they were not satisfied with the return on their capital and instructed him to find ways and means of further increasing output to achieve the capacity of the plant. A director, Pellew Harvey, visited Cobar and reported that a complete reorganisation of the entire staff and a change in the general manager was necessary³⁸. He added that for the new manager, a particular qualification should be intimate knowledge of Australian labour conditions in the country as a whole. Bellinger resigned on 10 November 1913 and accepted a position with the Chile Copper Company in South America.

Dissatisfaction was strongly expressed at the shareholders meeting in London on 25 November 1914. For the year ending June 1913, Mr F Kimbal Bull claimed there was a reduction in output compared with the previous year, increased cost of production, and a reduction in working profit³⁹. This net profit was only £117,795, but after general charges "there would be a real loss on the operation of the company for the year".

The firm Bewick Moreing & Company was taken on as consulting engineers and sent Mr C Klug to appraise the situation. He visited Cobar in January 1914 and advised the company to close the mine and spend £35,000 in mullocking and development work⁴⁰. The mine was closed indefinitely in April 1914. About 80 men were kept on for maintenance work, but Great Cobar Limited sought liquidation and Arthur J Whims was appointed receiver on April 6 in debenture holder action⁴¹. Once more Cobar went into a serious economic slump and miners left the town in search of work elsewhere. After protracted negotiations, the mine was to reopen again in January 1916. This final phase of the Great Cobar mine will be covered in a further article.



Bannister's Butchery, in Marshall Street Cobar, opened in 1910 - in competition with the Company effort. It has been restored to its original condition, with part of the premises still in use as a butchery.

Photo: Bob McKillop

References:

Much of the extensive research for this article was undertaken between 1963 and 1969. Detailed references from this research are no longer available, but where appropriate, those from recent research have been included.

- 1 Shoebridge, John, "The Railways of the Great Cobar", *ARHS Bulletin* No. 383, September 1969
- 2 *Cobar Leader*, 17 August 1906. This report stated that Kendall was a director of the firm, but subsequent reports indicate he was retained as a technical director - see *Cobar Herald*, 2 December 1910, "Great Cobar Limited".
- 3 *Cobar Leader*, 14 September 1906. While the *Leader* described Kendall as "managing director", Andrews described him as "consulting engineer".
- 4 *Cobar Leader*, 28 September 1906, "Huge Mining Industry - The Great Cobar Company"
- 5 *Cobar Leader*, 22 November 1906
- 6 *Sydney Morning Herald*, 31 May 1907
- 7 Neville Burgess, *The Great Cobar*, self published 1995, p. 166-7 - selections of speech by Blakemore at a dinner on 7 April 1908
- 8 *Cobar Herald*, 2 March 1907, "New Plant for Great Cobar". Much of the following is based on information provided by Blakemore himself, entitled "Description of the New Plant being installed by Great Cobar Limited" and quoted in *Carne* 1908.
- 9 *Cobar Herald*, 28 July 1908, "Great Cobar Limited"
- 10 *Cobar Herald*, 11 August 1908, "Great Cobar Limited"
- 11 *Cobar Herald*, 8 January 1909, "In Retrospect"
- 12 Burgess, as above, p. 167
- 13 *Cobar Herald*, 20 January 1914. Letter, George Blakemore
- 14 *Cobar Herald*, 2 December 1910, "Great Cobar Limited"
- 15 *Cobar Herald*, 11 June 1909
- 16 *Cobar Herald*, 6 May 1910, "Cobar Mining Report"
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- 18 *Cobar Herald*, 24 May 1910.
- 19 *Cobar Herald*, 2 December 1910, Great Cobar Limited
- 20 *Cobar Herald*, 24 February 1911, "Unrest Among Great Cobar Employees"
- 21 *Cobar Herald*, 19 December 1911, "Great Cobar Limited"
- 22 *Cobar Herald*, 16 January 1912, "Great Cobar Chairman's Speech"
- 23 Burgess, as above, p. 174
- 24 *Cobar Herald*, 24 January 1913, "Great Cobar Limited"
- 25 *Cobar Herald*, 31 December 1912. Editorial
- 26 Burgess, as above, p. 176
- 27 *Cobar Herald*, 6 May 1910, "Trouble at the Mine"
- 28 *Cobar Herald*, 5 January 1912, "Great Cobar Company's Future Policy"
- 29 Baker, Alan C, correspondence to John Shoebridge, 26 January 2001
- 30 Report of the Chief Railway Commissioner; year ending 30 June 1911 (etc)
- 31 *Cobar Herald*, 2 January 1914, "Mining Death Toll 1913"
- 32 *Cobar Herald*, 14 June 1910, "The Coming of Cobar"
- 33 *Cobar Herald*, 7 January 1913. This figure was quoted by Herman Bellinger at a banquet in his honour prior to his departure on a visit to America - it may refer to the whole Australian operations, not just Cobar.
- 34 *Cobar Herald*, 6 February 1914, "Great Cobar Ltd"
- 35 *Cobar Herald*, 6 February 1914, "Great Cobar Ltd"
- 36 *Cobar Herald*, 11 April 1913. Great Cobar Limited (From "The Bulletin")
- 37 *Cobar Herald*, 30 January 1914. George Blakemore reply to Baker
- 38 *Cobar Herald*, 10 February 1914, "Great Cobar. Mr Pellew Harvey's Report"
- 39 *Cobar Herald*, 6 January 1914, "Great Cobar Ltd"
- 40 *Cobar Herald*, 10 April 1914. Cobar Today (Editorial)
- 41 *Cobar Herald*, 17 July 1914, Great Cobar Ltd, Statement by Receiver

The Scenic Road Water Main Tunnel, Geelong

Norm Houghton

In the period 1983 to 1986, the Geelong Water Board constructed a transfer water main from the Pettavel basin outside Geelong to an enlarged storage basin at Montpellier in the hills overlooking the city. The distribution main was laid in a shallow trench for most of the way but for one 500 metre section a tunnel and associated works were required to pierce a rise along Scenic Road, Highton.

The tunnel was constructed under contract by Codelfa Constructions Pty Ltd. The tunnel was 446m by 2.4m by 2m, excavated by an Alpine Mining boring machine. The spoil was transported in a single side tipping mine car hauled by a Baldwin 8-tonne 4wDH locomotive on 762mm gauge track. There was a single line throughout the tunnel.

On the surface it came to a dead end at a timber platform erected on the downhill side to allow for spoil transfer to road trucks. A mechanical tipping arm to manipulate the mine car operated on an adjacent track, which was apparently laid to 610mm gauge.

The pipeline was installed in the tunnel in sections by means of cable propelled dollies running on the rails. The tunnel works were carried out from late 1985 to mid 1986.

The locomotive appears to have been one of six E M Baldwin 4wDH Model DHC8M Mk2A locomotives built in 1970 for use by Atkinson-Holland, the contractor for the Thomson Dam project. The batch carried Baldwin serial number 3229. Four (at least) of the six were purchased by Codelfa in about 1978. Of these, two went to Fiji and now operate at Labasa sugar mill on 610mm gauge. Two more were noted working on a Telecom tunnel project in Melbourne in 1979 (see LRN 18 p.9), and it seems that one of these went to Western Australia in about 1980, to be disposed of in 1982 (see LRN 112 p.3-4). That seemingly leaves the one used for the Geelong job pictured here. Can any reader shed light on its subsequent history?



The Baldwin locomotive leaves the tipping dock to get another load of spoil from the tunnel. The interesting wagon tipping arm can be seen on the parallel track on the unloading dock.

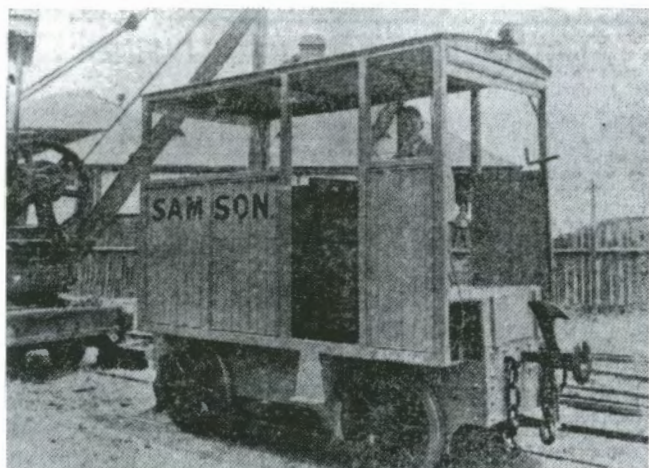


The locomotive is about to enter the tunnel. Construction plant usually has a hard life but this loco appears to be in very good condition.

FROM THE ARCHIVES

Mechanical Samson Power by Ford V-8 Engine

from Geelong Advertiser 26 February 1938, via Norm Houghton



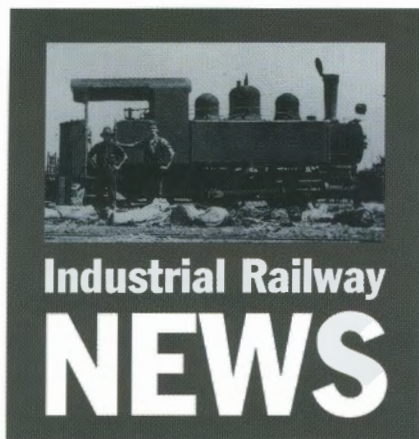
Aptly called "Samson" because of its ability to handle heavy rolling stock with ease, this somewhat singular locomotive owes its power to the rugged 95 h.p. Ford V-8 truck engine with which it is equipped.

The locomotive was built by the Western Australian Government State Implement Works for shunting at the Roeburne Wharf. It has proved so efficient and economical that the W A Government has started to construct another unit of the same type.

The Ford V-8 truck engine is complete with clutch and gearbox. The locomotive has been designed to operate in either direction by means of a special gearbox incorporated into one of the axles. This gearbox utilises two 6.66 to 1 truck axle crown wheel and relative pinion. Because Roeburne, situated in the tropics, has an extremely hot climate, an additional header tank was attached to the normal truck radiator, increasing water capacity to 30 gallons.

The use of Ford V-8 commercial engines for railway purposes is not confined to Western Australia. Recently the New South Wales Government chose Ford V-8 truck engines to power a number of motor rail cars for staff and passenger transport, and this famous unit is also widely used for similar purposes by railway services overseas.

Editor's note : the name carried by this loco suggests that it was first put into use at Port Samson, which served the nearby town of Roebourne (see LR 52). It is presumably one of the locomotives that were later numbered NW5 and NW6 (see LR 50, 57 & 59). They both ended up at Carnarvon but NW5 is said to have been new to Derby.



Industrial Railway NEWS

Industrial Railway News Editor : John Browning
PO Box 5646,
ROCKHAMPTON MAIL CENTRE 4702
Phone: (07) 4931 3684 (W); (07) 4926 6356 (A/H)
Fax: (07) 4927 7560 E-mail: ceo8@rocknet.net.au

NEW SOUTH WALES

BHP LTD, Cordeaux & Tower Collieries

(see LRN 82 p.9 & 75 p.3)

1067mm gauge

These two collieries are expected to be closed by the end of 2001. A new colliery, Dendrobium, is programmed to open with access for men from the old Nebo portal. Coal production will be taken out through a new portal and a conveyor will lead from there to the Kemira coal loader. Chris Stratton 3/01 (LocoShed internet discussion group)

BHP LTD, Newcastle

(see LR 158 p.16)

1435mm gauge

Goninan Bo-Bo DE BHP 32 (1 of 1954), preserved on site, was sandblasted during March and was in BHP yellow livery with two black bands by 12 April.

Brad Peardon 3/01, 4/01

BHP LTD, Port Kembla

(see LR 158 p.16)

1435mm gauge

Motive power difficulties on coal haulage have continued and led to the lease of 81 class locomotives from National Rail Corporation during March. Indeed there have been rumours of an impending handover of the complete rail operation to an outside contractor, possibly NRC or Australian Southern Railroad who operate the Whyalla rail system.

An error in the identification of some of the ex-Goldsworthy Co-Co DE locomotives has been pointed out. It is now believed that the correct identification of these is as follows:

D48 GEC (Aust) A.242 1972 ex Goldsworthy 7

D49 GEC (Aust) A.243 1972 ex Goldsworthy 8

D50 EE (Aust) A.110 1965 ex Goldsworthy 6

& WAGR K202

On about 8 March, English Electric (Aust) Bo-Bo DE D30 (A.083 of 1964) was taken to Chullora for repairs after being out of use for a number of years.

On 3 March, EE (Aust) Co-Co DE D47 (A.146 of 1967) was in shops for fan clutch replacement and D49 was awaiting a new engine following fire damage. Goodwin Co-Co DE locomotive 102 (G-6048-13 of 1972) was under repair with a damaged header tank and water pump, and 103 (84179 of 1963) had a failed oil cooler. This led to coal trains being handled by the pairing of EE (Aust) Co-Co DE locos D51 (A.111 of 1965) and D34 (A.197 of 1969), both crewed.

On 2 March, National Rail's Clyde Co-Co DE 8124 (83-1043 of 1983) was trialled on a coal run to Elouera and as a result a decision was taken to lease three 81 class locomotives from NRC. It is believed that the locomotives concerned will be rotated at approximately three month intervals. 8106 (82-1025 of 1982), fitted with orange clearance lights and with red fluorescent headstocks, was in service hauling a Wongawilli train on 14 March. It was soon joined by 8108 (82-1027 of 1982) but this met

Locomotive, Rolling Stock & Equipment Manufacturers

HANSEN'S MOTOR & ENGINEERING WORKS, Ingham, Qld

(see LRN 119 p.6)

This company built ten Volkswagen-engined linecars for sugar mills in 1972-8. A recent visit revealed that a spare chassis had been built for stock against a future order that never came. The original orders were for CSR and it seems that similar units had been built earlier by E M Baldwin and Clyde Engineering. The unsold chassis will be obtained by Chris Hart. Chris Hart 4/01; Editor

with an unfortunate accident at Kemira on 21 March when wrongly set points produced a collision with a wagon that left it with cab damage and it is believed it was returned to Port Augusta for attention. By March 26, 8102 (82-1021 of 1982) was in service. The Austrac Goodwin Co-Co DE locomotives 101 (G-6048-09 of 1972), 102 & 103 remained in use as it is understood the lease on them was to continue for a couple of months more. In addition ex-Goldsworthy units as well as the original large BHP loco D34 were noted on coal trains in March and April. D49 was fitted with its new engine and was noted in service on 30 April but had to be rescued by D47 near Kemira after it failed the same day.

On April 3, three loaded coal wagons were noted left at Kemira, two of them derailed, apparently the result of moving off with the bottom doors on a loaded wagon not shut properly. They were brought back to Port Kembla the next day by GEC (Aust) Bo-Bo DE D38 (A.239 of 1972). Chris Stratton 3/01, 4/01; Chris Walters 3/01; Brad Peardon 4/01 (LocoShed and Ausloco internet discussion groups)

CRT BULK HAULAGE PTY LTD, Yennora

(see LR 158 p.16)

1435mm gauge

4wDH X209 (NSWGR Chullora 12 of 1967) failed about the end of February and was temporarily replaced in service by preserved Co-Co DE 4833 (Goodwin 84123 of 1961) that is kept on site. X209 appeared to be back in service in mid-March. Bob 3/01; Peter Attenborough 3/01 (both LocoShed internet discussion group)

GRAINCORP LTD, Carrington Bulk Grain Terminal

(see LR 158 p.17)

1435mm gauge

Apart from the Vollert remotely-controlled battery locomotives, this site is also home to the unique E M Baldwin 6wDH *WORIM*, Baldwin's only standard gauge locomotive (4877-1-9-73 of 1973). This 45-tonne unit was built for Tubemakers in Newcastle, but was acquired for use at the grain terminal in 1993. It still has the green and yellow livery it ran in at Tubemakers.

Brad Peardon 3/01 (LocoShed internet discussion group)



For many years, the pair of standard gauge Vollert 4wBE remote-control locomotives at Graincorp's Carrington Bulk Terminal have remained relatively unknown. Here the "blue Vollert" (left) and "red Vollert" shunt grain hoppers on 19 August 2000. They carry the one builder's number, 800/008 of 1980.

Photo : Brad Peardon

Industrial Railway NEWS

SILVERTON TRAMWAY PTY LTD, Broken Hill

(see LR 149 p.18)

1435mm gauge

The Silverton Tramway serves the mining industry at Broken Hill. Shunting operations are currently based around the South Mine, which is usually shunted early in the day. The North Mine is currently disused, but is still rail connected and may see use in the future.

Shunting is carried out by Goodwin Co-Co DE locomotives 28 (83827 of 1961) and 29 (83828 of 1961) originally supplied as 3ft 6in gauge units to the Silverton Tramway. This situation is expected to change shortly, when privately owned Goodwin Co-Co DE 4514 (84156 of 1962) is transferred to Broken Hill for use on the Tramway. When this occurs, both units are expected to be overhauled and transferred to other duties. 28 is possibly unique for the DL531 model, in that it still retains its original engine, original exhaust and a pedal operated vigilance device! A number of former BHP Port Kembla RM type hoppers are stabled in a siding at the South Australia end of Broken Hill yard. These have not had any work done to them, but two, RM19 and RM26, are in use as brakes for five ex-SRA locomotives that are awaiting restoration. Brad Peadon 2/01

PASMINCO, South Mine, Broken Hill

(see LRN 118 p.7)

610mm gauge?

A selection of narrow gauge wagons was noted near the loader in February. Whether these were just for display or still used is unknown. Brad Peadon 2/01

QUEENSLAND

BUNDABERG SUGAR LTD, Bundaberg district

(see LR 158 p.18 & 154 p.18)

610mm gauge

It is reported that Bundaberg Sugar are investigating a proposal to upgrade Fairymead Mill to process 3.6 million tonnes of cane and to wind back operations at Bingera and Millaquin Mills. This is discussed in an Environmental Impact Statement entitled *Bundaberg 2000+ - Industrial Development* which was issued in February 2001 by Sinclair Knight Merz in relation to a proposed bagasse pulp/paper manufacturing facility planned for West Fairymead.

The EIS contains many maps, diagrams and photographs including several of proposed tramline extensions linking Bingera and Millaquin Mill to the Fairymead network. It is proposed that a new road/rail bridge be built at the current lower Burnett River ferry crossing for Millaquin cane to go (via the old Qunaba system) to Fairymead and bulk raw sugar to Bundaberg Port. This was a preferred option despite the large infrastructure cost. Another major proposal



Top: Used for hauling ore at Broken Hill are Silverton's standard gauge Goodwin Bo-Bo DE locomotives 28 (83827 of 1961) & 29 (83828 of 1961). 5 February 2001. Photo: Brad Peadon **Centre:** Moreton Mill at Nambour may see its last year of tramway operations in 2001. Here at River Depot on 13 October 2000, four locomotives meet: Clyde 0-6-0DH MORETON (63-289 of 1963), Com-Eng 0-6-0DH JAMAICA (B1112 of 1956), and EM Baldwin 0-4-0DH VALDORA (6-1258-1-6-65 of 1965) & MAROOCHY (6-1064-1-11-64 of 1964). Photo: Brian Webber **Above:** The last of its type in existence, Walkers B-B DH (573 of 1962) at the Whyalla steelworks on 7 February 2001. This locomotive is now part of the Australian Southern Railroad fleet. Photo: Brad Peadon

is for a new tramline be built from the Bingera area along the former Mt Perry Branch. This will turn north off the old trackbed on the outskirts of North Bundaberg, crossing the Bundaberg - Gin Gin Road and then turning east to cross the QR north coast line via grade separation just north of where the Bundaberg - Gin Gin Road crosses the line, and then on to Fairymead Mill. Other sections of the Tirroan branch may also be utilised for tramline upgrading between Gin Gin and the Bingera area.

The proposed paper mill would be situated 4 kilometres west of Fairymead Mill on Back Gooburrum Road and apart from using sugar cane bagasse, the mill would also use imported woodchips that would be brought to it by tramline. David Mewes 3/01

BUNDABERG SUGAR LTD, Innisfail District (see LR 158 p.19 & 156 p.19)

610mm gauge

It was announced on 15 March that all conditions in the contract to purchase the sugar milling assets of South Johnstone Mill Limited had been met and the sale had been finalised. It appears that all three Bundaberg Mills in the district, Mourilyan, Babinda and South Johnstone, will crush cane in 2001, although industry analysts predict Bundaberg Sugar will at some stage close one mill as there is only enough cane in the Innisfail/Babinda area to economically run two factories.

Mourilyan Mill's Walkers 0-6-0DH 11 (570 of 1956) has reportedly been acquired for private preservation in the southern states, together with Babinda's 4wPMR built by E M Baldwin (3092-1-10-69 of 1969). It is understood that these went south in March together with some ex-Innisfail Tramway bogie sugar box underframes with bogies. Two sugar box wagons and three underframes with bogies were also despatched to the Illawarra Light Railway Museum Society at about the same time (see Heritage & Tourist section). *Rural Press Sugar News* 16/03/01; Editor 3/01

BUNDABERG SUGAR LTD, Moreton Mill, Nambour

(see LR 157 p.19)

610mm gauge

It appears that some media attention has been given locally to the proposed environmental and amenity implications of the closure of the mill tramline system and its complete substitution by road transport. The State government introduced a new "Damage to roads" policy in late 1999, but it is unclear what impact, if any, this will have on Bundaberg Sugar's proposal to eliminate rail haulage of cane after the 2001 crushing season. Those wishing to see the famous mill tramway system in action are encouraged to do so in the next few months.

Steve Malone 3/01; Editor

CSR LTD, Herbert River mills

(see LR 157 p.20)

610mm gauge

Macknade Mill's E M Baldwin 0-4-0DH 17 (6-1446-1-9-65 of 1965) returned to use on April 3

following the replacement of its broken axle. Victoria Mill's 4-ton Motor Rail "Simplex" 4wDM SMOKEY(4054 of 1926) was acquired by a mill employee, Bob Beatts, around the end of 2000 for its diesel engine. It has probably been moved to the Atherton Tableland and dismantled.

Beyond Victoria Mill's new Dalrymple Creek road/rail bridge, formation for the new Elphinstone line had been prepared by the start of April for the whole distance of 3 kilometres, to complete the extension. There will be sidings just beyond the bridge and at the end of the line.

Chris Hart, 4/01

MT ISA MINES LTD

(see LR 155 p.19)

1067mm gauge

Two Walkers B-B DH locomotives were advertised for sale by auction at the Mt Isa Mines disposal yard on 21 March by Pickles Auctions. They were 5803 (682 of 1972) and 5804 (589 of 1968). The first was built specially for use at the mine while the second was purchased from QR in 1991. Normally the sugar industry would be very interested in such locomotives but in current depressed conditions only very limited funds would most likely be available. A late report is that one of the locomotives was purchased by the preservation group based in Beaudesert.

Bill Dunn 3/01; Brad Peardon 4/01; Editor

SOUTH AUSTRALIA

AUSTRALIAN SOUTHERN RAILROAD, Whyalla

(see LR 158 p.19)

1067mm & 1435mm gauge

Standard gauge Clyde Bo-Bo DE DE9 (65-430 of 1965) is at Port Augusta workshops for an engine change, some cab repairs and possibly a repaint. Bob 3/01 (LocoShed internet discussion group)

TASMANIA

WEST COAST TRANSPORT, Burnie

900mm gauge

Three unused 15-tonne 166kw Siemens 900mm gauge four-wheel battery/trolley-wire locomotives and a collection of Fox Hudson ore wagons ex Mt Lyell are stored out the back at this transport depot. It is believed they are for sale and stored for a dealer. These locos and wagons were built in 1975 for Mt Lyell for a major underground electric railway project related to what was then the new deep underground mining expansion project started in 1972. Unfortunately, technology and changed thinking in the mining industry, saw Mount Lyell adopt one of the first major diesel underground trucking operations in Australia (along with Renison Bell), and the railway system was never built. The locos are quite large and were very much state of the art at the time they were built. They carry Siemens builder's numbers 6391 to 6393 of 1975, and may have been built by Schalke (Gewerkschaft Schalke Eisenbutte). The locos were stored undercover in the Diesel Shed at Mt Lyell for years and the wagons parked out-

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side the filter shed. Early in the 1990s, they were sold to a dealer for export, but never got past Burnie.

Rob Bushby 2/01

COPPER MINES OF TASMANIA PTY LTD, Mount Lyell Mine

(see LRN 108 p.18)

610mm gauge

There are no underground railway operations at Mt Lyell any more. The last operations were with a battery loco used for access into the tunnels and the Prince Lyell (main) shaft, a working that ceased in about 1992-3. The loco was eventually disposed of in 1995. After the yard on the 690 level (189m) was lifted, the loco was kept in a loco shed made from an Armco culvert under the road, where it could be hooked up to a battery charger.

The North Lyell tunnel was the main access to the mine. After the Cape Horn orebody was finished in 1987, a lot of the overhead wiring in the tunnel was dismantled and only a little remains now. The tunnel has suffered a rock fall about 200 metres in. This area has been supported as the tunnel is important for drainage from the old workings. Most track is still in place but the tunnel is flooded in several places with a lot of mud over the tracks and running water between the portal and the dam off the Cape Horn Line near the shaft.

There are still two flat wagons parked at the junction of the North and Cape Horn tunnels, with wheels in the water slowly corroding away in the "copper water" environment. These flat wagons (and a couple of others) were used for many years to take equipment underground from the 11 level (189 metres above sea level) workshops down the shaft to 17 (-220m) and 18 (-250m) levels. As well as on the plat at the top of the shaft (+350m) and on the main cage rated at 20 tons, there were short sections of 2ft gauge track to allow machinery and equipment to be taken underground. There was a siding on 11 level from the Cape Horn branch into the shaft, where the battery loco was used to shunt wagons. This continued until the shaft was no longer needed for this purpose with the connection of the new decline tunnel in 1989. It is about 11/2 kms in from the portal to the shaft plat. When the wagon with its load arrived on the appropriate level, it was pushed off the cage onto the short section of track at the plat, where the load was removed and taken to where it was required, and vice versa. 18 level was effectively the bottom of the mine from 1974 to 1990 and the main pumping station in the mine is on that level, so pump changeouts would have been typical freight on the wagons going down to 18 level. Even though the Prince Lyell shaft was built in 1970-74, the current link up with the main decline tunnel right down to 18 level was not until 1989, so the only way down to those levels was down the shaft.

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One of the interesting feature underground at Mount Lyell in 17 and 18 levels (220 and 250 metres below sea level), is the design of the tunnels most of which were built for proposed 900mm gauge railways - they all have nice easy junctions and curves, and it is still possible to follow the layout of the proposed balloon loops built to turn the trains around. Mole drives were also put in on two levels for the railways to access the ore bodies. As far as is known, no piece of track was ever laid. This was all designed in the early 1970s and very few people at the mine today even know about it.

Rob Bushby 2/01

TASRAIL SERVICES PTY LTD,

Emu Bay Railway

(see LR 157 p.21)

1067mm gauge

Three of the redundant Walkers-designed B-BDH 10-class locomotives from the Emu Bay Railway have been sold. 1001 (Walkers 576 of 1963) has reportedly been sold to the Walhalla Goldfields Railway in Victoria and had gone from storage in Burnie in February. 1003 (Walkers 578 of 1963) and 1004 (TGR Launceston, 1966) have been acquired by the Zig Zag Railway in NSW. One of these locomotives was reported sighted on road transport near Lithgow on 10 April while the other was reported still in Tasmania towards the end of April.

Peter Attenborough 4/01; Michael Bray 4/01 (both LocoShed internet discussion group); Robert James 4/01

VICTORIA

ENERGY BRIX AUSTRALIA CORPORATION PTY LTD

(see LR 158 p.19)

900mm gauge

Late in February the three Gemco 4wDH and two Walkers B-B DH locomotives were still unsold and an agent had been appointed to try to sell them overseas if a local buyer could not be found.

Elva Anderson (Energy Brix) 2/01

WESTERN AUSTRALIA

AUSTRALIAN BLUE ASBESTOS PTY LTD, Wittenoom

610mm gauge

The remote Wittenoom area in the Pilbara is the site of the now infamous blue asbestos mine and processing plant which have been abandoned since closure in 1966. Five 4wBE locomotives are still to be found on site, which was visited in early March. Three 40hp locomotives were built by Mancha in the USA, model Hercules X, and are builder's numbers 3043 and 3044 of 1949, and 4079 of 1957. One carries a battery box with the name *WITTENOOM EXPRESS*.

There is also a Gemco "Hauler", 12304-05/10/65 of 1965, while the fifth locomotive is unidentified, although it has an English Electric controller.

Richard Montgomery 3/01

BHP IRON ORE

(see LR 157 p.21)

1435mm gauge

All but one of the GE AC6000 Co-Co DE locomotives have now been fitted with nameplates and the details are as follows:

No.	Builder's No.	Date	Name
6070	51062	1999	PORT HEDLAND
6072	51064	1999	HESTA
6073	51065	1999	FORTESQUE
6074	51066	1999	KALGAN
6075	51067	1999	NEWMAN
6076	51068	1999	GOLDSWORTHY
6077	51069	1999	NIMINGARA

It is understood that 6071 (51063 of 1999) will be named *CHICHESTER*.

Richard Montgomery 3/01 (LocoShed internet discussion group)

LOONGANA LIME PTY LTD, Parkeston

(see LR 155 p.21)

1435mm gauge

Ex-BHP Newcastle Goninan Bo-Bo DE BHP 50 (014 of 1961) arrived at the Parkeston complex during late February, and during April it was moved to Rawlina, 370km east of Kalgoorlie, for shunting at the company's quarry sidings there. The unit had reportedly been sold to "Amalg Resources" which is believed to be the company

controlling Loongana Lime. The Loongana plant produces quicklime for use in gold and nickel production.

John Cleverdon 4/01; Jeff Mullier 4/01; Brad Peardon 4/01 (both LocoShed internet discussion group); Editor

PEMBERTON TRAMWAY CO

(see LR 153 p.22)

1067mm gauge

A rake of four flat wagons have been modified to better suit the line's log traffic. In their original form the flats were suffering a lot of damage during loading and particularly unloading operations. This was because the forks on the log handling machines are considerably thicker than the height of the bolsters in the wagons, so as they pushed the forks under a load of logs the timber deck of the wagon would be squared, and a lot of force applied to the stakes. The stakes were quite long, giving plenty of leverage when they were hit near the top, resulting in bent stakes or the end of the bolster bent or broken off completely. It was often necessary to get the oxy out and cut off the "casualties" before the wagon could be sent back for another load. As a result stakes and bolsters, and in some cases, decks, were starting to get rather sparse on some wagons. The modified version has no deck, four much thicker steel bolsters in place of the six wooden ones, and much shorter stakes. Initial results have been good, and further conversions may follow as funds become available.

Simon Mead 3/01



A line-up of 4wBE locomotives at the former asbestos mine site at remote Wittenoom, 5 March 2001. From the right: two Manchas, Gemco 2304-05/10/65 of 1965, and the unidentified unit.

Photo: Richard Montgomery

A selection of books from the LRRSA Sales Department ...

LRRSA Publications

The Innisfail Tramway

The History and Development of the Geraldton Shire Tramway and the Mourilyan Harbour Tramway

by John Armstrong & G.H. Verhoeven

Describes a public 2 ft gauge tramway in north Queensland which had 13 steam locomotives, 13 passenger cars and about 250 goods wagons. 128 pages, A4 size, 99 photos, 22 maps/diagrams.

\$37.90 Hard cover (LRRSA members \$28.43)

Weight 650 gm.

\$29.95 Soft cover (LRRSA members \$22.46)

Weight 470 gm.

Laheys' Canungra Tramway

by Robert K. Morgan, revised by Frank Stamford
Describes Queensland's largest timber tramway, with one Climax and three Shay locomotives. Many evocative pictures of geared steam locomotives in magnificent scenery.

32 pages plus soft cover, A4 size, 28 photographs, plus maps/diagrams and index.

\$9.95 (LRRSA members \$7.46) Weight 220 gm.

Settlers and Sawmillers

A History of West Gippsland Tramways and the Industries they Served 1875-1934

by Mike McCarthy

Timber tramways serving over 100 sawmill sites from Beaconsfield to Trafalgar.

168 pages, soft cover, A4 size, 96 photographs, 17 maps and diagrams, 6 graphs, one loco diagram, references and index.

\$31.90 (LRRSA members \$23.93) Weight 700 gm.

Bellbrakes, Bullocks and Bushmen

A Sawmilling and Tramway History of Gembrook 1885-1985 - by Mike McCarthy

Describes a network of 3 ft and 3 ft 6 in gauge timber tramways, and associated timber mills.

104 pages, soft cover, A4 size, 71 photographs, 17 maps and diagrams, references and index.

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Arsenic and Molasses

A Pictorial History of the Powelltown Tramway and Timber Milling Operations

by Frank Stamford

Companion volume to the book *Powelltown*, but with an emphasis on photographs. All the photographs are different to those in *Powelltown*.

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by Frank Stamford, Ted Stuckey, and Geoff Maynard.

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BHP Newcastle Collieries' Electric Railways

by Ross Mainwaring

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\$16.50 (LRRSA members \$12.38) Weight 230 gm.

Books from Other Publishers

Echoes through the Tall Timber

The Life and Times of a Steam Man 1895-1984

by Dorothy Owen, published by Brunel Gooch Publications

The life story of Harry Matheson, who drove logging winches, and mill engines in the Warburton-Powelltown area. The challenge of surviving the depression and bushfires is really brought to life in this very well written book.

176 pages, soft cover, A5 size, 48 illustrations.

\$22.95 (LRRSA members \$20.66) Weight 375 gm

Tasmania's Hagans

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"J" Class

by Geoff Murdoch, published by the author.

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71 pages, soft cover, A4 size, 42 photographs, 2 maps, 38 diagrams/drawings, references and bibliography.

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Firewood Tramways of the Walhalla Mines 1865-1915

A Research Paper on the History of the

Firewood Tramways of the Walhalla Mines

by Terry & Brenda Jenkins. Published by T. & B.J. Publications.

Traces almost 100 km of mostly horse-drawn firewood tramways around Walhalla, Victoria.

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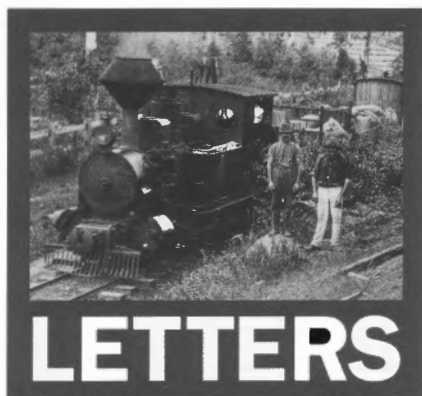
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LR 2001-2002



Dear Sir,

'Running the Rake' (LR 155)

Len Purcell's article in LR 155 (October 2000) entitled 'Running the Rake' brought back memories of a trip my wife and I experienced on the State Sawmill Railway at Pemberton in October 1960.

We were on a visit to Perth and the South West of W.A. and had planned a two night stop at Pemberton where we arrived fairly late in the afternoon. After checking into our accommodation we went for a late stroll through the town's 'Central Business District'. In the window of a small shop, which among other things proclaimed itself as an agency for the W.A. Tourist Bureau, my attention was taken by a hand-made notice advertising a visit to the sawmill complex and a ride on the sawmill railway out into the forest to see the felling of a 'huge kauri tree' etc. No charge - but all participants must purchase a one-day insurance policy, available within for five shillings each - bring your own lunch - meet guide at the sawmill office at 10.30am. As the shop was closed guess where I headed next morning right after breakfast and after arranging with the guest-house proprietor for two cut-lunch packets?

The one-day insurance policies were duly issued by the lady running the shop. They consisted of a small printed, individually numbered docket torn from a pad, the printing proclaimed the policy to have been issued by the WA Government Insurance Office, valid for the day and date stamped thereon. There was no mention of what particular risks were covered or not covered. Still, when one unexpectedly gets the chance to ride on a sawmill railway one does not think of such things.

Then it was off to the sawmill office to meet our guide. Before he appeared, State Saw Mill locomotive SSM No.1 (Beyer Peacock 5920 of 1915), a 4-6-0, arrived funnel first on a rake of loaded log wagons. It transpired she had left Pemberton about 6am on the first run of the day. The passengers were to participate in the second run which was to leave the mill about 11.30am. My interest in the locomotive was cut short by the guide introducing himself and proclaiming "follow me" to be introduced to two other participants for the days proceedings - an air-force officer and his wife.

After the guided tour of the mill and boiler-house etc, and a rather lengthy verbal

description of the local timber industry we finally got out to the train.

Locomotive SSM No.1 with copper and brasswork polished and glinting in the sun stood at the head of a rake of empty timber wagons ready to depart tender-first (the opposite way round to Bob Moss' journey described in Len's recent article). Our guide told the driver and fireman they had four passengers for the trip and then left us in the care of the loco crew. The driver looked us over and asked if anyone had been on a steam loco before - I was the only one to answer in the affirmative, in fact the air-force chappie said he and his wife were not familiar with trains at all, whereupon the driver replied "Well youse dunno what you're in for!"

Meantime, my mind was occupied with trying to work out how six people were going to fit into the relatively small cab of SSM No.1 and the fireman still have space to manoeuvre baulks of wood into the fire-box. I soon found out. The driver indicated the rear of the tender and told us there was a seat up there, we were not riding in the cab at all! We climbed up the ladder which gave access to the tender water filler and found a wooden garden seat securely lashed cross-ways behind the wood bunker, facing the rear with the tank filler and its lid making a convenient foot-rest.

What a grandstand view of the line we had from this seat as the loco proceeded tender-first into the forest. At the time I thought we headed in a more-or-less southeasterly direction, but after consulting the map of the Pemberton rail system on page 269 of the book *Rails through the Bush* I would now have to say I do not know exactly where we went. The ride was fairly rough as we were perched high up on the six-wheeled tender and the track was not exactly free of kinks, some of which appeared to be somewhat at variance with the official gauge of the track! The two male members of the party sat at each end of the garden seat, where there was the best chance of falling over the side of the tender, whilst the two ladies sat in the centre between us in comparative safety.

Speed was quite low and I cannot now say

how far we travelled but the journey time was about one hour twenty minutes. We stopped at a place where there were some loaded log-wagons on a siding and this turned out to be our destination for the day. We had already passed several similar sidings, some of which appeared to be out of use and there had been a couple of junctions where branch lines wandered off into the bush. The location we stopped at was not the end of the line - it went on further but I have no idea where to.

When the train came to a stand I asked my three fellow passengers to remain on the seat up on the tender whilst I got down to take some photos of them, but on seeing what I was about to do the driver called out "Please don't take any photos of people up on the tender" - so I have no picture to submit for publication.

There were several timber cutters awaiting our arrival and after everyone had partaken of lunch in the shade they set about felling a kauri tree nearby. This majestic tree, about eight or nine feet in diameter at the point where it was cut, hit the ground with such force the earth shook and the chains on the empty log wagons rattled for a second or two. Whilst this tree was duly cut into suitable lengths for loading onto the log wagons the loco crew set about placing the empty rake into the siding and attaching the loaded rake from the siding ready for the trip back to Pemberton. On completion of the shunting operations we were told something that had not been mentioned earlier - we could not ride back to the mill on the loco tender with the engine working funnel-first because we would be covered in smoke and wood-ash and possibly even the odd spark. We were to go back to town with the timber cutters in a couple of battered utility trucks parked in a nearby clearing.

The ride over the forestry 'road' in the vehicle my wife and I were allotted to use was far from pleasant - bouncing, bumping and being smothered in dust. The 'utes' made it back to the Pemberton pub (they were probably trained to to go any further) and I made it back to the mill, having walked from the pub, in time to see SSM



In October 1960, SSM No.1, with a rake of loaded log wagons in tow, returns to Pemberton from its first trip of the day. Its next outing will be the 'tourist run'.

Photo: Wal Lane

No.1 arrive with its rake of logs, and to thank the crew for a great day out. My wife wasn't quite so enthusiastic about the train, though she enjoyed the forest scenery. I'm not sure what the air-force chap and his wife thought about the day - they didn't say!

On reflection of the day's proceedings, I wonder how long this particular 'Tourist Venture' was in operation and why the driver would not let me photograph the passengers up on the loco tender, as it because the venture was a purely local affair which the 'higher-ups' at in the State Saw Mill enterprise knew nothing about? I have never seen any reference to these trips in any rail enthusiast publications from Western Australia.

Another question which comes to mind after reading Len's article in LR 155 - how come the locomotives were turned around to work tender first with the load sometime between October 1960 and September 1962? Photos of the Pemberton operation in *Rails Through The Bush* show the loaded trains being hauled engine-first.

Wal Lane
Mt Colah, NSW

Dear Sir

Early Australian Electric

Locomotives: Part III Mount Morgan Gold Mining Company, Qld (LR 99)

In 1988, David Mewes referred to three mysterious "Hunt" electric locomotives that could have worked at Mount Morgan. He suggested that they were purchased in 1911 together with charge trucks and "Hunt" tram tracks for use in charging the furnaces at the smelters.

Confirmation of a connection between this type of locomotive and Mount Morgan comes from Jay Reed in the USA who has provided the accompanying page from a catalogue published many years ago by the C W Hunt Company, New York. The fact that the locomotive carries No.3 may indicate that there were indeed three locomotives of this type at Mount Morgan.

It appears that Hunt manufactured a variety of bulk handling equipment from as far back as 1872. It seems the main plant was situated at Factoryville. Narrow gauge rail equipment was a product line, with the "Hunt system" apparently based on a gauge of 21 1/2 inches (546mm). Storage battery electric locomotives mounted on a pair of powered bogies appear to have been built, and where extra power was required, a trolley wire design was available. A pair of ironclad motors were fitted, and the gearing was all enclosed in an oil-tight case.

It will be noted that in the catalogue illustration, the locomotive does not appear to be sitting on the rails. This may indicate that it was built to the narrow gauge used at Mount Morgan, 2ft 2in (661mm) rather than the narrower gauge normally favoured by Hunt.

Any further information about Hunt locomotives would be of great interest.

John Browning
Rockhampton, Qld

LIGHT RAILWAYS 159 JUNE 2001

Dear Sir,

Moreton Mill Tramway (LR 157)

The campaign to keep the Moreton mill tram system open is worthy of support, and in my personal experience, widely supported in the Nambour community and commercial traders.

The fact that the mill system is "inefficient" is really irrelevant, as the real nub of the matter is the proposed transfer of transport costs from the private purse (the mill) to the public purse (the council and DMR). That is basically what the whole debate is about.

It is a well known fact that road transport does not pay the full costs of its infrastructure, unlike the rail industry, and any so called "efficiencies" from using it rather than rail are illusions unless there are comparable cost bases. Surely, the big loser will be the Maroochy Shire, saddled with even more road transport battering its roads and little compensation to counter that cost.

I visited the Moreton system regularly

during the 1999 season and got to know many of the crews, all nice blokes. The tramway by then was in such a rundown state that derailments were almost a daily occurrence. "Wet spots" were everywhere on the tracks, and it was clear that it was being left to fall into disrepair.

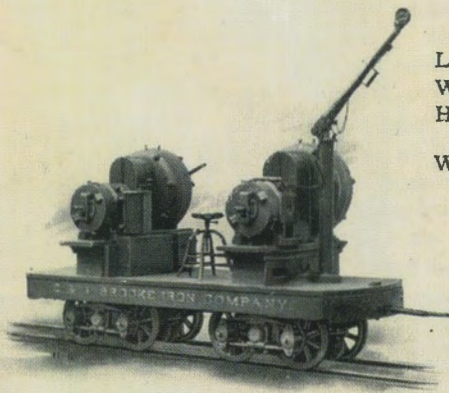
Even if this worthy campaign to save the system is successful, I have serious doubts about the long term operation of the mill. I suspect the current management will use any refusal of tram line closure as an excuse to close the entire operation down. "User pays" is a philosophy that never seems to apply to the road transport industry, unfortunately, and until such time as we have a more rational and environmentally friendly approach towards overland transport, we will be constantly faced by short term "solutions" like the Nambour mill's current idea.

Rod Milne
Nanango, Qld

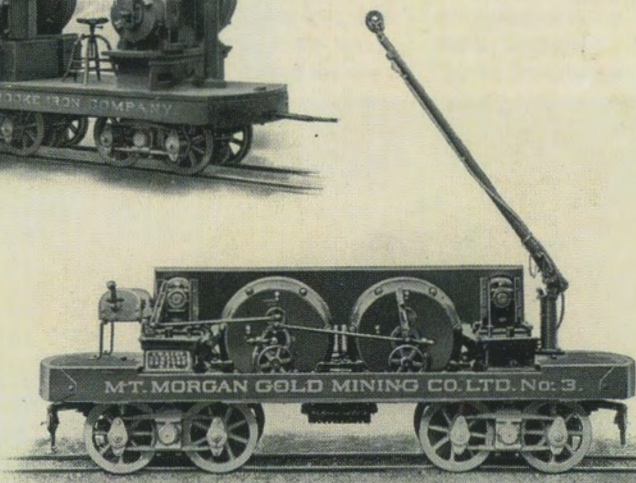
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Height to top of gear Case	5 feet 1 inch.
Weight	8,600 pounds.



11-2

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Dear Sir,

The ISSCT World Conference

I enclose a print [below] of a 1935 photograph showing overseas sugar industry delegates travelling from Hambledon Mill at Cairns to the Redlynch farming district for a cane field inspection during the International Society of Sugar Cane Technologists (ISSCT) World Congress. CSR closed its Hambledon Mill in 1992.

The picture is relevant because the next ISSCT World Congress will be held in Brisbane on 16-21 September this year. The Congress, held every three years, has only been staged in Australia twice before - in 1935 and again in 1950.

I think it was not uncommon in the early days of the sugar industry for mill rolling stock to be used to transport people on special occasions. I recall Sir Joseph McAvoy (former Chairman of CANEGROWERS) telling me that, when he was a boy, Goondi Mill at Innisfail used to transport its cane suppliers to the annual mill picnic over its transport system.

Bill Kerr,
Brisbane, Qld



ISSCT delegates travelling from CSR's Hambledon Mill to Redlynch in 1935 by 'Tourist Class' accommodation.
Photo: Queensland Canegrowers Organisation Ltd

MEMBERS' ADS

WANTED: INFORMATION about Chinese sugar cane railways, for inclusion in a book about Chinese Narrow Gauge Railways. In 1979/80? a group of Australian enthusiasts visiting China reported seeing myriads of sugar cane lines. If you can help with information or put me in touch with members of the tour group please contact me at: Jeff Lanham <Jeffrey.LANHAM@wanadoo.fr> or at Chavagnac, Teillots, 24390 Hautefort, France.



LRRSA NEWS

MEETINGS

ADELAIDE: "Miniature Railways in SA"

A discussion will be held about miniature railways, past and present, in fairgrounds, zoos, and such within South Australia.

Location: 150 First Avenue, Royston Park.

Date: Thursday 7 June at 8.00 pm.

Contact Arnold Lockyer (08) 8296 9488.

BRISBANE: "Oral History"

Greg Hallan, Heritage Projects Officer with QR's Heritage Division, will address the meeting on the subject of oral history as a valid form of research inquiry.

Location: BCC Library, Garden City Shopping Centre, Mount Gravatt.

After hours entrance opposite Mega Theatre complex, next to Post Office.

Date: Friday 1 June at 7.30 pm. Entry from 7 pm. Contact Bob Dow (07) 3375 1475

MELBOURNE: "Members' Sacred Site Night"

Members are invited to discuss their favourite light railway sacred sites. We will supply a screen and 35mm projector, so bring some slides to illustrate this controversial subject.

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

Date: Thursday, 14 June at 8.00 pm.

SYDNEY: "AGM and Trivia Night"

There will be a Trivia Quiz on the subject of light railways in NSW.

Location: Woodstock Community Centre, Church Street, Burwood, (five minutes walk from Burwood railway station).

Date: Wednesday 27 June at 7.30 pm.
Contact Jeff Moonie (02) 4753 6302



Heritage & Tourist

vation operations. Music, whether it be in the form of *Steaming Hot Jazz* or an interpretative display of the contribution that an industrial brass band made to the social history of an important community, is one such approach. The application of modern technology to effectively interpret the social history of a railway in its industrial or general economic setting to the visitor is also

EDITORIAL

This column has regularly reported on initiatives by preservation groups to market their product to the general public. It has also suggested that preservation groups that do not establish products that are attractive to the tourist and general public will find it increasingly difficult to survive. It is therefore most satisfying that the reports in this issue reflect a number of innovative ideas for attracting more visitors to preser-

critical. The success of the Archer Park and the State Mine Museums in creating effective interpretative displays deservedly gets emphasis in this H&T report. Your editor also offers a brief report on his recent experience of the Swiss Museum of Transport & Communication. Here we are looking at international 'Best Practice' in the preservation game and these standards are to be aspired to. The intention of this column is to highlight successful initiatives that are effective in the hope that others may adapt selected practices to their own situation.

Tony Madden's report on the Illawarra Light Railway Museum Society also brings some disturbing news. Public funding is critical for the preservation of our railway heritage assets. Federal Government support, which is currently primarily delivered through 'Work for the Dole' schemes, has been critical for the preservation of a substantial number of heritage assets. The ILRMS reports that, due to risks allocated by insurer assessors, the Federal Government will no longer allow groups under the 'Work for the Dole' scheme to take part in any works involving railway infrastructure. I would like to hear about the experience of other preservation groups on this important issue. **Bob McKillop**

NEWS

Queensland

ARCHER PARK STATION & STEAM TRAM MUSEUM

1067mm gauge

Rockhampton City Council

During its first year of operation, this museum won the Central Queensland and Southern Reef award for Heritage and Cultural Tourism. The museum covers the development and history of rail-based transportation in the major central Queensland town of Rockhampton and is set in the 100 year-old Archer Park rail station on Denison Street on the city's south-side (LR 151, p.29). The principle attraction at the museum is the fully restored and operational ex-Rockhampton Tramways Purrey steam tram, which provides rides on weekends. There is also an operational industrial 4wDM (Billard T75P VM 227 built about 1948: see LR 147, p.28). A revolutionary Digital Soundscape system provides audio interpretation for the entire site. Through this technology, the station's denizens are more than happy to give visitors an ear bashing about the way things were in the station's working days. The museum is open Tuesdays to Sundays. Museum home page, via John Browning, 3/01

BUNDABERG BOTANICAL GARDENS RAILWAY

610mm gauge

Bundaberg Steam Tramway Preservation Society Inc.

Further to LR 143 (p.21), a recent visit saw the tramway, in the

North Bundaberg Hinkler Gardens, operated by the red Orenstein & Koppel 0-4-0WT *GERMANY* (6805 of 1914). The train runs around a large circular track, with a branch to the depot. Bundaberg Foundry 0-4-2T 3 (3 of 1952), in green livery is also available for service. The operation was well-run, with an air of success about it. Trains operate every Sunday and public holiday (and Wednesdays during school holidays) between 1000 and 1600. Brian Webber, 3/01

CLIVE PLATER, Eudlo

610mm gauge

The South-east Queensland group of the LRRSA visited Clive Plater's residence and collection of light railway items at Eudlo on 24 February 2001. The group inspected various 2ft gauge items, including ex-Moreton Central Mill John Fowler 0-6-0T *COOLUM*, under Clive's special guidance. The group then boarded an open carriage for an "official" trip hauled by Ruston & Hornsby 4wDM *NAMBOUR* which provided a particular highlight of the visit. Bob Dow, 4/01

PALMWOODS-BUDERIM TRAMWAY FORMATION

762mm gauge

The South-east Queensland group of the LRRSA tour described above also covered the site of the former Palmwoods-Buderim tramway (see LR 109, July 1990). At Palmwoods a particularly well-preserved section of the former tramway's embankment was noted as it curved away from the QR station. After inspecting sections of the formation to Buderim, the group then travelled to Telco to inspect the section where the tramway

climbed up over the Buderim Mountains. This section of the tramway has been recently added to the National Heritage register. The Telco bridge is gone, but there are some reminders in the form of stumps and embankments. This was a most impressive trestle bridge in its day. On the section from Telco towards Palmwoods, the group walked in approximately 3 kilometers. There are some very spectacular cuttings that would have been hard work hacking them out back in 1916 or thereabouts. It is easy to understand how the costs of building this tramway "ran way". The formation is well preserved and very generous, and the work involved would have been most substantial, particularly for a tramway 8 miles long. It is easy to imagine that the Krauss 0-6-2T (B/N 6854) and the Shay (B/N 2823) would have made a most spectacular vista, and noise, as they worked their way up the mountain. Although the line has been closed since about 1936, the tour group managed to stumble on a few sleepers and culverts as well as numerous embankments and cuttings. Bob Dow, 4/01

New South Wales

ILLAWARRA TRAIN PARK,

Albion Park 610mm gauge

Illawarra Light Railway Museum Society

The February 2001 Steaming Day at the Museum achieved a visitor summer-time record. A special feature was *Steaming Hot Jazz*, both off and on the train, by a traditional jazz group organised by ILRMS founder, steam driver and the

band's tuba player, Tony Madden. This unusual combination of Tony's hobbies ensured front-page promotion in the local papers. In the editor's eyes, steam and jazz have a special appeal that that has been too rarely exploited for the railway heritage cause, while tuba players stand on a special pedestal in this field. Similar initiatives by other heritage groups will receive faithful reporting in these columns. The good news is that the ILRMS band has been invited to appear again later in the year. To counter falling attendances, the Museum is also seeking to include other suitable attractions on Steaming Days. There has already been a successful visit by a stationary engine restoration group. Special events such as the yearly 'Enthusiasts' Day' and a 'Surplus Bric-a-brac and Collectors' Sale' are planned for 2001.

ILRMS has obtained five former Innisfail Tramway HHB bulk sugar wagons, the last of which arrived at the Albion Park Museum on Tuesday 17 April, together with four wheel-stick cane trucks, a tool wagon and some light rail and point parts. Two are fitted with long-disused and corroded air-braking equipment and only two retain their sugar boxes. The intention is to restore the cane trucks and the two complete HHBs as demonstrators and rebuild the others with replica bodies of former Innisfail Tramway stock.

As reported in LR 158 (p.28), ILRMS has sold Baguley Drewry 0-6-0DM loco *LEICHHARDT* to the Lynton & Barnstaple Railway Association in England. The spare Hudson-Hunslet 4wDM (ex-ER&S) has been cleaned and re-painted and will see some use

Heritage & Tourist

at the Museum but is still for sale at Aus.\$7000.

Restoration of the much re-built Fowler 0-6-0DM, ex-Tully No.7, continues to progress. The 'Twin-Disc' transmission donated by the Walhalla group has been attached to the Rolls Royce engine by a converter ring made at the Museum from an old railway wheel-rim, suitably machined. A new drive-shaft is being made by a member formerly in that industry. New arched bonnet-supports of still angle have been installed (the others scrapped by Tully Mill). The locomotive could be moving under its own power by early winter.

A six-month 'Work for the Dole' scheme has recently been completed. This benefited the Museum by: rebuilding a colliery skip; completing a paling fence, platform paving and erection of a brick engine shed for the miniature railway; construction of a bush-type shelter over the tram terminus; rebuilding the rear steps to the buffet carriage; part restoration and erection of the former NSWGR

'wig-wag' crossing signal; preparation of concrete base and restoration of former QR lattice bracket signal; sleeper replacements; and siding extensions. The Society greatly appreciates this participation. However, in a development of special interest to all railway preservation groups, the Society has been informed that, as from 1 July 2001, the Federal Government will not allow groups under the 'Work for the Dole' scheme to take part in any works involving railway infrastructure. This is because the insurer assesses a greater risk and requires an additional premium on this type of work.

At a more basic level, the ILRMS has also been tackling the everyday issues of preserving the assets for which it is responsible. Termites have been eradicated on several occasions in Museum buildings, and recently the former Melbourne cable tram trailer 430 was found to have borers active in the interior antique panelling and body structure. The late Ken McCarthy, noted light railway and tramway historian, and Foundation Honorary Chairman of the ILRMS, originally restored this vehicle. No. 430 has been withdrawn from traffic for treatment and repair.

Tony Madden, 4/01; editor 4/01

LONGWORTH LOGGING TRAMWAY WALKING TRAIL

Kendall Heritage Society

The remnants of this pioneer timber tramway are being restored as a Centenary of Federation Project (LR 150, p.). The standard gauge logging railway that ran for about 20 kilometres into the Kerewong State Forest and used Climax geared locomotives was built in 1913 and operated until 1929 (LR 131, p.11). Guided walks on the Trail were organised on 22 April 2001 as the Hastings Council's major contribution to Heritage Week.

National Trust Heritage Festival 2001

STATE MINE RAILWAY & HERITAGE PARK

1435mm gauge

City of Lithgow Mining Museum Inc.

The Museum hosted the Lithgow City Council Heritage Awards on 21 April 2001, when it received an Award for the reconstruction of the Newstan Poppet head (LR 158, p.29). On 28 and 29 April the Museum participated in *Ironfest*, a community festival celebrating the iron and steel industry of Lithgow. The society has also received a grant of \$100,000 over two years under the Federal Government's Regional Solutions Program to fund co-ordination and marketing activities associated with the development of the project. This will provide a major boost to allow the group to take the project to the next phase.

Several new displays have been developed, including one featuring the Lithgow City Band and its links to the State Mine Band. The City of Greater Lithgow Mining Museum Inc has also become custodian for the interpretive materials relating to the Joadja Creek Oil Shale Community project. These include a scale model of the Joadja Valley showing the principal features of mining, retorting, refining, rail and community activity. The new displays and increased activity have helped to stimulate an upsurge in the number of tour groups visiting the museum. Barker College recently completed its second annual program of visits by students on study camps, while more environmental, historical and Probus groups are booking tours.

Ray Christison, 4/01

WESTON PARK MINIATURE RAILWAY, Yarralumla, ACT

457mm gauge

The new Dunlop steam-outline 0-4-0T diesel locomotive was in use over Easter, with one new and one old bogie open carriage. A new covered carriage is expected soon. The loco is approximately 610mm gauge scale and carries a cast plate on the left-hand side of the cab "Bermagui Foundry 2001". It and the new carriage are painted sky blue with the loco sporting red headstocks. The general appearance and proportions make it a quite handsome unit. A new turnout has been built with 50x25mm galvanised RHS and the old s/o 4-6-0 (built to standard gauge scale) is stored on the short spur attached to the new turnout. Plans are to refurbish the old train and provide a station passing loop to allow future two-train operation, and to bring a disused section of earlier trackage back into use. Track appears to be mainly ex-canefields 14lb/yd 'portable rail' fastened to wooden sleepers or welded to bits of inverted rail or flat bar.

Tony Madden 4/01

ZIG ZAG RAILWAY, Lithgow

1067mm gauge

Ex-Mt Lyell Railway/TGR 0-6-0DM shunter *MOUNT LYELL* (Vulcan Drewry 2406/D194 of 1953) has been purchased by the Abt Wilderness Railway for their operations. It was reported at the Zig Zag depot still in TGR green livery in August 2000 (LR 155, p.29), but had been sent to Saunders & Ward in Hobart for overhaul by April 2001 (see p.29). Meanwhile, Zig Zag has purchased two 10-class B-BDH locomotives from the former Emu Bay Railway. Three of these locomotives were built by Walkers Ltd of Maryborough, Queensland in 1963 for the EBR, and a fourth, 1004, was built in the Tasmanian Government Railway's Launceston Workshops in 1966 using spare parts supplied by Walkers with the original order. Originally powered by Paxman engines, the locos were later repowered with Caterpillar D 398 series B, V-12 engines rated at 522kW at 1300 rpm. Following the closure of the Hellyer mine and the resultant loss of traffic, the 10-class locos were put into storage in June 2000. On the acquisition of EBR by Tasrail, the locomotives were offered for sale. The Zig Zag Railway

Coming Events

JUNE 2001

1-2 Puffing Billy Railway, Belgrave VIC. Jingle Bells in June Night Train. Enjoy a night train ride and three-course meal in the Winter. Also operates on 8-9, 15-16, 22-23 and 29-30 June. Bookings Phone: (03) 9754 6800.

10 Cobdogla Irrigation & Steam Museum, Barmera, SA. Humphrey Pump Open Day. Phone 08 8588 2323.

10 Illawarra Light Railway Museum, Albion Park NSW: Demonstration Industrial Trains. 610mm steam train operations, electric miners' tram and 184mm miniature train rides; 1030-1630. Phone 02-42 564627

11-12 Richmond Vale Railway, Kurri Kurri, NSW. Coalfields Steam Weekend with extensive steam train operations and many other attractions. Phone 02 4937 5344.

16-17 Red Cliffs Historical Steam Railway, VIC. Centenary of restored Kerr Stuart 0-4-2T (B/N 742/1901). Located 10km from Mildura; Phone (03) 5024 2262.

JULY 2001

6-7 Puffing Billy Railway, Belgrave VIC. Jingle Bells in June Night Train. Enjoy a night train ride and three-course meal in the Winter. Also operates on 13-14, 20-21 and 27 July. Bookings Phone: (03) 9754 6800.

7-22 Semaphore-Fort Granville Steam Railway, SA. Steam-hauled 457mm gauge trains operate daily during school holidays, 1200-1600.

8 Illawarra Light Railway Museum, Albion Park NSW: Steam'n Trad Jazz at the Museum. 610mm steam train operations, electric miners' tram and 184mm miniature train rides; 1030-1630. Phone 02-42 564627

14 Goulburn Steam Museum, Goulburn, NSW An auction sale will be held on site of all remaining material not related to the original pumping station. This will include a number of railway items such as 30lb rail fishplates, spikes, signals, wheelsets, loco builders plates, a Fowler oil headlamp, steam fittings, boilers, traction engine, steam models, "barn engines", etc. Contact Bruce Macdonald on 02 6288 7759 for information.

22 Cobdogla Irrigation & Steam Museum, Barmera, SA. Steam Open Day. Phone 08 8588 2323.

AUGUST 2001

5 Cobdogla Irrigation & Steam Museum, Barmera, SA. Steam Open Day. Phone 08 8588 2323.

11-12 Puffing Billy Railway, Belgrave VIC. Thomas the Tank Engine comes to Puffing Billy - a family fun attraction at Emerald town. Enquiries and bookings: 03 9757 0770.

19 Walhalla Goldfields Railway, Walhalla, VIC. On Sunday 19 August the first Great Gold Bullion Train Race is scheduled to take place between Thomson and Walhalla. Teams pushing wheelbarrows carrying imitation gold nuggets will race the train!

25-26 Riverboat Federation Centenary Event and Spirit of Steam Rally, Euston, VIC. A special Federation riverboat and steam weekend. Phone 03 5026 9414.

purchased 1004 in working order and 1003 as spare parts in March 2001. At least one unit was reported at Zig Zag by early April.

Zig Zag Home Page, 4/01; editor 4/01

Victoria

RED CLIFFS HISTORIC STEAM RAILWAY INC.

610mm gauge
The Red Cliffs Historical Steam Railway, last reported in LR 144 (p.24), will celebrate the 100th anniversary of its Kerr Stuart 0-4-2T (742 of 1901) on the weekend of 16-17 June 2001. Activities commemorating the centennial of the diminutive locomotive will include the opening of a 1.5km rail extension, a loop and a turntable. It is planned

that an historical link will be renewed with the attendance of the Bagnall 0-4-0ST from Cobdogla. The Kerr Stuart and Bagnall locomotives worked together hauling aggregate and cement to the Humes Pipe Factory during the development of the Loveday-Cobdogla Soldier Settlement scheme in the early 1920s. Throughout the weekend there is the prospect of the two steam locomotives operating on a half-hourly timetable. Ian Hiinks 4/01

WALHALLA GOLDFIELD

RAILWAY 762mm gauge

Walhalla Tourist Railway Committee of Management

Further to LR 155 (p.30), the ex-Thailand 0-6-0T (Henschel 25427/1956) has been steamed at

Valicote, Morwell, where it has been rebuilt. It is now to be transported to Thomson for testing and training, but early in April the date for this was not known. The Walhalla Goldfields Railway is reported to have obtained the former Emu Bay Railway 10 class Walkers BB diesel-hydraulic locomotive No. 1001 as spare parts (see Zig Zag Railway p.28). The Committee of Management is seeking donations to enable it to complete this purchase.

In March the station area at Walhalla was being prepared for the arrival of the new station. It has been built off-site and will be transported to Walhalla in two sections. The station has been constructed from the original VR

Heritage & Tourist

plans. At the end of March site works for bridges 2 and 3 had not progressed; as a result the official opening has been deferred to August. All other bridges are complete. On the rail formation between Thomson and Erica, considerable work has been done at the Platina station area to create picnic facilities. This includes reconstruction of the station building. On Sunday, 19 August 2001, the first Great Gold Bullion Train Race is scheduled to take place between Thomson and Walhalla. Teams pushing wheelbarrows carrying imitation gold nuggets will race the train!

Dogspikes & Diesel, February, March, April 2000 via Frank Stamford 4/01

Tasmania

Abt WILDERNESS RAILWAY

1067mm gauge

As noted above, the Zig Zag Railway has sold Ex-Mt Lyell Railway 0-6-0DM shunter, V13 MOUNT LYELL (Vulcan Drewry (2406/D194 of 1953), to the Abt Wilderness Railway. Roger Smith, Chairman of the AWR, is reported to have paid almost \$100,000 to get the locomotive back to Tasmania as part of a deal that saw the Zig Zag Railway obtain the two EBR 10-class locos. V13 arrived in Burnie on 6 April 2001 and was sent to Saunders and Ward engineering works in Hobart for an overhaul and the fitting of a hydraulically operated rack mechanism. It will then resume service on its former stamping ground. The railway was reported to be having teething problems with Abt 0-4-2T No 3 and the track in April, but the embarrassing run of derailments appears to have been overcome.

It is also reported that the AWR has approached the Australian Railway Historical Society (Victorian Division), the owners of ex-Mt Lyell Abt 0-4-2T locomotive No.5 and its associated guard's van currently on display at the Puffing Billy Railway Menzies Creek Museum in Victoria, for their return to Tasmania. The outcome of negotiations on this matter are awaited with interest.



Bundaberg Botanical Gardens Railway: O&K 0-4-0WT GERMANY at the depot, 4 March 2001. Photo: Brian Webber



LRSA members are treated to a ride behind Clive Plater's Ruston & Hornsby 4wDM NAMBOUR, during the South-east Queensland group's excursion to Clive's property at Eudlo on 24 February 2001. Photo: Brian Webber

Heritage & Tourist

Regular pattern of services had been established by early April, with two daily trains to Rinadeena (9.30am and 1pm) and one to Lynchford (at 4pm) each day. The 4pm train was shortened up to Lynchford with the cessation of daylight saving. Trains are now built up to three carriages as required, 0-6-0DM V22 (ex EBR) is currently working on track laying trains on the Strahan end of the line. Hobart Mercury, 7 April 2001; Rob Bushby, via LocoShed 4/01, ARHS (Vic Division) Newsletter, 1/01 *The Mercury* 7/4/01 via Greg Stephenson

South Australia

COBDOGLA STEAM RAILWAY

610mm gauge

Cobdogla Steam Friends Society Inc.

The boilers of Bagnall 0-4-OST+T (B/N 1801 of 1907) and the Fowler traction engine were stripped down for their annual inspection as soon as the January twilight passenger runs were completed. The boiler inspector found no change in the internal condition of the boilers. However, the group took the opportunity to have new firebars made for the Fowler and new brake rigging for the Bagnall. The innovative technology developed by the Society for laying the extension of the track along the channel bank towards Loveday (LR 143, p.23 and 150, p.38) was the subject of a recent feature article in *Catchpoint*, the magazine of the Port Dock Railway Museum. It noted that another 52 tons of rails, with fishplates and sleepers, have been acquired by the society for the Loveday extension.

Australian Steam Power, 2/01; *Catchpoint*, 1/01

SEMAPHORE-FORT GRANVILLE STEAM RAILWAY 457mm gauge Port Dock Station Railway Museum Inc.

Adelaide's horrendous summer had a negative impact on this popular tourist attraction during January 2001. With forecast temperatures exceeding 35°C for 15 days during the month, operations on the Semaphore & Fort Granville Railway were cancelled



Baguley Drewry 0-6-0DM SEYMOUR with three recently acquired former Innisfail tramway 'H' bogie wagons and 'HHB' bin No.26 at Albion Park, 13 March 2001.

Photo: Tony Madden



Live steam miniature railways continue to be an attraction for children at railway museums. When the motive power is a scale model of a Climax-type geared locomotive - geared for high-speed running, as at the Swiss Museum of Transport & Communication - then Dads show an interest too!

Photo: Bob McKillop

on these days. The result was a serious decline in revenue for the railway, and consequently its parent, the Port Dock Station Railway Museum. Museum attendances were also down as a result of the heat. The railway will be operating on a daily basis during the July school holidays (see 'Coming Events') Port Dock Station Railway Museum home page, 4/01

Western Australia

BENNETT BROOK RAILWAY

610mm gauge

WA Light Railway

Preservation Association

We last reported on the restoration

of former Magnet Tramway No.3 (Orenstein and Koppel 2609 of 1907), Australia's only surviving 0-4-4-OT Mallet locomotive in LR 140 (p.26). We then noted that Willis Engineering was working on restoring the chassis to running condition. Willis' restored both chassis to the stage where they were running on compressed air on a set of rollers. This involved repairing or replacing many parts that had gone missing over the years or had become badly corroded. For example, new valves had to be made for the front (low pressure) cylinders, as the originals had been removed while the loco was working in Kalgoorlie and it finished its working life as a 4-4-0

operating on the rear high pressure cylinders only, rather than as an 0-4-4-0. The chassis were returned to the Bennett Brook Railway in February 2001.

In preparation for the return of the chassis, WALRPA obtained a shed to use as a dedicated workshop for the restoration project. The shed was dismantled, moved and substantially re-erected at Whiteman Park over two weekends by members. Two tracks were laid into the shed and a concrete floor installed in readiness for the delivery of the chassis. WALRPA plan to return the Mallet to operation in its original form as a compound locomotive.

Simon Mead, 2/01

KOJONUP TOURIST RAILWAY

1067mm gauge

This tourist railway is operated by a small but enthusiastic group of locals in this small township in the heart of the Western Australian wheat belt. Although based on a former WAGR branch line and using ex-WAGR rolling stock, the operation has a distinct 'light railways' character. Current operating stock comprises three small lightweight open passenger wagons hauled "top and tail" by a Mini Moke hi-rail and a rail-mounted Suzuki 4x4 vehicle. The preservation group has about 10km of line in situ from Kojonup to Farrar, the next siding to the west. Current operations use only a short section of this line, as much work is needed to get the whole line back to an operable condition. As well as a collection of ex-WAGR workman's vans, the group has ex-Midland Railway of WA coach J 4, and an unidentified 12-wheel sleeping car. They have the use of the old station yard, and hope to get access to the picturesque Kojonup station building in the near future.

Simon Mead, 4/01

Overseas

WORLD RAILWAY HERITAGE CONFERENCE, Argentina

FEDECRAIL (the European Federation of Museum and Tourist Railways) has joined with the Tourist Railways of America Inc (TRAIN) to convene a World Congress of owners and operators of steam trains and tourist railways

in Ushuaia overlooking the Beagle Channel in Argentina on 19-20 October 2001. The three principal topics to be discussed at the Congress will be environmental issues (their impact on steam railway operations and the benefit to sensitive areas); the funding of steam and tourist trains (addressing the various sources of such funds, both in the form of sponsorship and investment); and technical developments (explaining the potential of modern technology in improving locomotive performance and efficacy).

Speakers from governmental agencies, financial institutions, and railway engineers, including Senor Dante Porta, former apprentice of Andre Chapelon, will address the conference. On the second day of the conference, the setting up of an international association will be discussed. There will be a program of visits to tourist railway operations in Patagonia and other parts of Argentina, as well as to the principal tourist attractions such as the Iguazu Falls, the largest waterfall in the world.

Any individuals involved in such operations are invited to register their interest with David Morgan TD, President of FEDECRAIL and chairman of the Heritage Railway Association (HRA), e-mail: davidmorgan21@hotmail.com or fax ++44 2074042890 or with the HRA Overseas Liaison Officer, Richard Tapper at 39, Grange Court, Boundary Road, Newbury, Berkshire RG14 7PH, United Kingdom.

Chris Smyth, 4/01

SWISS MUSEUM OF TRANSPORT & COMMUNICATIONS, Luzern

This is one of the world's great transport and communications museums. A Swiss railway museum began in Zurich in 1914 and the collection was integrated in the newly opened Museum of Transport & Communications in Luzern in 1959. The present 8000m² railway hall was opened in 1997 to display the extensive collection of railway exhibits. For the light railway enthusiast there is much to interest and delight. Of special interest is the 750mm gauge Waldenburg Bahn 0-6-0T No.8 (SLM 2276/1912), the first locomotive to join the new collection at Luzern. There is an extensive collection of metre gauge electric locomotives and rolling stock representing the amazing variety of light railway operations in Switzerland, together with standard gauge Rigi Bahn rack locomotive No. 8 (SLM 1/1871) and a Pilatus Railway steam cog railcar. But the appeal of this museum goes well beyond the static exhibits. Key themes of the development of the railway system and its economic and social impacts are told through a wide range of interpretative materials, including outstanding photographs, audio-visual and video displays and a wealth of social artefacts. All items are explained in four languages (including English) and the visitor can select his or her language for most audio-visual presentations.

A highlight is the interpretative

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'show' of the history of building the St Gothard Tunnel. Visitors (in groups limited to 18 at a time) travel through a 30-minute 'experience' of the lives and working conditions of the people who built the tunnel and the promoters behind it. A light and sound presentation tells the story of Italian peasants who came to Switzerland to work on the project through a well presented social history from their perspective. After arriving at the workers camp, visitors are then transported by a workers construction train into the tunnel and to the working face, with various facets of the history being told by the key characters at each stop. Visitors have individual audio handsets that provide the narrative in whichever language is selected.

With a newly acquired appreciation of Swiss railway tunnel construction, the visitor will notice that the locomotive collection contains two examples of geared contractor locomotives used on such projects. One of these, GNOM of 1871, is under restoration in the main hall. The story of this restoration and the presentation of the various parts provide an interesting feature in their own right. My visit was made over Easter, but I understand the restoration work is carried out as part of the normal daily activities in the Railway Hall.

Editor, 4/01



RESEARCH

Victorian Narrow Gauge Heritage Items

Hugh Markwick is seeking information from readers on two heritage items of rolling stock.

First, the LRRSA and the Puffing Billy Railway Preservation Society are jointly restoring the TACL rail tractor (B/No. 55) that was used by the former Forests Commission of Victoria on the Tyers Valley tramway in the 1920s. As it is proposed to publish a booklet on the history of TACL, Malcolm Moore

and their rail tractors in general and B/No. 55 in particular, Hugh is seeking photographs and information from anyone who can assist. Second, the Puffing Billy Railway has obtained NQR open goods truck No.26. This has proved to be an original ballast wagon with floor opening doors and sliding doors in the two end panels. Unfortunately the available VR drawings do not show any details of how the floor panels were opened or kept closed when full of ballast. As the restoration of this vehicle is under consideration,

Hugh is keen to hear from anyone who has photographs or drawings of these vehicles in general and the door and discharge mechanism in particular. Please respond to Hugh Markwick, 6 Chambers Grove, Upper Fern Tree Gully VIC 3156; Phone 03 9758 7516.

Kalgoorlie Mining History Conference

The Australian Mining History Association is organising a Conference at Kalgoorlie from 24-27 September 2001 on the theme 'Empire, Nation, Region And Identity'. All sessions will take place at Curtin University's, Kalgoorlie School of Mines.

A variety of social events have been arranged and the Conference dinner will be held at the Hannan's Mine's old Locomotive shed, now a leading Kalgoorlie restaurant. Walking tours have been arranged to take in the history and architecture of Boulder and Kalgoorlie and to visit past inhabitants at the local cemetery. Other features include a visit to the spectacular 'Big Pit' and the local museum, plus a visit to the premises of the Eastern Goldfields Historical Society to look at their holdings. Registration and information from Mel Davies, Department of Economics, The University of Western Australia, 35 Stirling Highway, Crawley, Western Australia 6009. Tel: +61 8 93802939; Fax: +61 8 9380 1016. E-mail: mdavies@ecel.uwa.edu.au

Mel Davies

