VOLUME 5
PART 1

MEMOIRS OF THE QUEENSLAND MUSEUM – CULTURE

PO Box 3300, South Brisbane 4101, Qld Australia
Phone 61 7 3840 7555
Fax 61 7 3846 1226
www.qm.qld.gov.au

National Library of Australia card number
ISSN 1440-4788

A Guide to Authors is displayed at the Queensland Museum web site
http://www.qm.qld.gov.au/About+Us/Publications/Memoirs+of+the+Queensland+Museum

A Queensland Government Project
Typeset at the Queensland Museum

Evolution of the Ipswich Railway Workshops site

Robyn BUCHANAN

Buchanan, R. 2011 Evolution of the Ipswich Railway Workshops Site. Memoirs of the *Queensland Museum – Culture* 5(1): 31-52. Brisbane. ISSN 1440-4788

The decision to build the first railway in Queensland from Ipswich to the Darling Downs meant that railway workshops were required at Ipswich. The development of the Ipswich Railway Workshops site began with the original Ipwich Workshops site of 1864 which was adjacent to the Bremer River at North Ipswich. The first two major workshop buildings were iron and zinc structures imported from England in pre-fabricated form. Over the next few years, additional buildings including a brick store were constructed by local contractors.

As the railway network expanded and the work increased this area became too small and a new site was selected a short distance to the north. There were two major periods of building activity on this site, in the 1880s and early 1900s. The first new buildings were brick. Most were placed in two rows separated by a traverser track, and form a remarkable industrial streetscape which still exists. A Power House completed in 1902 supplied electricity to the whole site. Timber administrative buildings, a brick Laboratory and a brick Tool and Gauge Shop were added later. The site ceased operation in the mid-1990s apart from work for QR's heritage fleet of steam locomotives, and several of buildings now form The Workshops Rail Museum.

❑ *Railway, railroad, workshop, locomotive, manufacture, museum, industrial, heritage, Ipswich, power house, laboratory.*

R. Buchanan
Buchanan Heritage Serivces





IPSWICH OR BRISBANE?

A combination of geography and politics determined the location of Queensland's first railway.

When Queensland became a separate colony in 1859, Brisbane became its capital. The town was located a short distance from the mouth of the Brisbane River, and was the chief port of the colony. Up-river on the Bremer was the busy inland port of Ipswich, and further west was the productive Darling Downs.

Transport between Brisbane and Ipswich was mainly by river. Bullock teams then hauled supplies from Ipswich to country properties, and returned loaded with wool and other produce. The system broke down in bad weather when roads became impassable and it was claimed that it was "no uncommon circumstance for 100 drays to be detained at one time waiting for the possibility of travelling". Even in good weather, a long trip by bullock dray on poor roads was slow, difficult and expensive. A better transport system was required and the solution appeared to be a railway (MBC, 1 January 1861).[1]

The first initiative came from private enterprise and in 1861, the Moreton Bay Tramway Company was formed to build a horse-drawn railway from Ipswich to Dalby. This project barely progressed beyond the planning stage and it was realised that in a sparsely-populated colony like Queensland, only the government would have the capacity to carry out such an expensive undertaking. In 1863, Queensland Premier Robert Herbert was able to obtain assurances of foreign investment capital and in September that year, a decision was made to build a steam-operated railway.

Ipswich was chosen as the starting point rather than the capital Brisbane for several reasons. Firstly, transport between Brisbane and Ipswich was already adequately served by river. Secondly, Ipswich had briefly considered itself a potential capital, and although it lost this battle, the town still had considerable influence and its residents included important people such as Lands and Works Minister Arthur Macalister. If the railway started from Ipswich, the town could retain its economically-important role as an inland port. Finally, the Government already had preliminary surveys for this route, having spent a considerable amount to purchase them from the failed Moreton Bay Tramway Company (G, 20 May 1863).

A corollary of the decision to start the first railway from Ipswich was that workshops would be required there.

WORK BEGINS

Irish engineer Abraham Fitzgibbon had been engaged as a consultant on the proposed railway. In September 1863, he was appointed Chief Engineer and for a period of about a year until October 1864, he was also Commissioner for Railways. To assist with selecting staff and obtaining materials from overseas, a prominent British engineering firm, Charles Fox & Son was appointed as consulting engineers and agent in London. The contract for construction of the first section of line from Ipswich to Bigge's Camp (Grandchester) was awarded to British contractors Peto, Brassey & Betts.

The site selected for the workshops and railway terminus was at North Ipswich. This was considered suitable because it was a flat area directly across the river from the centre of the town, and would allow easy delivery of materials by barge and paddle steamer. From this starting point, it was proposed that the railway would skirt the river and head north-west towards Grandchester. A further benefit was that this route avoided a major crossing of the Bremer River, although three

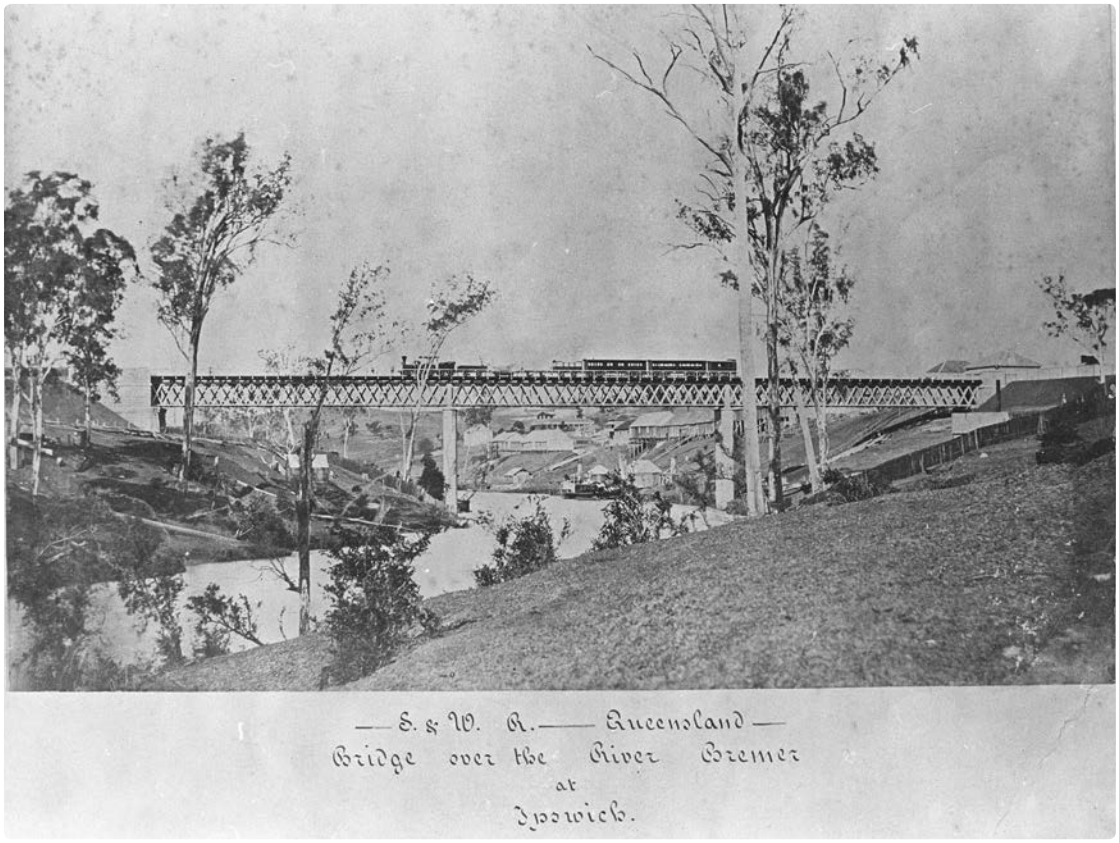

FIG. 1. An A10 crossing the first Bremer River Bridge, a combined road-rail bridge pre-fabricated in England by Andrew Handyside & Co. Image courtesy TWRM/QR.

small iron bridges were required in the first few kilometres – at Wide Gully, Mihi Creek and Ironpot Creek (Figure 1).

Ipswich people were not pleased with this arrangement; they wanted the railway station to be on the south side of the river, in the centre of the town. For some time, they had also been requesting a permanent road bridge across the Bremer to replace the existing structure, a pontoon "bridge" made of punts connected with timber decking. When the Government approved the Moreton Bay Tramway two years earlier, it had insisted that the company build a rail bridge across the Bremer but this project had lapsed. The Government had also set money aside in budget estimates for a future road bridge and it now decided to combine these ideas. The station site was changed to the southern side of the river and the railway contract was expanded to include a combined road/rail bridge over the Bremer (G, 2 September 1862; QT, 5 July 1864).

The first official construction activity took place on 25 February 1864 when Lady Bowen, wife of the Governor Sir George Bowen, carried out the ceremony of "turning the first sod" using a small silver spade and a cedar wheelbarrow. The workers also seem to have held their own unofficial ceremony

because in later years, the "nipper" of one of the gangs of navvies, Billy Mill, always claimed that he had been given the honour of turning the first sod when work actually started. [2]

At this time, the colony of Queensland could not supply the ironwork or machinery required for a railway and most of the materials were imported from England. The first four locomotives were built at Avonside Works at Bristol in England, tested there, and dis-assembled for transport to Queensland. The first passenger carriages were also imported, built with teak bodies on iron frames. Other early orders included four iron bridges, two large workshop buildings and the stations for Ipswich, Laidley and Toowoomba.[3]

While the materials were being produced in England, site works commenced in Ipswich. The ironbark piers for the three smaller bridges were built, ready for the arrival of the iron trusses. For the main Bremer Bridge, a coffer dam was built in the river and timber formwork was constructed ready for the iron cylinders. The permanent way was cleared, and cuttings and embankments were commenced. A quarry was established near Mihi Creek, producing sandstone which was broken up as ballast. Stone was also brought up the river by punt from the Bremer Mills quarry at Bundamba. (QSA 22051, 22053, 22054, 2055, BC 8 November 1864).

By August 1864, an office at the Workshops was ready and was occupied by Fitzgibbon and his drawing staff. Other locally-built sheds and a store were nearing completion.

The existing wharfs at Ipswich were all on the southern side of the Bremer. To receive the materials arriving from England, a new wharf was built on the north bank and was connected to the Workshops by a tramway, later known as the Wharf Line. By September 1864, the wharf was almost completed and three barge-loads of materials had landed on it, including some of the cylinders for the piers of the Bremer Bridge. The locomotives had not yet arrived, so wagons were assembled and materials were hauled up the tramway by teams of horses (QSA 22051).[4]

THE FIRST LOCOMOTIVES AND WORKSHOP BUILDINGS ARRIVE

The railway construction was a source of great interest to the small boys of the town. Unwilling to spend money on the ferry, they often stripped off their clothes, tied them in a bundle on their heads and swam the river to watch the men at work. There was even greater interest in January 1865 when the first locomotives arrived and were assembled and tested on the Workshops site. The first one in steam was announced by blasts on its whistle and caused a sensation. People rushed across the pontoon bridge and were invited to clamber on board as the locomotive made a slow progress between Wide Gully Bridge and the wharf (QT, 18 March 1910; BC, 13 January 1865).

The locomotives could not be used immediately for construction work because the three smaller iron bridges were not completed. This was a frustration to the

FIG. 2. The original Workshops site. The first two workshop buildings were pre-fabricated in England by J & R Fisher, the remainder were built by local contractors. Image courtesy TWRM/QR.

contractors because work progressed much faster when locomotives could haul workmen and materials along the line.

In the same month, January 1865, the pre-fabricated Engine and Carriage Shops arrived to be assembled and erected on their prepared sandstone foundations on the Workshops site (Figure 2). The buildings, supplied by the London firm of J & R Fisher, were framed in iron and timber, and clad with zinc sheeting (Fox, 1867: 54).

By 22 April 1865, the three small bridges were ready and first railway excursion in Queensland was held. Railway officials, politicians and guests assembled for a trial trip from the Workshops site to Guilfoyles Gully near present-day Walloon, a distance of 12.5km (BC, 24 April 1865).

The larger Bremer River Bridge was ready for rail traffic only two days before the official opening of the first section of line which took place on 31 July 1865. Another excursion was held, this time starting from the partly-completed Ipswich Station (Figure 3). Guests were entertained at Grandchester with a luncheon, speeches and music (Figure 4). Although the line was operational, Ipswich residents had to wait until November for the Bremer Bridge to open for road traffic (Guardian, 20 November 1865).

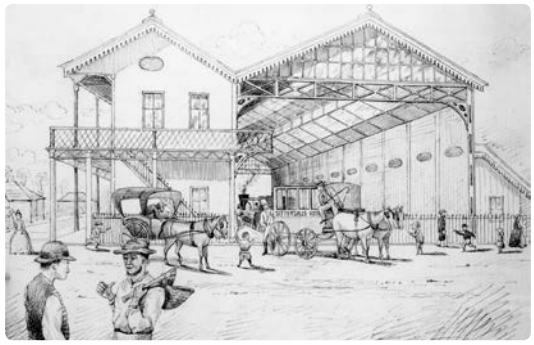

FIG. 3. Ipswich Railway Station – pre-fabricated in England by J & R Fisher (Ipswich Punch, 1865).

FIG. 4. The official opening of the first section of railway, Grandchester 31 July 1865. Image courtesy TWRM/QR.

THE WORKSHOPS 1865-1875

After the official opening, the tide of railway construction moved westwards. The navvies moved on to new camps and the Workshops settled into a more normal routine. The river traffic continued to thrive and materials still arrived at the railway wharf, to be sent on to the head of construction.

The Workshops employees began to show their considerable ingenuity at this very early stage of railway history. Completion of the Victoria Tunnel, just beyond Grandchester, was held up by a series of problems. Work on the Laidley sections beyond the tunnel had already started, but progress was slow without a locomotive to haul materials and ballast. In early 1866, Locomotive Foreman Thompson Eden was given the task of taking a locomotive to Laidley. An A10 was loaded onto a specially-built wagon, and was hauled by a team of 50 bullocks and two horses across the Little Liverpool Range. Once at Laidley, Eden and his Workshops team re-assembled the locomotive in the open air near the station (QT, 21 March 1914).[5]

Most of the work was more routine, however, and consisted of maintaining the existing stock and making a relatively small number of new wagons and carriages.

Several changes occurred in the mid-1870s which affected the Workshops site. The first was construction of an extension to Brisbane. The line opened in sections and the final link was made when the Albert Bridge across the Brisbane River at Indooroopilly was completed in July 1876.

As expected, the link to Brisbane brought changes. The river traffic diminished, and Cobb & Co coaches stopped running between Ipswich and Brisbane. Goods and passengers could now pass straight through on their way to the Downs without having to stop at "the little village on the Bremer" as the Brisbane Courier derisively called it (BC, 13 March 1869).

At the same time, work commenced on a "deviation" to straighten the route to the Darling Downs. The new section of line ran west from Ipswich Station through a deep cutting near Ipswich Grammar School, crossed the Bremer by a new bridge at Sadliers Crossing and connected to the original route at Wulkuraka. The early section of line from the Workshops to Wulkaraka then became redundant and was removed.

There had been local protests about the removal of this section of line as it gave access to coal deposits. In 1885, part of the line was re-laid to give access to the Mihi/Eastwood Mine. This siding continued to operate for the Klondyke Mine until about 1950 (QRAR, 1885; QT, 17 June 1875; Whitmore, 1983).[6]

THE NEW WORKSHOPS SITE 1875-1899

As the rail system expanded in southern and western Queensland, the Workshops were called upon to carry out an increasing amount of work. The existing buildings became insufficient for the workload and more were needed.

The original buildings had been imported in pre-fabricated form but they were very expensive and the cost was criticized in Parliament and in newspaper articles. The Government eventually cancelled the order for the Toowoomba Station (although some components had already arrived) and no further prefabricated buildings were imported after the initial batch.[7]

Instead, local contractors built a new Steam Shed in 1876, a new Boiler Shop in 1878 and a new brick Stores building in 1879 (Figure 5). Even with these additions, there was still not enough space, and there was also criticism that the shops were badly ventilated and poorly lit – although the men were supposed

FIG. 5. The Steam Shed at the original site – built by a local contractor. Image courtesy TWRM/QR.

to work until 5.30pm, the buildings were too gloomy after 5pm in winter (QRAR, 1876, 1877, 1878; QT, 18 June 1878; QVP, 1879: 535-664).

The existing riverside site did not allow for further building expansion. To the east, it was blocked by the local gasworks while to the north was Wide Gully, the deep depression spanned by one of the early iron bridges. However just beyond Wide Gully was a 40 hectare site which had been the camping ground for early railway employees. At this time, it was being used as a rifle range. The land was acquired for railway use and plans were drawn up for a series of substantial new brick buildings on stone foundations – the earliest buildings of the current Workshops site (Figure 6).

Six of these were built in the 1880s: the Carriage, Wagon & Painting, Machine, Woodworking and Fitting Shops and the Smithy, plus some smaller timber sheds

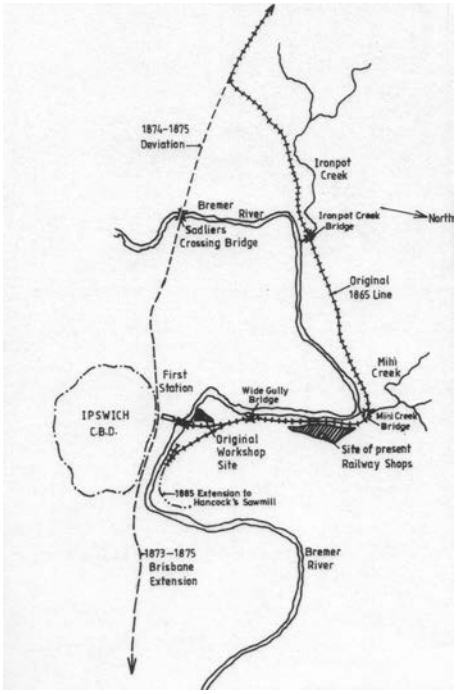

FIG. 6. Diagram showing the Workshops and surrounding area (Buchanan Architects et al, 1995: 7).

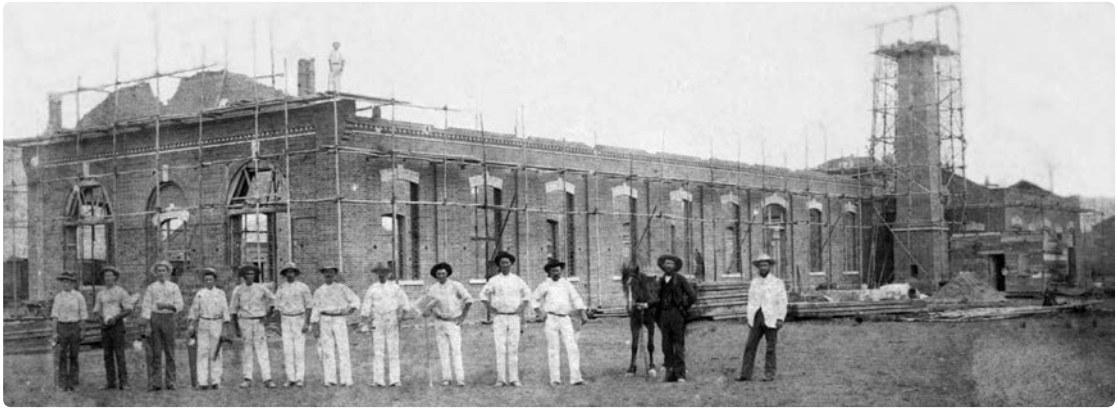

FIG. 7. Robert Wilson (in dark suit) with his three brothers and employees building the Fitting Shop c1888. Image courtesy Val Wardrop.

(Figure 7). They were arranged in a formal row and this set the basic future layout of the Workshops. The construction work was carried out by local contractors, and a North Ipswich foundry, Springall and Frost, supplied the ironwork for the roof and girders (Morrison, 1888: 515).

The buildings were simple, robust industrial structures, long and relatively narrow, with large arched openings in the gable ends. A considerable level of care was taken in the detail and ornamentation. The doorways and window arches featured coloured brickwork, and the facades included rows of contrasting coloured bricks and "dog's tooth" courses. Although all conform to the same general pattern, there are individual variations in the buildings (Figure 8).

This level of decorative design exceeds expectations for an industrial site that was not open to the general public. Surprisingly, the designer is uncertain. Although the Railway Department's architectural drafting staff William Hoghton, Joseph Ainscow and Henrik Hansen all signed plans, there is a consistency of design and it is not clear who had the overall supervisory influence.

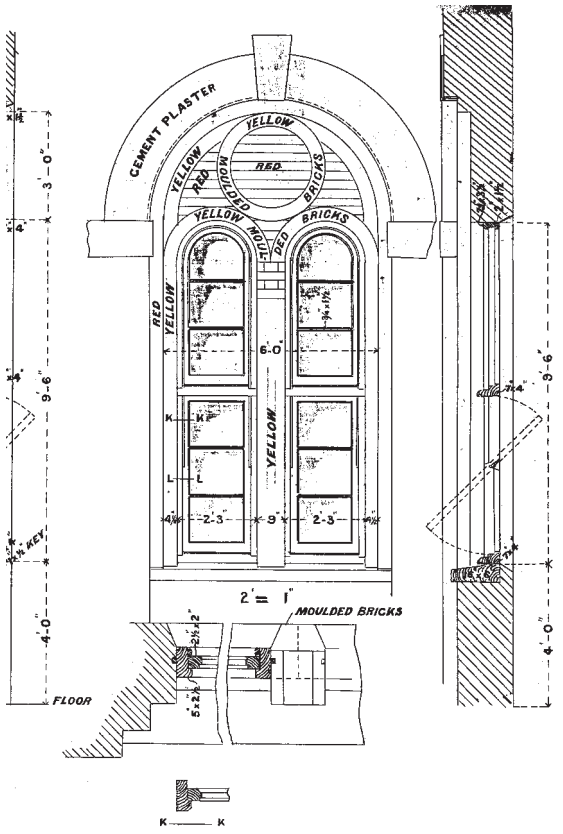

FIG. 8. Detail from plan for the Carriage Shop 1884. TWRM / QR Archive.

FIG. 9. A general view of the Workshops site c.1890. The buildings are – left to right: the Carriage Shop, Machine Shop, Wagon Shop, Old Smithy and, on extreme right, the Fitting Shop which was demolished c1910. Image courtesy TWRM/QR.

FIG. 10. The Workshops in the 1893 Flood. This caused doubts about the continued use of the site. Image courtesy Whitehead Studios.

In the early 1890s, Queensland experienced a financial depression and spending was curtailed. This was followed by the severe flooding of 1893 which inundated the Workshops and raised questions about the suitability of the site (Figure 9 and 10). The planned expansion of the Workshops faltered and in spite of the acute shortage of workspace, no further buildings were constructed (QVP 1899: 751).

The Workshops continued to use buildings in both the northern and southern precincts and this separation of activities must have been inconvenient and inefficient. By the late 1890s, overtime shifts had been introduced and some boiler repairs were being carried out in the open air.

THE MAJOR EXPANSION IN THE 1900s

Two accidents in late 1898 brought matters to a head. In August, the boiler of a tank engine exploded while shunting at Roma Street and in December, there was an explosion in the boiler of an A12 locomotive about to be used on the Gladstone Mail train, both fortunately without loss of life (QVP 1899: 627).

Within a month of the first explosion, Locomotive Engineer Henry Horniblow sent a memo to the Railway Commissioner. He stated that it was "absolutely necessary that some of the new Shops should be put in hand at once" and endorsed a suggestion by Locomotive Superintendent R.T. Darker that a visit should be made to New Zealand and the southern colonies to look at other workshops. The trip was undertaken almost immediately. It was suggested that a member of the architectural staff should

accompany Darker on the trip, but Chief Engineer Henry Stanley decided that the Workshops was "practically committed" to continue with the design of the existing shops, and that the information needed was about machinery and equipment. In the end, Principal Assistant Engineer William Pagan accompanied Darker and they reported later in 1898 on their findings (QSA 299577).

A Court of Inquiry into the two boiler explosions was held in early 1899 and evidence showed that a proper inspection protocol could have prevented the accidents. The Commissioners commented that the principal locomotive workshops in the colony – namely those at Ipswich – were quite inadequate in shed accommodation and tools to cope with the necessary repairs. They formally recommended that the Workshops should be "enlarged, extended and equipped with most modern tools and appliances" (QVP 1899: 627).

The Ipswich Workshops had been inundated in the 1893 floods and a completely new site had been considered. The Railway Commissioner decided, however, that too much capital had already been incurred on the existing site. He also believed that such severe flooding was not likely to be frequent (QSA 299578).

Horniblow was demoted to second in charge and William Nisbet, at that time General Manager of the Westinghouse Brake Company of Australia, was appointed with the new title of Chief Mechanical Engineer. Nisbet had considerable railway experience. He had designed rollingstock for the North British Railways, had inspected construction of British rollingstock for India and had carried out design and re-organisation work for the New South Wales railways. He was in England when appointed and returned via the United States, Melbourne, Adelaide and Sydney, gathering information on railway workshops and their equipment (Armstrong, 1985; QRAR, 1899).

Nisbet took up duty at Ipswich in August 1900 and discovered that work on the foundations was already in progress for the new buildings planned by Chief Assistant Engineer Pagan and drawn up by architectural staff. As foreshadowed by Stanley, however, the buildings matched the existing 1880s shops. Nisbet was not impressed (QSA A/45028; QT, 27 May 1899).

Within two weeks of his arrival, he had drawn up and submitted his own concept plans for the new railway workshops to the Railway Commissioner. He commented on the dangerous and unsatisfactory state of the present workshops and continued: "I must insist on the work being taken in hand at once and the whole of the workshops as planned by me completed with as little delay as possible" (QSA 299577).

Work on site stopped temporarily, and Nisbet's new plan for the workshops was adopted. This marked a turning point in the overall design of the Ipswich Workshops. Up to this time, the buildings had been relatively small and rather narrow. The existing workshops staff had recognised the problems that existed and were planning for modern equipment, but they were still thinking on a small scale. Nisbet planned for future growth with buildings that were larger, capable of housing equipment such as large overhead gantry cranes and capable of a more efficient workflow. It should perhaps be said in defence of the existing staff that they had been starved of funds for a considerable period and this would not have encouraged expansive thinking, but the boiler explosions and the subsequent Court of Inquiry had jolted the Government and the newcomer Nisbet had immediate access to adequate funds.

The outcome of the new planning was that the Fitting Shop, built only 11 years earlier in

FIG. 11. The new buildings take shape, early 1900s. Image courtesy QR, Image no. 38624.1.

FIG. 12. Overlooking Ipswich Railway Workshops, c1920. Note sawtooth roof featuring on most of the workshop buildings. Image courtesy TWRM/QR.

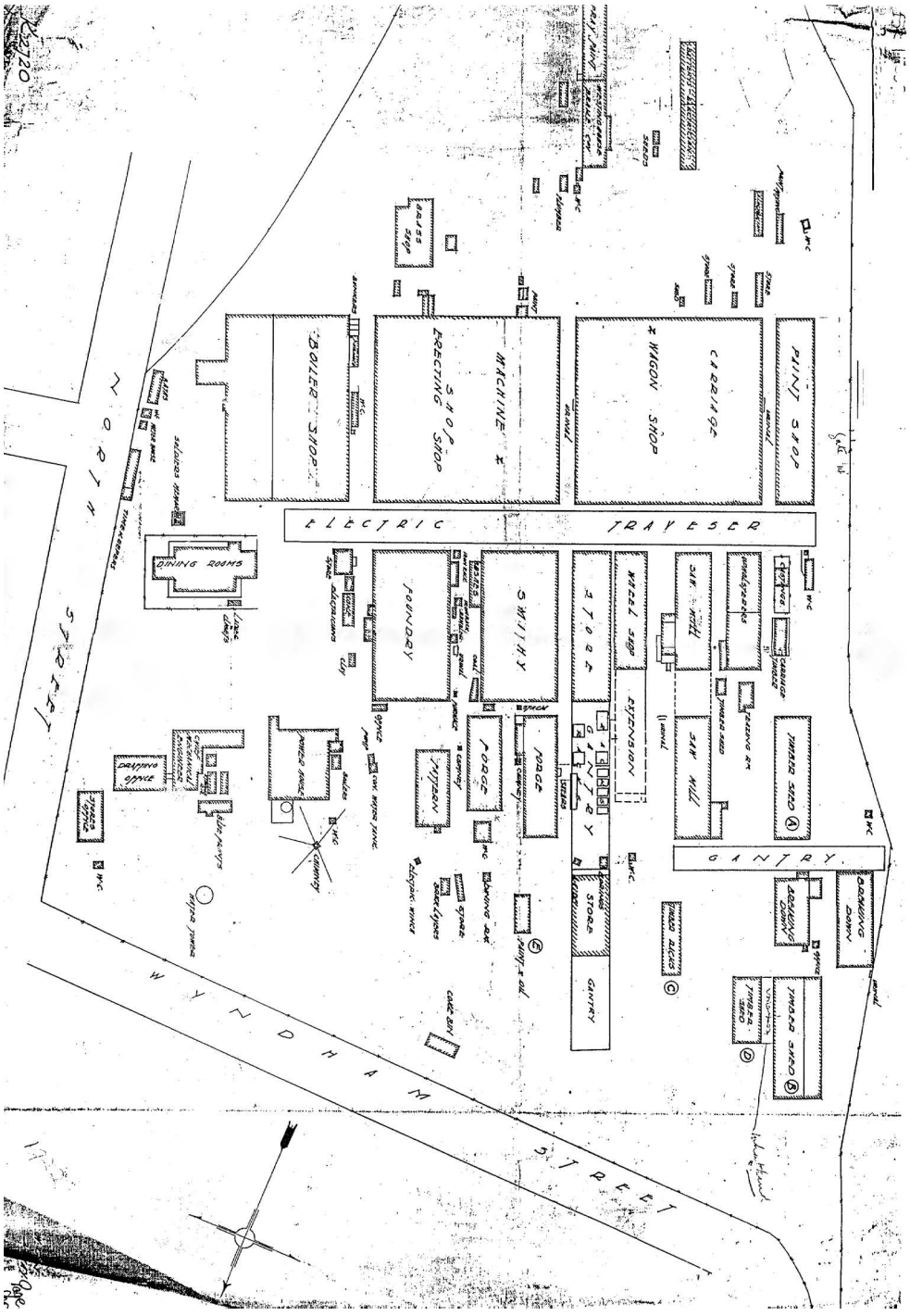

FIG.13. Diagrammatic plan of the Workshops layout on the site, from original plans in 1921. Courtesy of Keith McDonald.

FIG.14. The Traverser Track c.1930. Image courtesy TWRM/QR.

FIG. 15. The Traverser in use c.1995. Image courtesy Lyle Radford.

1888, was demolished and the site was used for a huge new Erecting and Machine Shop (Figure 11). The adjacent foundations for the proposed small Erecting Shop were re-used as part of the foundations for a vastly bigger Wagon and Carriage Shop. Over the next few years, other large shops were built, all at least three times bigger than the earlier ones and all with high saw-tooth roofs which let in more natural light (Figure 12).[8]

To improve the layout of the complex, a Traverser (a moveable platform) was installed to transfer equipment between shops (Figure 13). Items such as a carriage could be pulled onto the Traverser from one shop, moved a short distance along the Traverser Track, then slotted back into another shop (Figures 14 and 15). This was not a new idea – it had been considered but not installed on the original Workshops site and was a well-known feature of railway works in Britain (QSA 22055).

The major decision in modernisation was to use electricity. Ipswich at this time did not have its own electrical supply, so a Power House was a key new building for the Workshops. It was built on high ground in the north-east part of the site and was an impressive structure with two towers. Inside were two large chambers, a Boiler Room containing coal-fired Babcock & Wilcox boilers and an Engine Room containing a Westinghouse generating plant. Other equipment in the Power House also provided compressed air and hydraulic power. The building's imposing design and the high level of careful detailing indicate the importance placed on the new form of power, and the pride of the Workshops in its adoption of new technology (Figure 16).

Some construction work was done by contract but a considerable amount was also done by day labour as relief work. Up to 360 men were employed with an average of 100 at any one time. Their main task was to carry out earthworks including the low embankment for a rail line to service the Power House. Most of the men were from Brisbane, and once again, a "canvas town" blossomed along the riverbank. Its presence created a certain amount of animosity in Ipswich, because local residents considered the Workshops their own domain and believed that local unemployed should have been given first preference for jobs (QT, 30 September 1902, 4 November 1902).

Although government policy was for locomotives and other rolling stock to be manufactured locally where possible, the specialised machinery had to be imported

FIG. 16. The Power House c.1910. Image courtesy Whitehead Studios.

FIG. 17. Inside the Machine and Erecting Shops. Image courtesy Angela Geertsma, photographer Ben Taylor.

from Britain. The Traverser was obtained from a firm in Glasgow; hydraulic cranes from Leeds; and riveters, wheel presses and an hydraulic accumulator from works in Gloucester (QSA 299577).

While construction was in progress on the new shops and Power House, the buildings on the original site were given a quick renovation, and a small Westinghouse electric power plant was installed in the old Machine Shop (Figure 17). This operated emery wheels, band-saws and other small appliances during the day, and at night, was used to light the shop to allow a double shift to be worked. Compressed air was also produced and used for drilling and riveting (QSA 299577; QT, 12 March1901).

In 1903 the new shops and the Power House were officially opened at a large function attended by the Governor, the Premier and numerous other guests. A "recherché banquet" was held in the Boiler Room of the Power House, and the site's workers were allowed to end their day early at 3.30pm (QT, 4 July 1902).

At the southern end of the site, the 1878 Store building remained in use. This building still exists today. The other early buildings were progressively demolished, the last in 1910. Some components such as roof trusses were re-used in the Westinghouse Brake and Spray Paint Shed, and for railway sheds in other parts of Queensland (BC, 18 June 1910).

SITE CONSOLIDATION 1905 – 1929

After the major expansion program of the early 1900s construction continued, including extensions to the Boiler and Erecting Shops and a new Paint Shop. However, these did not follow the same grand vision as the previous buildings. Economy took over from aesthetics and the Chief Mechanical Engineer commented that the extensions were to be of galvanised iron rather than "the costly design of the existing building" (QSA 988438).

A number of smaller buildings were also needed for administrative purposes and these were constructed economically in timber.

Until 1905, the Chief Mechanical Engineer had been based in Brisbane, visiting Ipswich by special train. In 1900, when George Nutt held that position, the train was cancelled. Nutt protested, but the Minister responded that the proper place for him and his staff appeared to be at Ipswich. Two years later, the position of Chief Mechanical Engineer was rationalised and replaced by two staff appointments, a Locomotive Engineer (Henry Horniblow reinstated) to be based at Ipswich and a Locomotive Superintendent (R.T. Darker) who remained in Brisbane (QSA 268481).

The shift to Ipswich required extra accommodation, and timber offices were built on high ground near the Power House (Figure 18). The title "Locomotive Engineer" soon reverted to Chief Mechanical Engineer (Figure 19).

The most prominent new building of this period was the Time-keepers Office at the front gates in North Street. Employees passed through this building each morning and

FIG. 18. Timber administrative buildings, probably photographed from the water tower, nd. Image courtesy TWRM/QR.

FIG. 19. A meeting in the CME's office. Robert Chalmers, CME from 1925 to 1940, is seated, third from left. Image courtesy Jean Williams.

evening to receive their "check" or token of attendance, and pays were handed out there. An interesting initiative was construction of an employees' dining room in 1911 to provide cheap meals for workers. The idea came from Commissioner Thallon who saw one in operation during a tour of Britain and Canada (QRAR, 1909, 1911).

During World War I, a new building was completed at the rear of the Machine Shop for the production of large shell casings. About 300 of the 1600 employees were engaged in this work which was surprisingly complex, involving 30 separate parts and many separate operations. The tool and gauge makers were particularly commended for their contribution to the munitions manufacture because their work ensured vital accuracy in the shell casings. The building was later used as the Brass Shop (QT, 30 October 1915).[9]

At the end of the War, a memorial was constructed near the Dining Room to honour employees who had served and those who had died. The statue was made by John Whitehead and Sons, sculptors of London, the masonry work was by A.L. Petrie of Brisbane and the metal plaques by Charles Handford of Brisbane. The memorial was officially opened on 27 September 1919.

In the early years, most of the timber used at the Workshops had been purchased from local mills as sawn planks, but in the early 20th century, Workshops management appears to have made a concerted effort towards greater self-sufficiency.

In 1903, the first "breaking-down shed" and a gantry for handling logs was built north of the Traverser and timber storage sheds were progressively built nearby. A log band-saw mill was added later. Timber could now arrive at the Workshops as large logs and be processed right through to timber carriages and wagons. By 1913, a great cost saving was being claimed compared with purchasing sawn timber (QPP, 1913: 14).

A MORE SCIENTIFIC APPROACH 1929-1950

To help plan further expansion, an inquiry was held in 1929 into the location, equipment and management of Railway Workshops in Queensland. The commissioners were Norman Harris, Chief Mechanical Engineer of the Victorian Railways and Donald Cameron, Chairman of the Staff Board of the Victorian Railways (Harris and Cameron, 1929: 1185).

In their Report, the Commissioners criticised almost all aspects of the Ipswich Workshops. Ironically, they now criticised Nisbet's wide layout which they thought required too much transverse movement. The shops, they said, should have been longer and narrower – in other words, more like the original design (Harris and Cameron, 1929).

Their overall recommendations were that the major workshops for the state should be at Ipswich, Townsville and Rockhampton and that the workshops at Maryborough, Cairns and Mackay should be restricted to basic repairs. They recommended that Ipswich should continue as the major source of rolling stock and that modernisation should occur, including a new laboratory (Harris and Cameron, 1929).

These proposals were not carried out immediately, presumably because of the financial effects of the Great Depression, but in his 1937 Annual Report, the Railways Commissioner said that modernisation of workshops machinery was proceeding "as speedily as available funds and delivery of materials permitted."

Although most of the earlier heavy equipment such as overhead cranes had been imported from Britain, Australia was becoming more self-reliant, and a crane from the Clyde Engineering Works at Granville near Sydney was installed in the Erecting Shop in 1937.

When World War II began in 1939, the Workshops were again involved in wartime production. Some of the work was carried out in existing buildings, but one major new building was constructed – the Tool and Gauge Shop, immediately north of the Timekeepers' Office.

In 1941, the Commonwealth Government set up a munitions factory at Rocklea. It required tools for accurate mass-production, and a site near the factory was considered for a Tool and Gauge Shop. However the Acting Prime Minister stated that it would be located at the Railway Workshops because the long-term benefits to Queensland would be greater. He said the state had little industry involving mass-production because of the high initial cost of "tooling-up" and he hoped that the new shop would act as a catalyst for post-war industry. It was built under a joint arrangement – the State built the shop and the Commonwealth equipped it with £75,000 worth of tools (QSA 268851; QSA 268851).

Principal Railway Architect Charles da Costa began to draw up plans but had to adapt them after the Chief Mechanical Engineer visited similar works at the South Australian Workshops, the only other facility of this type in Australia. Features of the Adelaide building were adopted but were modified to suit the Queensland climate and the Tool Room was enlarged to three storeys.

When construction began, the Gauge Room proceeded quickly but difficulties in obtaining steel during wartime required the Tool Room to be changed to a stepped one-storey structure over three times the area – the second time the plans had been scrapped. The building was considered extremely important and the Minister for Transport commented "Nothing is being allowed to stand in the way of early completion" (QSA 268851).

FIG. 20. Tool and Gauge Shop under construction. Wartime shortages of steel meant that the original plan for a three-storey building had to be changed. Image courtesy TWRM/QR.

The building was completed in 130 working days (Figure 20). Twenty roof trusses were made at the Northgate Workshops and the steel columns were prepared at Ipswich. To ensure accuracy in measurement, the Gauge Room was air-conditioned, an unusual feature at that time.

Accommodation was scarce during the war and a number of "portable cottages" were erected near the Workshops for employees. Slit trenches were also dug along the riverbank as shelter for the men in the event of air raids. In 1944, an x-ray plant was commissioned for the Boiler Shop to detect flaws in casting and welding. To house the plant, a small extension with concrete walls was built at the rear of the building (QSA 268851).

THE WORKSHOPS 1945 -1995 AND REDBANK WORKSHOPS

During World War II, very little new work could be carried out at the Ipswich Workshops. Thus in the immediate post-war period, Queensland was faced with ageing rollingstock and little immediate capacity for new production. Ipswich was able to resume some production but was hampered by shortages of skilled labour, shortages of materials particularly steel, and the need to keep up with repair work. In 1949, for example, it had been scheduled to produce 18 new tank engines but was able to finish only three.

Railway Commissioner T. E. Maloney commented in his report for 1948-49 that it had "long been recognised" that the workshops at Ipswich, Rockhampton and

FIG. 21. The site c.1970 looking north (before the Round House was demolished). Image courtesy TWRM/QR.

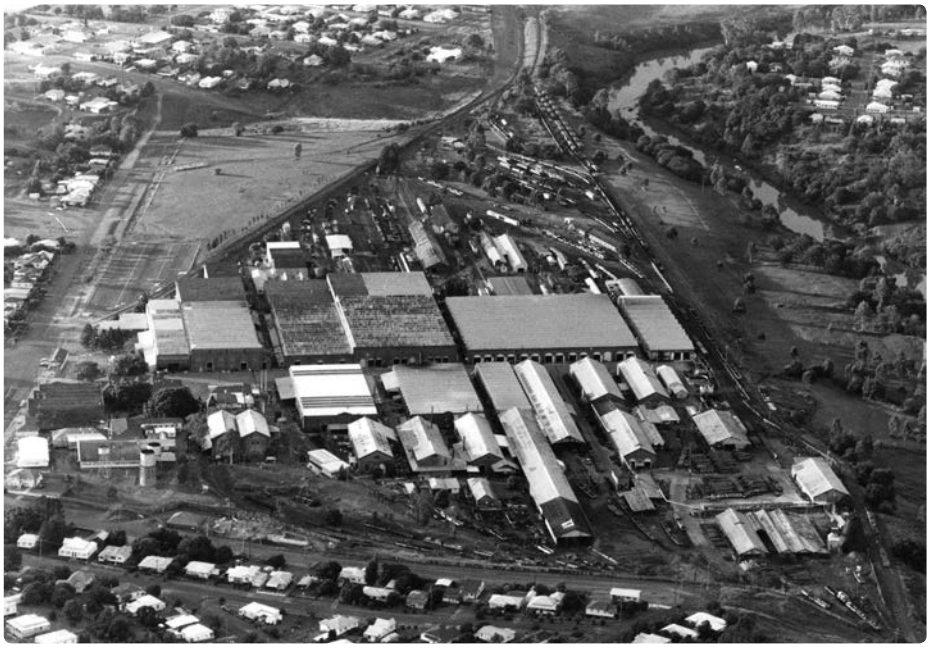

FIG. 22. The site in the 1980s looking south. Image courtesy Queensland Times.

Townsville were of insufficient capacity to deal with the engines and rollingstock already in service. He also commented that the area at existing workshops was too small to allow sufficient expansion for present and future needs.

Mr F. H. Harrison, Chief Mechanical Engineer of South Australian Railways, was appointed to inquire into the situation. His main recommendations were that new workshops should be built in the Rockhampton and Townsville areas, and that new workshops should be built in south-eastern Queensland for locomotive construction and repair, leaving Ipswich Workshops to cater for carriages and wagons. It was also decided that future rolling stock would be steel where ever possible.

At this time, land was available in the Ipswich suburb of Redbank where a huge army camp had recently been de-commissioned. By 1950, a tentative layout had been prepared for a new workshops complex, but the post-war shortages caused an interesting reversion to the 1860s – overseas tenders were called for structural design and fabrication. Contractors Wright Anderson Co of Gateshead, England won the tender for fabricated steelwork for a bulk store but were slow in shipping the material. In 1953, Drysdale and Ridgeway of Brisbane won tenders for supply of steelwork for other buildings (QRAR 1950-51, 1954-55).

The Redbank Workshops eventually opened in 1958. Although originally intended for steam locomotive production and repair, its construction coincided with the change to diesel and it became the centre for diesel locomotives.

Only a small number of new buildings were constructed at the Ipswich Workshops after 1950 including an Apprentice Training Centre and several demountable buildings (Figures 21 and 22). Redundant structures and buildings were removed or recycled, for example the introduction of metal wagons and carriages reduced the demand for timber and the sawmills progressively closed. The timber-handling gantry was demolished and one mill building was re-used as a fibreglass shed.

In 1965, the work of the Foundry and Pattern Shops was transferred from Ipswich to Redbank and the shop buildings were used for other purposes.

THE WORKSHOPS RAIL MUSEUM

In the 1990s, QR began a major capital works program, including modernisation of rolling stock such as wagons for grain and coal. This increased the volume of work in QR's workshops. Also, by this time, there had been dramatic changes in the demand for some traditional trades such as woodworking.

The Board of QR initiated a review of its five existing workshops, at Ipswich, Redbank, Banyo, Rockhampton and Townsville. It concluded that there was a need to upgrade machinery and workplace spaces. This would be difficult at Ipswich where the 90-year old buildings, constructed in the age of steam locomotives and wooden carriages, were not suitable for the type of change envisaged (Figure 23). In contrast, Redbank was a large new site and was also on a main line.

In July 1993, it was announced that Redbank would be developed as a "Centre of Excellence" and would receive a $40 million upgrade. Ipswich Railway Workshops would close. Shops moved progressively from Ipswich to Redbank and the move was basically completed by 1996-97.

This appeared to represent the end of a tradition for the Ipswich Workshops. QR and the State Government, with the co-operation of Ipswich City Council and the community, began to seek a new use for the

site. The first proposal was for a new campus of The University of Queensland. This was eventually established at a different Ipswich site, the former Challinor Centre.

The final decision was that most of the large Workshops site would be sold and redeveloped, but the historic brick buildings at the northern end would become a world-class railway museum. Importantly, QR would keep a few sections of the Workshops operational to maintain its heritage fleet of steam locomotives. It was a welcome decision, providing a boost to the local economy as well as retaining a railway connection with the site.

"The Workshops Rail Museum" was officially opened in 2002 as a campus of the Queensland Museum.

As foreshadowed, part of the remainder of the site was sold and a major new shopping complex known as "Riverlink" opened on the southern end (the original 1864 Workshops site) in 2007. The former Store/Tarpaulin Shop was retained and re-used as part of the complex.

FIG. 23. "Looking towards Electro". Photo by Lyle Radford, c.1995.

LITERATURE CITED

BC Brisbane Courier
G Guardian
MBC Moreton Bay Courier
QT Queensland Times

ARMSTRONG, J. 1985. *Locomotives in the Tropics Vol 1 - 1864 to 1910*. (ARHS, Qld Division: Brisbane).

FOX, C. D. 1867. Light Railways in Norway, India and Australia. *Minutes of Proceedings of Institution of Civil Engineers* 26: 49-60.

HARRIS, N.C. & CAMERON, D., 1929. Report of the Royal Commission on Railway Workshops: inquire into and report upon the location, equipment, efficiency, management and control of the various railway workshops of the state of Queensland. (Anthony James Cumming, Government Printer: Brisbane).

MORRISON, W. F. 1888. *The Aldine History of Queensland, Vol 2*. (Aldine Publishing Co.: Sydney).

QUEENSLAND RAILWAYS ANNUAL REPORTS (QRAR), 1876-1954/55.

Report Upon the General Working of the Railway Department 1876, 1877, 1878. Annual Report of the Commissioner for Railways 1885, 1899, 1909, 1911, 1950-51, 1954-55. (Government Printer: Brisbane).

QUEENSLAND STATE ARCHIVES (QSA): QSA Item ID 22051 Correspondence – inwards, Fitzgibbon report 24.9.1863;QSA Item ID 22053, 22054, Correspondence – inwards, Fitzgibbon monthly reports; QSA Item ID 22055, Correspondence - inwards 65/366 Information about Dunne's Patent Traverser; QSA Item ID 299577, Batch file, Railway, Letter to Commissioner dated 25.8.1899; QSA Item ID 299577, Batch file, railway, Specifications for hydraulic machinery Aug/Sept 1900; QSA Item ID 299578, Batch file, Railway, Letter from Commissioner to Sec for Railways dated 10.10.1899; QSA Item ID A/45028, Specification for new Erecting and Machine Shop, Plans for Erecting Shop March 1899; QSA Item ID 988438, Correspondence, CME to Sec for Comm 24.4.1912; QSA Item ID268481, File 4589, Batch file, Railway and Commissioners Minute No.4410, 7 March 1904; QSA Item ID 268851 batch file, Railway, Various correspondence relating to the Tool & Gauge Shop; QSA Item ID 268851 batch file, Railway, Memorandum 14.5.1941; QSA Item ID 268851 batch file, Railway, Lingard to Commissioner 11.3.1944.

QUEENSLAND PARLIAMENTARY PAPERS (QPP). 1913. Queensland Parliamentary Papers, 1913, Vol 3. (Government Printer: Brisbane).

QUEENSLAND VOTES AND PROCEEDINGS (QVP). 1879, 1899. Report of Select Committee on Railway Workshops, Vol 2. 1879. Court of Inquiry Locomotive boiler explosions, Session 1. (Government Printer: Brisbane).

WHITMORE, R. 1983. *Coke oven technology in the Ipswich Area*. (UQ Dept of Mining & Metallurgical Engineering: Brisbane).

❑ ENDNOTES

1. Prospectus Moreton Bay Tramway, MBC 1.1.1861

2. Information from obituary (undated press cutting) and from descendant Westy Mill; William (or Billy) Mill was later a well-known locomotive driver

3. JLC 1864 Paper 18 (from Kerr Railway Database)

4. The QR survey plan for 1863 shows the Wharf Line (and also the Pontoon Bridge)

5. Account of a Railway Veteran - Thompson Eden

6. Notes on Klondyke Mine from John Kerr Railway Database

7. Examples of criticisms include BC 21 Jan 1867, BC 11 Sept 1867

8. QR Plan 342C

9. Information from Bob Sneyd