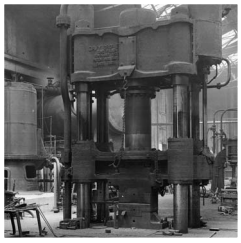



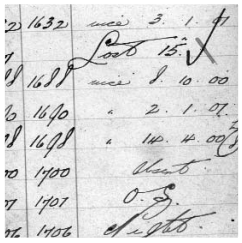


EVELEIGH HERITAGE TRAIL

1 HISTORY AND ROLE OF EVELEIGH

In 1875 Eveleigh was selected as the site for new workshop complex to service the ever expanding NSW railway network. In 1880, 63 acres (25 hectares) of land was purchased from the estate of John Chisholm for 100,000 pounds and construction of the new workshops commenced soon after.

The works opened in 1887 and for the next eighty years it formed the heart of the NSW rail network. It was at Eveleigh that the giant locomotives which hauled trains laden with people and freight across the State were built and repaired. As well as their contribution to the transport system the workshops were destined to play a myriad of roles in the development of the state. For many years the NSW Railways, of which Eveleigh formed a significant part, were the principal industrial employer in Australia and generations of engineers and craftsmen received their training here. The Eveleigh workforce also played a major role in the development of the Australian Union Movement and the Australian Labour Party.

In 1885 the running sheds were completed. These provided shelter overnight for 126 steam locomotives while cleaning and minor repairs were carried out. In 1887 the fifteen bays of the locomotive workshop were opened and in the same year the Carriage Works and Paint Shop were completed on the north side. For the next forty years growth was rapid, the Large Erecting Shop was added in 1899 and a plethora of new buildings to house specialist trades soon followed. In the early years the workshops embodied the Victorian ideal of self-sufficiency producing many of the tools it need and generating its own electricity and gas.

Although devoted to repair and maintenance for much of its history, for two exciting periods, 1908 to 1925 and 1945 to 1952, Eveleigh carried out the complete manufacture of major locomotives. Of these the 36 and 38 classes in particular are regarded as triumphs of Australian engineering.

As well as machinery the Loco Workshop housed a huge range of craftsmen. The basic trades of blacksmith, boilermaker, fitter and turner were supplemented by such exotics as brass dressers and “Oliver” smiths. In the early years their skills were not matched by the facilities provided and indoor toilets, showers and safe working codes were all unknown.

During the nineteen fifties the end of the steam era was apparent. The more efficient diesel and electric locomotives steadily replaced steam locomotives and the last steam hauled passenger train ran in NSW in 1963. For the next 25 years strenuous efforts were made to adapt the workshops to new technologies but the doors finally closed in 1989.

2 THE MANAGER’S OFFICE

This was the main administrative centre for Eveleigh and was completed soon after the workshops opened in 1887. Here the Works Manager and the Chief Timekeeper had their offices. The building is a late example of the Colonial Georgian style and was built with verandahs all round. Although much modified the fine lines of the original building can still be detected.

The magnificent cast iron bell tower was originally at the western end of the building but extensions in 1922 centralised it. The large brass bell was important in that it signalled the start and finish of the working day. The first bell rang at 7.25 am and workers were expected to be in their work position with tools in hand when the second bell rang at 7.30. At the end of the shift there were three bells. A five minute bell when tools could be tidied up, a two minute bell when men could wash up and then the official end of work for the day. In the days before radio the bell was also important for local people to set their own clocks by.

The New Loco Shop on the other side of the road was used to build and repair locomotives. To get the locos out of the shop when they were completed a novel technique was employed. A cable was stretched from the large overhead crane across the road to this building where it passed through a ring bolt and then back to be attached to the buffers of the locomotive. When the crane pulled in its cable the loco was dragged out of the shop onto a giant turntable. If you look carefully you can still see the ring bolt on the ground nearby.

3 NEW LOCO SHOP

When it opened in 1887 Eveleigh was devoted to repair and overhaul work of imported locomotive, but twenty years later the Railway Commissioners decided that political and economic considerations favoured local manufacture of locomotives. To meet the new requirement construction of this New Loco Shop was started in 1907. It consisted of two bays each 53 feet (16 metres) wide and 200 feet (60 metres) long. As with the earlier buildings the roof and craneways are supported by iron pillars cast at the Globe Foundry in Glebe. The first P Class express passenger locomotive rolled out from here in 1908 and over the next twenty years 152 complete locomotives were manufactured.

The building was extended 100 feet (thirty metres) to the south in 1914. The method of construction and the detailing were kept the same but a saw tooth roof was used for the extension to improve the availability of natural light. Almost a quarter of the floor area was occupied by a giant planer, which was used to machine the locomotive mainframes.

4 EVELEIGH AT WAR

Like most Australians in the first half of the twentieth century the workers at Eveleigh were highly patriotic and very loyal to the British Empire. Men were quick to volunteer for active service and in the early months of the 1914-18 War, and at least five Eveleigh men were among the fifty railway employees who died fighting in Europe. Eveleigh itself was geared to the war effort. Trains were adapted for use as ambulance cars for wounded soldiers and in 1915 a trial batch of 5,000 18-pounder field gun shells was produced. However the equipment available was unsuitable and this experiment was discontinued. Eveleigh then turned to the production of tools and machinery previously imported from Britain or Germany. This development of local manufacturing was seen as helping to convert Australia from a ‘giant repair shop’ to a ‘machinery manufacturing nation’.

In the World War II Eveleigh was used more extensively to produce armaments. In May 1940 mass production of 18-pound, later 25-pound, shells started in a specially built second floor annexe in what is now Bay 6. Just as significant an achievement was the production of the highly specialised metal working tools needed to produce ‘Bren’ light machine guns. This required Eveleigh toolmakers to produce smaller and more precise components than ever before. Other wartime ventures were the manufacture of tools to produce 250-pound bombs and the assembly of prototype tanks in the New Locomotive shop. It appears only two were ever completed before the project was transferred to Chullora.

As in the First World War the range of skills and manufacturing capabilities was broadened by the demands of the Defence department. An important social change in the second war was the introduction of large numbers of women to the general workforce for the first time although this innovation did not outlive the war (although seamstresses were normally engaged sewing upholstery at the Carriage Workshops).

After the bombing of Darwin and the submarine attack on Sydney Harbour there was considerable fear of air attack on Sydney. A reminder of this is the line of concrete air raid shelters that can still be seen on the other side of the tracks to your right.

5 CRANE LOCOMOTIVE

This small crane locomotive was built by Robert Stephenson and Hawthorne Leslie Ltd. of England. It is one of a pair imported in 1950. The other one is now owned by the Powerhouse Museum. The jib can be raised, lowered and slewed around but there is no hoisting mechanism. The hook at the end of the jib can lift 3.5 tonnes and the other two, 5 and 7 tonnes respectively. The lifting height is obviously very restricted. The crane was originally fitted with a turbine-driven electromagnet for lifting scrap steel, but this is now missing as are parts of the slewing engine. This type of locomotive was known as a yard crane and was used for a variety of small jobs around the site. It only carried about a quarter of a tonne of coal and it was never out of range of a fresh supply. A second type of crane was the accident crane which was much larger and could lift up to 120 tonnes. These had to be pushed or pulled to the site of an accident by other locos but were capable of lifting a locomotive or carriage back onto the rails.

6 BOILERS

These four C36 class locomotive boilers were installed here in the late 1920s. They supplied steam to the machines in Bays 1 and 2 including the steam hammers, the giant arch hammer and the Davy Press. They also provided steam for the wall-mounted engines that drove the long rotating line shafts from which belts drove the individual machines. The steam was fed through six-inch (150mm) steel steam lines, which were lagged with asbestos. These lines generally ran at high level through the workshops to avoid burns to workers. The boilers were originally coal fired and hand stoked but later automatic stokers were installed to feed coal to the grates at the rear. They were finally converted to pressurised oil firing in the 1970’s.

These boilers were probably built at Eveleigh, as it is known that 10 boilers of this class were manufactured here between 1924 and 1927. They replaced four “M” class boilers installed in 1908 and which in turn replaced boilers installed when the works opened. There was also at that time a small boiler house behind Bay 10 to power the machine shop line shafting. When its boiler was condemned in 1909 another “M” class was installed there.

Originally four “A” class boilers were located inside the blacksmith’s shop to drive individual hammers. Second-hand E17 class locomotive boilers replaced these in 1909.

7 THE PUMP HOUSE

This pump house probably dates from 1887 when the workshops opened. It provided hydraulic (high pressure water) power for a range of presses and spring making machinery. It was one of the earliest hydraulic systems installed in Sydney, predating the Darling Harbour pump house (now the Pump House tavern) by a few years. It may be the oldest complete system of its kind surviving in Australia.

The core of the system is a Fielding and Platt steam pressure pump. This consists of a twin cylinder steam engine integrated with a two cylinder double-acting hydraulic pump. A feature of the system is that the pump cylinders are driven directly from the steam cylinders with which they each share a common piston rod. A later addition is a Hathorn Davey pump that was probably added immediately after the First World War. This is powered by a 100 horsepower electric motor manufactured by the Hugh J Scott Company of Belfast, Ireland.

The tanks to the left are the overhead reservoir and the two hydraulic accumulators. The reservoir was installed in 1886 to store water for the hydraulic system. The accumulators contain giant rams or pistons weighted with stone or scrap iron. Water was first pumped in at the bottom by the pumps and then forced out again under at high pressure under the weight of the ram.

8 MOVING PROBLEMS

Steam locomotives are intended to travel in straight lines or very shallow curves. This presents major problems when they need to manoeuvre in the tight confines of a site like Eveleigh. Two devices, *turntables* and *traversers*, were used to overcome these problems.

Turntables allowed locomotives, carriages and wagons to be turned through 90° to run on a new track. The metal-plate circle in the bitumen here covers an early *turntable*. Tracks ran along the front of the building to these *turntables*, and then led from here into the building.

Traversers were used to shift locomotives and wagons bodily sideways. They were essentially a section of track mounted on a platform that in turn ran on its own tracks. This allowed the locomotive to be driven onto the platform, transported sideways and then driven off onto another set of tracks. One of the Locomotive Workshop's *traversers* is preserved inside Bay 10.

9 THE LOCOMOTIVE WORKSHOP

The Locomotive Workshop you are now entering was for nearly a hundred years the noisy, bustling hub of Eveleigh. It opened in 1887 and in its early years it housed all the lengthy and intricate processes involved in the repair and maintenance of steam locomotives. As the demand grew the final assembly of locomotives was moved to the Large Erecting Shop and many of the specialised processes were housed in other new buildings. However, while steam lasted, the workshop was a key element in the operation of the State's railways

Early in 1887 the first four bays at the eastern end of the building were opened. These housed the boilermakers and blacksmiths, with their forges, anvils and steam hammers, and the foundry men who cast the hot metal. Two of the bays have been preserved and still look much as they did in 1887. Later in the same year the remaining eleven bays became operational. In those days there was a gap between Bays 4 and what is now

Bay 6, where annexes housed the coppersmiths and tinsmiths. Bay 6 was the Tender repair shop while Bays 7, 8 (straight ahead of you) and 9 constituted the Erecting Shop where complete locomotives were overhauled. Bay 10, which is now home to our historic machinery display, was then the Wheel shop. Bays 10 and 11 were occupied by the machinists and fitters and Bays 12 and 13 the paint shop. Bays 14 and 15 housed the joiners and pattern makers as well as the main store.

10 (See PANEL 1)

11 A LOST WORLD

If you were standing here twenty years ago the scene before you would have been very different. From the end of the nineteenth century until the nineteen-eighties these open spaces were filled with a multitude of workshops large and small. The principal buildings were the great foundries where the myriad of components that go to make up a locomotive were cast from molten metal. In the early years iron, from the Eskbank iron works at Lithgow was the major material. However the greater strength and workability of steel soon became apparent and a new steel foundry was added. The brass foundry where the wheel bearings were made was important, as were the coppersmiths and tinsmiths that worked the thinner metal.

Away to the left were housed the *Oliver Smiths* the chatter of whose compressed air driven automatic hammers deafened not only the worker but passers by.

12 RED SQUARE

In Eveleigh's heyday this area was officially known as Ambulance Square but much more frequently referred to as Red Square. It was the principal area for union meetings to be held and got its name from the many union leaders and members who belonged to the Communist Party. In practice it was usually used only for minor meetings concerning day to day disputes about working conditions. More significant gatherings, which might lead to strike action, usually took place outside the gates in Boundary Street or Union Street. Eveleigh was always highly unionised and in the early years, supported by the emerging Labour Party, railway workers won some important concessions. These included the eight hour day, union recognition, the five day week and minimum rates of pay. The workers greatest challenge to management came in 1917 when they refused to accept the introduction of the American efficiency methods known as Taylorism. This spread to become a general strike across New South Wales which lasted for nearly six weeks and ended in comprehensive defeat for the workers. This was a blow from which the unions did not properly recover until the Second World War.

Eveleigh however did act as a training ground of many notable Labour politicians including. Twenty-five Members of Parliament started their careers as railway employees at Eveleigh. These included two State Premiers and a Governor-General.

13 LARGE ERECTING SHOP

Soon after the Eveleigh workshops were opened in 1887 it became obvious that much more space was needed for the repair of locomotives than the original erecting shop in Bays 7-9. The problem was solved by construction of the large erecting shop, started in 1898 and completed by June 1899.

The shop contains two huge bays each containing three roads of track. There are pits beneath the tracks to allow access under the engines. Each bay is equipped with two thirty-five ton overhead cranes capable of lifting one complete locomotive over another. The shop was originally fitted with an electrically powered line shaft running the length of the building from which belts drove machines such as lathes, drills and grinders.

As well as repairs it was in this building that all the locomotives built at Eveleigh were assembled. In recent years it has housed the restoration of the magnificent steam locos 3801 and 3830, conducted by 3801 Ltd and the Powerhouse Museum. These locos operate from here and the Powerhouse crew is now restoring a ninety-year-old "P" Class locomotive. The shed also houses the superbly appointed Governor-General's and Governor's railway carriages.

From this point, please retrace your steps to enter Bay 15. Within here, and in Bays 10 to 1 you will find some of the machinery that was formerly used to build and repair locomotives. The large gallery spaces, and the numerous overhead cranes, give some indication of the extensive operations of the Locomotive Workshops.

The restoration and display of this machinery has been made possible by joint funding from the Sydney Harbour Foreshore Authority and the New South Wales Heritage Office.