

THE PYLON LOOKOUT

The Sydney Harbour Bridge Pylon Lookout is the **original** Sydney lookout providing three levels of exhibits and spectacular panoramic views of the city of Sydney.



In 2004 the Pylon Lookout celebrates 70 years of history! The South East Pylon opened in 1934 as a popular tourist venue and has since had a long and eventful history as a national and international tourist attraction.

Paul Cave's vision for the creation of BridgeClimb included the establishment and operation of a 'Museum' of the Sydney Harbour Bridge, to be located within the Pylon Lookout. Its capital cost would be underpinned by the commercial success of BridgeClimb and its development and operation would occur at nil cost to the government.

Following a 5 year development process and a \$3 million capital works commitment to date, a major new exhibition in the Pylon Lookout was launched in June 2003. This exhibition brings together, for the first time, rarely seen photographs, unique Bridge artefacts, an audio-visual feature and the story of how this Bridge was constructed and of the people who built it.

This development has been completed in partnership with the Roads and Traffic Authority of NSW, and includes many of the significant photographs and artefacts held within their archives.

The Pylon Lookout is located in the South East Pylon of the Sydney Harbour Bridge, 87 metres above mean sea level. There are 200 stairs to the top with three levels of exhibits. Over 122,000 people from all over the world visit the Pylon Lookout each year to experience the panoramic views across the harbour from the open-air lookout.

The Pylon Lookout is open to the public 7 days a week from 10am to 5pm (excluding Christmas Day). Groups are welcome, however bookings are recommended. Contact the Pylon Lookout on (02) 9240 1100 or email pylonlookout@bridgeclimb.com

For more information go to www.pylonlookout.com.au

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THE EXHIBITION

The Pylon Lookout features a series of exhibits detailed below depicting the history & construction of the Sydney Harbour Bridge.

'Dangerous Works' model

A cantilevered structure and sculpted figures modelled from photographs taken during construction demonstrate how the Bridge was built and highlights aspects of the working conditions experienced during construction. Rivets were heated to a white hot state in small furnaces located across the Bridge. They were thrown to a catcher who passed them to a riveter who placed them and fixed them in position. Steel plates were transferred from barge to Bridge by crane often with a 'dogman' travelling with the load and then returning for the next 'delivery'. Plates were bolted into position as a temporary measure until being riveted together.



The model depicts the dangerous working conditions. Workers enjoy little in the way of safety equipment – no hard hats, safety lines, protective boots or special clothing. Many workers had hair-raising scares or mishaps on the job but emerged miraculously unharmed.

A remarkable story is told of Vincent Kelly, who was one of only two men who survived a fall into the water, while working on the construction of the Sydney Harbour Bridge. Kelly slipped and fell from the 'road deck' level, which is about 60 metres above water. When he fell he still had his work tools attached around his waist. It is said, that as he neared the water, he undid his tool belt and dropped it into the water ahead of him. The tool belt is said to have broken the surface tension of the water, and he entered the water avoiding the strong impact, which would have otherwise have killed him. His quick thinking is credited with saving his life.

Kelly was pulled out of the water. The soles of his boots were implanted onto the base of his feet, and the tops of his boots were up around his thighs. Kelly suffered from six broken ribs and was back at work in six weeks. Kelly received a gold medallion to mark his survival. During the construction of the Sydney Harbour Bridge from 1923 – 1932, 16 men died from bridge-related workplaces. Of those 16, six fell to their deaths.

Joining of the Arches

By 7 August 1930, the two half arches of the Sydney Harbour Bridge were finished. A gap of approximately one metre separated the two sides. By 19 August the two sides finally touched. The success or failure of the whole project rested on connecting the bottom chords of the two half arches and securing them with a massive centre pin. Celebrations commenced when the signal was given. Vessels sounded their horns and ferry passengers cheered as they passed what had, overnight, become a Bridge.

Suspended from the ceiling at the Pylon Lookout is an original half scale plywood model of the massive centre pin that was used to fasten the two half arches together. The model is believed to have been used by the Bridge Engineers to illustrate to a skeptical public, how the two half arches would come together. The pilot pin is about ten inches (25cm) square in section and about seven feet (215cm) long, with a tapered point. Each south-half chord had a guiding pin with a tapered point and each north-half chord had a compatible diaphragm to accept the pin. The model was recovered in pieces in 2000 and re-assembled by the Sydney Harbour Bridge Workshop for this display.

THE EXHIBITION

‘Work and Workers’ Stained Glass Windows

Building the Bridge required many different kinds of skills and offered some uniquely challenging occupations. Two feature windows each consisting of three stained glass features are located in the central chamber of level one at the Pylon Lookout. The cathedral-like windows recognise the planners and workers who designed and built the Bridge. It took 10 years for the Sydney Harbour Bridge to reach completion (1922-1932) and around 1,500 people worked on its construction each year. It has been estimated that the total number of workers was between 2,500 and 4,000. The great majority of Bridge workers were Australian born or immigrants, but an important group of skilled workers from other nationalities were recruited.

The stained glass artwork illustrated below was designed by Robin Seville, one of Australia’s foremost stained glass artists, and depicts the following Bridge workers – riveter, stonemason, surveyor, painter, rigger, and concreter. The success of the Bridge project depended on the quality and precision of their workmanship.



Audio Visual Presentation

The 10-minute audio-visual feature projected on a big screen pays tribute to the internationally famous symbol of Australia – the Sydney Harbour Bridge. The surround sound presentation highlights a series of spectacular historical still images of the workers and the Bridge during its construction taken by photographers Henri Mallard, Robert Bowden, Rev. Frank Cash, as well as contemporary footage representing the Bridge as it stands today.

From the late 1920s through to early 1930s, Henri Mallard (1884-1967) documented the construction of the Sydney Harbour Bridge. Mallard, a Sydney photographer, was permitted access to all areas of the construction site in order to record footage of the building process. These rarely-seen images were digitised for the Pylon Lookout directly from the original glass plate negatives, courtesy of the Henri Mallard Collection: the Australian Centre for Photography and Paul Mallard.



Henri Mallard photograph courtesy The Henri Mallard Collection: The Australian Centre for Photography and Paul Mallard.

THE EXHIBITION

Silver Casket

At the official opening of the redevelopment of the Sydney Harbour Bridge Pylon Lookout on Monday 25th August 2003, the silver casket pictured here was presented for loan to the exhibition by Philip & Kathryn Bradfield on behalf of the Bradfield family. Philip is the grandson of Dr JJC Bradfield, Chief Engineer of the Sydney Harbour Bridge.



On the 26th March 1925, this original silver casket was presented to Dr Bradfield by Dorman, Long & Co Limited on the occasion of laying the foundation stone.

The first foundation stone was laid at the base of the south-east corner of the southern pylon on the 26th March 1925. The Foundation Stone Ceremony was attended by the Premier, the Minister for Railways, the Governor, Dr Bradfield, and three Dorman Long Directors. This was one of many public opportunities Dr Bradfield took advantage of throughout the building of the Bridge to indicate that progress was being made, and to keep the Bridge in the public eye.

The rectangular-shaped casket was designed by The Goldsmiths & Silversmiths Company Ltd in London and features a drawing of the proposed Sydney Harbour Bridge on the body of the casket. Embossed with floral designs, the lid is fashioned with a decorative waratah – the floral symbol of New South Wales.

Bradfield memorabilia is on loan to the exhibition from the Bradfield Family.

Sydney Harbour Bridge Scissors

The original ceremonial scissors used by the New South Wales Premier Jack Lang to cut the ribbon at the official opening of the Sydney Harbour Bridge in 1932, was again used to cut the ribbon at the opening of the new Pylon Lookout exhibition on the 25th August 2003.



The Hon. Carl Scully M.P., NSW Minister for Roads, used the scissors to cut the ribbon at the exhibition launch in the company of Shirley Fox, the eldest granddaughter of Dr JJC Bradfield. Mrs Fox inherited from her grandfather part of the original ceremonial ribbon designed with an image of the Sydney Harbour Bridge and dated 19th March 1932, the official opening of the Sydney Harbour Bridge. This original ribbon was showcased at the exhibition launch.

The original Sydney Harbour Bridge scissors has also been used in the past to open the Sydney Harbour Tunnel in 1992 and the ANZAC Bridge (formerly known as the Glebe Island Bridge) in 1996. The scissors are hand-wrought from Australian gold and contain six flame-coloured opals, quarried from Lightning Ridge. Highly ornate, the scissors are decorated with flannel flowers, waratahs and gum leaves set around a model of the Bridge. Vambola Veinberg designed the originals, Les Denham embossed them and Norm Neal engraved them in Angus & Coote's workrooms.

Currently on display at the Pylon Lookout exhibition with other 'Cave Collection' memorabilia is a 'replica' of the original ceremonial scissors (owned by Paul Cave).

THE EXHIBITION

Bridge Artefacts Display

A showcase of Bridge artefacts and historic souvenirs including:-

Micrometer Theodolite

The micrometer theodolite, manufactured by E. R. Watts and Son of London c. 1924, was used for setting out the Bridge from 1925 to 1931. Though a relatively small and basic instrument, it enabled the necessary accurate and precise measurements to be made.

Theodolites are designed to measure angles. They consist of a small telescope fixed to accurate scales that show the angles through which the theodolite is turned or tilted. By sighting an object through a theodolite from two different known positions and noting the change in the angle, the position of the object can be calculated.



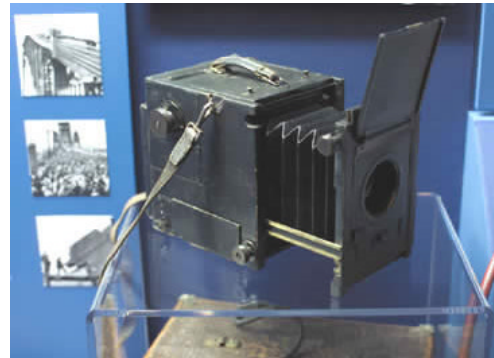
RTA Photographic Library Collection

This particular theodolite was used primarily for first and second-order triangulation and traversing. It features a ball-bearing in the vertical axis, a rotatable horizontal circle and diametrically opposite 'Ramsden' eyepieces. The horizontal and vertical circles are completely enclosed in order to protect the graduations from dust and grime.

On Loan from the UNSW Surveying Instrument Collection, School of Surveying and Spatial Informations Systems, The University of New South Wales

Reverend Frank Cash Camera

The original Minox camera used by Reverend Frank Cash to take pictures of the Sydney Harbour Bridge during its construction is on display at the Pylon Lookout. Frank Cash was authorised by Dorman Long to enter the Bridge site during construction in order to take photos. An original glass plate positive is also on display and a series of his images have been incorporated into the audio visual presentation at the Pylon Lookout.



On Loan from the Moore Theological Society

Hinges and Bearings

The Sydney Harbour Bridge is the largest and heaviest steel arch Bridge ever constructed. The engineers involved on the project needed to use innovative techniques and adapt them to meet the special challenges presented by building the greatest steel arch in the world. Displayed is a 1920's model of a hinge or bearing. The Harbour Bridge has four such massive hinges: two at each end. These both support the full weight of the Bridge, and allow it to move when the steel expands or contracts due to changes in temperature.

Each bearing or hinge pin is a cast steel rod 4.2 metres long and 368mm in diameter. The pin is cradled in an enormous cast steel 'saddle' that transfers the load to the concrete skewbacks. Another saddle, upside down and fixed to the bottom of the Bridge, sits on top of the pin. Made in England at Darlington Forge Co. Ltd, the bearings each take the load of 20,000 tonnes and weigh 300 tonnes.

THE EXHIBITION

Dr JJC Bradfield Memorabilia

Displayed at the Pylon Lookout are some personal items originally belonging to the man considered to be the 'Father of the Bridge', Dr JJC Bradfield, loaned to the exhibition by his grandson, James Bradfield. The display includes:-



A Gold Fob Watch presented to Dr Bradfield by the NSW Public Works Department in 1916 for 15 years service



The Sydney Harbour Bridge Opening Medal 1932 awarded to Dr Bradfield & others involved in construction of the bridge.



Peter Nichol Russell Medal (Institute of Engineers Australia) awarded to Dr Bradfield in 1932 for contribution to science and engineering, its highest honour.

Also on display are many of the measuring instruments, metal shavings, and special presentation chrome plated rivets, originally on display in the Bradfield Museum, which operated from the South West Pylon from 1932 -1981, opening to the public on weekends and public holidays.

Collection of Bridge Memorabilia

On display in the Bridge Memorabilia Collection at the Pylon Lookout is a replica of the ceremonial scissors used by Premier Jack Lang to cut the ribbon at the official opening of the Sydney Harbour Bridge in 1932. The original scissors, on display at the State Parliament House, were hand-wrought from Australian gold and contained six flame-coloured opals, quarried from Lightning Ridge. Highly ornate, the scissors were decorated with flannel flowers, waratahs and gum leaves set around a model of the Bridge. Vambola Veinberg designed the originals, Les Denham embossed them and Norm Neal engraved them in Angus & Coote's workrooms.

Also on display is a small sample of Bridge souvenirs and memorabilia from the Cave Collection (loaned by Paul Cave) including china, glassware, letter openers, medallions and tea tins inspired by the Bridge. The Sydney Harbour Bridge has provided inspiration for a vast amount of distinctive souvenirs, ranging from the cheap and cheerful to the elegant and expensive.



The current exhibits at the Pylon Lookout were installed in partnership with BridgeClimb and Roads and Traffic Authority of New South Wales.



Hewitt Pender Associates

Exhibition: Design and Project Management Audio Visual: Concept and Direction

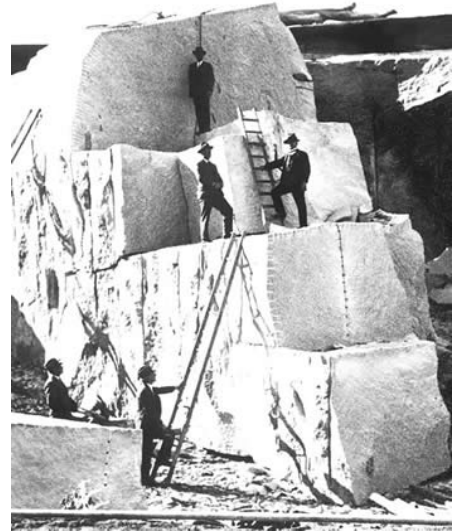
PYLONS

Granite Town

The pylons and the approach spans of the Sydney Harbour Bridge are faced with granite. At Moruya, 230 miles south of Sydney, Dorman Long and Co. built a whole new town to house 250 quarry workers and their families.

'Granite Town', as it came to be known, soon boasted 72 pre-fabricated wooden houses, a school, hotel, post office and recreation hall. Many of its inhabitants were skilled masons newly recruited from Scotland and Italy.

There were 18,000 cubic metres of rock facings needed for the Bridge. The stones were cut to size and completely finished at the Granite Town quarry, according to detailed sketch plans. They were then numbered for fitting into place at the Bridge site.



RTA Photographic Library Collection

The Price of Beauty

The winning design of the Bridge needed to combine functionality and beauty. The value Chief Engineer Bradfield attached to the latter is revealed by his stance on the pylons. He insisted these be added to the original design, largely because they would make the Bridge more attractive. Though the pylons' immense weight does help to firm the foundations, their function is primarily decorative.

Moreover, Bradfield insisted that to be suitably imposing they needed to be faced with granite. Despite the fact that this involved considerably more expense (c. £240,000), he justified this on the grounds that only a "strong imperishable" natural product like granite would "humanise the landscape in simplicity, strength and sincerity."

Design of the pylons was undertaken by the consulting architects, Sir John Burnet and Partners of London. Thomas Tait, the architect who carried out the work, produced a stripped classical treatment with strong Art Deco components.



SOUTH EAST PYLON

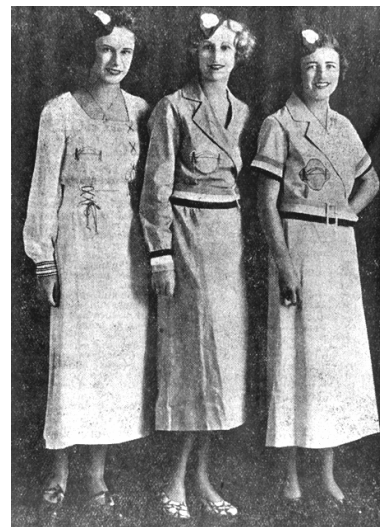
Timeline

The South East Pylon has had a long and eventful history as a national and international tourist attraction.

1932 – The Sydney Harbour Bridge opened with two temporary post offices installed in the Pylons, including the South East Pylon. For two weeks only, visitors could send souvenir telegrams from the Pylon with specially made Sydney Harbour Bridge stamps.



1934 – On the 2nd anniversary of the opening of the Sydney Harbour Bridge, an enterprising businessman called Archer Whitford converted the pylon into a popular tourist venue. The South East Pylon was the property of the Department of Main Road (now RTA) and leased by Whitford under his company name 'Sights of Sydney Pty Ltd'. Attractions included a camera obscura, character photographs, an Aboriginal museum, a Japanese shrine to the 'Tashi Lama', a supreme café, a "Mother's Nook" (a place to write dutiful letters home) and a 'pashometer' on which visitors could measure their sex appeal. A souvenir program was produced and was called 'Looking Down on Sydney from the Top of the Sydney Harbour Bridge'. At the viewing platform "a host of charming attendants" assisted visitors to use the 16 telescopes on offer. The 360 degree viewing platform consisted of copper cladding with a directional finder identifying the suburbs and landmarks in the surrounding areas. The original cladding is still featured at the Pylon Lookout today.



1942-1945 (WWII) – All tourist activities ceased on the 14th July 1942. The four Harbour Bridge pylons were taken over by the Australian Military Forces during World War Two. The Government provided compensation to Archer Whitford for any losses incurred through the Commonwealth's occupation of the pylon. The pylons were modified to include parapets and anti-aircraft guns designed to assist in both Australia's defence and general war effort.

1948 – 'All Australian Exhibition' opens in the South East pylon on the 17th December 1948. This showcase for Australia consisted of informative dioramas and displays on subjects such as farming, sport, transport, mining, banking, the Navy and the Air Force. Visitors could enjoy the viewing platform using an orientation table, a scenic wall guide and giant binoculars. The Pylon Tearoom allowed visitors to enjoy afternoon tea overlooking the beautiful vista of the harbour. The exhibition manager, Yvonne Rentoul, owned several white cats that resided in the rooftop cattery and was another popular attraction. The exhibition also consisted of a souvenir shop and postal outlet.



1971 – Mrs Rentoul's lease expired and for a decade the Pylon Lookout was not open to the public.

SOUTH EAST PYLON

Timeline

1982 – The South East Pylon re-opened in 1982 with an exhibition marking the Bridge’s 50th anniversary. A post office was operated temporarily from the Pylon in March 1982.

Dec 1987 – In 1987 the South East Pylon housed a Bicentennial Exhibition. A number of Bridge workers gathered on the 18th December 1987 to celebrate the official opening of the Bicentennial Exhibition. At a party afterwards, Mary Kelman, the oldest surviving female worker, and Peter Logue, the oldest surviving male worker, cut the cake. Exhibitions of school works from local students were also on display at the Lookout.



Bridge Workers in 1987
RTA Photographic Library Collection

Apr 2000 – The South East Pylon is closed to the public and the Roads & Traffic Authority and BridgeClimb commence work for the installation of a new exhibition – *Proud Arch*.

Nov 2000 – The South East Pylon Lookout opens to the public with a landmark exhibition celebrating the *Proud Arch*. The exhibition included the glass directional finder in the observation level of the lookout, and the acquisition of important heritage items such as Bradfield Museum artefacts. *Proud Arch* tells the story of J.J.C. Bradfield, Chief Engineer of the Sydney Harbour Bridge and his achievement.



Glass Directional Finder at the Lookout

The Pylon Lookout released an ***Honour Roll*** which recognises the people who worked on the Sydney Harbour Bridge. The Honour Roll initiates a project to record the names and contributions of each worker with 460 so far identified. It commemorates the as yet unknown others. It covers the period from the Bridge Enabling Act 1922, the beginning of work on the northern approaches, to the opening. A copy can be viewed or downloaded from the Pylon Lookout website at www.pylonlookout.com.au

June 2003 – The South East Pylon Lookout closes for 4 weeks for the installation of a new exhibition. On 23 June 2003, the Pylon Lookout re-opened with new exhibits including the installation of a ‘Dangerous Works’ model which highlights aspects of working conditions experienced during construction of the Sydney Harbour Bridge, and two spectacular stained glass memorial feature windows depicting the skill and dedication of the workers who made the Bridge.



CHARACTERS OF THE PYLON

Archer Whitford

Archer Whitford was a businessman who first converted the pylon into a popular tourist attraction in 1934. His exhibition in the South East Pylon was called 'Looking Down on Sydney' and included a camera obscura, an Aboriginal museum, a supreme café, a "Mother's Nook" (a place to write dutiful letters home) and a 'pashometer' on which visitors could measure their sex appeal.

Mrs Yvonne E. Rentoul

Mrs Yvonne Rentoul, the wife of the then manager of the Hotel Australia, operated the Pylon Lookout between 1948 and 1971, with Mr L. Kippax as Manager and Mrs Connelly as Secretary. She owned several white cats who resided in the roof top cattery and was another popular attraction at the Lookout. The exhibition also consisted of a souvenir shop and postal outlet.

White Cats

Most people who visited the Sydney Harbour Bridge Pylon Lookout during the 1950s and 1960s would remember, with affection, the world famous White Cats. This family of friendly felines lived in a 'cottage' on the roof of the Pylon Lookout, (14 steps up a ladder from the Parapet Level). Here they had their own merry-go-round, roamed the roof garden and 'guarded' a Wishing Well.

The cats belonged to Mrs Rentoul, who operated the Lookout at the time, and they soon became a popular attraction... "A joy for kiddies and a delight for adults".

They also became an eye-catching feature of the Pylon publicity. One brochure declared their "immaculate garb and priestly aloofness make them trustworthy keepers of the Wishing Wells secrets". In the Pylon Visitors Book, one young local visitor proudly wrote, "I'll bet they haven't got cats on the Eiffel Tower!".



CHARACTERS OF THE BRIDGE

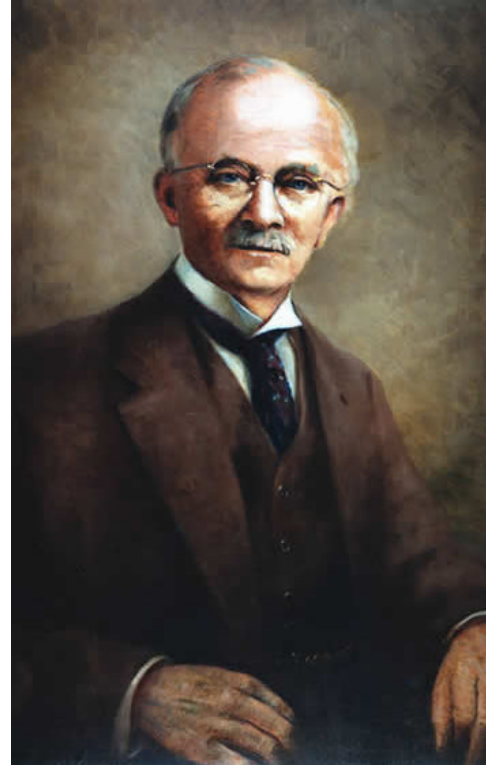
Dr John Job Crew Bradfield (1867-1943)

The 'Father' of the Bridge

John Job Crew Bradfield is the acknowledged 'father' of the Sydney Harbour Bridge, having nurtured and guided it from concept to completion. Born at Sandgate, Queensland in 1867, Bradfield earned a Bachelor of Engineering from the University of Sydney in 1889, a Masters in Engineering in 1896 and a Doctor of Science in Engineering in 1924.

His working life began as a draughtsman with the Queensland Government Railway. He then moved to the New South Wales Department of Public Works, where he rapidly rose to the position of Principal Designing Engineer. In 1912 he was appointed Chief Engineer of the Sydney Harbour Bridge and Metropolitan Railway Construction.

A man of talent and tireless energy, Bradfield played a leading role in determining what type of bridge was most suitable. He then capably and efficiently supervised its design and construction. He and his staff checked and approved all of the detailed design work, computations, drawings and calculations undertaken by Dorman Long and Co. staff in England.



Portrait by Gerald Nathan

Although the Harbour Bridge was Bradfield's most celebrated monument, he was involved in numerous other projects in the course of his long and illustrious career. These included the Story Bridge over the Brisbane River and the Cataract and Burrinjuck Dams in New South Wales.

Sir Ralph Freeman (1880-1950)

Born in London UK, Freeman was the consulting Engineer for the Sydney Harbour Bridge. Sir Ralph Freeman, a civil engineer specialising in the design of steel bridges, was responsible for the detailed design and crucial erection process of the Sydney Harbour Bridge.

Thomas Smith Tait

Consulting Architect to Dorman Long, Thomas Tait designed the pylons and piers at James Burnet's London office. He was a partner in Sir John Burnet and Company, London. Tait was a designer of great ability and 'a very practical man and confirmed workaholic.'

PHOTOGRAPHY & THE BRIDGE

Building the Sydney Harbour Bridge captured the Australian public's imagination. Photography was a vital means of preserving this awe-inspiring engineering feat for posterity. Though cameras were heavy and often unwieldy, and processing glass plate negatives time-consuming, there was widespread enthusiasm for taking photos in the late 1920s and early 1930s.

During the eight years of its construction, the Bridge attracted a vast range of amateur buffs and professionals. However, the work of the three talented photographers featured at the Pylon Lookout: Robert Bowden, Henri Mallard and the Reverend Frank Cash, stands out for its accuracy and artistry.

Robert Bowden

As head of the Public Works Department team of photographers, Bowden photographed all stages of demolition, excavation, fabrication and construction. This enabled the engineers to keep track of the workers' care and accuracy. He and his assistants lugged their cameras along the arch and bravely perched on steel beams to get the required shots.

Henri Mallard

Where Bowden documented the engineering details, Mallard, a founding member of the prestigious Sydney Camera Circle, captured the workers and their culture. His groundbreaking industrial photography resulted from shots taken among the workers themselves, and from any height.

Reverend Frank Cash

Every morning for a year, the Rector of Christ Church, Lavender Bay (a former engineer) leapt from his bed to take a photo of the Bridge reflected in the harbour. *Parables of the Sydney Harbour Bridge*, the volume that resulted, was original and unique: part photographic portrait and part engineering journal, liberally laced with biblical texts.



Henri Mallard photograph courtesy The Henri Mallard Collection: The Australian Centre for Photography and Paul Mallard.

A collection of images are available for the media upon request.

Contact Charlotte Barry, Public Relations Executive on 02 9240 1141 for further information.



Henri Mallard photographs courtesy The Henri Mallard Collection: The Australian Centre for Photography and Paul Mallard.

PAUL CAVE

Biography



Paul Cave was born in 1945 in Newcastle where he attended Newcastle Boys High School. Completed an Economics degree part-time at the University of NSW, on a Commonwealth scholarship.

Following a career in Marketing and General Management for B & D Roll-A-Door, in 1974 at age 29, founded and created Amber (The Fred Flintstone Co!). Amber became Australia's largest tile and paving retailer with 17 outlets. 22 years later in 1996, sold his 100% interest in Amber to staff, via a management buy-out.

The Sydney Harbour Bridge and the Pylon Lookout are particularly special to Paul because his late father-in-law, then as a teenager, lined up for two days from March 19, 1932, the day the Bridge was opened, and purchased the first rail ticket sold to the public for crossing the Bridge on March 20, 1932 - ticket number 00001, from Milson's Point to Wynyard Station.



Front



Back

Having inherited this rail ticket, he will never forget its significance, or indeed the journey it has subsequently taken him on.

In 1989 Paul helped conduct a YPO (Young Presidents Organisation) World Congress in Sydney, including a climb over the Sydney Harbour Bridge. The personal dream to share the Summit of the Bridge with everyone was born.

Finally, 9 years later on October 1st 1998, BridgeClimb was officially launched with Roads Minister the Hon Carl Scully.

As at February 2004, BridgeClimb has sold over 1,200,000 tickets to climb the Bridge including 300,000 Gift Certificates.

Past National Chairman of Enterprise Workshop. Having been an active member of YPO, he has moved on to World Presidents Organisation (WPO).

Son of the late Les Cave AO, who was Managing Director and Vice-Chairman of ACI.

Paul was announced as National Entrepreneur of the Year (Business) 2001. Presented with Australian Export Heroes 2002/3 Award.

Rotary honoured Paul in July 2003 with the Paul Harris Fellow for achievements in business and support of a humanitarian project in Mongolia. This included his personal donation of \$30,000 which underpinned the "Open Heart" Catheter Laboratory.

His other interests include squash, fitness and collecting Sydney Harbour Bridge memorabilia (5,000 pieces) some of which is included in the Cave Collection display at the Pylon Lookout.

SYDNEY HARBOUR BRIDGE

The 'Giant Coat Hanger', as it was affectionately known, the Sydney Harbour Bridge is the world's largest (but not longest) steel arch bridge. In its beautiful harbour location it has become a renowned international symbol of Australia.

- **Construction** of the Bridge started with the "Turning of the First Sod" on 28 July 1923.
- **Interesting Statistics:**
 - 18,000 cubic metres of rock facing were required for the Bridge project;
 - 52,800 tonnes of steel were used for the arch and approach spans.
- **Workers:** Approximately 1,500 people were employed on the Bridge project each year. It has been estimated that the total number of workers was between 2,500 and 4,000.
- **Joining of the arch:** 10.00pm on 19 August, 1930 the arch was joined, permanently linking the north and south shores of Sydney Harbour.
- **The last stone** was set in the north west pylon on 15 January 1932.
- **The last rivet** that was driven in the field was on 21 January 1932.
- **Opening:** The Harbour Bridge was officially opened in March 1932.

The official opening day on *Saturday 19 March 1932* was a momentous occasion, drawing remarkable crowds to the city and around the harbour foreshores. The NSW Premier, the Hon. John T. Lang, officially declared the Sydney Harbour Bridge open. However, proceedings were enlivened when Captain Francis De Groot of the para-military group, the New Guard, slashed the ribbon prematurely with his sword, prior to the official cutting by the Premier. The incident caused both amusement and dismay on the day and has since become a part of Australian folklore.

The opening celebrations included a vast cavalcade of decorated floats, with marching groups and bands proceeding through city streets and across the roadway in a pageant of surprising size and quality, considering the economic depression.

After the pageant the public was allowed to walk across the roadway... an event not repeated until the 50th anniversary in 1982. Some enthusiastic ones celebrated by unofficially climbing up the arch...a preview of BridgeClimb, inaugurated 66 years later in October, 1998.



SYDNEY HARBOUR BRIDGE

Facts & Figures

Total Length: 1149 metres including approach spans

Length of arch span: 503 metres

Weight of arch: 39,000 tonnes

Total width: 49 metres

Total Weight of steel: 52,800 tonnes

Highest Point: 134 metres above sea level.

Size of bearing pins: Each of the four pins measures 4.2 metres long and 368 millimetres in diameter.

Number of panels in each arch: 28; each 18.28 metres wide

Clearance for shipping under the deck: 49 metres

Pylon height: 89 metres

Granite: 17,000 cubic metres

Concrete: 95,000 cubic metres

Weight of electronically operated creeper cranes used to build the Bridge: 580 tonnes each.

Creeper Cranes' lifting capacity: 123 tonnes.

Tie-back Cables: 128 cables (used to hold back weight of unfinished half arches: at each end of the Bridge) were each 365 metres long, 70 mm in diameter, 8.6 tonnes in weight, and made up of 217 individual wires.

Rivets: Approximately 6 million rivets were used in the Bridge. Instead of welding connections together, rivets were used. This was because in the 1920s welding was too unreliable and nuts and bolts were quite expensive. A rivet is like a bolt with a round head and no thread. It's heated to white-hot, then inserted through the hole. One man would hold it firm while the riveter hammered the other end with a pneumatic hammer. This forced the hot soft metal to mushroom out, covering the hole.

Paint: 272,00 litres of paint were required to give the Bridge its initial three coats. Approximately 30,000 litres of paint are required to give the Bridge one coat. The area of steelwork to be painted is 485,000 square metres (an area equal to 60 football fields).

Average Daily Traffic: In 2000, 161,000 vehicles crossed the Bridge each day. Before the Harbour Tunnel opened in 1992, however, this figure was even higher: 181,878 vehicles a day crossed in 1991.

