

TRANSPORT



The *Transport* exhibition looks at the history of transport in Australia since the early days of the colony, focusing mainly on Sydney and NSW. The exhibition offers fascinating snapshots of life in the past, providing case studies of how technology has been used to conquer distance and isolation across this vast continent.

The *Transport* exhibition is divided into five sections:

- 'Moving the crowd' looks at the many and varied forms of public transport, from the past to the present day.
- 'Up and over' focuses on aviation as a way of overcoming isolation and distance.
- 'Setting your own pace' traces the development of privately owned forms of transport, such as bicycles and cars.
- 'Inside information' lets you see inside transport technology and how it works.
- 'Alternative transport' links the *Transport* and *EcoLogic: creating a sustainable future* exhibitions.

Above: aircraft suspended in the *Transport* exhibition.

Powerhouse programs

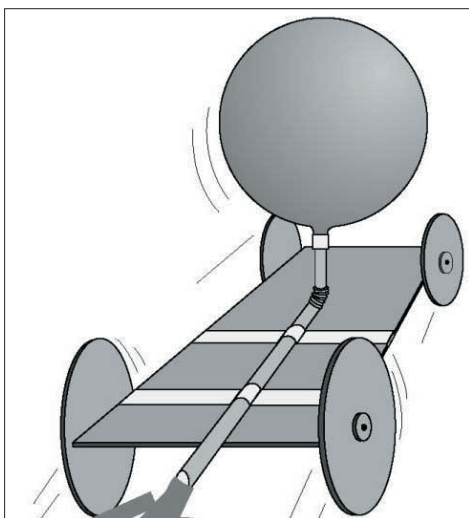
To enhance your students' visit to the *Transport* exhibition, a variety of programs have been developed. These include:

+ Marvellous Machines

This innovative program combines elements of the COGS (Connected Outcome Groups) Stage 2 unit with a Museum visit. After an interactive PowerBriefing session on simple machines led by an education staff member, each student receives a Marvellous Machines Drawing Book. This will guide them through a drawing adventure to the *Boulton & Watt* rotative steam engine, *The steam revolution* and *Transport*, including *Further, faster, higher*. Suitable for Years 3 and 4.

+ Powerhouse Discovery Challenge: 'Design an energy efficient car'

Discovery Challenges are inquiry-based units of work providing pre- and post-visit student activities, and a trail to use while visiting the Museum. Students start this challenge by designing and making balloon-powered cars at school. Next they compare their car with those made by other students and see which car travels the furthest. The term 'energy efficiency' is introduced and students explore this topic further at the Museum. With inspiration from objects such as Holden's ECOmmodore, students redesign their balloon car to make it more energy efficient.



A balloon-powered car.



Solar Sailor under Sydney Harbour Bridge. Photo courtesy Solar Sailor Holdings Ltd.

+ Solar Sailor joint visit

Combine your visit to the *Transport* and *EcoLogic* exhibitions with a cruise on Sydney Harbour aboard Solar Sailor, the world's first marine vessel to be powered by a combination of sun and wind. The first Solar Sailor was built and designed in Australia, receiving a grant from the Australian Greenhouse Office for its renewable energy technology. The vessel's 'solar wing' technology delivers significant economic and environmental benefits and is set to revolutionise water transport. Other cruise options are also available with Captain Cook Cruises and Matilda Cruises. Booking conditions and additional costs apply.

+ How do aeroplanes fly?

This exciting program presented by the Model Aeronautical Association of Australia provides students with an understanding of the basic principles of flight. The program explains the four forces of lift, thrust, gravity and drag that work and interact on an aeroplane to achieve and maintain flight. Students will construct their own balsawood model flyer to take home. Suitable for students in Years 5–8. Booking conditions and additional costs apply.

Transport

+ Further, faster, higher: a sound and light experience

'Sydney Air Radio. This is Able Sugar Able on finals for Rose Bay. Do you read? Over.'

Captained by famous Australian aviator P G Taylor, the Catalina flying boat *Frigate Bird II* is about to land after island hopping all the way across the Pacific Ocean, from Sydney to Chile and back.

This pioneering flight took place in 1951 but students visiting the *Transport* exhibition can now experience the thrills of the journey as part of a new sound and light show.

Further, faster, higher: a sound and light experience transforms the gallery into a living environment and brings to life some of the Museum's most popular vehicles and aircraft. Standing in the gallery, students are surrounded by images, lighting and sound effects.

Featured episodes in the show include Maurice Guillaux's loop-the-loop in his Blériot XI monoplane, Donald Mackay's jolting ride around Australia in 1900 on his trusty Dux bicycle and Dick Smith's flight across the Tasman in his Rozière balloon *Australian Geographic Flyer*.

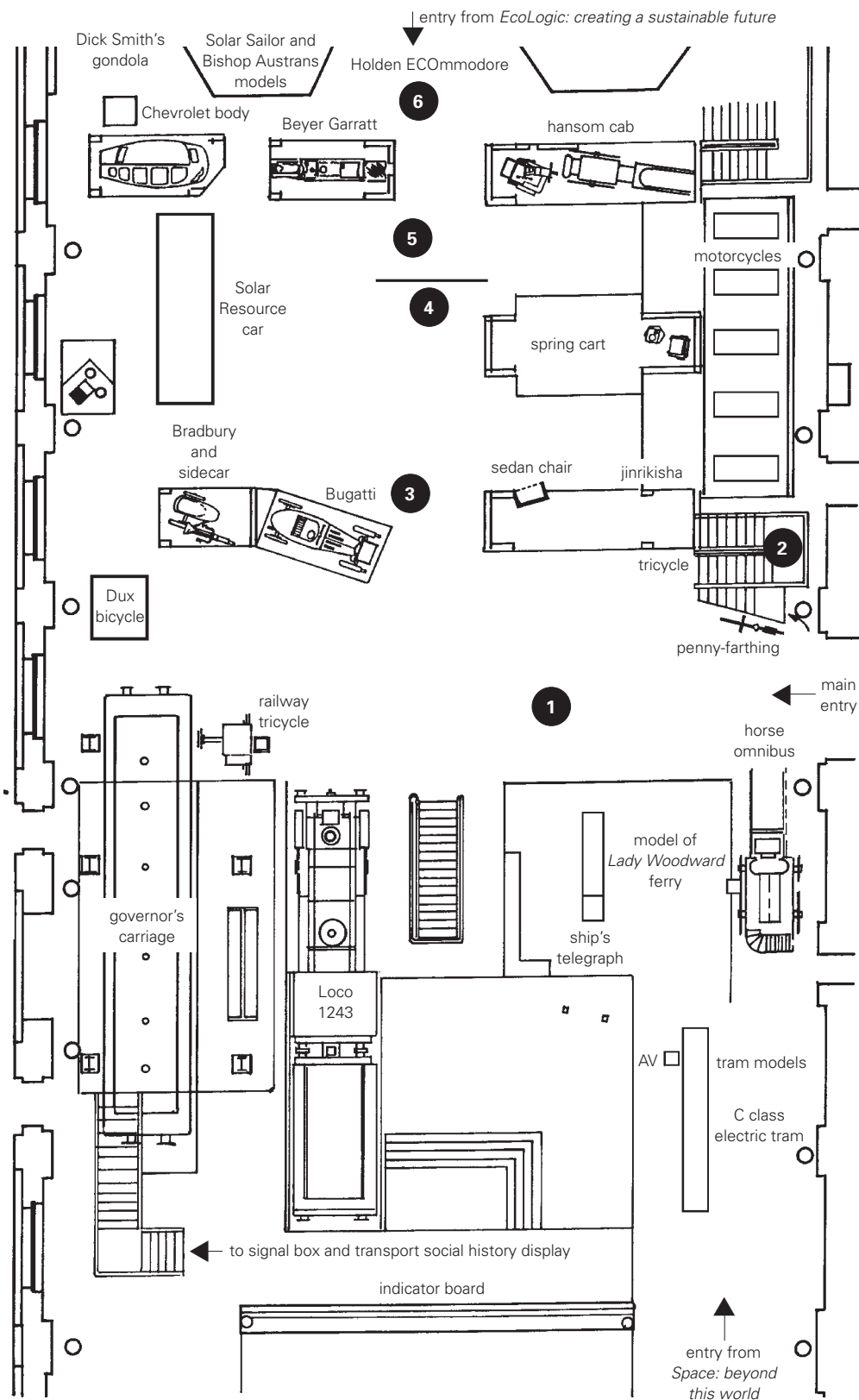
These episodes and more are linked by the voice of famous aviatrix, Nancy Bird Walton, and screen hourly, at quarter to the hour, throughout the day.

In between shows the gallery continues as a 'living environment' with suspended aircraft appearing to fly through clouds in a blue sky and the occasional sound of the horsedrawn tram clip-clopping by, crowds bustling on the station to catch the steam train, or the Bugatti racing car circling the gallery.



A scene from *Further, faster, higher: a sound and light experience* with the Blériot XI Monoplane in the foreground.

Exhibition map



1. Moving the crowd
2. Up and over observation deck*
3. Setting your own pace
4. *Further, faster, higher* screen
5. Inside information
6. Alternative transport

AV Audiovisual

* To see aircraft suspended in the exhibition.

Exhibition themes

Moving the crowd public transport in Sydney

Before the introduction of public transport and private cars, Sydneysiders needed to live within walking distance of their workplace. The horse bus was the first reliable form of public transport and appeared on Sydney streets in the 1860s, followed by ferries, trains, trams and buses. Public transport allowed people to live away from work and to enjoy their leisure time further afield. Cities, suburbs and towns grew around transport routes.

Over the last 100 years public transport systems have come and gone, and some have come back again in a newer form. In this section you can see some of these systems.

Objects you will see

- Central Station indicator board — see fact sheet
- 1891 governors carriage — see fact sheet
- Steam Locomotive 1243 — see fact sheet
- C-class electric tram — see fact sheet
- Horse-drawn omnibus — Sydney's main form of urban transport between the 1860s and 1890s, making it possible for city workers to live beyond walking distance from work. Horse buses could seat 11 passengers inside with roof seating accessible by a steel ladder or curved stairway.
- 'Lady Woodward' ferry model — the model represents the full-size diesel-powered steel ferry built in 1970 at the state dockyard, Newcastle. The new 'Lady' class ferries took over from the old 'K' class timber ferries.



A 24-passenger horse bus built in 1898.

Audiovisuals

Sydney's trams & ferries in action

- Description: a compilation of film footage showing Sydney's colourful tram and ferry history.
- Allow: 3 minutes
- Best for: 8+ years

Interactives

Sydney's streets — a century apart

- Description: compare photographs of Sydney's streets taken in the early 1900s and now.
- Allow: 5 minutes
- Best for: 8+ years

Ships telegraph

- Description: send a message from a ship's bridge to its engine room.
- Allow: 5 minutes
- Best for: 6+ years

Locomotive 1243

- Description: listen to the driver and fireman tell you about their work on Locomotive 1243.
- Allow: 5 minutes
- Best for: 8+ years

Up and over

Australia's growth as a nation paralleled that of its aviation industry. Long distances between urban centres, isolation and rugged terrain have made air transport one of the most useful ways of travelling within Australia. Australia's size and isolation have probably resulted in the nation spawning more aviation pioneers per head than any other country in the world. In addition to early aviation records, Australia is one of the first countries to adopt such innovations as the flying doctor service, the hang-glider and the microlight plane.

The 'Up and over' observation deck is directly above 'Setting your own pace'. There you will find information about the planes suspended from the ceiling — the Bleriot, Catalina, Cirrus Moth, Beechcraft Queenair and Skycraft Scout microlight — and see objects relating to them. Other aircraft with particular Australian significance are suspended in the Turbine Hall.

Aircraft in the 'Transport' exhibition

- Bleriot monoplane — see fact sheet
- Catalina *Frigate Bird II* — see fact sheet
- Cirrus Moth — simple, robust, cheap and easy to handle, with wings that folded back to make storage and transport easier. Dual controls made it popular with aeroclubs as a training plane in the 1920s and 1930s.
- Beechcraft Queenair air ambulance — NSW's first official air ambulance, the Beechcraft Queenair made its first flight in March 1967. Described as an 'intensive care ward with wings', it was fitted with piped oxygen, a humidicrib and respirator, and blood transfusion and tracheotomy equipment.
- Skycraft Scout microlight — one of the first microlight aircraft, designed by Sydney boat builder



The *Dick Smith Australian Explorer* helicopter suspended above Locomotive No 1.

Ron Wheeler in 1974. Made from aluminium and high-strength synthetic fabrics, it can be taken apart and assembled at the airfield.

Aircraft in the Turbine Hall

- Cierva C30A Autogiro — see fact sheet
- Transavia airtruck — designed by Australian Luigi Pellarini and first built in 1965. The Transavia could lift more than its own weight in useful load, take off and land over short distances in difficult terrain and was ideal for crop dusting.
- Eagle XPI prototype — single seat, shoulder wing tractor canard tailless biplane made of white gel-coated Kevlar/fibreglass. Although very similar in design to an American Rutan 'Quickie', the Eagle X is regarded as Australia's first designed and built composite aircraft.
- Clancy *Skybaby* (replica) — the original was built by the Clancy brothers in their Sydney garage in 1931. It became the first Australian built and designed aircraft in its class to gain Department of Civil Aviation approval to fly.

Aircraft suspended above Locomotive No 1

- *Australian Explorer* helicopter — in 1982–83 Dick Smith was the first person to fly solo around the world in the *Australian Explorer* helicopter. In February 2000 he made the world's first trans-Tasman balloon crossing in the gondola also on display in the *Transport* exhibition.
- Hargrave box kite (replica) — Lawrence Hargrave (1850–1915) achieved international renown for his work on the development of flying machines and engines, which arguably contributed to the Wright brothers' successful flight in 1903.

Transport

Setting your own pace

hail a taxi, jump in a car, climb on a bike ...

We do it without thinking. We decide where and when we want to go. But for most of human history, travel in a private vehicle was a privilege that only the rich and powerful could enjoy.

The bicycle, which first appeared in 1791, was the first vehicle that allowed people to transport themselves independently and efficiently. A wonder of the industrial age, the bicycle was as fast as a horse but cheaper and easier to run.

Early cars were unreliable, unpopular with the horse-powered public and to many a technical mystery. However, the motor car was here to stay.

the 1920s, the Bradbury was one of the many popular motorbikes with sidecars and was cheaper than a motor car (although this particular example was more up-market). A range of other historic motorcycles are also on display.

- 1928 Grand Prix Bugatti — the 1928 Grand Prix Bugatti combines more sophisticated motor-engineering with an awareness of the sculptural and aesthetic trends of the late 1920s. Designed as a racing machine and finished in French-racing blue, this car won the 1929 Australian Grand Prix at Phillip Island.
- Dux bicycle — in 1900 Donald MacKay rode this Dux bicycle around Australia in 240 days to prove the suitability of the bicycle as a means of rural and outback transport.
- Hansom cab — designed in England in 1834, the hansom cab could accommodate two people and is considered the forerunner of the taxi cab. This example is typical of the brougham-type cabs built in Sydney from the 1880s to about 1915, featuring a curved front with full doors and windows.
- 1912 spring cart — used by workers in town or on the farm, this is often considered the horse-drawn ancestor of the ute.

Objects you will see:

- Rickshaw — see fact sheet
- Bradbury motorcycle and sidecar — the personal mobility and feeling of liberation that people had experienced with the bicycle intensified when the motorcycle appeared just before World War I. Until

Interactive

Penny-farthing

- Description: sit on the penny-farthing to feel what it was like.
- Allow: 5 minutes
- Best for: 8+ years



The 1928 Grand Prix Bugatti.

Inside information

The display of cut-away models and objects in this section lets you see inside transport technology and how it works. Many companies used sectioning to give potential customers 'inside information' on their products, such as the 1939 Chevrolet body and the 1998 Ford Fairmont Ghia. Other cut-away models, such as the Beyer-Garratt AD-60 steam locomotive, were useful in teaching apprentices.

Objects you will see:

- Beyer-Garratt AD-60 steam locomotive model — the largest steam locomotives ever to operate in NSW. When introduced in June 1952, they were the most powerful in Australia.
- 1939 Chevrolet body — the first Australian-made car to have an all-steel body. It is made of only four pieces of prefabricated steel, shaped by giant presses and then welded together.



The 1939 Chevrolet body.

Alternative transport

Cars remain the most popular form of transport in cities. They are less polluting than they used to be but there are more of them. Freeways have not solved traffic congestion and in burning fossil fuel, cars emit large amounts of CO₂. Government, industry and communities are seeking new solutions, including better urban planning, more efficient public transport, and ways of using renewable energy in all modes of transport. This area provides a link between the *Transport* and *EcoLogic: creating a sustainable future* exhibitions.

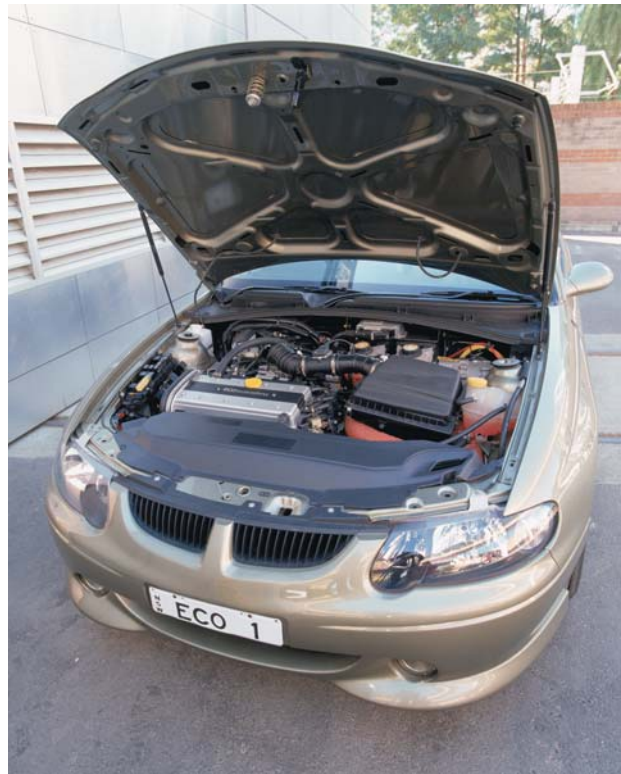
Objects you will see

- Holden ECOmmodore — the first hybrid petrol-electric vehicle to be made in Australia. Holden sees the hybrid car as a transition technology to satisfy the short-term requirements for energy efficient vehicles while fuel-cell cars are being developed.
- Solar Sailor model — a hybrid ferry powered by wind and sun, battery or liquid petroleum gas, either separately or in combination. Designed by Australian Robert Dane in 1996, it is the world's largest solar powered commercial vessel.
- Bishop Austrans model — an innovative mass transport system being designed and developed by Sydney engineer Arthur Bishop. These electrically operated vehicles combine light rail and taxi services, and can move along a narrow track built beside existing rail and road carriages.
- Solar Resource — a solar powered car built in a Sydney backyard for the 1987 World Solar Challenge race from Darwin to Adelaide.

Audiovisuals

ECOmmodore

- Description: explains how the hybrid car works.
- Allow: 5 minutes
- Best for: 10+ years



The Holden ECOmmodore.

Bishop Austrans

- Description: demonstrates how the Bishop Austrans rail system could work in Sydney.
- Allow: 2 minutes
- Best for: 10+ years

Interactives

Minister for transport

- Description: become the minister for transport and solve Sydney's transport problems.
- Allow: 5 minutes
- Best for: 8+ years

Sustainable transport survey

- Description: have your say on Sydney's traffic problems and how to fix them.
- Allow: 5 minutes
- Best for: 12+ years

Fact sheet — Steam Locomotive No 1243

| | |
|-------------|---|
| Object | Locomotive, steam, No 1243 |
| Designer | Beyer Peacock & Co, Manchester England |
| Maker | Davy and Company for the NSW Government Railways |
| Place | Atlas Engineering Works, Sydney |
| Date | 1882 |
| Size | H: 4.1 m W: 2.7 m L: 8.5 m |
| Materials | Metal, glass |
| Acquisition | Gift of State Rail Authority of NSW, 1988. 88/5 |

What is it?

Locomotive 1243, built in 1882, is one of eight locally manufactured mainline steam passenger engines. It was one of the few built in NSW in the 19th century when the free trade economy saw colonial builders unable to compete with British and American manufacturers.

How was it made?

The locomotive, designed for Australian conditions by Beyer Peacock & Co of Manchester, England, was based on their successful tank locomotives, which they supplied to the Metropolitan Railway in London. It was known as an 'Australian eight wheeler' because of its wheel arrangement. Most were manufactured by Beyer Peacock in the United Kingdom, but to assist local industry the last eight were made by Davy and Company at the Atlas Engineering Works, Sydney.

How was it used?

The locomotive initially worked on the main express passenger lines and mail trains on the Great Southern and Western Railways. These locomotives also hauled the first trains on newly opened sections of the railways. They were later replaced by faster and more powerful locomotives and were subsequently moved to branch lines or were used as assistant engines. By 1954 only ten of the original 68 engines remained in service. In 1955, Locomotive 1243 was taken out of service to be used in the NSW Railways centenary celebrations at Sydney Central Station and for special excursions. It was feted as the oldest engine still running on steam. From 1960 to 1982 it became part of the official Vintage Train together with the governor's carriage of 1891, now displayed beside Locomotive 1243 in the Museum. The Vintage Train attended town centenaries and local government celebrations all over the state. In 1969, Locomotive 1243 even featured in the film *Ned Kelly*.

Why was it important?

This was the first class of locomotive on the NSW Railways to be built in relatively large numbers. Engines like Locomotive 1243 were the mainstay of the expanding NSW railway system for about 20 years.



Steam Locomotive No 1243.

Fact sheet — autogiro

| | |
|-------------|--|
| Object | Aircraft, Autogiro, Cierva C30A |
| Designer | Don Juan de la Cierva |
| Maker | AV Roe & Co (Avro) |
| Place | Newton Heath, Manchester, England |
| Date | 1934 |
| Size | H: 337.0 cm L: 591.0 cm |
| Materials | Timber, steel, fabric |
| Acquisition | Gift of Royal Aero Club of NSW, 1980. B2361 |

What is it?

The C30A autogiro, built in 1934, is the predecessor of the modern helicopter.

How was it made?

The autogiro was designed by a young Spanish aeronautical engineer, Don Juan de la Cierva, to make flying safer by improving take off and landing performance at low speed. The aircraft could not hover like a contemporary helicopter. Instead, it was powered by an engine that made it move forward, with air passing through the rotor blades causing them to turn and provide lift for the aircraft to fly. It was built at Newton Heath, Manchester, England, by AV Roe and Co (Avro), under licence from the Cierva Autogiro Co Ltd. The autogiro has a fuselage of welded steel, a fabric-covered timber frame and a 140 hp Armstrong Siddeley Genet Major 1A engine.

The original rotor blades of fabric-covered steel spars with wooden ribs have been replaced with laminar flow rotors.

How was it used?

Autogiros were used as sporting machines and in military service. One was even used to film the 1936 FA Cup Final at Wembley Stadium in London. The Museum's autogiro was originally owned by an Australian engineer, Mr Andrew Thyne Reid, who used it to fly himself and his wife between Sydney and his family's property near Yass, NSW. During World War II, Reid's autogiro was used by the military to develop the 'flying jeep' called a 'fleep', constructed from a jeep fitted with rotors from two other autogiros. The idea was that it could be towed behind an aircraft to deliver vehicles to soldiers in the thick jungles of Kokoda, New Guinea, but the project was cancelled before the 'fleep' was tested.

Why is it important?

The autogiro was the forerunner of the modern helicopter and Cierva's work was embodied in the single-rotor Sikorsky helicopters developed in 1940. The Museum's C30A is the only one to survive of the four imported into Australia in the 1930s. Of the 100 built, only eight are known to remain around the world.



The 1934 Autogiro.

Fact sheet — Bleriot XI monoplane

| | |
|-------------|---|
| Object | Aircraft, Bleriot XI monoplane |
| Designer | Louis Bleriot |
| Maker | Bleriot Aeronautique |
| Place | Levallois, Paris |
| Date | Early 1914 |
| Size | Wingspan: 11 m |
| Materials | Wood, canvas, wire |
| Acquisition | On loan from Department of Civil Aviation. L611 |

What is it?

The Bleriot XI monoplane is thought to have been a 'Looper', a special stunt machine especially designed for aerial acrobatics. It was used to fly the first airmail in Australia from Melbourne to Sydney in 1914.

How was it made?

The Bleriot XI was largely designed by French engineer Louis Bleriot and built at his factory, Bleriot Aeronautique, in Levallois, near Paris. It is a canvas-covered, shoulder wing, single seat aircraft with a box girder fuselage and a bamboo tail skid. Two bicycle wheels at the front are mounted on a relatively heavy undercarriage. The aircraft is powered by a 50 hp rotary Gnome engine.

How was it used?

A Bleriot XI was used by Louis Bleriot in the first epic flight across the English Channel on 25 July 1909. After this, Bleriot capitalised on his fame to become the world's most successful aircraft manufacturer of his day. A year later, a Bleriot aircraft was flown at Bolivar, north of Adelaide, arguably Australia's first controlled powered flight. The Museum's aircraft was originally owned by stunt pilot Maurice Guillaux who arrived in Sydney by ship in April 1914, with his Bleriot in the hold. He demonstrated the first loop-the-loop in Australia and went on to create history by flying the first official Australian airmail and airfreight from Melbourne to Sydney. When he landed in Sydney on 18 July 1914 after three days and seven refuelling stops, he had completed the longest airmail flight in the world.

Why is it important?

The Bleriot XI was the most significant and long-lived aircraft design of the era, forming the embryonic air force of many European countries. The Museum's Bleriot XI pioneered commercial aviation in Australia with the first airmail and airfreight flight from Melbourne to Sydney in 1914.



The Bleriot XI monoplane.

Fact sheet — Catalina flying boat

| | |
|-------------|---|
| Object | Aircraft, flying boat, Catalina PB2B-2 |
| Designer | Isaac Macklin Laddon, Chief Engineer, Consolidated Aircraft |
| Maker | Boeing Aircraft of Canada Ltd under licence from Consolidated Aircraft of San Diego, California |
| Place | Vancouver, Canada |
| Date | 1944 |
| Size | H: 5.5 m W: 5.2 m L: 19.5 m Wingspan: 31.7 m |
| Materials | Metal, fabric |
| Acquisition | Gift of Sir Gordon Taylor, GCMC, 1962. B1495 |

What is it?

This Catalina flying boat is one of 168 ordered by the RAAF for service during World War II. The route across the South Pacific between Australia and South America was pioneered in this aircraft in 1951.

How was it made?

The Catalina is a twin-engine, high-winged monoplane, designed by Isaac Macklin Laddon, of the American company Consolidated Aircraft. The name Catalina was coined by the British, probably after an island near the Consolidated factory in San Diego. The Museum's Catalina was built in 1944 by Boeing Aircraft of Canada under licence from Consolidated and arrived in Australia on 3 September 1945. The metal wing with fabric-skinned ailerons and trailing edges, features wingtip floats which can be retracted

electrically so that in flight they form the wingtips. The bow of the all-metal hull has a mooring compartment, a gun turret, window and a wide cockpit. Left and right gunner stations are behind the wing.

How was it used?

Because of their ability to land and take off in calm water, good carrying capability and great endurance over long distances, Catalinas were used by virtually all the Allied services as torpedo-bombers, transports or for air sea rescue during World War II.

The Museum's Catalina saw some service in air sea rescue squadrons and with the New Guinea administration after World War II, before being used in 1951 by Captain P G Taylor and his crew of four to pioneer the South Pacific air route between Sydney and South America. Taylor renamed the aircraft *Frigate Bird II* and changed its registration to VH-ASA (Australia-South America). After an eventful flight of 13600 km and eight fuel stops, the aircraft successfully touched down in Valparaiso, Chile.

Why is it important?

The Catalina was the most successful flying boat ever produced and established an impressive war record. This aircraft's historic flight to Chile meant that Australians had pioneered every ocean air route except the Atlantic. *Frigate Bird II* is one of the few of the 168 RAAF Catalinas to survive.



The Catalina flying boat.

Fact sheet — C-class electric tram No 11

| | |
|--------------|---|
| Object | Tram, electric, C-class, No 11 |
| Designer | Built to an American pattern |
| Maker Body | Hudson Brothers (later Clyde Engineering Co), NSW |
| Place | Sydney |
| Maker Bogies | Peckham Motor Truck & Wheel Co |
| Place | Kingston, New York, USA |
| Date | 1898 |
| Size | H: 370.0 cm W: 222.0 cm L: 720.0 cm |
| Materials | Timber, metal |
| Acquisition | Gift of NSW Government Railways, 1962. B1481 |

What is it?

This C-class electric tram is one of 97 trams built by two local companies between 1896 and 1900 to replace the steam trams and cable trams in Sydney.

How was it made?

The C-class tram was built to an American pattern by Hudson Brothers, Sydney, with bogies supplied by Peckham Motor Truck & Wheel Co, Kingston, New York. This tram features a single saloon passenger area comprising two timber benches facing inwards and seating 22 passengers with standing room in the centre aisle. The varnished timberwork interior has a lantern roof with sidelights of coloured glass, which gave the tram a festive appearance when operating at night. Sliding doors at each end for passenger access lead to outside platforms where the driver's controls are located.

How was it used?

No 11 went into service on the early electric tramline from Rose Bay to Ocean Street, Woollahra, on 29 August 1898. C-class trams were also used at North Sydney and provided the bulk of Sydney's first city electric service, which opened in 1899 operating along George Street from Circular Quay to the railway. Power for these trams was generated in the Ultimo power station and they were housed in the Ultimo tram depot. These buildings were converted in the 1980s to become home to the Powerhouse Museum.



The C-class electric tram.

With the demand for larger trams, the C-class was superseded by larger bogie cars from 1900. They continued to operate on the North Sydney lines until about 1926 after which they were used in other roles, especially as breakdown vehicles. No 11 was converted to No 11S and then to No 57S in 1909, the 'S' indicating that it was a service vehicle. Because of their re-use as service vehicles, C-class trams were a familiar sight in Sydney until 1960.

Why was it important?

The C-class trams were the first electric trams produced in quantity for Sydney.

Fact sheet — governor's railway carriage

| | |
|-------------|---|
| Object | Governor's railway carriage |
| Designer | The office of the Mechanical Engineer, NSW Department of Railways |
| Maker | NSW Department of Railways |
| Place | Carriage Workshops, Eveleigh, Sydney |
| Date | 1891 |
| Size | L: 14 m |
| Materials | Wood, metal, glass, fabric |
| Acquisition | Gift of State Rail Authority of NSW, 1993. 93/124/1 |

What is it?

The governor's railway carriage is the oldest of five special cars still surviving today that were built between 1891 and 1920 for the exclusive use of royalty, governors-general, governors, premiers and railway commissioners.

How was it made?

The governor's carriage was built in 1891 at a cost of £3009 at the Carriage Workshops of the NSW Department of Railways at Eveleigh in Sydney. It is mounted on two four-wheel bogies and is divided into a central main saloon with a ladies boudoir and toilet at one end and a gentlemen's smoking room and toilet at the other. Small outside platforms with

decorative cast-iron barriers are at either end of the carriage. Local timbers of silky oak, blackwood, satin wood, cedar, myall and huon pine are featured throughout the interior.

How was it used?

The carriage was used for 22 years for official journeys around NSW by various state governors, the first being VAGC Villiers, Earl of Jersey. The Earl of Jersey also used it to travel every week from Sydney to his country residence 'Hillview' near Moss Vale. The carriage remained in service until 1913 when it was put into storage in the paint workshops at Eveleigh. From 1959 to 1974 it then formed part of the Vintage Train which attended town centenaries and local government celebrations all over the state. The train was hauled by Locomotive 1243 which is now displayed alongside the carriage in the Museum.

Why is it important?

The governor's carriage is significant in relation to the history of the NSW governor and shows the importance of rail transport at the time. It also represents the work of the most skilled artisans in the railways, especially in the use of local timbers and late Victorian decorative arts in the interior carriage design.



The governor's carriage.

Fact sheet — Central Station indicator board

| | |
|-------------|--|
| Object | Indicator board, Sydney Terminal Station (Central Station) |
| Designer | Interlocking Engineers Office of the NSW Government Railways, Sydney |
| Maker | Signal Interlocking Shop of the NSW Government Railways |
| Place | Redfern, Sydney |
| Date | 1906 |
| Size | H: 2375 mm W: 360 mm L: 6200 mm |
| Materials | Timber, metal |
| Acquisition | Gift of State Rail Authority of NSW, 1982. B2450 |

What is it?

The indicator board stood for 76 years on the main assembly platform of Sydney Terminal Station (Central Station) displaying departure times, platform numbers and stopping patterns.

How was it made?

The board was built in 1906 at the Signal Interlocking Workshop of the NSW Railways in Redfern, Sydney, and is made of timber and metal. It comprises 22 vertical panels, each with slats for station names, a clock and a window for platform numbers. There is a main clock at the top of the indicator board. The board was removed from Central Station and replaced in 1982 by a new passenger display system using

computer technology. It is now on display in the Museum, restored to its appearance of the late 1930s with its late Victorian decorative embellishments and a cream, chocolate and caramel colour scheme. The board is set to show an entire Sunday of departures in 1937 to allow the optimum number of panels and stations to be displayed.

How was it used?

The indicator board displayed departure times, platform numbers and station names at which trains would stop, and was a popular meeting place, especially during the First and Second World Wars. It was mechanically operated by station staff from ground level through a series of rods, gears, cranks and counterweights.

Why is it important?

The indicator board is an important part of the history of NSW Railways. It recalls the halcyon days of the NSW Railways when trains such as the Brisbane Limited, Melbourne Express and mortuary train to Rookwood were familiar sights, and is of sentimental value to thousands of residents of NSW and visitors. Technologically, the board is important as an ingenious locally designed system that would allow the efficient and effective display of timetabled information that could be both easily changed and readily understood by passengers.



Central Station indicator board in 1937.

Fact sheet — rickshaw

| | |
|-------------|---------------------------------------|
| Object | Rickshaw (<i>jinrikisha</i>) |
| Designer | Unknown |
| Maker | Unknown |
| Place | Japan |
| Date | About 1880 |
| Size | H: 135.0 cm W: 90.0 cm L: 215.0 cm |
| Materials | Timber, metal, lacquerware, fabric |
| Acquisition | Purchased 1892. H626 |

What is it?

This *jinrikisha* or rickshaw, built about 1880 in Japan, is a light, two-wheeled cart used as a taxi-like form of transport drawn by a rickshaw runner. The term *jinrikisha* is Japanese, coming from 'jin' meaning man plus 'riki' meaning power plus 'sha' meaning vehicle. Later this was shortened to the colloquial term 'rickshaw'.

How was it made?

We know the rickshaw was in use in Japan in the late 1860s, but the inventor is unknown. The Museum's rickshaw has two shafts and a doorless, chairlike body, mounted on springs with a collapsible hood covered in oilskin. The chair back, sides and shafts are of black lacquerware over timber. Steel is used in the lower edges of the seating compartment to give greater support and for the tyres and axles which join the wheels. The wheels have timber hubs with brass hub bands. The seat squab, arm rests and topside of the seat cushion are upholstered in black leather, while a blue and white striped cotton fabric is used for the seat and seat cushion. Underneath the seat there is a storage compartment.

How was it used?

The rickshaw was instantly popular and became the chief form of public transport in Japan, with 210 000 vehicles used daily in 1896. It was also exported overseas from 1873, mainly to China and Southeast Asia. The life of a rickshaw runner was hard and often the vehicle he pulled was where he ate, slept and kept his few possessions (in the compartment under the seat). As new methods of transport were developed in Japan including buses and automobiles,



The Museum's rickshaw.

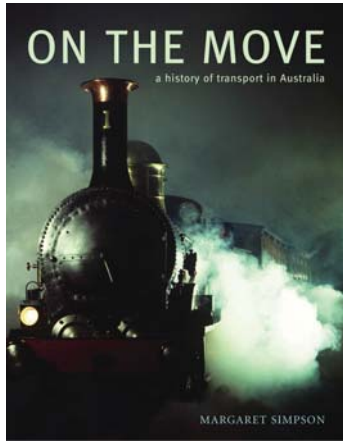
the demand for rickshaws gradually declined and by the 1930s only a handful remained. They have now virtually disappeared as a form of public transport.

Why is it important?

The rickshaw created a huge impact throughout the East as a convenient, mobile and speedy form of personal transport. Very few rickshaws remain in existence, with the Museum's example a rare survivor.

Transport

Further reading and resources



On the move: a history of transport in Australia by Margaret Simpson

This richly illustrated book explores the fascinating stories behind the many forms of transport and travel in Australia from basic bullock drays to the high-tech vehicles of the 21st century. Drawing on the Powerhouse Museum's significant transport collection, *On the move* gives a unique insight into how different modes of transport were adapted to meet the challenges of distance and isolation across this vast continent. Find out how Afghan cameleers maintained their packsaddles to stop saddle sores, how Holden cars cornered the market, how Australian aviators conquered the skies, and why riding in a Cobb & Co coach could make you feel seasick. This book is a must for anyone wanting to see transport history really come to life.

Recommended for transport enthusiasts and anyone interested in Australian social history, innovation and design. This book is also an invaluable resource for upper primary and secondary students of Australian history, design and technology.

Available from the Powerhouse Museum Shop for \$35.95 or by mail order from Powerhouse Publishing on (02) 9217 0129 or www.powerhousemuseum.com/publications

Search the Powerhouse Museum collection online

Many of the objects your students will see in the *Transport* exhibition can now be found in our online collection database, which contains over 63 000 objects from 1880 to the present day with everything from steam engines to fine glassware, postage stamps and robot dogs. This interactive database includes thousands of images and information about the Museum's collection, much of it made available for the first time. Search the database at www.powerhousemuseum.com/collection/database/

**For more information on the *Transport* exhibition
visit the Powerhouse Museum's website
<http://www.powerhousemuseum.com>**

For more information about education support
or your booking, contact Education and Program
Development at the Powerhouse Museum:
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The Powerhouse Museum, part of the Museum of Applied Arts and Sciences, also including Sydney Observatory, is funded by the NSW government.