



Newsletter of the Australian Society for History of Engineering and Technology

This issue of *ASHET News*

Early this year I gave notice to ASHET's committee that I would be stepping down as editor and producer of *ASHET News* after the second (April) issue for 2016 and suggesting to the committee that it should look for a new editor and producer to take over with the third 2016 issue in July.

The committee was unsuccessful in its search for a new editor and there was no July issue of *ASHET News*. With its scattered membership ASHET needs a regular newsletter to keep in touch, particularly this year when the committee is taking an active position regarding the future of the Powerhouse Museum.

I therefore agreed that I would edit and produce an October issue of *ASHET News*, which would include a feature article on the Powerhouse, and an outline of the committee's position on the NSW government plan to move the museum from its present Ultimo site to Parramatta.

Ian Arthur

Update on the ASHET Pies project

ASHET's graphic display *The meat pie: Australia's own fast food* has now been on a tour of NSW public libraries for around eighteen months. ASHET has two sets of the nine panel display and they have now been shown in over forty libraries for a period of a month in each library. During that time they have been viewed by thousands of library visitors. In addition several libraries arrange talks to supplement the display, and publicised it with interviews on local radio and TV stations. The tour of NSW libraries is now almost complete.

We are now offering the display through the state library associations to public libraries in other states of Australia. This offer has already been accepted by the South Australian Library Network, and the display will soon be showing at libraries in that state.



Pies display at Penrith Library, July 2015

NSW government plans to move Powerhouse Museum from Ultimo to Parramatta

In November 2014 the NSW Premier Mike Baird and his deputy and Minister for the Arts Troy Grant formally announced that the Powerhouse Museum would be moved from its present location at Ultimo to a site in Parramatta still to be decided. This confirmed the government's commitment to the plans contained in the Infrastructure Plan released early in 2014. No timescale for the move was announced, and no government funding was committed to the project beyond a pledge that the proceeds of the sale of the Ultimo site would be wholly put towards building the new museum at Parramatta. Widespread opposition to the government's plan was expressed by community leaders, experts and members of the general public. A group formed to publicise and focus this opposition, the Powerhouse Museum

Alliance, was formed during 2015. In February 2016 the Alliance sent an open letter to the Premier expressing opposition to moving the museum from its Ultimo site. The letter was published in the *Sydney Morning Herald* of 17 February 2016 with 178 signatures of prominent members of the community, experts and organisations. ASHET was one of the signatories.

In April 2016 Arts Minister Troy Grant announced the government's decision to build the new museum on the site of the former David Jones car park on the Parramatta River. This sparked adverse comment that the site was subject to flooding and opposition from Parramatta councillors who had other plans for the site which it currently owns.

In June 2016 the Legislative Council of the NSW Parliament voted to establish an inquiry into the state's museums and galleries and to specifically look at the decision to relocate the Powerhouse Museum. The government called for submissions to be made by 14 August 2016. The Inquiry would submit its report by 14 November.

ASHET made a submission to the Inquiry, arguing against relocation of the museum. ASHET secretary, Andrew Grant, made two personal submissions also arguing against the government's plan. ASHET's president, Rob Renew and secretary Andrew Grant are former senior curators at the Powerhouse Museum.

The web page for the Inquiry is at <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2403> It contains the terms of reference, copies of all the submissions, transcripts of the hearings and other documents.

The feature article in this issue of *ASHET News* is on the Powerhouse Museum. It includes a set of references for those seeking more information on the museum, its history, collections and resources, along with references relating to the plans for its relocation.



Powerhouse Museum at Ultimo



Artist's sketch of proposed museum at Parramatta

Next ASHET events

Thursday 27 October 2016

Talk by Bill Jordan, FIEAust CPEng

Newcastle's First Water Supply – The "Walka" Scheme

Newcastle's first water supply, the Walka Scheme, was initiated in 1876 with the appointment of a Commission to investigate the needs of the area. It was kicked along by the appointment of the eminent English Civil Engineer William Clark in 1877, and constructed by the NSW Department of Public Works. The first stage was completed in 1886.

The construction of the scheme by the State government led directly to the formation of the Hunter District Water Board to allow management of the scheme when completed. It also gave insight into the political machinations of the time when it is seen that the construction of the two major reservoirs was completed well before the pumping station at Walka and even before the pipes to convey the water from Walka to the reservoirs had been ordered from England.

The scheme appears to have included the first filtration plant built in Australia for the whole of the supply. Unlike most others at the time it was entirely piped, with no open channels, and the reservoirs were roofed, ensuring a supply that was clean from the start and could not be contaminated along the route.

Bill Jordan has been involved in engineering heritage for more than 40 years and was a board member of Engineering Heritage Australia (as it now is) from 1990 to 2013. During that time he was chairman in 1997/98, chaired the engineering heritage recognition committee on two occasions, edited the newsletter and prepared many of the guidelines published by EHA. He also prepared a number of nominations for heritage recognition, including the Budj Bim aboriginal hydraulic works, the Great North Road, Grafton to Brisbane rail link and the Walka water supply scheme for Newcastle.

He has been author or co-author of 24 conference and journal papers (with another three in preparation). In his "spare" time he still consults to industry and governments on aspects of heritage structures to assist in their long-term conservation.

Venue: History House, 133 Macquarie Street, Sydney

Time: 5.30 for 6 pm

Cost; Includes light refreshments on arrival; RAHS and ASHET members \$10, others \$12

Bookings: phone RAHS on (02) 9247 8001 or email history@rahs.org.au

Vale Wal Pilz



ASHET member Wal Pilz AO OBE, passed away aged 89 on 15 September 2016 after a brief illness. He will be long remembered for his long and distinguished career with the NSW Public Service, for his many other services to the community, and by his family and friends.

Wal grew up in Sydney and was educated at North Sydney High School and at the University of Sydney from which he graduated in engineering with the award of the University Medal. He had a special interest in mathematics and was very handy with a computer. Most of his professional career was with the NSW Public Service. He was personally responsible for managing the introduction of computers throughout the NSW government services. For eleven years he was Head of the NSW Department of Public Works until his retirement in 1985.

Wal retired with his wife Patricia, now deceased, to a 150 acre property, Windarra, that he had purchased at Running Stream, near Rylstone, and lived there for the rest of his life. He made many contributions to the life of the local community, and particularly to the Rylstone and District Historical Society and the Rylstone Cottage Museum.

Wal was also an active member of the Scouts, which he had joined in 1945. He led many scouting activities and held a number of executive positions including Chief Commissioner for NSW.

Wal brought energy, understanding and enthusiasm to everything he did. But he will be remembered most for being such a nice and good person.

ASHET Management Committee for 2016

At ASHET's annual general meeting on 30 April 2015, a new group of office bearers and committee members was elected, to hold office until the annual general meeting in 2017.

Members of the new committee are:

President	Robert Renew
Senior Vice President	David Craddock
Vice President	Mari Metzke
Secretary	Andrew Grant
Treasurer	Eric Metzke
Committee Members	Elizabeth Roberts John Roberts Neil McDonald

This committee will retire at the end of the Annual General Meeting in 2017, and be succeeded by a new committee to be elected at the meeting (date to be advised).

Sydney's Powerhouse Museum

By Ian Arthur

Predecessors of the Powerhouse Museum

In 1878 Archibald Liversedge, Professor of Mineralogy at the University of Sydney, was commissioned by the NSW government to undertake a study of technology museums in Britain and Europe. He returned with a vision for a museum that, like the Kensington Museum in London and other museums he visited, had a mission to explain the science of everyday life through visual displays to working men and women.

His vision took shape as the Technological, Industrial and Sanitary Museum, to be housed in the Garden Palace, in the Sydney Domain, that had been built for the Sydney International Exhibition of 1879, and the museum was to have many of the items from the exhibition. Liversedge's vision was enthusiastically shared by Joseph Maiden, appointed curator of the new museum at the age of 22. Maiden was a botanist who had studied for a Science degree at the University of London before emigrating from England to Australia in 1880. Before the museum opened the



The Garden Palace, Sydney 1878

Garden Palace was burnt down in 1882, destroying many of the exhibits. One item that had been moved from the exhibition before the fire was a prize-winning Bechstein piano that is now in the Powerhouse Museum. Within days Maiden was writing to donors and vendors seeking new exhibits for his museum..

The museum then opened in the Agricultural Hall, a large shed located in the Domain, housing it along with the Sydney Morgue. The museum soon outgrew its accommodation, with the acquisition of some major exhibits including Sydney's first train, steam locomotive Number 1, the Boulton-Watt steam engine and the Strasburg Clock. The museum moved in 1893 to a new permanent building in Harris Street, Ultimo, next to the Sydney Technical College. Its name was changed to Sydney Technological Museum.

In 1895 Maiden resigned to accept a position as government botanist and director of the Sydney Botanic Gardens. He was succeeded by his deputy Richard Baker, who had been a pupil at the South Kensington Museum in London. Maiden had commenced research activities at the museum and Baker built on these with an aspiration for the museum to be a research bureau for the colony. Baker retired in 1921 leaving behind a strong research program, along with a Museum building and exhibits that badly needed an overhaul.

Arthur Penfold, who had joined the museum staff in 1919, and been appointed curator in 1927, had a vision for a museum that would focus on 'the industrial advance of civilization' along the lines of the successful Deutsches Museum in Munich. He was granted leave to travel overseas for nine months visiting leading museums. He returned hoping to translate his vision into one of the world's leading science museums. He received little encouragement, but after the war was able to make some progress



Sydney Technological Museum at Harris Street, Ultimo

with more attractive displays. However he was successful in having the museum, renamed the Museum of Technology and Applied Science, made an independent entity in 1945, with Penfold as the director and its own trust reporting directly to government rather than through the superintendent of technical education. Penfold spent much of his last years as director looking for a suitable new site for the museum, in place of the inadequate buildings in Harris Street dating from 1893. Penfold retired in 1955 and was succeeded by his deputy Frank Morrison who was himself only five years from retirement.

Jack Willis, the museum's research botanist, succeeded Morrison as director in 1960. He wrote to Penfold, 'I only hope I can prove equal to the task and carry on the work you so ably began back in the 1930s'. Willis set his sights on finding a new home for the museum. A seeming step forward was the acquisition in 1962 by the museum trust of the abandoned Ultimo Tram Depot across Harris Street from the existing museum. The plan was to use it as a home for the inadequately housed transport exhibits. However the government would not make funds available and the relocation did not proceed. The development was further frustrated when the proposed Western Distributor would cut across the site.

Willis continued to look for a new site and various possibilities were considered. He retired in 1979 and his deputy Lindsay Sharp was appointed to succeed him.

Sharp had joined the museum staff in 1978. He was born in Britain, grew up in Australia, gained a doctorate from Oxford University in the history of science and joined the Science Museum in London.

The Powerhouse Museum



Ultimo Power Station, site of the Powerhouse Museum

In 1978 the NSW Government Architect's Office undertook a study for relocating the museum. Soon after his arrival in Sydney Sharp made contact with architect Lionel Glendenning who was working on the study. The study reported 'For the purpose of developing a new Science and Technology Museum in the late twentieth century mould the site (the Ultimo Tram Depot and the adjoining Ultimo Power House which had been vacant since it was decommissioned in 1963) has outstanding potential. It is historically appropriate, structurally flexible and remarkably cost-effective.' By this time the Western Distributor had been relocated and would no longer cross the site.

Deputy Premier Jack Ferguson saw the study and immediately drew it to the attention of Premier Neville Wran. Wran was enthusiastic. On 23 September 1978 he announced that the government would reserve the Power House and Tram Depot sites for the museum. The museum celebrated its centenary in 1979 full of hope. In 1980 Wran announced the more detailed plans for recycling the power station building to house the museum's collections. It became clear that the new Powerhouse Museum could become one of the finest and most exciting of its kind in the world.

Sharp and Glendenning became key members of the team that managed the project of converting the power station to a museum and moving in all the exhibits from the old museum building, that was then handed over to the University of Technology, Sydney. Wran opened the Powerhouse Museum in 1988.



Powerhouse Museum, Ultimo

The Powerhouse Museum building is heritage listed. The citation reads in part:

'The former Ultimo Power House, dating from 1899, is historically significant for being the original generating station for the supply of electricity to power the tramway network throughout Sydney. It was also one of the largest and most important generating stations in NSW for many years and has associations with the electrification of the suburban railway system and with the general reticulation of electrical power. It was the first place where turbine driven alternators were tried in Australia, in 1905.

It represents a good example of a Federation industrial building which makes a positive contribution to the streetscape. The subsequent alterations undertaken for the building's conversion to the Powerhouse Museum is significant both for its successful re-use of the buildings and as a modern design, awarded the Sulman medal.'

Sharp left the museum in 1988, with the relocation project completed. He subsequently held several important positions in overseas museums, including five years as director of the UK National Museum of Science and Industry. Since 2006 Sharp has worked as an international consultant and lives near Sydney.



Interior of the Powerhouse Museum

Terence Measham succeeded Sharp as director of the Powerhouse Museum. Measham was educated at Cambridge and London Universities and at Leicester College of Art. He came to the Powerhouse from the Australian National Gallery where he was assistant director of collections. Measham added a new dimension to the museum's offerings with exhibitions on design and fashion and additions to the permanent displays emphasising design, Australian manufacturing and social history. He wrote two handsomely illustrated books describing the museum's holdings. He served two five year terms as director, and since then has been an independent writer and editor working in Sydney.

Kevin Fewster, inaugural director of the National Maritime Museum in Sydney, was appointed as director of the Powerhouse Museum in 2000 and served in that position until 2007 when he resigned to become director of the Royal Museums, Greenwich.

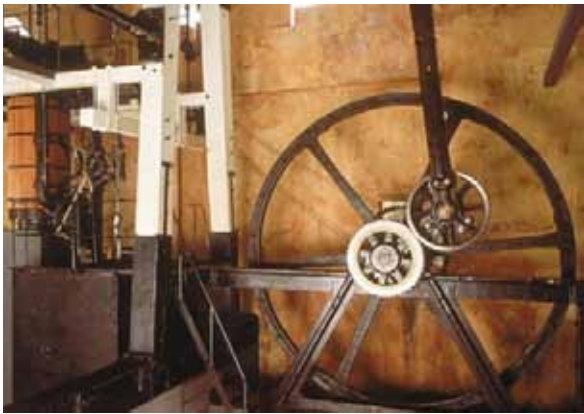
Dawn Casey, director of the National Museum of Australia from 1999 to 2003, succeeded Fewster as director of the Powerhouse. She served for five years during a difficult period when the museum's funding was cut from year to year and the museum was forced into shedding experienced staff. Oddly, during her term, in 2011, the museum hosted the *Harry Potter* exhibition that attracted a record 383,000 visitors and made a profit of 42.7 million.

The Powerhouse Museum today

The Powerhouse Museum is now part of the Museum of Applied Arts and Sciences (MAAS), which includes also the Sydney Observatory and the Discovery Centre and which operates at three venues. After a closure for refurbishment the Discovery Centre at Castle Hill has just reopened as a collaboration between MAAS, the Australian Museum and Sydney Living Museums. It houses in store and on display thousands of items in the museums' collections that can be discovered in booked tours.

The Powerhouse Museum's permanent displays show just a fraction of the museum's collection over 500,000 items. In addition there are always several special exhibitions being held. The museum has a research staff of around thirty, who write regularly for publication, curate displays and touring exhibitions and contribute to the museum's extensive information available on-line. The information available online at the museum's website includes blogs on a variety of topics related to the museum's collections, descriptions of the individual items and details of the provenance of the museum holdings, papers written by museum staff and other information such as a listing with descriptions of a large number of Australian innovations and the Australian Dress Register which record the provenance of Australian men's women's and children's dress up to 1945. The museum also has a large library and collection of historic photographs.

Some of the museum's items are unique and of world-wide significance. A few of them are briefly described here.



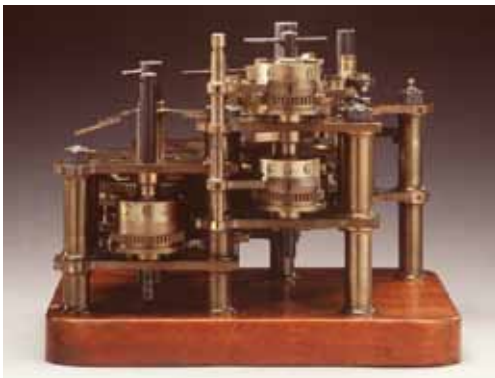
Boulton and Watt steam engine



NSW Locomotive Number 1



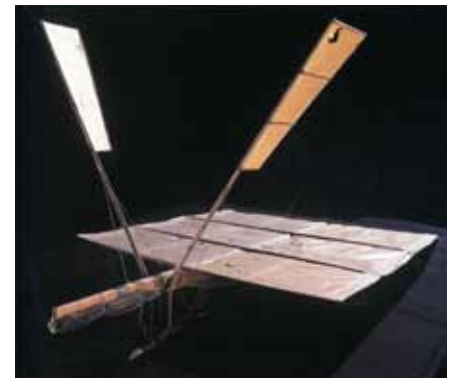
The Strasburg clock



A small part of the Babbage Difference Engine



Frigate Bird II



Hargrave flapping wing aircraft

The Boulton and Watt steam engine

In 1887, when Archibald Liversedge was visiting London, he learnt that Whitbreads brewery were retiring a steam engine that had been installed in 1785. He persuaded the brewery to donate the engine to the recently established Technological, Industrial and Sanitary Museum in Sydney. It was shipped to Sydney in 45 crates. It is now in the Powerhouse Museum, and runs regularly under steam. It is the oldest rotative steam engine in the world and illustrates several of Watt's key patents.

NSW locomotive Number 1

The locomotive hauled the first passenger train in NSW. It was one of four built by Robert Stephenson and Company and imported to Australia in 1855 for the Sydney-Parramatta Railway. It ended its service in 1877. It was presented to the Technological Museum in 1884 and was first displayed in the Agricultural Hall in the Domain. It is now on display in the Powerhouse along with carriages from one of the first trains that it hauled.

The Strasburg clock

This clock, a one sixth size model of a famous clock in Strasbourg, France, was built by a young Sydney clockmaker Richard Smith and bought by the government for £700 in 1890 for display in the Technological Museum. It soon became the museum's most popular exhibit. It operates now in the Powerhouse for six minutes each hour, when it provides a procession of the apostles. The clock has other working displays including a crowing rooster and cherubs turning an hour glass, the sun and planets and the sky over Sydney.

The Babbage Difference Engine number 1

In 1995 the Powerhouse acquired a small part of the first automatic mechanical calculator that Babbage, a British researcher and inventor, conceived in 1822 and struggled to complete. It was to have 25,000 parts, and no one knows just how many of these he had completed before he gave up in 1834. Parts of his uncompleted machine are in Sydney and in four other museums around the world.

Aircraft Frigate Bird II

The twin engine Catalina was the most successful flying boat ever produced. The one in the Powerhouse was built in 1944 and was flown on a pioneering flight from Australia to Chile by P.G. Taylor in 1951. It was donated to the museum in 1961 by Ernest Crome. It is the largest suspended aircraft in any museum in the world.

The Lawrence Hargrave collection

Lawrence Hargrave was one of an elite body of scientists and researchers who paved the way for the first powered controlled flight by the Wright brothers in 1903. The Powerhouse now holds the world's largest collection of items relating to his life and work. It includes full sized box kites, models, photographs and papers. In 1901 Hargrave had offered his large collection, including 13 tons of models and apparatus, to the Museum of Technology but it was declined. Many of Hargrave's models were destroyed by bombing in World War II. In the early 1960s the Sydney Museum of Applied Arts and Sciences director Jack Willis was successful, along with a Qantas executive William Hudson Shaw, in having the remaining models returned from Germany and many of Hargrave's journals and drawings returned from England for the museum.

The future of the Powerhouse Museum

The idea that the Powerhouse Museum might be moved to Parramatta had its first public airing in a government report *Rebuilding NSW; State Infrastructure Strategy* released in June 2014. The report contained recommendations from Infrastructure NSW, the government agency charged with providing advice on state infrastructure strategy.

The report recommended that a Parramatta Cultural Precinct be established and that the government urgently consider relocating the Powerhouse Museum to the new Precinct. It also recommended that \$600 million should be reserved for funding other cultural infrastructure. The published report included the government's response which was to accept all its recommendations.

In November 2014 Infrastructure NSW released its report *State Infrastructure Update 2014* which set out its recommendations in more detail. It suggests that relocation of the Powerhouse Museum to Parramatta could be partly funded by realising the commercial value of its present site in Ultimo.

In February 2015 Premier Mike Baird and Deputy Premier and Minister for the Arts Troy Grant announced that the government would sell the present Powerhouse site to help fund the museum's move to Parramatta. They expected that sale of the site for apartments would raise \$150 to \$200 million that would all go towards relocating the museum. None of the \$600 million reserved by the government for arts infrastructure would be allocated to moving the museum to Parramatta, as it was earmarked for other projects.

The Board of Trustees of the Museum of Applied Arts and Sciences (MAAS), of which the Powerhouse Museum is a part, was given responsibility for considering possible sites in Parramatta for the relocated museum and for preparing a business case for submission to Cabinet by February 2016. Government funding was provided for this work. The MAAS Board of Trustees was advised at its July 2015 meeting that 'whilst a funding level of \$450-\$500 million had been estimated for relocating the museum in initial quantity surveys, it was not possible to nominate the overall project cost until site selection and a full business case had been completed.' The business case for submission to cabinet is not yet completed and is now expected to go to Cabinet around the end of 2016.

In September 2015 the government announced that the choice of site for the museum at Parramatta had been narrowed to the former Parramatta golf course and the former David Jones car park on the Parramatta River. On 11 April 2016 Minister Troy Grant announced that riverside site had been selected.

In the meantime community opposition to moving the Museum from its present site in Ultimo had mounted. The Powerhouse Museum Alliance was formed during 2015. Following a petition organised by MP Alex Greenwich and supported by MP Jamie Parker and a large number of individuals and organisations, which collected over 10,000 signatures, the Alliance sent an open letter to the Premier, published in the Sydney Morning Herald on 17 February 2016 with 178 signatures of community leaders, museum experts and organisations. ASHET was one of the signatories..

One outcome of the campaign to save the Powerhouse has been the appointment on 23 June 2016 by the NSW Legislative Council of an Inquiry into museums and galleries, with special reference to the sale of Powerhouse site and the move to Parramatta. The committee is to report by 24 November 2016. Submissions closed on 14 August 2016. The texts of the submissions and transcripts of the committee meetings are available on-line.

Rose Hiscock resigned in November 2015 as director of MAAS two years into a five year term, to accept appointment as director of the newly established Science Centre in Melbourne. Dolla Merrillees, her deputy, was appointed as the new director in March 2016.

Professor Barney Glover, Vice Chancellor of the University of Western Sydney, was appointed President of the Board of Trustees in March 2016, replacing Professor John Shine whose term had expired.

The future of the Powerhouse Museum is by no means certain. It is already accepted that the proceeds of the Ultimo site for redevelopment would fall far short of meeting the costs of relocating the museum to Parramatta, and there has been no indication from the government that the needed additional funds will be available.

The weight of expert opinion is overwhelmingly in favour of keeping and developing the Powerhouse Museum on its existing Ultimo site, along with establishing a museum presence in Parramatta. This could be done at far less cost than moving the whole Powerhouse Museum to Parramatta. Public opinion is in favour of keeping the museum on its present site. The National Trust strongly opposes the sale by the NSW Government of the Powerhouse Museum for redevelopment and would also oppose any demolition of the existing historic structure, including the purpose built 1988 extension and extant components that demonstrate the Powerhouse's original use.

Sources and further reading

The report *Museums in Australia 1975* produced by the Australian Government Committee of Inquiry on Museums and Collections (the Pigott Committee) includes a section titled 'What is a Museum' that provides useful guidance on the aims that a modern museum should attempt to satisfy. The report is available on-line at http://www.nma.gov.au/_data/assets/pdf_file/0018/1269/Museums_in_Australia_1975_Pigott_Report.pdf.

In 2011 the Australian government released a National Cultural Policy discussion paper <http://creativeaustralia.arts.gov.au/assets/national-cultural-policy-discussion-paper.pdf>. This prompted Andrew Sayers, then director of the National Museum of Australia, to write an article, published in *The Australian* of August 25, 2011 titled *Redefine museums as educational resources*. He argues that we need to look on museums primarily as education resources rather than as buildings where collections are held. He proposes that the collections of Australian museums should be deployed for greater social return, and that the cultural value of collections should be unlocked through exhibitions, digitisation and connectivity.

The following books provide a history of the Powerhouse Museum and its predecessors, and information on the principal exhibits. They are available in many libraries:

Graeme Davison and Kimberley Webber (Editors), *Yesterday's tomorrows: the Powerhouse Museum and its precursors 1880-2005*, Powerhouse Publishing, Sydney, 2005.

Terence Measham, *Treasures of the Powerhouse Museum*, Powerhouse Publishing, Sydney, 1994.

Terence Measham, *Discovering the Powerhouse Museum*, Powerhouse Publishing, Sydney, 1997.

The Powerhouse Museum website provides a wealth of information on the museum and its collections, and on the Museum of Arts and Sciences (MAAS), of which the Powerhouse is a part, along with the Sydney Observatory and the Museums Discovery Centre. It provides a brief history, comprehensive information on the collections and research.

For brief information on the proposed move of the Powerhouse Museum to Parramatta, go to <https://maas.museum/about/maas-parramatta/faqs/>, and for much more detail go to the website of the Powerhouse Museum Alliance at <https://powerhousemuseumalliance.com/>.

For information on the 2016 Legislative Council Inquiry into museums and galleries, and in particular the sale of the Powerhouse Museum site in Ultimo and its proposed move to Parramatta, including the texts of submissions and transcripts of the Inquiry meetings go to <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2403>

Of particular interest to ASHET members is ASHET's submission to the Inquiry, which is available at <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-submission-details.aspx?pk=56239>

The submission from the Powerhouse Museum Alliance is also of particular interest because it provides references to a number of expert opinions. It is available on-line at https://www.parliament.nsw.gov.au/committees/DBAssets/InquirySubmission/Body/56240/0167_Powerhouse_Museum_Alliance.pdf

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