

ASHET website



ASHET's website has a new look and some new content. To view it, go to <http://ashet.org.au/>.

New on the website is a set of ten brochures describing self-guided tours to places in the Sydney area of historic interest for their engineering or technology. The brochures are in pdf format. To view and download them, go to <http://ashet.org.au/downloads/>.

In 2009 ASHET received a grant under the Arts NSW Cultural Grant

Program to assist in meeting the costs of upgrading the ASHET website. The committee engaged Alison Stevens of Redwine Publications, which specialises in electronic publishing and website design, to design the new website.

We are planning to add to the website a Forum, that will allow members to make comments or contributions. The website will continue to provide details of ASHET and other events, downloads including the ASHET newsletter *ASHET News* and links to other websites.

More on matchmaking



The article in October 2009 ASHET News on the Bryant and May building in Church Street, Richmond, Victoria, needs some clarification and correction.

The building was an outcome of an agreement between two British match companies, Bryant and May, and R. Bell and Company, to build a new factory in Australia to produce wooden safety matches and strike-anywhere matches known as wax vestas. Bryant and May were at the time the largest match manufacturers in Britain and the largest importer and supplier of safety matches to Australia. R. Bell and Company had opened an Australian factory in 1895 in Swan Street, Burnley. Their main product was Bell's Maltese Cross Wax Vestas. In 1905 they built a

new factory in Richmond on the site of the disused Old Dublin Brewery. This is the site on which the two companies built the 'Empire Works' in 1909. Once the new factory was in production, Bell's old factory was demolished.

The companies' decision to build a new factory had been assisted by the 1908 Customs Tariff. As well as giving protection for Australian manufacture it also gave preference to imports from Britain. The plans for the building were approved in March 1909, and the new factory was opened by the Prime Minister in December 1909. It was owned and operated by the proprietary company formed for the purpose, Bryant and May R. Bell Pty. Limited. The factory was extended in 1910, but ceased production in March 1912 when competition from imports made it unprofitable to continue. Production of wax vestas resumed in October 1912 and of wooden safety matches in 1913. The factory was further extended in 1917 and again in 1922. The western part of the building and the clock tower, illustrated here, was part of the 1922 extensions and features the Bell's Maltese Cross logo and the name Bryant and May. In that year Bryant and May in Britain acquired the British company R. Bell and Company and its interest in the Australian company Bryant and May R. Bell Pty. Limited.

The principal source of the information in this note is the book *Lighting up Australia: a history of the Australian match manufacturing industry 1843–2003*, by Jerry Bell, published by the author in 2008.

Vale Gordon Wightman

Gordon Wightman passed away in December 2009. He joined ASHET in 2003, one of ASHET's first Victorian members. He had a particular interest in the history of refrigeration in Australia, and was writing a book on the subject.

He was well qualified for this, having spent a lifetime in the industry. He started work as an apprentice with the Melbourne refrigerating machinery manufacturer R. Werner and company in 1951. He studied at Swinburne and Melbourne Technical Colleges and progressed to designing and building industrial refrigeration systems. His company is associated with many major refrigeration installations in cold stores, meat works, breweries and ice rinks. Gordon was involved until the time of his death, and the business is now carried on by his sons, the third generation of the family to work in the industry.

Gordon was an enthusiastic member of ASHET, always willing to share his vast knowledge of the refrigeration industry, and to learn more about its history.

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ASHET Events

Tuesday 23 February 2010

Talk by Stuart Read *Early to Mid 20th Century Garden Designers in NSW*

Stuart Read will present an overview of eight key garden designers whose work was influential in NSW between 1900 and the 1960s. The talk will range from the Burley-/Mahony Griffins to Bruce McKenzie, and include the perhaps less-known Kath Carr, Betty Maloney & Jean Walker's bush gardens of the 1960s & 1970s and the early garden historian Beatrice Bligh. He will also look at the challenges associated with the appreciation and protection of their legacies.

Stuart Read fortunately won an overseas fellowship from the Pratt Foundation to travel through Spain in 2005 studying change management in old and new parks and gardens. He is trained in science, horticulture and landscape architecture and has specialised in working on world, national and now NSW heritage areas. His passions include learning lessons from historic gardens, finding old trees and the lost diversity of plants from the 19th century and seeking more holistic management of historic landscapes as part of our future identity and economy.

This event is a joint activity of ASHET and the Royal Australian Historical Society (RAHS).

Venue: History House, 133 Macquarie Street, Sydney
Time: 5.30 for 6 pm
Cost: \$8.00 Includes light refreshments on arrival
Bookings: phone RAHS on (02) 9247 8001 or email history@rahs.org.au

Tuesday 30 March 2010

Talk by Noni Boyd *Walter Liberty Vernon: NSW Government Architect*

Sydney-based heritage consultant Noni Boyd will speak of the work of Walter Liberty Vernon who was NSW Government Architect from 1890 to 1911. During this period he was responsible for many of the landmark Sydney buildings including the Mitchell Wing of the State Library, the Art Gallery of NSW and the old Fisher Library at the University of Sydney. Noni will look at the way Vernon's work at the University of Sydney was influenced by both Pugin and Blackett.

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Thursday 15 April 2010

ASHET Annual General Meeting

The meeting will be at 6 pm and will be brief. It will be immediately followed by a joint meeting of ASHET and RAHS with a talk by Tony Dawson on *E G Stone - a pioneer in concrete*.

Non-members of ASHET are invited to refreshments at 5.30 along with members, and may attend the Annual General Meeting, but not participate in the proceedings or vote.

Venue: History House, 133 Macquarie Street, Sydney
Time: 5.30 for 6 pm
Cost: \$8.00 Includes light refreshments on arrival

Historic engineering journals now on the web

The full texts of all 21 volumes of the *Journal and Abstract of Proceedings of the Sydney University Engineering Society* are now in digital form on the University of Sydney website. They are in convenient form for viewing and downloading, with the table of contents of each volume displayed, and links to each article in pdf format that can be downloaded, searched and printed. Click on [SUES Journal](#).

This journal, first published in 1896, is one of the earliest engineering journals in Australia and its pages contain many articles of historical interest. Copies of the journals are now rare and the Fisher Library at the University of Sydney is the only one to hold a complete set.

In 2007 ASHET commenced a project to make this and other historic Australian engineering and technical journals more accessible, initially by digitising their tables of contents and posting them on a website where they could be easily searched by Google and other similar search engines.

ASHET applied for and received a 2007 RAHS Local History and Archives Grant of \$600 to assist it with digitising the tables of contents

of two early engineering journals in Australia, *Minutes of Proceedings of the Engineering Association of New South Wales*, and the *Journal and abstract of proceedings of the Sydney University Engineering Society*. We then received from the Sydney Mechanics School of Arts a grant of \$5,000 and a gift of \$900 from ASHET member Don Fraser to meet the cost of digitising the complete texts and images from all the volumes of these two journals and presenting them on a website where they would be freely available for viewing and downloading. The University of Sydney Library agreed to participate in the project and offered to meet the cost of administering the digitisation and preparation of the texts for presentation on a website.

Various technical problems were experienced with the digitisation, and eventually the Sydney University Library agreed to itself carry out all work of digitising the text and images, rather than contracting it out, and also to meet the full cost of doing this as well as the preparation of the digitised texts and images for presentation on a website. The work of digitising the text and images is now complete. All volumes of the *Journal and abstract of proceedings of the Sydney University Engineering Society* are now on the website, and so far two volumes of the *Minutes of Proceedings of the Engineering Association of New South Wales*

ASHET electronic history project

ASHET's programs of meetings and tours cater mainly for members living in Sydney, where ASHET was formed seven years ago. While we would like to offer similar programs in other centres, we will probably need to rely at least for some time on other means of participation for our members outside Sydney. Fortunately, over 90 per cent of our members are internet users, so we are well placed to make use of the opportunities that email and our website offer for communicating quickly, conveniently and at low cost.

Yet this is just a tiny part of what is now possible with electronic communication and the world wide web. A few societies are providing their members with ways of sharing and seeking information electronically over the internet through forums, email groups or similar. Journals, papers, pictures and reports are increasingly available in electronic form. Search engines such as Google are able to find items of interest from the vast mass of material on the world wide web.

It is not only new material that is becoming more accessible. Books, records and archives are being scanned and presented in electronic form. The records now accessible over the internet include huge numbers of historic photographs, film and sound recordings such as oral history interviews.

Most of this electronic material is readily available at no cost to the user. Access to some of it, particularly current and recent issues of journals, is restricted and may require payment of a fee to view or download, but facilities for payment on line by credit card or Paypal are usually available on line. In fact the introduction of secure on-line payment facilities like Paypal is likely to encourage a large increase in the amount of material that will become conveniently available to internet users.

All this offers new opportunities for ASHET members and others who are interested in reading, researching or sharing their interest in history. The aim of ASHET's electronic history project is to identify these opportunities and assist ASHET members to make the best use of them. We expect the project to take about six months and to lead to an ongoing effort to keep members abreast of new developments. We have engaged Alison Stevens, a former editor of the *Journal of the Royal Australian Historical Society*, who has special expertise in electronic communications, to assist us. Alison is currently engaged in updating the ASHET website.

We are forming a group of members and non-members of ASHET who are interested in contributing to the project or in keeping up to date with its progress, and will shortly be providing the group with a Forum on the ASHET website to facilitate the sharing of ideas and information. In the meantime, if you would like to join the group and be kept informed, email sec@ashet.or.au.

Sydney University Engineering Society and its first President, Professor William Warren

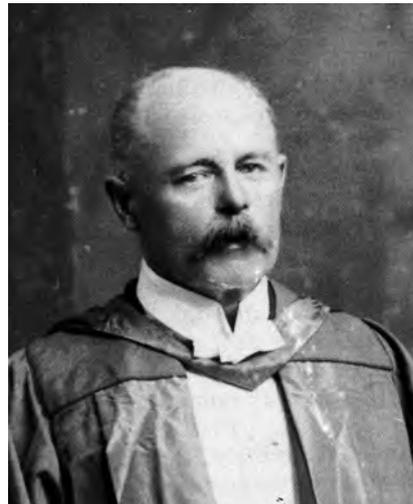
The Sydney University Engineering Society was formed in 1895 with 43 members, representing two thirds of staff, undergraduates and graduates of the Engineering School. It was not the first engineering society in New South Wales, the Engineering Association of New South Wales having been formed and incorporated in 1884. Also, until around 1900, the Royal Society of New South Wales held meetings where papers were presented on engineering topics, and for a few years had an engineering section. During this period the Royal Society published many engineering papers.

From its inception, the Sydney University Engineering Society held meetings at which papers were presented, and published them in its journal. The Society held regular meetings until 1921, when it became one of the twelve societies that amalgamated to form the Institution of Engineers Australia. At that time it had 389 members.

The first president of the Society was the Challis Professor of

Engineering at the University of Sydney William Warren.

At the time of his election as president Warren had just returned from a tour of America, Britain and Europe, during which he had visited engineering establishments and met many distinguished engineers. Strangely, he appears not to have visited any of the engineering schools in America and Europe, for which the university senate had approved his leave of absence. During his tour he met in London Peter (later Sir Peter) Nicol Russell who had founded Sydney's leading engineering business P.N. Russell and Company, in the 1840s and managed it until 1875 when it closed following an industrial dispute. In December 1895 the senate of Sydney University received an offer from Russell of £30,000 for endowment of the engineering school. The offer was subject to conditions, and it appears Warren had carefully briefed Russell to ensure that the funds must be for new developments and could not be used by the senate to meet any of its existing commitments. In 1904 Russell made a further gift of £50,000 which was spent on a new building for the engineering school which bears his name.



Professor William Warren

In 1880 the senate had decided to establish a lectureship in engineering, and in 1882 had appointed Warren to the position. Warren had arrived in Sydney from England one year earlier and found employment with the Department of Public Works. He supplemented his income by teaching evening classes at the Sydney Mechanics School of Arts. Initially he had not applied for the position of lecturer at the university, having in mind a career as a consulting engineer, but it is said that he was persuaded by his partner

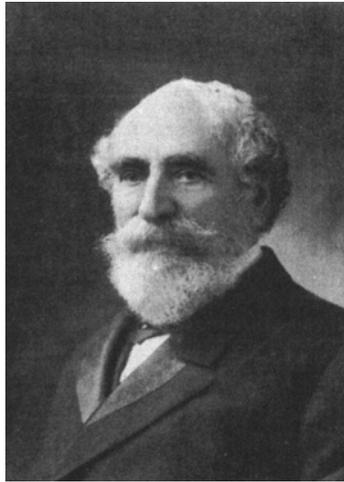
Annie to set his sights on becoming a Professor of Engineering. (Annie was a lively and intelligent woman who took a keen interest in the people and society in which they lived, and was generally known in Australia as Mrs. Warren, though the couple were in fact not married, Warren having left his estranged wife in England). Annie died after a brief illness in 1895, just before Warren's overseas trip.

Warren had served a five year apprenticeship in England at the Wolverton Railway Workshops, during which he attended evening classes at the Wolverton Science and Art Institute, where he excelled. He gained a Royal Exhibition to attend the Royal College of Science for Ireland in Dublin for a year. He missed out on a scholarship to continue his studies there, but did exceptionally well in examinations conducted by the Royal Society of Arts in London, winning a prize and a studentship. He also received a Whitworth Scholarship and enrolled in Owens College, Manchester. After six months there he failed to matriculate, failing in French and Latin. He was unable to take up his Whitworth Scholarship at Owens College. He found work as chief draftsman at Manchester engineering companies that designed and built heavy machinery. After three years he had been able to satisfy the requirements of the Whitworth Scholarship for training in mechanical engineering. He was by this time, 1877, concentrating on structural engineering rather than mechanical engineering in which he had initially been trained. He applied for admission as an Associate (equivalent to the present Member) of the Institution of Civil Engineers and was accepted in 1877, giving him status as a professional engineer. Around 1880 his marriage broke up and employment was scarce even for a well regarded and qualified young engineer. Warren decided to emigrate to booming Australia. He arrived in Sydney, aged 29, in April 1881.

In 1884 the senate of Sydney University conferred on Warren the title of Professor 'in consideration of the fact that he is practically the

head of a distinct school'. In 1889 the senate increased his salary and appointed him Challis Professor of Engineering. Sydney was not the first university in Australia to establish an engineering school. The University of Melbourne provided courses, and awarded certificates, but not degrees, in engineering from 1866. It appointed William Kernot to a newly established chair in engineering in 1883, the first in Australia, and awarded its first engineering degrees that year. (For more about William Kernot see the October 2009 issue of *ASHET News*.)

Under Warren, the engineering school at Sydney developed quickly and successfully. In 1901 it had 100 students. The teaching of mechanical engineering had commenced with the appointment of Henry Barraclough (later sir Henry) as lecturer in 1896, and later staff were appointed to teach electrical engineering. Lack of suitable accommodation was a serious problem until the completion of the new buildings in 1909 made possible by Russell's 1904 gift of £50,000.



Sir Peter Russell

Warren's research was concentrated on the properties of construction materials used in Australia, and was assisted by the purchase of a Greenwood and Batley testing machine (which still exists) in 1884. His international reputation was established by the

publication in London of the first edition of his textbook *Engineering Construction in Iron, Steel and Timber* in 1894.

Warren's terms of appointment prohibited professional and commercial activities without the consent of the senate. However he still managed to undertake a wide range of professional activities outside the university. He served on a number of government inquiries and commissions and held office in professional associations. His most notable design project, in association with J.E.F. Coyle, was the Northbridge suspension bridge, built in 1891, the first suspension bridge in Australia.

Warren's ideas on engineering education had been well formed by the time he outlined them in his presidential address to the Australian Association for the Advancement of Science in 1890. The proper way to educate engineers was to provide them with a sound understanding of the basic sciences. A good general education before entering engineering studies was essential. Warren rejected the idea that 'an ounce of practice is worth a pound of theory'. For Warren both theory and practice were essential. Warren believed that scientifically trained students would acquire 'the habit of thinking accurately'. Continuing education through the study of engineering literature was needed to update and broaden an engineer's experience..

Warren had definite ideas on the different roles of technical colleges and universities in technical education: 'It is the function of technical colleges to deal with the technical education of artisans, and for the universities to deal with the professions'.

Warren reiterated these views in his presidential address at the first annual general meeting of the Institution of Engineers Australia in 1920. According to Warren's biographer Michael Gourlay, engineering courses in 1950 were essentially in the same form as he left them.

Warren's students remember him as a 'kindly little man' and a popular lecturer, always eager to help them and ready to see their point of view. One of Warren's first students, John Bradfield, said he and his colleagues regarded themselves as the professor's 'real friends'. Warren's colleague Sir Henry Barraclough wrote that 'Warren's most striking quality was the human one that people felt there was something about him you couldn't help liking'.

At Warren's farewell from the University of Sydney in May 1924 it was announced that he was to be the first recipient of the Institution of Engineers Australia's highest award, the Peter Nicol Russell Memorial

Medal. His formal retirement was at the end of 1925, and he then became an Emeritus Professor. He died suddenly two weeks later.

Three of Warren's papers were published in the Journal of the Sydney University Engineering Society, now on the web. He also presented 17 papers to the Royal Society of New South Wales and seven to the Engineering Association of New South Wales.

The principal source of information on Warren in this article is the biography by Michael Gourlay, published by the Warren Centre at the University of Sydney. Information on the Sydney University Engineering Society is largely from Bradfield's 1920 presidential address to the Society in 1920.

The Journal of the Sydney University Engineering Society

The *Journal and abstract of proceedings of the Sydney University Engineering Society* was published in 21 volumes from 1896 to 1920, with most volumes covering two calendar years. It contains papers by members of the Society, who were mostly staff or graduates of the Engineering School.

The papers published in the Journal are of historic interest largely because they provide a record of the design and construction of major public works in New South Wales. These include:

- the river works on the Darling, Macquarie, Murray and Murrumbidgee rivers;
- railway works, including the Sydney underground railway, pioneer railways, Sydney Central Station and the Wolgan Valley Railway;
- major engineering studies, particularly the various proposals for road and rail crossings of Sydney Harbour between the city and North Sydney;
- water supply, sewerage and drainage works.

There are few papers on mechanical or electrical engineering topics, in part because the majority of the graduates of the engineering School were in civil and mining engineering, and also because of the availability of another avenue for publication, the *Proceedings of the Engineering Association of New South Wales*, an older society than the SUES and whose membership was largely engineers from the maritime and manufacturing industries. This journal is also being digitised as part of the ASHET project and all volumes will shortly be available on the web.

Mining engineers are well represented among the authors. There are papers on mining technology and on new developments in the treatment of minerals in various parts of Australia, including the Broken Hill, Cobar and Mount Morgan ores.

Overall there are not many papers on research or new technology, apart from mining and ore treatment, reflecting the young Engineering School's emphasis on undergraduate teaching and its lack of post-graduate or academic research. There are a few papers reporting work on measuring the properties of engineering materials available in Australia, a special interest of the Professor, William Warren.

All the volumes of the *Journal and abstract of proceedings of the Sydney University Engineering Society* have now been digitised and are available as part of an ASHET project carried out in conjunction with the University of Sydney Library. They are available on the web at <http://escholarship.library.usyd.edu.au/journals/index.php/SUES/issue/archive>. The papers may be downloaded, searched and printed individually and are a ready source of information on the history of engineering in Australia.

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