

Newsletter of the Australian Society for History of Engineering and Technology

ASHET annual general meeting Tuesday 22 April 2014

ASHET's 2014 annual general meeting will be held at History House, 133 Macquarie Street, Sydney, on Tuesday 22 April 2014 at 6 p.m. Light refreshments will be served at 5.30 p.m. before the meeting.

The meeting, expected to be brief, will be immediately followed by a joint meeting of ASHET and the Royal Australian Historical Society, with a talk by Phil Rose.

Each member is entitled to appoint another member as proxy by notice given to ASHET's public officer no later than 24 hours before the time of the meeting. ASHET's public officer is the secretary David Craddock. A proxy form may be downloaded from the ASHET website at <http://ashet.org.au/downloads-3/>. ASHET's Constitution requires that no member may hold more than five proxies. The following business will be conducted at the annual general meeting:

- Confirm the minutes of the last preceding annual general meeting.
- Receive committee report on activities during 2013.
- Receive and consider financial statement for the year 2013.
- Elect office bearers and ordinary committee members.

In accordance with ASHET's Constitution no other business may be conducted at the annual general meeting.

A copy of the committee's report that will be presented to the meeting is included in this issue of ASHET News

Committee Annual Report 2013

ASHET membership

At the end of 2013, ASHET had 52 members. Of the members at the end of 2013, 42 lived in the Sydney area, 5 elsewhere in NSW, 2 in Victoria and 3 in Queensland.

Meetings

ASHET held a series of meetings during 2013 at History House in Sydney jointly with the Royal Australian Historical Society:

Tuesday 19 February, 2013
Ron Tauranac
Designing Award-winning Racing Cars

Thursday 14 March, 2013
Ian Jack, Katherine Reynolds and Hector Abrahams
The Building Plan for History House

Tuesday 16 April 2013
ASHET annual general meeting
Ron Ringer
The Snowy Scheme: overseas aid, engineers and Australian ingenuity

Thursday 23 May 2013
Talk by David Carment
Technology on the Australian frontier: a history of Northern Territory mining

Tuesday 25 June 2013
Talk by Frank Heimans
Oral History – telling the story of NSW timber truss bridges

Thursday 25 July 2013

Talk by Ian Jack

The Paragon Cafe in Katoomba: its social, aesthetic and industrial heritage

Thursday 29 August 2013

Talk by Rodney Avery

Zig Zags, Obstacles, and Difficult Decisions: Appreciating Australia's Railways Past from Today

Thursday 24 September 2013

Talk by John Dickenson

History of Modern Hang Gliding

Tuesday 29 October 2013

Talk by Ian Debenham

Sailing in the Ancient Mediterranean

Thursday 28 November 2013

Talk by Chris Johnson

Meccano: What you always wanted to know

Guided tours

There were no guided tours this year.

Projects

The following projects were undertaken during 2013. Their status at the end of 2013 is shown:

Timber Truss Bridges of New South Wales. Complete. Includes oral history interview of two retired Chief Bridge Engineers with the Roads and Traffic Authority of NSW.

History of mining machinery at Lightning Ridge. Complete. Includes oral history interviews with inventors and builders of machines, and visual display of the history at Lightning Ridge.

History of Unilever at Balmain. In progress. Includes scanning and indexing of a collection of historic documents held by RAHS and a visual display of the history.

Pies Project. In progress. Includes research of the pie-making industry and will provide a graphic display of the history of meat pies.

ASHET committee

At the annual general meeting on Tuesday 16 April, 2013 a new committee was elected to take office at the end of the meeting, and to serve until the end of the annual general meeting in 2014. The following office bearers and committee members were elected:

President: Rob Renew

Senior Vice President: Ian Jack

Vice President: Mari Metzke

Secretary: David Craddock

Treasurer: Eric Metzke

Committee Member: Malcolm Brady

Committee Member: Ian Arthur

Committee Member: Neil McDonald

Next ASHET events

Tuesday 22 April 2014

Talk by Philip Rose
Ferries of the Sydney Region

From the beginnings of European settlement in Sydney the geography of Port Jackson has necessitated the use of water transport, especially ferries. This talk will explore the evolution of maritime technology and ferry design to meet these transport needs. Other themes include the urban development of Sydney, especially public transport and bridges, the rise and fall of private ferry companies and local ship-building. Prior to the completion of the Sydney Harbor Bridge, Sydney had one of the largest (by number) ferry fleets in the world. The evolution of the double-ended ferry was a feature of Port Jackson ferry design.

Many of the ferries had long and varied lives, occasionally filled with drama. The sinking of the *Greycliffe*, the capsizing of the *Rodney*, the *Belluberah* fire and the torpedo attack on the *Kuttabul* being the most notable. The talk will briefly cover ferry operations outside Sydney, including the Hawkesbury River, Brisbane Water, the Hunter River, Port Stephens and the Clarence River.

It is estimated there have been some 500 ferries on Sydney Harbour over the 200 years since white settlement. The talk will be amply illustrated with fascinating historical photos as well as photos of the current vessels.

Philip was an architect with the NSW Government Architects Office, recently retired. He has lived in Manly all his life and travelled to work by ferry. He estimates he has made over 20,000 ferry trips over 40 years. During that period he has witnessed the end of the great ferry era comprising the wooden Sydney Ferries fleet and the last of the classic Port Jackson and Manly Steamship Co. ferries. Combined with his interest in history and photography he has developed a broad and knowledge of Sydney's fascinating maritime history.

Venue: History House, 133 Macquarie Street, Sydney

Time: 5.30 for 6 pm. The talk will be preceded by ASHET's Annual General Meeting, which is expected to be brief. Non members are welcome to attend the meeting, but not to vote.

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

Thursday 29 May 2014

Talk by Michael Keats
The Wolgan Valley Railway and the Glen Davis Pipeline

The Wolgan Valley Railway was built because of the discovery of Torbanite or Kerosene Shale. This mineral when retorted produces kerosene, a substitute for whale oil. As a commodity its rise was meteoric, as its demise was dramatic. Australia has the richest deposits of this mineral in the world. We also had the highest production costs in the world.

The discovery of vast petroleum reserves overseas that could be imported at very cheap prices killed the Australian industry almost overnight. All this changed with WWII when the USA government advised the Australian government that it could not guarantee petroleum supplies. By government legislation, Glen Davis was developed and a pipeline was built across some of the wildest terrain in Australia to pipe petrol from Glen Davis to Newnes Junction on the Main Western Line near Bell.

In 2014 little evidence of one of Australia's greatest industrial installations remains. This paper starts with the surveys for the WVR in 1905 and traces the history to the sale of the last items of value in the 1950s.

When Michael Keats was growing up at Balmoral during WWII, the beaches and headlands provided a diversity of experiences, walking, climbing, swimming as well as opportunities to observe and question the natural world, rocks, plants, insects, reptiles and sea life.

Holidays were times of great experiences – whether it was the hills around Camden, the underground marvels of Jenolan Caves, or exploring the New England Ranges. His father was a 'shutter bug.' There was nothing he liked more than to capture a dew drop on a rose petal, a bird in flight or a luminous fungus in the dead of night. It was unremarkable to be in what others regarded as outlandish places – they went where the spirit of adventure called.

In 2000 Michael left the commercial world and began a new career as an explorer, bushwalker and author. He now walks at least two days a week and includes abseiling and canyoning amongst his activities. He has published four books on bushwalking and co-authored six others with colleague Brian Fox. Another seven books are in production. See website, www.bushexplorers.com.au

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Thursday 26 June 2014

Talk by Tony Griffiths
Portraits of Two Artists from Lithgow's Small Arms Factory

Ted Wale, born in 1910, arrived in Lithgow from England on Christmas Day 1919. He joined the Factory just before his fifteenth birthday, was apprenticed into toolmaking, and remained at the Factory until 1938. An enthusiastic and accomplished artist in later life, he has recalled some experiences from his early days at the Factory in a series of sketches, usually with a humorous theme and not claiming to be great works of art.

Heliodore (Dore) Hawthorne, born in 1895, trained as a painter and worked in several graphic arts jobs pre-WW2. She was one of 2000 women who joined the Factory workforce during and after 1942. While there as an inspector, she made many sketches of Factory life and of scenes around Lithgow. In 1945, she developed 40 sketches into paintings. Her family donated about 20 pencil sketches of wartime Lithgow to the Museum and a landscape view of Lithgow to the City Council.

Tony Griffiths is a retired electronics engineer with a family connection to the Lithgow district for about 160 years and an interest in history. His retirement was taken over by an urge to write a history of the Government's Lithgow Small Arms Factory,

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A S H E T

Australian Society for History of Engineering and Technology Incorporated

INCOME & EXPENDITURE for YEAR Ended 31 December 2013

INCOME	2013	2012
Members' subscriptions (134)	1,400	1,370
Donations (102)	80	80
Income from Meetings & Activities (Nett of Expenses)	1,736	2,183
Lightning Ridge Project Grant	0	20,500
Pie Project Grant	23,000	0
Unilever Project - Leichhardt Council (103)	2,250	0
Bank Interest (48 + 57)	105	258
Cancelled Chq	0	33
	28,571	24,424
Less: EXPENDITURE		
Insurance (6)	397	396
NSW Fair Trading (12)	82	0
Affiliation fees (14)	219	119
Office Expenses (24)	651	0
Library Purchases	0	434
Catering Costs	0	116
Queanbeyan Printing Museum Project	0	3,845
RAHS Conference (41)	120	120
Oral History of Bridges Project	0	2,420
Lightning Ridge Project (56)	19,544	0
Function Expenses to RAHS (50%) (59)	685	0
Website Exp. 2 Yrs (150) + Hosting (41) (33 + 182)	215	22
	21,913	7,472
SURPLUS/DEFICIENCY for year		
Balance brought forward	43,541	26,589
Surplus / Excess of expenditure over receipts in 2013	6,658	16,952
Balance carried forward	50,199	43,541
	Represented by:	
Cash in Hand	0	20
Cash at Bank	12,022	5,421
Cash at Bank – on Deposit	38,177	38,120
Less Subscriptions received in advance	0	-40
	NETT ASSETS	50,199
		43,521

AUSTRALIAN SOCIETY FOR HISTORY OF ENGINEERING AND TECHNOLOGY INCORPORATED ABN 47 874 656 639

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Election of office bearers and committee members

At the close of the ASHET annual general meeting on Tuesday 22 April 2014, all the present office bearers and committee members retire. Office bearers and committee members for the coming year will be elected at the annual general meeting. Nominations are called for election to the following positions:

President,
Senior vice-president,
Vice president,
Secretary, Treasurer,
Three ordinary committee members.

Nominations must be in writing, signed by two members of ASHET and accompanied by the written consent of the candidate. They must reach the secretary by Tuesday 15 April, seven days before the date of the meeting which is on 22 April. A nomination form may be downloaded from ASHET's website at <http://ashet.org.au/downloads-3/>.

ASHET Projects

ASHET has now completed its Timber Truss Bridge project and its Lightning Ridge project, and the results of these projects are available to members and others in reports that may be downloaded from the ASHET website www.ashet.org.au.

We are currently working on two more projects, one on the history of Unilever at Balmain, and the other on making meat pies in Sydney. We have made substantial progress with both of these projects and expect to complete them during 2014. Here are brief reports on each of these projects.

Timber Truss Bridges Project

About the project

ASHET undertook this project with the assistance of a New South Wales Heritage grant. Its principal objective was to record oral history interviews, conducted by Frank Heimans, with two retired chief bridge engineers formerly with the New South Wales Department of Main Roads (DMR),

These two engineers, Brian Pearson and Ray Wedgwood, have detailed and unique knowledge of the engineering and the heritage significance of the New South Wales timber truss bridges. A total of 407 timber truss road bridges were built by the New South Wales Department of Public Works 1861 and 1936, and the DMR had responsibility for the maintenance of most of them. The transcripts of the oral history interviews with these two engineers are available on the ASHET website www.ashet.org.au, for



Brian Pearson and Ray Wedgwood

downloading. Also on the website is an article by Michael Clarke on the New South Wales timber truss bridges.

ASHET holds the master audio recordings of the interviews and has offered them to the State Library of New South Wales for archiving.

The Tharwa Bridge



Tharwa bridge in 2012, after reconstruction

These two engineers retained their interest in timber truss bridges after their retirement. Brian retired in 1987 and was succeeded as chief bridge engineer by Ray. Ray retired in 2004. Shortly after that Brian's son, who was living in Canberra, said 'Dad, you'd better come down and find out what it is going on at Tharwa with this old four-span Allan Truss bridge over the Murrumbidgee River, south of Canberra.' This bridge had been built by the New South Wales Department of Public Works and opened in 1895. In 2005, its owners, ACT Roads, closed it indefinitely following a routine inspection that showed evidence of rotting timbers. In 2006 the ACT government announced that the bridge was to be replaced by a single lane prestressed concrete bridge.

The locals wanted to retain the old bridge. Brian and Ray got involved. They wrote letters to the Prime Minister and to the Canberra Times and had meetings with the local engineer responsible for the bridge. As a result the ACT government decided to restore the old bridge.

The restored bridge was opened in June 2011. It was actually very different from Allen's original truss bridge, but it looked the same. The original bridge was designed for a live load of 16 ton. The restored one can carry a loaded semi-trailer, around forty four tonnes. The foundations were improved to withstand major flooding.

The existing timber trusses were completely replaced with new ones. A steel plate was added to the bottom chords of the new timber trusses to increase its strength. The timber cross girders were replaced by steel box section beams, painted to match the timber. The new timber deck is constructed in prestressed laminated timber treated to resist water penetration. The previous timber railings were replaced with steel look-alike.

Cost of the reconstruction was around \$2.6 million. The outcome was a restored bridge, much stronger, more flood resistant, and much lower in ongoing maintenance cost than the original.

Conservation of timber truss bridges

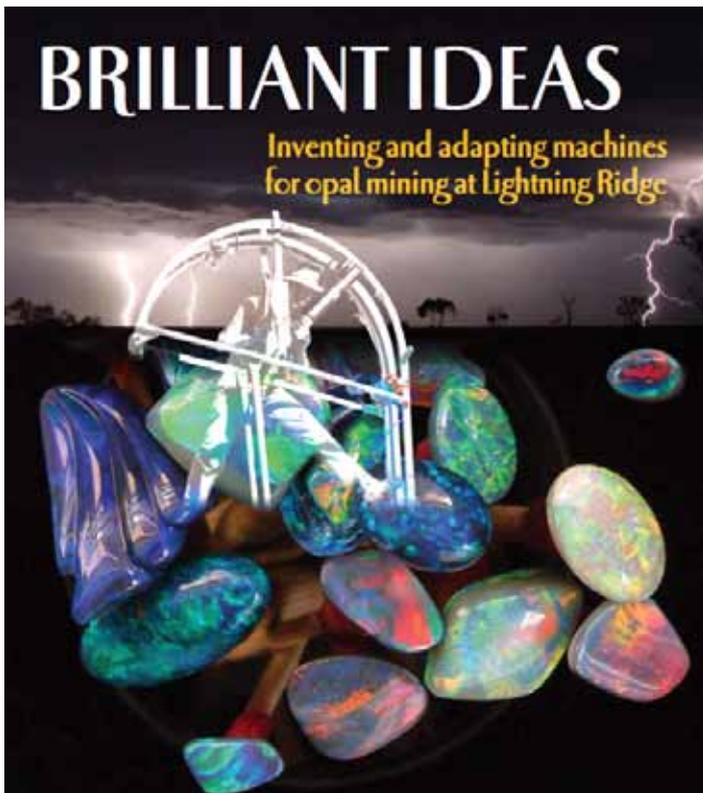
In 2013, 63 of the original 407 timber truss road bridges in NSW remained, most of them still in regular use. 48 of these were owned and maintained by Roads and Maritime Services (RMS), the State government department now responsible for main roads. The rest were mostly owned by local councils.

Agreement has been reached between RMS and the State Heritage Council on a strategy which should ensure that a representative sample of around 26 of these bridges will be retained for at least the next ten to fifteen years. Implementing this strategy will involve major reconstruction of several bridges along the lines of the work done on the Tharwa bridge.



Lightning Ridge project

We have now completed our largest project to date, on machines for opal mining at Lightning Ridge. ASHET team members Rob Renew and Mari Metzke made three visits to Lightning Ridge to research the project and work with Jenni Brammall, manager of the Australian Opal Centre, to produce the graphic displays at the Opal Centre. On one of these visits they were accompanied by oral historian Therese Sweeney, who conducted a two day workshop to assist local people to record more of the history of this unique Australian mining area. The ASHET team worked closely with members of the Lightning Ridge Historical Society and other local people who provided images and information.



Brochure of the ASHET Lightning Ridge project display

The result is a set of eight large display panels at the Australian Opal Centre in Lightning Ridge, telling in words and pictures the amazing story of the machines developed by miners and mechanics to assist in the small scale mining for opals. The text and images of the displays have been reproduced also in the form of a brochure, copies available from ASHET at \$5 each. It is also on the ASHET website at www.aset.org.au. This project was assisted by a grant from the Commonwealth Government under its Your Community Heritage program.



Mining site with auto hoist at Lightning Ridge



Auto hoist raising a bucket of ore to be emptied into a rumbler

Opal mining at Lightning Ridge

Lightning Ridge in northern NSW is the principal source of Australian black opal. All the mining is carried out on small leases, mostly worked by one or two miners working at the bottom of one metre diameter shafts up to about twenty metres deep. Clay containing the opals is hauled to the surface where it is 'puddled' to separate the precious opal. Until the 1960s most mining was carried out with picks and shovels, and opal-bearing clay was hauled to the surface by a manually operated windlass.

Gradually these operations were mechanised. Large diameter drills became available for shaft sinking. Small machines such as diggers, drills and loaders could be lowered down the shafts, sometimes partly disassembled and put together again underground. Concrete mixers were adapted to assist in puddling the clay.

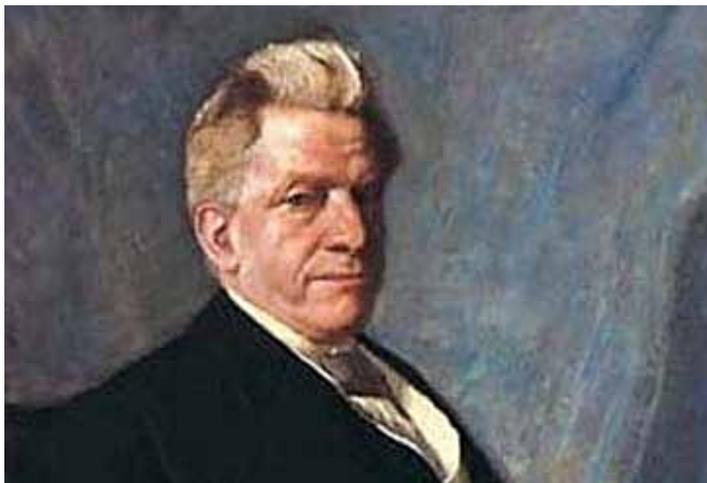
Some special purpose machines were invented. One was the auto-hoist, powered by a small petrol engine on the surface and operated remotely by a miner at the bottom of the shaft. It could haul a bucket of ore to the surf, dump the contents and return the empty bucket to the base of the shaft. Another machine was the 'blower' really a large vacuum cleaner that could suck ore to the surface from the base of a shaft. These machines were first developed at Coober Pedy, an opal mining site in South Australia, and the design was refined at Lightning Ridge. Blowers are too expensive to own and operate for most miners at Lightning Ridge. They use huge quantities of fuel and require skill to operate efficiently. Other machines such as diggers were adapted so they could be easily taken apart for lowering down a shaft and assembly at the bottom. Various machines were adapted to make them useful for puddling, screening, and reprocessing some of the large quantities of dirt left from earlier mining operations.



An early version of the blower at Lightning Ridge

History of Unilever at Balmain

ASHET received a grant of \$4,500 from the Leichhardt Council to assist with a project to present in a graphic display the history of the company



William Lever, First Viscount Leverhulme

Unilever at Balmain. The project is almost complete and it is planned to present the display in the Council's Leichhardt public library during the 2014 Heritage Festival in April and May.

Unilever has a long association with Balmain, beginning with a visit by the British soap manufacturer William Lever in 1892, during which he bought land to build an oil mill. His plan was to import to Australia copra from Pacific Islands, extract the coconut oil and ship it to Britain for making soap. William Lever returned to Australia with his wife Elizabeth in 1895 when Elizabeth laid the foundation stone for the oil mill. Shortly after his return to Britain, his company Lever Brothers decided to build a soap works on the Balmain site. The soap works at Balmain made its first boil of Sunlight soap in 1900.

The business expanded rapidly with the addition of Lifebuoy soap in 1900, Monkey Brand in 1901, Lux Flakes in 1903 and Pears in 1912. All these were well-established brands made by Lever Brothers in Britain and imported into Australia before they were manufactured here. The principal members of the company's management team at Balmain were all drawn from the staff of the parent company in Britain. William Lever took a strong interest in the Australian company and maintained a tight control over it. He visited Australia six times, the last visit being in 1924, one year before his death.

Lever had ambitions for the company to be the leading soap maker in Australia, but found that he faced competition from already well established soap makers in each state. His principal competitor was the Melbourne soap maker J.Kitchen and Sons. In 1914, Lever arranged an amalgamation with Kitchen's, that would allow the Kitchen family to maintain a high degree of autonomy over its manufacturing centre in Melbourne while merging the business interests and product lines. By 1922 the com-



Lever Brothers works at Balmain around 1903



Packing soap

pany had taken over several other Australian soap manufacturers including Burford's and Hudson's. As well as soap the company manufactured at Balmain candles and edible oil products including margarine.

In 1929 a merger of the British parent company Lever Brothers with the Dutch group Margarine Unie formed Unilever, after which the Australian company based at Balmain became Unilever Australia. However it was not until well after WWII that tight restrictions on retail sales of margarine in Australia were gradually lifted and Unilever Australia became a major producer of retail margarine brands such as Stork table margarine and Fairy cooking margarine. After WWII the range of products made at Balmain expanded; production and profits increased. A major change was the introduction of synthetic detergents, which were manufactured at Balmain from 1967.

In 1962, Managing Director of Unilever Australia G.W.E Barraclough proposed that the company's activities nationwide should be integrated, with production carried out at a few specialised centres with modern equipment. The policy was adopted and one of the early consequences was the end of soap production at the former Kitchen's factory in Melbourne. In 1971 the oil mill at Balmain was closed, in 1979 the Pears soap production unit was closed, and in 1989 production of edible oils and margarine was moved from Balmain to Marrickville. Finally in 1988, soap production at Balmain was closed down.

Shortly afterwards the Balmain site was sold for residential development and all the buildings were demolished except for three of the original oil mill buildings that were conserved and adapted for use as offices, the only tangible reminders of what was for nearly a hundred years one of Balmain's most important manufacturing industries.



Unilever site at Balmain in 1960s

Pies project



In 2013 ASHET received a grant from the Commonwealth government under its Sharing Community Heritage program for a project to research and present the history of meat pie making in Sydney. We are currently in the research phase. We would particularly like to hear from any readers who can contribute to our research on the history of the Australian meat pie. If you have information or pictures to share or would like to join the project team, please contact ASHET's project manager Ian Arthur through sec@ashet.org.au or by phone on 02 9958 8397.

Anne Artghur presented a talk to a combined meeting of ASHET and the Royal Australian Historical Society on 25 March, that outlined the history of pie making and how the meat pie became an iconic fast food in Australia and New Zealand.

We plan to present the results of our research in a graphic display later this year and also in articles and on the ASHET website. Here is a brief summary of our research results to date, drawn in part from the text of Anne's talk.

History of the meat pie

A pie is a baked dish consisting of a savoury or sweet filling, enclosed in or covered by pastry or another topping such as mashed potatoes. In Australia a pie generally means a meat pie, not a sweet one. In the 1970's it was taken for granted that when a pie was asked for in a bakery or



England's best known meat pie, the Melton Mowbray

shop it was hot, filled with meat and gravy, served with tomato sauce and handed over in a brown paper bag. These days pies come in greater variety.

The Australian pie evolved from the English pie and has gone through many changes and modifications since arriving in Australia with the First Fleet. The best known of all English commercially produced pies is the Melton Mowbray, originally a family sized pork pie made with hot water crust pastry and filled with pork in a savoury jelly. It was traditionally served cold with a relish or pickles and could be safely stored in a cool place or larder for a couple of days and still remain safe to eat. This was due to the very thick crust and long cooking time. This pie washed down with a beer was especially popular in English pubs.

Pies have been baked and eaten from very early days in mankind's history. The Egyptians, ancient Greeks and Romans all had bread and pies as part of their diet.

In Medieval times in England's cities street vendors selling pies were a common sight. Pies were the take-away and convenience food of the period. Often they provided the only meat that the poor could afford. They were made in cook shops and bakeries.

The nobility and wealthy merchants had in their castles and mansions kitchens with ovens and staffed with cooks and kitchen hands. These kitchens produced pies of all kinds filled with meat, game birds and fish. The pies would be spiced and flavoured with expensive ingredients such as saffron, nutmeg, ginger, cinnamon and pepper. The spices were very expensive and highly prized. They were used to disguise the taste of tainted meat as well as to give flavour.

In Medieval times the kitchens of the nobility had no pie dishes so meats that were to be baked in the oven were encased in a thick dough or paste made from wheat or rye flour. The meat was baked in its thick crust for many hours. The crust acted like a storage container in which the meat inside could be safely stored in a larder for some time. The crust, known as a coffin, was not discarded but was used to feed the servants, beggars, the poor and the dogs. There are old recipes that suggest that the crust was crumbled and used as a roux or thickening for broths or stews.

The pie was important in English culture and featured in special celebrations. To celebrate the great victory at Waterloo when the Duke of Wellington's army, with Prussian help, defeated the army of the Emperor Napoleon, English bakers using specially built ovens created a victory pie that fed hundreds of people.

In 1846 after the repeal of the Corn Laws (due to the Duke of Wellington) the English celebrated with a monster meat pie containing 100 lbs of beef, mutton from five sheep, and numerous birds both domestic and game. The pie was baked for ten hours. It was transported to the dining area on a dray drawn by thirty horses and placed on a platform, which promptly collapsed. However the pie remained intact and was enjoyed by all.

The meat pie in Australia

For much of the nineteenth and the twentieth centuries each town in NSW had its bakery which supplied bread, pies and cakes to the local inhabitants. The pies were made fresh each day. There were no refrigerators or freezers in those days. The flour would come from the local mill, the meat for the pie from the local butcher and the fat used would be what was available locally, perhaps suet, clarified dripping, butter or lard.

In the cities there were pastry-cook's shops that made and sold pies. George Sergeant (who changed his name to Sargent), an English migrant, and his Australian wife Charlotte began in a small way in 1886 with a bakery in Glebe selling bread, pies and cakes. George did the baking and Charlotte was in charge of sales in the shop. They moved their premises several times in the next few years always going to better venues. By 1909 the business was so successful that 'Sargents' became Sargents Ltd and moved into a newly built factory in Darlinghurst. They had become very successful by 1913, owning six cafes, thirty-six tearooms, and catering for picnic race meetings and weddings in addition to making and selling bread, cakes and pies. George died in 1921, Charlotte in 1924 and their son Hartley later the same year, and the family then ceased to have any involvement in the company which continued to be one of Sydney's largest pie makers. ▶▶



Sargent's pie shop in Sydney, 1896



Sargent's factory in Sydney in the 1960s

When the new Parliament House in Canberra was opened in 1927, far too much food was ordered forcing the caterers, Sargents, to bury a massive amount of prepared food, including 10,000 pies, in the local rubbish tip.

By the early 1960s there were four major pie makers in Sydney. Gartrell White was the largest, producing Big Ben pies at a rate of nearly twenty-five million per annum. Gartrell White was owned at this time by the international company Weston Foods. Their pie factory was at Newtown.

There were three other big Sydney pie makers in the early 1960s: Sargents, still operating from their original factory in Darlinghurst, Scott's and Ireland's, each about one third the size of Gartrell White. Then there were several smaller pie manufacturers, such as McKay and Boys, also competing in the Sydney market for pies.

Manufactured pies were distributed fresh every day to pie shops, sporting events, schools and factory canteens. Gartrell White owned a fleet of 50 delivery trucks.

Sydney's most famous pie vendor is undoubtedly Harry of Harry's Café de Wheels. Harry "Tiger" Edwards opened his business in the late 1930s selling pies and crumbed sausages near the entrance to the dockyard at Woolloomooloo. By the 1970s Harry had become so successful he was an Australian icon. Visiting celebrities felt that when in Sydney they had to visit Harry's in the evening and have a pie and mushy peas.

Harry's Café de Wheels is on the National Trust Register as an Australian Icon. The Powerhouse Museum has the original Café de Wheels, a converted box style caravan. It is on display at Castle Hill.

Harry is no longer around but Hannah's, who supplied the business with pies, have taken over Harry's and opened a number of pie shops in and around Sydney.

The 1960s were the beginning of a period of great changes in the industry, in the course of which all four of the large Sydney pie makers were eventually absorbed, through a series of mergers and takeovers, into one which now trades as Sargents Pty Ltd. Its factory is at Colyton near St Marys, where it makes frozen pies, sold under various brand names.



The original Café de Wheels, now at the Powerhouse Museum

At the same time, there were major changes in technology that affected the industry. From the 1960s manufacture became increasingly automated. From the 1980s, all factory made pies were frozen. This led to big changes in the marketing of pies. These days the vast majority of meat pies are sold frozen in supermarkets, and are packaged for safe and easy handling.

The new technology has made it possible for new, small manufacturers to compete with the giants. One, Garlo's Pies, received a well-publicised visit from Tony Abbott during the last Federal election campaign. Another, Hannah's Pies, is the supplier of pies to Harry's Café de Wheels. Michael Hannah purchased Harry's Café de Wheels from its then owner, Alex Kuronya, in 1988.

In other states of Australia, the industry developed in a similar way to Sydney, with successful pastry-cooks expanding into industrial scale operations. Four'n Twenty pies were created in 1947 by Leslie McClure, a Bendigo, Victoria, pastry-cook and caterer. His pie business was so successful that he was able to move manufacturing to Melbourne. In 1960 his pie factory at Kensington, a suburb of Melbourne, was the largest in the world. In that year, McClure sold the pie making business to Petersville, an Australian foods company, who in 1995 sold it to an American company, Simplot.

The Rijs family emigrated from Holland in 1956 and in 1966 purchased Patties, a cake shop at Lakes Entrance, Victoria. They built up a business selling pies and bread rolls. It was very successful and expanded rapidly. In 1985 they moved into a new factory in Bairnsdale. In 1998 they renovated and expanded the factory adding the latest in freezing equipment. In 2003 Patties purchased Four'n Twenty and Herbert Adams from Simplot.

The advent of freezing has led to manufacturers being able to supply distant markets, so these days supermarkets carry brands from interstate as well as local suppliers and there is a national market for pies.

Another aspect of the pie industry in which Australia has made its mark is in the design and manufacture of automated pie making machinery. A Sydney company, Lindsay PieMaking Equipment Pty Ltd, specialises in making machines for small scale pie manufacturers and exports them world wide. These machines, which are programmed and electronically controlled, allow a range of products to be easily made on a single machine.

The changes that have occurred in the Australian pie industry have been made possible by developments in technology, including mass production, refrigeration and freezing, microwaves, transport, automation of production, and electronics. ■