

Newsletter of the Australian Society for History of Engineering and Technology

ASHET tour of Central West NSW postponed

We have been planning to run a one week coach tour of the Central West of NSW in August of this year for ASHET members and friends, but we will now need to postpone the tour until next year.

Rob Renew, ASHET President and organiser of the tour, has been working on the details. He unexpectedly suffered a heart attack in May, from which he is recovering well, but he will be unable to lead the tour this year. Our current plans are to run the tour in August 2015

ASHET Management Committee for 2014

At ASHET's annual general meeting on 22 April 2014, a new group of office bearers and committee members was elected, in accordance with ASHET's constitution, to hold office until the annual general meeting in 2015.

Members of the new committee are:

President	Robert Renew
Senior Vice President	David Craddock
Vice President	Mari Metzke
Secretary	Malcolm Brady
Treasurer	Eric Metzke
Committee Members	Ian Arthur John Roberts Neil McDonald

All of these newly elected office bearers have served on ASHET's committee before. Rob Renew will serve for his second year as President and Malcolm Brady his first year as Secretary. All of the members of the committee except Malcolm Brady are foundation members of ASHET, joining in 2003 when ASHET was formed. Malcolm joined ASHET in 2009.

2014 will be the first year in which Ian Jack has not been an ASHET office bearer. He served as President of ASHET from its formation until he was succeeded as President by David Craddock in 2013. For most of this time Ian was also President of the Royal Australian Historical Society, with which ASHET is affiliated. Ian was Senior Vice President of ASHET in 2013.

Podcasts of ASHET/RAHS Lectures

Since 2012 RAHS Podcaster Graham Sciberras has been recording lectures at History House. The podcasts are on the RAHS website as videos with an audio of the talk along with images of the overheads accompanying the talk.

So far two of the ASHET/RAHS evening lectures have been podcast and may be viewed on the RAHS website at www.rahs.org.au/podcasts/ and downloaded. Plans are to podcast all future lectures in the series.

The ASHET lectures so far podcast and displayed on the RAHS website are :

- Peter Kahn – Sydney's Trams Yesteryear, presented on 25 February 2014;
- Anne Arthur – The meat pie, Australia's own takeaway food, presented on 25 March 2014.

RAHS has recently received an honorary donation of a video camera and it is the intent is to make video as well as audio recordings of lectures and present them on the website.

ASHET Unilever Project: exhibition at Leichhardt Library in August

We have now completed work on our project to produce a graphic display of the history of Unilever at Balmain. We published some details of the project in the April 2014 issue of *ASHET News*. (You can view a copy on the ASHET website at www.ashet.org.au.)

The display, consisting of a set of nine graphic panels, will be on display at the Leichhardt Library located in the Italian Forum at 23 Norton Street for the whole of the month of August, and there will be a formal launch at 6 pm on Wednesday 6 August in the library. You will be able to view the display at any time the library is open (seven days a week), and there is free two hour parking available in the Italian Centre car park. For details of library hours go to www.leichhardt.nsw.gov.au/Library/Contact-the-Library.

The display traces the history of Unilever at Balmain over a period of nearly 100 years from 1892 when William Lever purchased the industrial site on White Bay and established there one of Balmain's largest industries manufacturing a variety of products including soaps and detergents, food and toilet products. The plant was closed in 1989 and the site redeveloped as medium density residential.

ASHET was assisted in this project by a grant from the Leichhardt Council.



Unilever site at Balmain in 1960s

Our feature article this month on margarine

Our research for the Unilever Project was centred around the company records in the archive held by RAHS and the additional material provided to us by former employees of Unilever. The material mostly related to the company's principal products; soaps, detergents, food and toilet products for the retail market, and this provided the focus for the graphic display mentioned in the news item above that is the principal outcome of our research.

The display mentions only in passing that Unilever at Balmain was a major producer of margarine, mainly for the industrial market, but also for the retail market under the brand names Stork and Flora. We found that margarine in Australia has an interesting history, much of which does not directly concern Unilever. The feature article this month is a summary of that history.

Next ASHET events

Thursday 31 July 2014

Talk by Rick Mitchell

Hammerhead crane, Garden Island Naval Dockyard, Sydney

The fall of Singapore in February 1942 resulted in the loss of a major allied naval base in the Pacific, including their giant hammerhead dockside crane, completed a few years before in 1938. In the 1930s Australia had already anticipated the need for additional Pacific naval facilities to adequately service the warships of the English, American and Australian navies. Work was almost complete on the new graving dock on Garden Island in Sydney when tenders were called in 1944 for a similar dockside crane to the one lost in Singapore. The construction documents were prepared by Sir William Arrol and Sir Alexander Gibb and Partners in London and Glasgow and the Sydney Steel Company Pty Ltd of Marrickville was the successful tenderer. The crane was completed in 1951 taking seven years to build and is the largest and only crane of its type in the southern hemisphere. In 2007 it was placed on the NSW National Trust "Heritage at Risk" register. The navy announced in August 2013 that the crane would be demolished to allow additional berthing space for its new navy fleet. Demolition commenced in 2014. This talk will cover the history of the hammerhead crane on Garden Island as well as the methods of construction and testing both on and off site. A 1:48 scale model will assist in the presentation.

Rick is an architect living in the lower Blue Mountains. For the last 18 years he has run his own architectural practice in environmentally responsible housing, specialising in strawbale and earth-wall construction. His interest in large scale industrial machines originated in Papua New Guinea during the 1970s with a photo essay on the giant gold dredges in Wau and Bulolo. The particular interest in the Garden Island crane came from an Open Day visit to the facility in the mid 1950s, soon after the crane's commissioning.

This is a joint meeting of ASHET and the Royal Australian Historical Society

Venue: History House, 133 Macquarie Street, Sydney

Time: 5.30 for 6 pm. **TCost;** 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 21 August 2014

Talk by Rob Renew

Brilliant ideas – inventing and adapting machines for opal mining at Lightning Ridge

Rob Renew was previously the Principal Curator (Science and Industry) at the Powerhouse Museum in Sydney. He will discuss how the methods used for mining opal at Lightning Ridge changed dramatically over a 30-year period from the 1960s to the 1980s. At every stage of mining, from prospecting to processing, machines were developed to do tasks previously done by hand. Some of

these machines were invented by opal miners, others were made elsewhere then modified to meet the unique challenges presented by opal mining at Lightning Ridge. As mining operations became mechanised, more mining fields and mines were established, more opal dirt was mined and processed, and more precious opal produced.

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Thursday 4 September 2014

Talk by Tony Griffiths

An Industrial Invasion – Australian civilian volunteers in British factories, 1816 – 1920

Britain's system of war management was failing miserably by the end of 1914. Ammunition production could not keep pace with the great increase in demand, but attempts to renew a depleted workforce with unskilled labour, particularly women, met with stiff opposition from unions. This is an outline of Australia's contribution, a story largely unknown 100 years after the war except in sometimes garbled, sometimes exaggerated, although usually vivid fragments held by families of the men – the fathers, brothers, uncles, cousins and grandfathers who volunteered to go and help the British war effort. These men – no Australian women were recruited for factory work – did not become part of the ANZAC legend upon their return home, although some were wounded ex-soldiers who had been repatriated from Gallipoli or were recovering in Britain from action on the Western Front.

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.

This is a joint meeting of ASHET and the Royal Australian Historical Society

Time: 5.30 for 6 pm. The talk will be preceded by ASHET's Annual General Meeting **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

Margarine: Australia's most controversial food product



The origins of margarine

The food product margarine has its origin in the 1860s when Emperor Napoleon III of France offered a prize for a satisfactory alternative to butter for the lower classes and the navy. A French chemist Hippolyte Mège-Mouriès won the prize, with a product made from beef fat churned with skim milk that he named oleomargarine. The name was derived from margaric acid, which was discovered in 1813 by the French chemist Chevreul who believed it to be one of three fatty acids that in combination formed most animal fats.

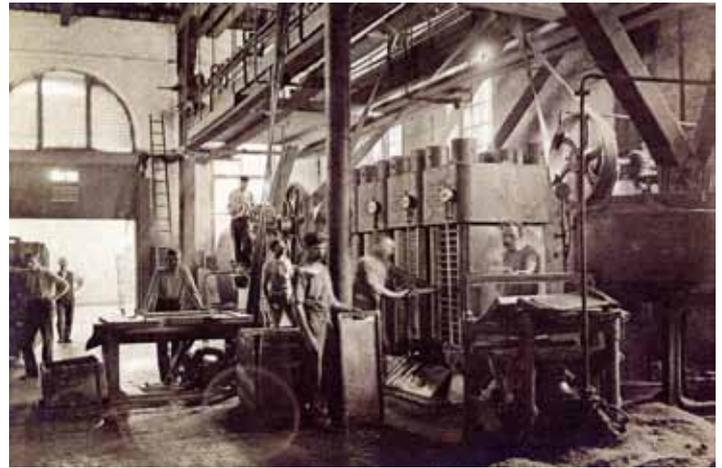
Mège-Mouriès patented his new product and attempted to commercialise it with little success. He sold the rights to a Dutch firm of butter makers, Jurgens who were able to sell it in the retail market as a lower cost alternative to butter. They soon had a competitor, another Netherlands company named Van den Bergh. Both these companies built margarine factories in Germany as well as in the Netherlands.

The growing importance of vegetable oils

Around this time it was discovered that vegetable oils could be converted into fats by the process of hydrogenation, combining them with hydrogen in the presence of catalysts. This was a timely development for the emerging margarine industry because it provided a range of alternatives to animal fats as a raw material and at the same time offered products that were more palatable those made from animal fats. By varying the oils used and the degree of hydrogenation, fats could be produced that varied from soft to hard and had different melting points. They could also be blended with animal fats.

In 1884 Lever Brothers in England introduced Sunlight soap, produced from a combination of animal fats and vegetable oils and this was an instant market success. This led the company to establish an oil mill in Australia at Balmain to process copra for the Pacific islands, extracting the oil for shipment to Britain for making soap. It also developed sources of palm oil in Africa. The Dutch margarine companies were also actively seeking secure sources of vegetable oils in Africa and this led to several efforts to reach agreements between the major companies to secure stable sources and prices.

In the early years of the twentieth century Lever Brothers entered the margarine market. In 1917, Jurgens and Van den Bergh both established margarine factories in Britain. After the war Jurgens and Van den Bergh cooperated to acquire further businesses in Europe and in 1927 merged to form Margarine Unie, which soon grew into diversified company making a wide range of products derived from fats and oils. In 1930 Lever Brothers and Margarine Unie amalgamated to form Unilever.



Lever Brothers oil mill at Balmain

Margarine in Australia

T. Hannan Pty Ltd. established Australia's first margarine factory in Sydney in 1892. Lever Brothers commenced making margarine in 1908 and installed a hydrogenation plant at Balmain in 1910. Already the dairy industry had become concerned and was seeking legislative restriction on margarine. The first restrictive legislation in Australia was the Butterine Act in Western Australia in 1887, which made it an offence to sell any substance as a substitute for butter.

In 1908 Charles Abel founded the Marrickville Margarine Company Ltd. He owned a bakery at Newtown which was suffering from a shortage of butter. In 1921 he installed plant to extract peanut oil for use in margarine manufacture.

In 1932, Oliver Triggs, a Melbourne grocer, founded the Meadow-Lea brand, the first in Australia to be promoted as primarily a table margarine. The business prospered and was eventually taken over by Vegetable Oils, a subsidiary of Allied Mills, in about 1956. In 1933 Unilever formed Edible Oils Industries to consolidate the marketing of its range of fats and oils for the food industries and for the retail market. By this time it was producing a range of animal and vegetable fats and oils. In 1934 it was producing around 1,200 tons of industrial margarines and vegetable shortenings and around 2,400 tons of white fats. By 1955 it was producing 7,000 tons of industrial margarines and vegetable shortenings, around 30 per cent of the market, and 5,000 tons of white fats.

Government control of the Australian margarine industry

In 1940, all the Australian states enacted complementary legislation to control the margarine industry. Three classes of margarine were defined, industrial, cooking and table. Cooking margarine, which includes industrial margarine, was required to contain at least 90 per cent animal (beef or mutton) fat unless it was industrial margarine, produced in 14 pound blocks and sold only to accredited customers that included bakeries and biscuit makers. Industrial margarine must contain at least 75 per cent animal fat. Table margarine was defined as 'anything which is not cooking margarine' and was subject to quotas, allocated to a small number of licensed suppliers in each state, with the agreement of the Australian Agricultural Council consisting of the State Ministers for Agriculture and the Federal Minister for Primary Industry. There were detailed regulations covering production, packaging and labelling. The total of all the states' production quotas in 1940 was 3,796 tons. The combined production capacity of the established table margarine producers was well above this, so there was vigorous competition among them to increase their individual quotas. Quotas increased over the years, reaching a total of 16,072 tons in 1956. These quotas were then unchanged up to 1970.

Australia was not the only country to have restricted sales of margarine. In Canada margarine was banned altogether until 1948, when the

Supreme Court ruled that the manufacture and sale of margarine was legal. In USA until 1950 there was a 10 per cent excise tax on domestic margarine and a highly restrictive licensing system covering manufacturers, wholesaler and retailers. But in the years following World War II these restrictions were relaxed and by 1960 only three countries, Australia, South Africa and New Zealand, had substantial restrictions on the sale of margarine.



Manufacturing edible oils at Unilever Balmain in 1935

Conflict over quotas

In 1951, in the face of a butter shortage, the NSW government increased the states' permitted tonnage of margarine from 1,248 tons to 2,500 tons, with most of the increase being allocated to Meadow-Lea. Marrickville and Vegetable Oils had relatively small quotas, well below their production capacity, and took action to challenge the legislation. Marrickville deliberately exceeded its allocated quota. The case went to the High Court where the companies lost. They took the case to the Privy Council. While the case was pending, the NSW Acting Minister for Agriculture increased the state's tonnage to 9,000 tons and allocated each of Marrickville and Vegetable Oils a quota of 2,166 tons, the same as Meadow-Lea's. The companies agreed to drop their Privy Council appeal.

Then Allied Mills, owner of Vegetable Oils, purchased Meadow-Lea and another NSW manufacturer, Mensa, giving them a total of 57 per cent of the NSW tonnage. Marrickville felt seriously disadvantaged and retaliated by introducing in 1961 a poly-unsaturated table margarine under the brand name 'Miracle', based on safflower oil. This coincided nicely with the growing consumer interest in cholesterol and poly-unsaturated fats, and gave Marrickville a temporary advantage over other margarine manufacturers as well as striking a blow at butter. The use of Australian safflower oil also set one primary industry, safflower production against another, dairying. These were elements in a new campaign to end quotas.

Richard (Dick) Crebbin had joined Marrickville before World War II and after serving in the RAAF during the war returned to Marrickville as a senior executive and was appointed Managing Director on 1955. He was personally responsible for the aggressive tactics adopted by Marrickville in its marketing and its campaign to end quotas.

In May 1962 it became clear that quotas were again being exceeded. But it took another two years before the government was able to close a loophole in the Act and launch a prosecution against Marrickville. The company was fined \$20 in return for a guarantee that it would comply with the law. But by November 1964 it was clear that Marrickville was again exceeding its quota. The company had legal advice that the NSW government might not be able to enforce compliance with the quota because the production above quota was only for interstate orders. The government took legal action to enforce the quota on Marrickville and won the case. Marrickville was denied leave to appeal to the Privy Council. The government agreed to renew Marrickville's licence subject to stringent policing conditions.

At this time, Australia the lowest per capita consumption of margarine and the highest consumption of butter of any major country in the world.

Marrickville then entered on an expensive advertising campaign to promote the removal of quotas, featuring a mythical margarine-using housewife named Mrs. Jones, who preached the virtues of free trade. It had limited effect as there was no shortage of table margarine in the market place at the time, and the Liberal-National state government of NSW had the strong support of its Country Party members in maintaining quotas. Marrickville also introduced a new formulation of cooking margarine that was more palatable than ordinary cooking margarines. It promoted this as a 'super-spread' and then devoted the whole of its table margarine quota to poly-unsaturated margarines.



Packing Flora margarine at Balmain 1980

The end of margarine quotas

The quota system came to an end in the mid 1970s. In 1977 Marrickville was acquired by its competitors EOI (part of Unilever), and Vegetable Oils (owned by Allied Mills, which in 1986 became a part of Goodman Fielder). EOI then moved its margarine manufacturing from Balmain to the Marrickville site, closed its Balmain operation and installed new automated plant at Marrickville. Dick Crebbin retired.

By this time, Australians were consuming more table margarine than butter, bringing it into line with most of the rest of the world. Margarine had come a long way since its early days in Europe when it was regarded as a cheap and not particularly attractive substitute for butter. The worldwide availability of edible vegetable oils, from coconut, peanuts, cotton and palm seeds played an important part in the growth of margarine, and it had also been assisted by a steady advance in technology, initially with the development of hydrogenation processes to convert these oils into fats, along with various ways of adapting these raw materials to use in the baking industry as well as margarine for domestic use as a spread and in cooking.

Advances in the study of human nutrition and in the properties of fatty acids have also had a major effect on the market for margarine. The industry has been able to produce margarines that are low in saturated fats and high in poly-unsaturated fats, and that are low in cholesterol, characteristics that butter has been unable to match. Margarine can be formulated to contain no animal products so can provide a butter substitute for vegans, people with lactose intolerance and eaters of only kosher foods.

Margarine is now well established in the whole of the western world as an important and healthy food. It shares its retail markets with butter. For the dairy industry, the competition with margarine has been a factor in its developing and offering a wide range of products, such as yoghurt, cheeses, ice cream and deserts in the retail market.

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