Cottesloe Refinery

From beginning to end

A historical account of CSR's Cottesloe Refinery
Western Australia

1930 to 1997

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INTRODUCTION

Although sugar cane was among the plants and seeds brought to Australia from the Cape of Good Hope by the First Fleet, it was not grown commercially for more than 70 years. The Australian colonies relied totally upon imports for all their sugar, both raw (that is, unrefined) and refined. Then, in 1842, a Company was formed in Sydney to process raw sugar. Operating from a refinery at Canterbury in New South Wales, the Australasian Sugar Company produced the first locally refined sugar in Australia. This Company was dissolved in 1854.

In 1855, the Colonial Sugar Refining Company was formed, absorbing part of the assets of the defunct Australasian Sugar Company. Though the refinery at Canterbury was closed down, another was purchased in Parramatta Street, Sydney. For the next few years, there was a severe depression in the sugar trade, and the Colonial Sugar Refining Company experienced financial difficulties, but struggled through.

Meanwhile, in Queensland, serious attempts to grow sugarcane had begun, using seed cane from stock imported from Tahiti many years before. By 1863, 20 acres (8 hectares) was under cultivation; and the first commercial scale sugar mill was opened two years later. Similar efforts at cultivation were underway in northern New South Wales within the next few years. In 1868, the Company began to explore the possibility of building centrally situated sugar mills on the northern rivers of New South Wales.

This was an unprecedented step. Previously, wherever in the world sugar cane was grown commercially, the practice had been for each plantation to produce its own raw sugar. Now the Company was proposing to construct its own mills, to which small independent farmers could bring their cane to be crushed.

By 1870, three large mills were in operation on the Macleay and Clarence Rivers in northern New South Wales. The Company would shortly initiate another long-term policy when it

began encouraging independent farmers to improve the quality of their crop. In 1873, prizes to a total value of £1,000 were awarded to farmers whose cane bore 'evidence of careful cultivation.'

Expansion thereafter was rapid. By 1885, the Company had seven mills in New South Wales and Queensland, and one in Fiji.

Similar growth took place in the construction of refineries. In 1875, the Company had purchased its second sugar refinery at Yarraville in Melbourne. In 1878, a major new refinery was opened at Pyrmont in Sydney. In 1884, the Company opened a refinery in Auckland, New Zealand; and in 1891 the Glanville refinery began operation in Adelaide. The New Farm refinery in Brisbane was opened in 1893.

Australia became entirely self-sufficient in sugar in 1924, with surplus thereafter becoming available for export. Company policy favoured the establishment of a sugar refinery in each Australian mainland State; and by 1927 it was considered that the time had come for this to include Western Australia.

The site of the future refinery, seen across Blackwall Reach from the southern bank of the Swan River, c. 1928.

The Cottesloe refinery was the last to be constructed. By the time it opened in 1930, the Colonial Sugar Refining Company led the world in the application of chemical analysis to sugar cane processing. The Company had extended its operations to areas as diverse as breeding improved commercial varieties of sugar cane, on the one hand, and shipping, on the other. In the next seven years, it would begin the manufacture of wallboard (using cane fibre residue), chemicals, and distilled alcohol.

In January 1930, the Colonial Sugar Refining Company's General Manager, P H Goldfinch, told *The West Australian* newspaper, 'We have been criticised because we are building this refinery at a loss, but we realised Western Australia's growing importance, and, as the oldest sugar refiners in the Commonwealth, decided that it was a public duty that we had to perform to make this State independent of transport troubles for its sugar supplies. The consumption of sugar in this State is about 14,000 tons per annum, and the refinery being erected has a capacity of 20,000 tons. Already three boat loads of raw sugar have been landed at Fremantle and placed in store ready for the refinery to commence operations.'[1]

1 *The West Australian*, 28 January 1930. Information on the history of CSR is taken from A G Lowndes (ed.), *South Pacific Enterprise: The Colonial Sugar Refining Company Limited,* Sydney 1956; and *CSR Limited: 130 Years*, 1855-1985, CSR Corporate Affairs, 1985.

THE SITE

The Colonial Sugar Refining Company's primary consideration in building its refineries in capital cities was economic. Here were the greatest concentrations of population in a vast country. The expense involved in refining the raw sugar could be offset by the relatively low cost of distributing the sugar once it had been refined. In 1956, for example, more than 50 per cent of deliveries were made direct from the refineries to retail shops and food factories - a higher proportion than for any other staple product.[2]

The site chosen for the company's sugar refinery in Western Australia was on the northern shore of the Swan River near Fremantle, at Point Roe. Now part of the suburb of Mosman Park, it was then under the jurisdiction of the Cottesloe Beach Roads Board, and within the Company the factory would always be known as the Cottesloe Sugar Refinery. The coincidence of the initial letters matching with those of the Colonial Sugar Refining Company strengthened local loyalties. This was to be Western Australia's refinery.

"The site was virgin bush". Swan Location 79 in July 1928.

2 Ibid., p. 165.

Whilst it had been hoped that a site could be found closer to the port of Fremantle, so that ships would be able to unload directly to the factory, this proved to be impossible. Instead, 28 acres (11.3 hectares) of land were purchased in a district where a number of other factories had already been established. On the lower slopes of Buckland Hill and below, between North Fremantle and Mosman Park, were the State Engineering and Implement Works, Burford's Soap Factory and Cuming Smith Mt Lyell Farmers Fertilisers Ltd. General Motors-Holden's new car assembly plant had just been commissioned nearby.[3]

Even so, the Colonial Sugar Refining Company site was isolated. The other factories were a considerable distance away. When the wife of David Jones, one of the earliest arrivals, was taken there for the first time, all that she could see of the cottage that would shortly be their home, as well as serving as the Company office, 'was the chimney above dense bush.' She and her husband had emigrated from Wales to work at the Colonial Sugar Refining Company. New to the country, she would write to her sister back home, 'We feel just like Adam and Eve in the Garden of Eden ... complete with snakes'.[4]

Construction of the factory had begun in October 1928. The site was virgin bush, with zamia palms, grass trees (Xanthorrhoea) and banksias predominating. When excavation began, an old Aboriginal campsite was found between two and three metres below the surface. Adjoining the

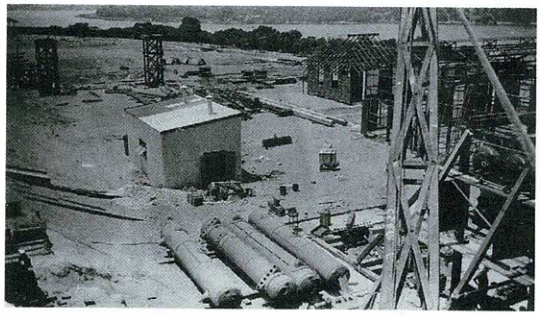
Swan Location 80, before the commencement of construction.

3 P Griffin, 'Colonial Sugar Refinery Mosman Park: A History compiled for the Heritage Council of WA', February 1997, pp. 3-4; J Sherriff, 'From Factory to Family Home: A History of Land Use along the North Fremantle Foreshore from Rocky Bay to Point Roe Western Australia', Research Institute for Cultural Heritage, 1996, pp. 91-2.

4 E Tuettemann, *Between River and Sea: A History of Mosman Park,* Western Australia, Perth 1991, p.94.

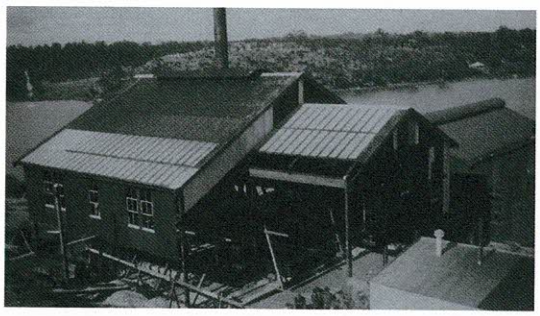
company's property was Billy Goat Farm, one of the oldest farms in Western Australia, whose title deed dated back to 1839 and which had given its name to the neighbouring area. Accessible by boat, it was a popular camping ground for picnickers. The stone farmhouse was still standing when construction of the factory began, and a dairy was in operation there. Even as late as the 1960s, old fig trees could still be seen on the land which had been Billy Goat Farm.[5]

When construction of the factory began, the work was expected to take about eight months to complete, and to cost £200,000.



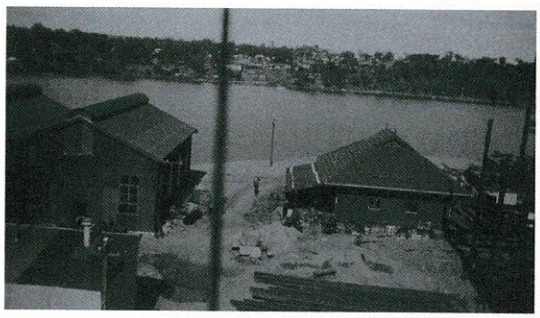
Construction, 1928 - 1930. Boiler drums (foreground) lie ready to be installed.

The labourers on the site were local people, who worked under the supervision of the Company's employees from interstate. The factory did not begin operating until the end of May 1930.



Construction, 1928 - 1930. The completed boiler station, with the char end under way.

Construction had taken the better part of two years, and had proven to be far more expensive than originally anticipated. Because this was the era of the Great Depression, it would later be thought that the workers might have adopted a slower pace in order to keep themselves earning for longer, but at the time there was no such thought.



Construction, 1928 - 1930. Workshop and store (left); laboratory and engineers office (right).

The General Manager of the Colonial Sugar Refining Company blamed the delay on 'a dearth of sufficiently skilled labour.' He also pointed out that, by the time of the project's completion, 'the erection of the refinery at Billy Goat Farm would cost half as much again as two refineries of equal capacity erected 30 years ago.'[6]

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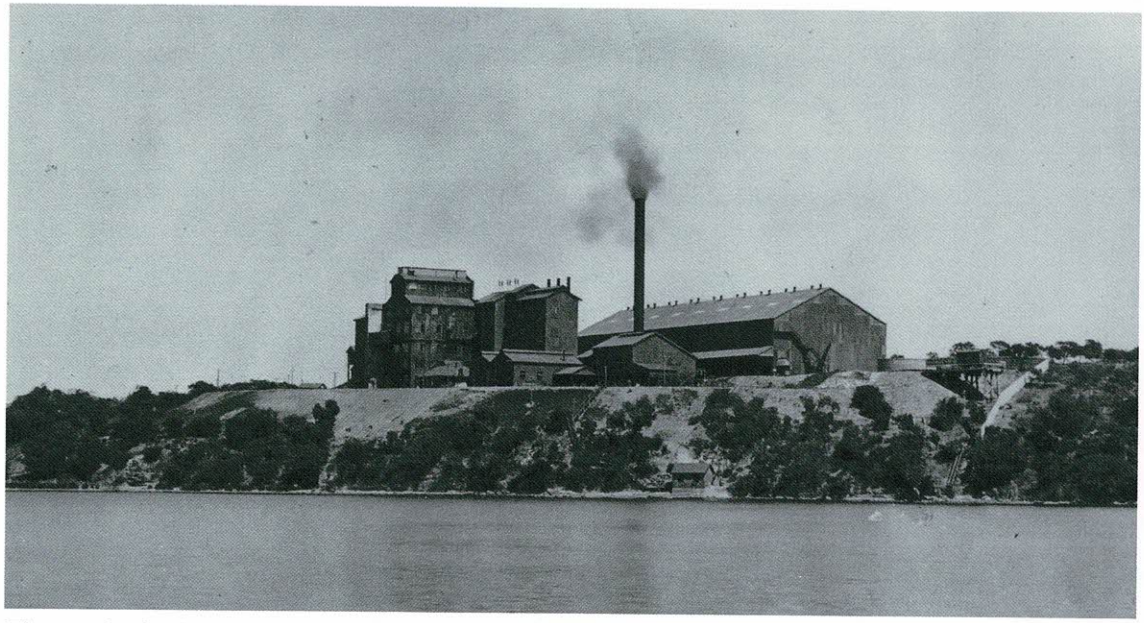
5 H G Downey, *Mosman Park, Western Australia,* Perth [1971], pp. 6, 17; *The Western Mail,* 22 May 1930.

6 *The West Australian*, 28 January 1930. Cf. *The West Australian*, 19 October 1928; Sherriff, *'From Factory to Family Home'*, p. 81; *The Western Mail*, 22 May 1930.

Initially, only seven acres (2.8 hectares) of the twenty-eight which comprised Swan Locations 79 and 80 were utilised. Two houses were the first buildings to be erected: one the 'workman's cottage' in which Mr and Mrs Jones, the Welsh couple lived; and the other, the engineer's house. Following these were the raw sugar store, the boiler house, the main refinery building and the refined sugar store.

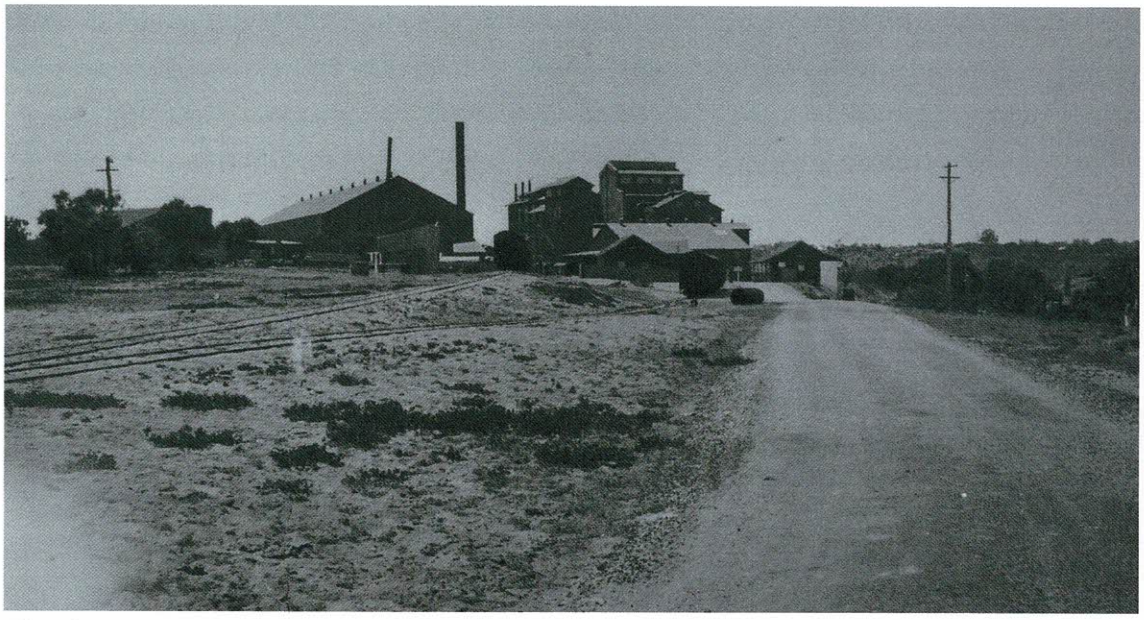
At this time there was no proper access to the site by road or rail. To link the site to the Perth-Fremantle Road (now the Stirling Highway) via Wellington Street, the Cottesloe Beach Roads Board built a gravel road at a cost of £2,000. This was Owston Street, and it was to become notorious for its potholes. McCabe Street, the more direct route, was not built until 1962.

The Company itself had to pay for a railway spur line to connect with the Government line, which joined the other North Fremantle factories. This line, or siding, ran along what is now roughly the route of McCabe Street. The siding ended at the raw sugar storage shed. As *The West Australian* explained at the time, the 'raw sugar will be brought to Fremantle by sea and will be transported by rail to the refinery from where distribution will be made by rail and motor throughout the State.' The other function of the railway line was to deliver coal to fuel the boilers. A total of 6,000 tons a year of Collie coal was required.[7]



The completed refinery as seen from the Swan River, November 1930. On the far right, the shed on trestles marks the far end of the railway siding.

7 Griffin, *'Colonial Sugar Refinery Mosman Park'*, pp. 6-7; *The West Australian*, 19 October 1928.



The refinery entrance in 1930. Note the railway track. The left-hand line was used to transport raw sugar to the raw sugar store; the line on the right carried packaged refined sugar away from the plant.

The five-storey refinery complex was an unprepossessing sight. Clad in corrugated iron and painted a distinctive dark red, it was a shambolic structure. And yet, over the years, it became a familiar and much-loved landmark on the Swan River. It was something of a mystery, as well. From the river, despite the fact that the plant was running twenty-four hours a day, five days a week, there was no sign of human life. The workers were all inside the buildings; they could not be seen from the river. The plant had its own power supply, so that it could operate even when there were electricity blackouts throughout the neighbouring suburbs. To people on the river at night, who saw the place lit up, it was as though the factory was operating by itself. They called it 'the ghost house.'[8]

Decade by decade, despite periodic gains in capacity, and an increase in the number of on-site houses from two to five, the distinctive silhouette of the refinery remained largely unchanged. 'Crib rooms, toilets, workshops, cycle sheds and other sundry buildings have been built and demolished over the years', as historian Prue Griffin put it, after casting her eye over 60 years' worth of planning applications lodged with the Town of Mosman Park.

8 Interview with A. Daniels, 5 September 1997.

Convoy of raw sugar trucks arrive at the refinery. The old canteen can be seen far right.

Mid 1960s aerial view of the refinery (centre left), looking toward the mouth of the Swan River at Fremantle, and showing the refinery's position in relation to other factories in the vicinity. The premises of CSBAP Limited (previously Cuming Smith Mt Lyell Farmers Fertilisers Limited) can been seen on the far right above the centre, with the State Engineering Works beyond.

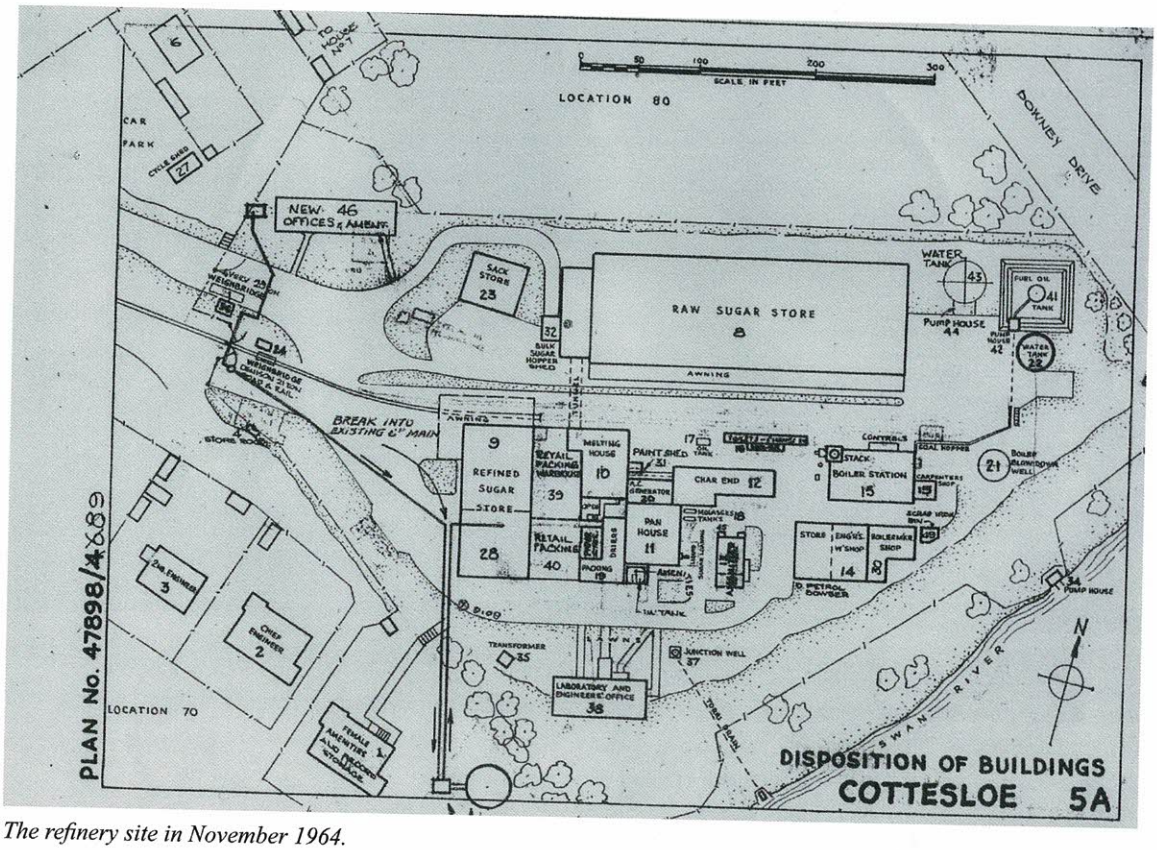
The newly constructed McCabe Street (centre of photo from right to left)

In 1962, after the construction of McCabe Street, a new weighbridge was installed. A year later, a new laboratory was built. It was extended in 1979.

In 1980, as part of an upgrading process of its sugar refineries undertaken throughout Australia by CSR (as the Company was now known), a new two-storey office and amenities block was constructed, and greatly welcomed by staff and workers.[9]

'I wondered if we would be stuck on the bottom floor', remembered the packing area foreman, who had been working at the company for 33 years by this time. 'But they built the canteen for us on the first floor, and it's beautiful over there. [It has] a great view over the river.'

Extended in 1983, the new block was so skilfully sited that it blended into the surrounding trees. Meanwhile, though, the demolition of the three houses on the river side of the property meant



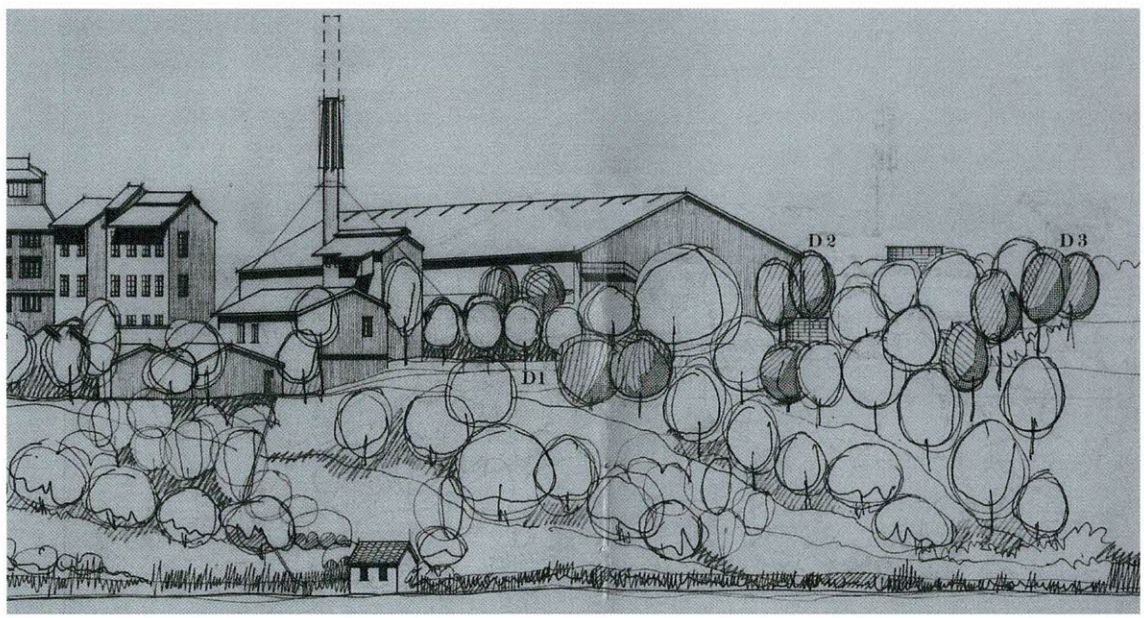
The refinery site in November 1964.

9 Griffin, *'Colonial Sugar Refinery Mosman Park'*, p. 5.

that the factory complex lost the low foreground perspective which had been an important component of its visual appeal. The remaining houses were pulled down in the late 1980s. But the only change to the refinery's silhouette against the northern skyline came when the change in fuel from oil (which in 1964 had replaced coal) to natural gas reduced by nearly 10 metres the height of the thin smoke stack which had previously towered over the structure.[10]

After the Second World War, as domestic housing in the area increased, more attention had been paid by the company to the beautification of the site, with praiseworthy results.

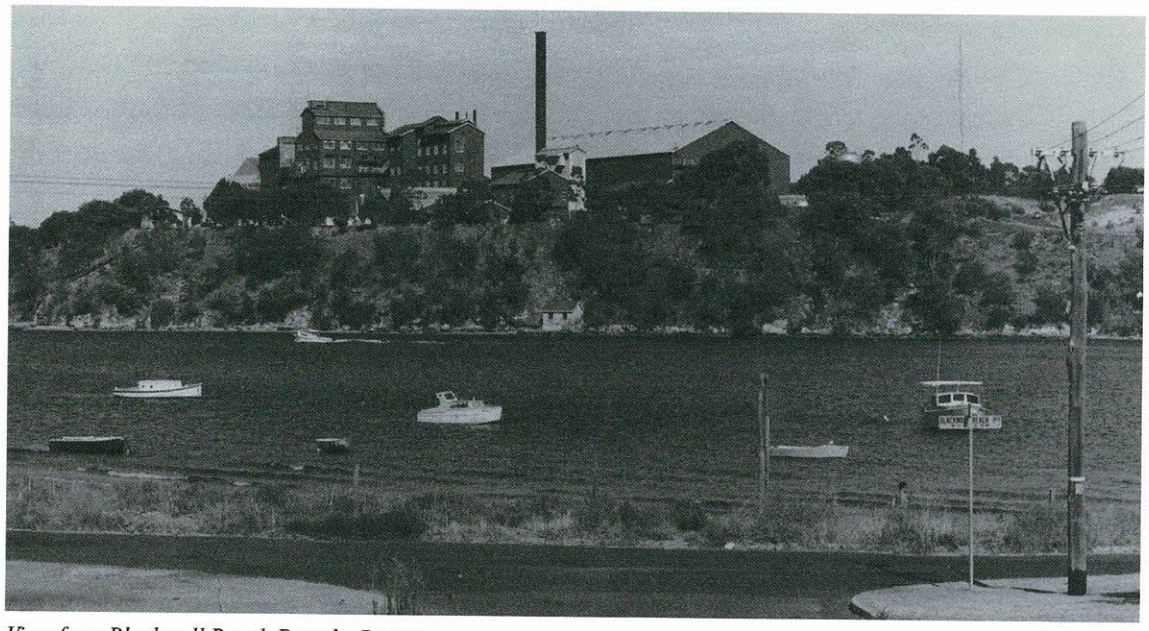
By the 1970s, the refinery was being hailed *both* as a landmark of architectural merit *and* as an example of environmental awareness. In his book *Swan River Landscapes*, geographer and writer George Seddon, of the University of Western Australia, described it as 'one of the best sights on the river, a Pennsylvania Dutch castle on the Rhine, well sited and with unimpaired foreshores.' In a report commissioned by CSR, architect Rob Campbell stated, 'From the river level the complex is at its best. The massing of the refinery buildings is good, the bulk store is relatively unobtrusive and the stacks are apparently diminished in height. The residences sit lightly on the brow of the hill and again provide invaluable foreground scale to the main buildings.'[11]



The site beautification programme began in the late 1970s and was based on the plans of architect Rob Campbell. His report had been completed in May 1976.

10 *The Fremantle Gazette*, 24 November 1982; Griffin, *'Colonial Sugar Refinery Mosman Park'*, p. 5.

11 G Seddon, *Swan River Landscapes*, Perth 1970, p. 68; R McKinnon Campbell, *'CSR Cottesloe Refinery'*, architect's report dated May 1976, p. 4.



View from Blackwall Reach Parade, Bicton.

As the local population increased, protests about raw sugar delivery trucks passing along McCabe Street to and from the refinery became more vehement.

With the trucks operating night and day, when the raw sugar was being unloaded, the noise was continuous. The response on the part of an environmentally aware management, conscious that the refinery was situated in what was now a built-up suburban area, was to construct a raw sugar storage building in North Fremantle.

Opened in 1980, this made it possible for a scheme to be implemented whereby the trucks could confine their movements to daylight hours. As a result, CSR received an award from the City of Fremantle for its 'Outstanding Contribution to the Built Environment of the City'.[12]

Since the refinery closure and sale in 1997, the area has been developed into an exclusive residential area with a section of the old weighbridge in the estate entrance road being the only indication that the site was once a sugar refinery.

12 *The Fremantle Gazette*, 24 November 1982.

THE PLANT

In 1927, one year before construction of the refinery at Point Roe commenced, the total consumption of refined sugar in Western Australia was 16,300 tons. All of it was imported from the Eastern States, and the cost of transport was so high that, for their sugar, the people of Western Australia were paying the highest price per ton in the world.[13]

Much of it went to ordinary households. In the previous century, sugar had gone from being a luxury to being a staple of even the poorest diet. But sugar was also needed in large quantities for the manufacturing of foodstuffs, such as bread, cakes and biscuits. Bakeries needed sugar all year round in much the same quantities. For ice cream manufacturers, however, and for the manufacturers of cordial and soft drinks, as well as for breweries, production increased in the summer, when demand was at its highest. Much more sugar was needed then. At the refinery, the summer season would be known as the 'high melt period.'[14]

At 20,000 tons, the capacity of Western Australia's new refinery was calculated to allow for a 40 per cent increase in annual consumption. Over the years, improved equipment and the introduction of automated production methods meant that this capacity was steadily expanded, until in the 1980s it was 48,000 tonnes. By this time, the refinery's production was being utilised not only for all the traditional purposes but also in the manufacture of bricks. As Michael Zekulich reported in *The West Australian* in January 1981, when the factory was within sight of its fifty-first birthday, 'Now there's sugar in your bricks!' Sugar was being used in the drying process, to give bricks the high gloss partial finish which became popular in suburban housing at about this time. Fifteen years later, production of sugar stood steady at 50,000 tonnes.[15]

Well before the refinery was commissioned in May 1930, reserves of raw sugar were being built up, ready for production to commence. By January of that year, as Mr. Goldfinch told *The West Australian*, three boatloads had been landed at Fremantle. In May there were 13,000 tons stored in the raw sugar shed in 160 lb. (72.6 kg.) bags. Stacked 45 tiers high, they represented

13 Sherriff, '*From Factory to Family Home*', p. 81.

14 *Ibid.*, p. 83.

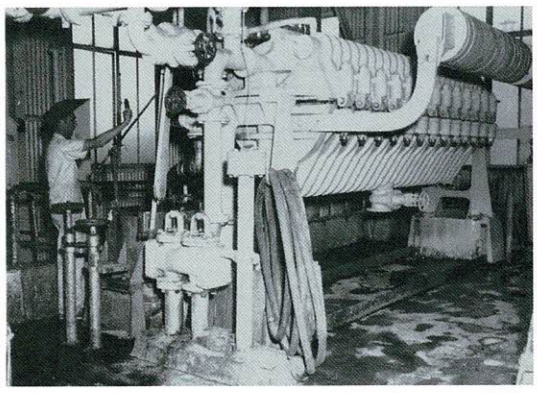
15 *The West Australian*, 19 October 1928; *The West Australian*, 17 January 1981; The West Australian, 23 August 1997.

the better part of a year's supply. By 31 December 1930, 9,556 tons of raw sugar had been processed, or 'melted', as the employees in the industry would say. In the twelve months of 1931, the first full year of production, 16,182 tons were melted.[16]

As *The Western Mail* explained to its readers a few days before the refinery commenced operations, melting was the first stage of the refining process. From the storage shed, the bags of raw sugar were conveyed to the melt house through an underground tunnel on an eighteen-inch (45 cm) steel belt.

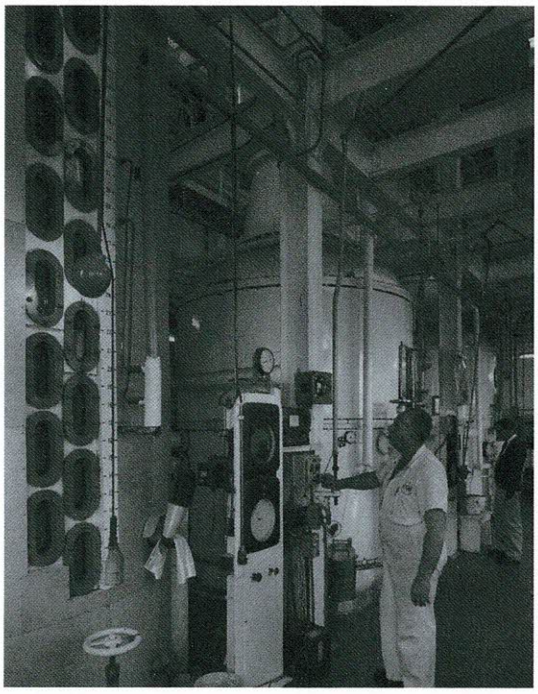
Cutting in raw sugar, 1954.

Here the first stage of purification took place, with the sugar being washed and melted, and then passed through cloth filters. The liquor in the form of a reasonably clean solution of brown sugar and water, was transferred to cisterns filled with animal bone charcoal, through which it was percolated in order to remove the brown colour.



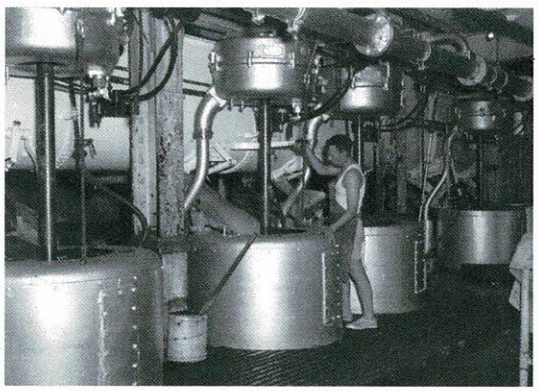
Filter Press, 1954.

16 *The West Australian,* 28 January 1930; *The Mosman Park Review 'Mosfest '80' Souvenir Programme,* November 1980, p. 13.



The pan floor of 'the cleanest refinery in Australia'. Ted Daniels (right), with George Budgen, head chemist, behind him.

Next, the sugar liquor was passed to vacuum pans, to be boiled at a temperature of 140°F (60°C), for approximately three and a half hours. Boiling it under vacuum saved time, and also energy, because it could be done at a much lower temperature than would otherwise have been possible. After the addition of a certain amount of 'mother' syrup, the mix was poured into centrifugal separators - known as 'fugals' to the workers - and the sugar crystals were separated from the surplus syrup. The sugar was dried in huge steel cylinders and then weighed into 70 lb (32 kg.) heaps for bagging.[17]



Fugal floor, 1954.

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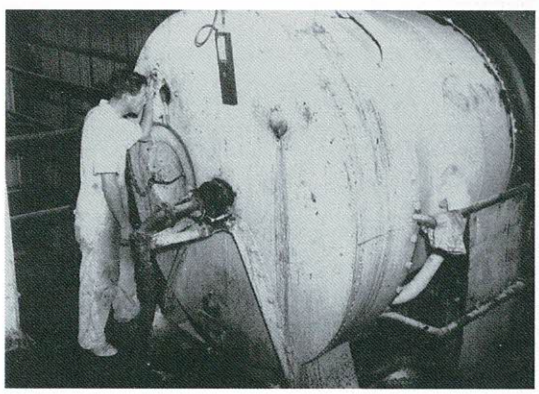

Sugar Dryer, 1954.

Photo sourced from the collections of the State Library of Western Australia and reproduced with the permission of the Library Board of Western Australia.

The power to operate the plant was derived from a steam engine fed by coal-burning furnaces. The six giant boilers dated from before the First World War. They had originally been used in pumping stations for the Goldfields pipeline. Two steam-driven generators produced electricity for lighting and electric motors.[18]

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17 *The Western Mail,* 22 May 1930; interview with M. Speers, 26 August 1997.

18 Sherriff, *'From Factory to Family Home'*, p. 83.