The Australian pearl-shell and pearl industries: from resource raiding to sustainable farming

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Coastal Aborigines harvested the abundant pearl-shells from shallow waters in northern Australia, using the meat for food and the shell for decoration and trade, for centuries before modern pearl-shelling began in the second half of the nineteenth century (McPhee 2004, Vanderwal 2004). Shark Bay in the 1850s, then Nickol Bay in the 1860s, both in Western Australia, became the first important commercial areas. Later, both were overtaken by Broome, farther north on Roebuck Bay, by the Torres Strait area of northern Queensland, and by the area around Darwin in the Northern Territory (Fig. 1).

Figure 1: Map showing the major pearling areas of Australia, together with the localities mentioned in the text: 1 Shark Bay; 2 Nickol Bay; 3 Broome and Roebuck Bay; 4 Derby; 5 Kuri Bay in Brecknock Harbour; 6 Darwin; 7 Thursday Island; 8 Roko Island; 9 Cape York; 10 Somerset; 11 Princess Charlotte Bay and Bathurst Bay; 12 Cleveland Bay.

Until after the Second World War, the main focus of the industry was not pearls, but the shell itself, for mother-of-pearl, used mainly for the manufacture of buttons in Europe and the United States of America. The introduction of artificial alternatives to pearl-shell in the 1950s devastated the industry, which already was in decline from over-harvesting. In its place a new industry arose; the production of cultured pearls in land-based farms. At
first, live shells were collected for that purpose, but more recently the production of artificially-raised spat has greatly reduced the need for harvesting of wild shell stocks.

**Beginnings**

When William Dampier, the British buccaneer, visited ‘New Holland’ late in the seventeenth century, he noted that rich pearl-shell beds occurred along the north-western coast, particularly in Shark Bay and Roebuck Bay. The foundation of an industry based on pearl-shells did not occur, however, until the nineteenth century, following exploration and settlement of the north-west for pastoralism. Notably, in 1861 Francis Thomas Gregory visited Nickol Bay in the DOLPHIN, and reported favourably on the prospects of the district for both pastoralism and pearling. Gregory’s crew, while awaiting his return from exploring the inland neighbourhood, found ‘a bed of pearl-oysters at the head of the bay, from which [they]…procured several tons of very fine mother-of-pearl, besides a small number of pearls varying in size from one to four carats.’ Gregory recognized the value of this resource, concluding that ‘the beds of pearl oysters…are likely to become of immediate commercial importance, considerable numbers having been gathered by the crew of the DOLPHIN at their leisure time, the aggregate value of which I am told, is between £500 and £600; besides pearls, one of which has been valued by competent persons at £25. The limits of the bed are as yet undefined, but there is good reason to believe, from the position of it, that with proper apparatus ships could soon be loaded with them’ (Gregory 1884).

In the early 1880s, the industry shifted northward in search of new resources, and a pearling settlement was founded at Roebuck Bay. This settlement, called Broome after the colonial Governor, soon became the headquarters of the industry in Western Australia.

The discovery in 1870 of extensive and shallow beds of *Pinctada maxima* around Warrior Reef in the Torres Strait initiated a flourishing pearl-shell industry in Queensland. Captain William Banner of the brig JULIA PERCY had been prospecting for trepang when his crew of Kanaka divers discovered and worked these beds (Kanaka is a general term used at the time to denote Polynesians, Melanesians and Micronesians). More than fifty tons of pearl-shell was obtained that year (Mackenzie 1918, Bain 1982). Thursday Island, one of the islands of Torres Strait, eventually became the headquarters of pearling operations in Queensland.
The Northern Territory pearl-shell industry commenced somewhat later. A small quantity of shell had been found by the early 1870s, and on the basis of the Torres Strait experience large beds were presumed to exist. Little was attempted, however, until the Australian Pearling Fishery Company was floated in 1884, and harvesting began in earnest (Bain 1982).

Two species of pearl-shells have formed the mainstay of the industry: the gold-lipped pearl oyster *Pinctada maxima*, and the black-lipped pearl oyster *Pinctada margaritifera*. Other commercial species of lesser importance include *Pinctada albina*, *P. chemnitzii*, *P. fucata* and *P. maculata*. Although *P. maxima* occurs across the entire northern coast of Australia, extending down the eastern coast to Cleveland Bay, and down the western coast to Shark Bay (Hynd 1955), the populations represent more or less independent stocks over this range (Johnson and Joll 1993).

**Exploitation**

The history of the Australian pearl-shell industry reveals a pattern of intensive use followed by resource exhaustion. This is typical of colonial resource-use strategies which were underpinned by a vision of resource inexhaustibility. The industry also was typified by colonial attitudes to labour, in particular the exploitation of native peoples. In the colonial perspective, native peoples were categorised with nature which was to be subjugated to human will in the pursuit of economic progress.

Aborigines and Torres Strait Islanders became important workers in the early pearl-shell industry (Kwaymullina 2001). In Western Australia, local Aborigines were at first coerced into ‘dry shelling’ on the broad tidal flats. Due to the rapid depletion of all easily accessible shells, ‘dry shellers’ were gradually forced to wade into deeper water, and eventually ‘free diving’ became necessary. Aboriginal women were preferred over men as divers.

The harsh conditions under which Aborigines were often forced to work in the remote pearling centres of the north-west resulted in the 1870s in the passage by the Western Australian parliament of legislation to protect their interests. In 1871 the *Pearl Shell Fisheries Act* (WA) became law, prohibiting the employment of women in the industry, and controlling that of men through work agreements.

Anticipating that the loss of women divers would accentuate an existing labour shortage, Captain Francis Cadell arrived late in 1870 in the ketch *Ohinemuri* with fifty South-East Asian divers, the first to be brought to the
north-western coast (Nicholson 2004). Others followed his example, ‘recruiting’ more Asian divers (mostly Filipinos and ‘Malays’, the latter being a general term encompassing several different ethnic groups, including peoples from Singapore, Java, Timor and Sulawesi, mostly within the Dutch East Indies). In 1872, fewer than one-hundred Asian divers were employed on the north-western coast, but within three years the number had increased to nearly one-thousand (Bain 1982, Martinez 1999). Broome, the centre of the pearling industry in Western Australia in the late nineteenth century, became a highly multi-cultural town, in stark contrast to most other Australian communities at that time.

By the time pearl-shelling began in Torres Strait in 1870, the Queensland parliament had already passed the Polynesian Labourers Act 1868, forbidding the employment of Kanakas without their consent, and fixing a minimum wage. This legislation was intended to prevent the ‘black birding’ (kidnapping) of Islanders for use for trepang fishing and in Queensland’s cotton and sugar plantations. That it was not entirely successful is suggested by the passage in 1872 by the Imperial parliament of the similarly-intended Pacific Islanders Protection Act, commonly known as the Kidnapping Act. At the same time, Queensland was given control of the offshore islands within sixty miles of its coast, to facilitate regulation of the pearl-shell industry.

When Captain John Moresby in the paddlewheeler H.M.S. BASILISK toured Torres Strait in 1873 to police the Kidnapping Act, only around thirty Europeans and nine Chinese were involved in the pearl-shell industry. A few years later, some eighteen licensed vessels and forty luggers provided employment for just over seven-hundred ‘black’ divers who received the equivalent of ten shillings a month in trade goods (Holthouse 1976).

During its earliest years, the Queensland pearl-shell industry was based at the small mainland settlement of Somerset, established on Cape York Peninsula in 1863. In 1876-77 the outpost was moved to Thursday Island, closer to the shipping lanes, from where the increasing illegal practices of ship owners and pearlers could better be policed. The new settlement, called Port Kennedy, became the hub of the Torres Strait pearl fishery. Like Broome, its western counterpart, Port Kennedy became highly multi-cultural. An indication of the mixture of races on Thursday Island is given by the Government Resident’s report for 1887 which said that representatives of twenty-five nationalities had passed through the gaol during that year (Ganter 1994).
In 1879, in order to control the continued widespread lawlessness, the *Queensland Coast Islands Act* was passed, extending the boundaries of Queensland to include all islands of the Great Barrier Reef, Torres Strait, and the Gulf of Carpentaria beyond the previous sixty-mile limit. In the 1880s, further legislation (the *Pearl-Shell and Beche-de-Mer Fisheries Act* 1881, and the *Native Labourers Protection Act* 1884) gave greater protection to indigenous labourers in the Queensland pearl-shell industry.

**Depletion and Intensification**

By 1873, the most easily accessible shell in Torres Strait had been exhausted, and pearlers turned to the use of German-designed suits, supplied with air by manually-operated pumps, which allowed divers to work at much greater depths. Fleets of luggers sailed on regular shelling cruises that lasted several days at least, after which they returned to their shore stations or floating stations (mother ships) for sorting, packing and despatch. These technological advances heralded a new era of intensification of resource use. Within a short time, the area being worked for pearl-shell covered some 8,000 km² of the shallow parts of Torres Strait, twice the area that had been available to skin-divers. The pattern of operations then changed little until the introduction in the early decades of the twentieth century of mechanised air pumps which increased the harvest per diver from 4 tons to over 8 tons per annum (Bach 1961, 1962).

Under this new regime, the value of pearl-shell exports from northern Queensland declined steadily through the 1880s as smaller, under-developed shells were being harvested. In the 1890s, the marine biologist William Saville-Kent (1893) called for ‘every attention and encouragement, in the direction of judicious conservation, and scientific development’ of the pearl-shell resource, but the response of pearl-shellers was to send their luggers still farther afield, relying on territorial expansion to compensate for resource depletion in formerly productive areas (Fig. 2). It was at this time that the Torres Strait operators introduced their use of diving suits to the north-west. In order to maintain its role as a primary producer for the British Empire, the industry had opted for ‘intensified production with the help of technological innovation’ over husbandry and regulation (Ganter 1994).
Figure 2: A typical early twentieth century Australian pearling lugger. These craft were usually 10-12 tons, and 30-35 feet long. They had a small cabin aft used by the diver and diver-tender, four bunks forward for the crew, and a central hatchway, between the two masts, containing the air-pump. The diver was also the ‘master’, in charge of the vessel. (John Oxley Library neg. no. 27682)

The new mode of operation brought a dramatic increase in pearl-shell production, as more distant beds could be exploited. It also contributed to the great disaster at Bathurst Bay, where the concentrated fishing fleet was devastated by an intense cyclone. On the night of 4 March 1899, 82 luggers and nine mother ships were anchored near Cape Melville, east of Princess Charlotte Bay, when cyclone ‘Mahina’ struck. Most were sunk, and over 300 lives were lost. Similar disasters befell the pearling fleet in Western Australia in 1882, 1887, 1908, 1910, 1912 and 1935, with a loss of numerous luggers and some 800 divers and crew.

By 1893, there were 210 vessels employing nearly 1,500 men in the fleet operating from Thursday Island. By 1896, this had grown to 250 boats and 1,500 men, and by 1900, to 340 boats and 2,000 men (including about 600 Japanese, 400 Pacific Islanders, 300 Torres Strait Islanders, 200 mainland Aborigines, 200 Malays, and 200 Filipinos). The average yearly take was then around 1,000 to 1,200 tons of pearl-shell (Dashwood 1902, Holthouse 1976). A minimum legal size had been introduced in 1891, and several pearl-shelling areas were closed in a first attempt to allow the pearl oysters to regenerate, but despite these conservation efforts, the pearl oyster beds of Torres Strait
were severely depleted by 1905 (MacKay 1908), and the fishery had virtually collapsed by 1916.

By 1902, the pearl-shell trade in Western Australia employed about 1,700 people, including about 100 ‘whites’ (mainly masters and owners), 50 Aborigines (mainly crew), and 1,500 ‘Asiatic and coloured’ divers, tenders and crew, mainly Malays, Filipinos and Japanese. The fleet consisted of about 20 schooners and 200 luggers (Warton 1902). The port of Broome was then second in importance only to Fremantle. By 1912, more than 400 pearl luggers operated out of Broome, spending months at sea to gather pearl-shell, which generated around £420,000, making it the state’s fourth most valuable export commodity (after gold, wool, and timber). Pearl-shell harvests peaked to 2,000 tonnes in 1916, and have declined ever since (Fig. 3).

A pearl-shelling fleet also operated from Port Darwin in the Northern Territory, but this was relatively small, employing about 300 men and harvesting about 140 tons of shell in 1902 (Dashwood 1902).

![Figure 3: Mean decadal export tonnage of pearl-shell from Western Australia (1 ton equals 1.016 tonnes). (Data from *Western Australian Yearbook* 1993, Australian Bureau of Statistics).](image)

Immediately prior to the First World War, London was the main market for Australian pearl-shell; it was the destination for 82 per cent of Australian shell in 1913. After the war, the United States of America became the major market, taking between 70 and 80 per cent. In 1900, 60 per cent of the world’s *P*. 
*maxima* shell came from Australian waters, and by 1930 this had increased to 85 per cent. Australian shell accounted for 80 per cent of the entire U.S.A. shell button trade in the early 1950s (Bach 1961, 1962).

**White Australia and the Japanese**

Soon after the federation of the Australian colonies in 1901 to form the Commonwealth of Australia, immigration was limited to mostly white Europeans through the passage of the *Immigration Restriction Act* 1901. Prior to this, the pearl-shellers had encountered no official barrier to their use of Asian labour. They had convinced the various authorities that their use of such was essential because of the shortage and great cost of white labour (Bach 1962).

The new act posed a potential problem for the pearl-shell industry, which was dependent on Asian labour, particularly Japanese divers. An influx of Japanese into the Australian pearl-shelling industry had begun about 1885, and from that time they became the industry’s principal operators. The extent to which they participated in the industry is indicated by the numerous Japanese graves in the cemeteries of Broome, Darwin and Thursday Island (Fig. 4).

![Figure 4](image)

*Figure 4*: There are more than 900 Japanese graves in Broome cemetery, indicating the considerable Japanese involvement in the Australian pearl-shelling industry, and its hazardous nature.

The pearl-shellers reacted strongly to the new Commonwealth arrangements, stating that if the provisions of the new act were applied to them, they would be forced either to abandon their industry, or move to the adjacent Dutch
islands, beyond Australian control. The Government made temporary exemptions while investigations were carried out. One report concluded that making white labour compulsory would make it impossible for British vessels to operate profitably (Bach 1962). In one failed effort to make the pearling industry conform, in 1912 the government recruited twelve British Navy-trained divers as pearl divers (Bailey 2001). Most of them died of the bends, and the pearling industry remained an exception to the ‘White Australia Policy’, with Japanese and Malays remaining under a permit system.

By 1919, there were about 1,200 Japanese in Broome and 600 Japanese on Thursday Island. The Japanese maintained their stranglehold on the industry until 1938. In that year, large Japanese boats removed 5,000 tons of pearl-shell, constituting two-thirds of the world’s supply, from outside the 3-mile territorial limit in Australia’s northern coastal waters. The pearl-shell harvest of the 59 luggers operating out of Broome at this time was only 850 tons (Jeans 1987). It became clear that this level of exploitation by the Japanese was not sustainable, and it was only the Second World War that stopped it.

The price of pearl-shell fluctuated between boom and bust. Between 1889 and 1891 pearl-shell prices soared to new highs (£400 per ton), but by 1894 had fallen to £79 a ton. With the First World War, demand collapsed and the industry was devastated. Rebuilding gradually after the war, the industry began to thrive again in the late 1920s when pearl-shell prices boomed. In the late 1930s, prices dropped to rock bottom, at £87 per ton (Jeans 1987, Hart and Friedman 2004).

During the Second World War all Japanese divers and crew were interned as enemy aliens, and the industry came to a halt (Fig. 3). After the war, Japanese immigration was restricted, until they were permitted to again work in the industry from 1953 onwards. From that year the Australian government, having extended its authority to the limits of the continental shelf through its Pearl Fisheries Act 1953, controlled the activities of Japanese fleets shelling in those waters (O’Connell 1955, Goldie 1955).

Prices rose briefly after the War, and pearl-shelling briefly boomed (Fig. 5) but the industry collapsed when plastic buttons were introduced in the mid-1950s. American importers combined with pearl-shellers and Australian governments to promote the prestige value of genuine mother-of-pearl, but demand continued to decline. In 1961, the American importers, the mainstay of the Australian industry, drastically reduced their purchases, and the
Japanese fleets made their last excursion to the Arafura Sea (Bain 1982, Ganter 1994).

Figure 5: Diving for pearls and pearl-shell at Thursday Island during the short-lived boom immediately after the Second World War (c.1948). (John Oxley Library neg. no. 17435)

Cultured pearls

From the collapse of the mother-of-pearl market emerged a new industry, based on resource husbandry rather than exploitation, and with pearls rather than pearl-shell as its product. Japanese companies brought their method of ‘seeding’ live shells with an irritant to create an Australian pearl-culture industry, reliant on Japanese know-how and mostly financed by overseas capital (Ganter 1994).

Cultured pearls were produced in Japan in the 1890s by Kokichi Mikimoto who also succeeded in artificially growing pearl oysters on a large scale. Japan remained the only country in the world involved in commercial pearl culture until a joint Japanese-American-Australian company was floated in 1956 and established a pearl-culture farm at Kuri Bay in Brecknock Harbour, on the far
north-western coast of Western Australia. The first harvest of pearls was
gathered in 1957. About the same time, experiments were conducted at a
research laboratory run by the Commonwealth Scientific and Industrial
Research Organisation on Thursday Island. These resulted in the production
of cultured pearls, but the work was not continued. Half-a-century earlier,
William Saville-Kent had succeeded in producing pearls in Australia ‘by
means of a delicately manipulated operation on the living animal’, but this
project was curtailed by his premature death in 1908 (Tranter 1957, Harrison
1997).

After the first at Kuri Bay, several more Western Australian pearl farms were
soon established and by 1960 pearls worth a total of £66,735 had been
exported. Also in 1960 several pearl-culture licences were issued at Thursday
Island. By 1964, twelve pearl-culture stations operated from Thursday Island,
but expansion was limited by the scarcity of live shell. In 1970 the industry
suffered high oyster mortalities from a rare disease, and only two farms
survived. Subsequently, the Torres Strait area has been a minor player in the
Australian industry. The prospects for the Torres Strait industry improved,
however, when a hatchery operation was established at Roko Island near
Cape York in 1998 to supply spat to Queensland pearl farms.

The Australian cultured pearl industry presently operates mainly in north-
western Western Australia, around Broome and Derby, and in the Northern
Territory. The industry operates on a quota system, with each licensed
producer allocated a quota of wild-caught and hatchery-bred oyster shells in
which to culture pearls. Although the need for live shells for use in farms
revived the pearl-shell industry in the 1960s, their harvest now is strictly
limited and most oysters used for pearl cultivation are grown from hatchery-
derived spat. The total quota in Western Australia is 922,000 shells (572,000
wild-caught and 350,000 hatchery-bred), and in the Northern Territory,
420,000 shells (120,000 wild-caught and 300,000 hatchery-bred). In 2006 the
Western Australian and Northern Territory governments entered into an
agreement to ensure co-operation and better management in the pearling
industry.

More than 90 per cent of the total Australian production of bead-nucleated,
white cultured pearls are exported. These are worth more than $150 million
per year. The two biggest producers are Paspaley Pearling Company, based in
Darwin (which holds 36 percent of the total WA quota, and 20 per cent of the
NT quota) and M. G. Kailis Group, based in Western Australia (19 percent and 20 per cent).

As there has been a ban on the harvest of mother-of-pearl since the mid-1980s, most stocks have not been fished for more than twenty years. Recovery has therefore occurred to the point where harvesting could be resumed, but to ensure sustainability, a cautious, conservative and scientifically informed approach would be required, unlike the rapacious and uncontrolled exploitation which typified the industry during most of its history.

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References


