

Shipbuilding in the Australian Colonies before 1850

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Shipbuilding in a colonial context draws on traditions from a variety of places including the parent culture. Colonial shipbuilding adapts and evolves over time to meet the local environmental conditions, the availability of endemic and other timbers and to suit the requirements of local and regional mercantile commerce. Establishing the identity and biography of colonial shipbuilders is key to understanding the processes that underpin shipbuilding development. Shipbuilding in the Williams River area of NSW and the schooner Clarence have been selected as a case study of shipbuilding in the early Australian colonies.

Introduction

In nautical archaeology, the northern European tradition of wooden ship and boat building has been the subject of extensive archaeological research in recent decades (Beltrame 2003; Flatman 2003, 2009; Gould 2000; Greenhill 1976; Hocker and Ward 2004; McKee 1983; Nowacki and Valleriani 2001). This research suggests that over generations in northern Europe, and specifically in Great Britain, detailed knowledge about shipbuilding was developed including which timbers were more suitable for particular tasks: oak for frames, beech for decks, ash for oars, fir for masts and spars etc. Until the nineteenth century, most of this shipbuilding knowledge was passed down verbally, either from father to son or through the apprenticeship system (MacGregor 1997).

Significant research questions about the colonial settlement of countries like Australia and earlier the Americas revolve around the transfer of technology and associated knowledge to a colonial setting, as well as the issue of adaptation to the local environment (McAllister et al. 2006; Pearson 1996; Pickard 2010). In a broader context, as Graham Connah suggested more than twenty years ago:

The European colonization of this continent was one of the longest-range mass migrations in human history, involving the transplanting of large numbers of people from one side of the world to the other and from one group of environments to a completely different group. These people brought with them the cultures of their own societies in Western Europe, but their descendants in Australia evolved a culture of their own (Connah 1988:4).

On the one hand, colonists brought with them significant aspects of their parent culture, which can be

seen in terms of cultural continuity, but researchers have debated the speed and extent of adaptation to meet the distinctly different environments that the colonists faced in the new lands (O'Reilly 2006; Bolton 2008).

In Australia, previous research has clearly demonstrated that the wreck sites of Australian-built vessels hold significant archaeological potential to answer questions about adaptation by the early Australian colonists to the unfamiliar Australian environment (Bullers 2006, 2007; Nash 2004b; O'Reilly 2006; Orme 1988). More specifically, research on Australian built vessels has often focussed on use life of early Australian wooden sailing vessels, which although they are often considered to be short-lived, was not due to poor construction but rather the hazards posed by the Australian coastline and port entrances (Coroneos 1991b; Richards 2006:49).

Unfortunately, little is known about this class of vessel due to limited evidence in the historical record. One reason for this is that the majority of Australian-built vessels were small coastal traders that were often unregistered, and therefore, largely unrecorded (Broxham 1996; Gillespie 1994; Graeme-Evans and Wilson 1996; Kerr 1974). These traders, to paraphrase others, can be called 'ships without voice'; despite the fact their presence was vital for the establishment and expansion of settlement throughout the newly founded colonies.

Archaeological Research Questions

One of the fundamental archaeological research questions in Australia to arise is how did domestic shipbuilders adapt their technical abilities to suit their new environment and utilise the timber that was available to them (Bullers 2007:17)? According to Bullers (2006:62), 2,786 Australian-built vessels are recorded as having been wrecked on the Australian coastline, and the available databases indicate that only 271 vessels have been located to date (approximately 10% of the total number

wrecked). Only 14 Australian-built vessels (about 0.5%) have been properly surveyed and/or excavated with the results published. One of the problems to date has been that Australian-shipbuilding research has been seriously constrained by state and territory boundaries, resulting in research that has been conducted on a case-by-case, single-site basis within individual jurisdictions usually lacking any comparative component (Richards 2006:48).

Historical Overview

During the late-18th century and the first half of the 19th century, while many larger vessels over 100 tons arrived regularly in the Australian colonies from overseas, with some of them purchased by colonial merchants, very few smaller vessels arrived. For most British merchants, the Australian colonies were simply too remote to dispatch vessels of under 100 tons. As a result, there was a growing need for smaller vessels to meet domestic needs for transport and trade between the newly established colonies. Furthermore, smaller vessels were required to meet the needs of the Australian-based maritime extractive industries, such as sealing and whaling, which quickly became the first important income generating industries in the colonies.

Due to the great distances between the new Australian colonies, boat and shipbuilding was vitally important to the development and sustainability of the colonists. As such, it has been identified as “the first important manufacturing industry to develop” in Australia (Hudspeth and Scripps 1990:55). Nevertheless, despite the fact that Australian boat and shipbuilding is seen as “a significant industrial activity” (Alexander 2005:331), the importance of this industry in the early colonies has not always been well recognised or appreciated, even by recent generations of mainstream historians. This is evident in the works of authors such as Lloyd Robson (1983), who scarcely mentioned shipbuilding in his classic work on the history of the early settlement in Tasmania and, more recently, James Boyce (2008) who did not mention shipbuilding at all in his history of the island.

From the earliest days of European settlement traditional British techniques of wooden boat and shipbuilding were brought to the Australian colonies and have been presumed to be the primary source of shipbuilding knowledge. In addition, however, there have also been suggestions that other vernacular shipbuilding traditions, including those from mainland European countries, including those that had already been adapted

for use in the Americas or in Asia, may also have been significant (Bach 1976; Nash 2003, Orme 1988). So far, however, evidence of precisely where shipwrights in colonial period Australia came from or how well-trained they may have been has not been extensively established.

Initially, an order imposed on the original settlement at Port Jackson (Sydney) by Governor Hunter in 1797 prohibited boat and shipbuilding in the Australian colonies purpose (HRA1914:245). This decree was later relaxed and vessels up to 14 feet long could be constructed under a strict permit system. As late as fifteen years later, however, on the 8 February 1812, Governor Macquarie continued to provide instructions to Major Andrew Geils of the 73rd Regiment, and the commandant of the settlement at Hobart Town, stating the following:

No. 20. You are also expressly commanded not to allow any vessels or small craft to be built in any part of the settlement under your command either by individuals residing in it or by foreigners without a written licence previously obtained from me for that purpose (HRA 1921:471).

As a result, very few vessels were built before 1820 and significant shipbuilding activity in the Australian colonies did not arise until the 1820s.

Australian Colonial Wooden Shipbuilding

In early 2012 the Australian Historic Shipwreck Preservation Project (AHSP) was formally awarded an Australian Research Council Linkage Grant (ARC) of AUD\$500,000 to investigate the excavation, recording, and reburial of historic wooden shipwrecks at-risk. This collaborative project joins ten Partner Organizations and three Australian universities in one of the largest multinational maritime archaeology projects ever undertaken in Australia. The three-year project (running from February 2012 to December 2014) systematically tests the application of in situ preservation methodologies on at-risk historic wooden shipwreck sites in Australia, with the aim to provide a critique of the practical protocols for the assessment and preservation of these sites.

As domestically built wooden shipwreck sites provide significant potential to inform on historic connections, technological innovation, and early colonial behavioural systems, one of the aims of AHSP is to add to the knowledge base of Australian colonial wooden shipbuilding. This is related to the Commonwealth Department of Environment and Heritage's (DEH) 1995 Historic

Shipwrecks National Research Plan (HSNRP), which identified Australian shipbuilding as a research theme of national importance (Edmonds et al. 1995) and integrates the abovementioned fundamental Australian research question. The project therefore builds on the long-standing interest of maritime archaeologists in the origins and development of colonial-period Australian shipbuilding (Coroneos 1991a, 1991b; Harvey 1989; Jeffery 1989, 1992; Nash 2003, 2004a, 2004b; Richards 2006; Tracey 2007).

The AHSP researchers identified a number of case study criteria prior to deciding on an archaeological site, including: the shipwreck is identified as 'at-risk'; the site is logistically accessible under available project resources; the site has been extensively researched, monitored, and perhaps partially excavated; and the current managing agency supports the AHSP research and agrees to long-term monitoring of the site. After careful deliberation, the Australian-built wooden shipwreck *Clarence* in Port Phillip Bay, Victoria was chosen as the project's first case study. It was, however, established that if finances permitted, the project would expand to a second case study to provide a more longitudinal in situ preservation study for comparative analysis.

Clarence – Background

In 1982, the Maritime Archaeology Association of Victoria (MAAV) located a wooden shipwreck approximately 200 m offshore at a depth of four meters in the Coles Channel of Port Phillip Bay, Victoria. These avocational archaeologists immediately reported the discovery of this site to the newly established Maritime Archaeology Unit (MAU) of the Victorian Archaeological Survey – currently part of Heritage Victoria. After a year of intense research by both MAAV members and MAU staff, the site was positively identified as the early Australian-built timber coastal trader *Clarence* (1841-1850). The State government agency immediately implemented a long-term, multi-phase research project that included additional historical research, a pre-disturbance survey, and partial excavation of the site.

In 1985 *Clarence* was designated as an 'Historic Shipwreck' under *Victoria's*

Historic Shipwrecks Act 1981, which was later incorporated into a broader state heritage law, the *Heritage Act 1995*. Due to the historic significance of the site, State heritage managers, under the 1995 legislation were able to establish a 100 m protected zone around the site. The site is marked with a wooden post above water and a concrete block (Figure 1), both with text explaining the site and the legislative protection. Regrettably, this has not deterred local fisherman from anchoring on the site, resulting in significant structural damage (Gesner 1984; Harvey 1986, 1989; Coroneos 1991a).

While large numbers of vessels were built during the 1830s and 1840s, according to Bullers (2006:62), *Clarence* is one of only 17 vessels built in Australia before 1850 that has been located to date. Therefore, *Clarence* (Victorian Heritage register S127) can be seen as representative of contemporary Australian-built vessels, many of which were small coastal traders under 100 tons, and was considered ideal for the AHSP study (Veth et al. 2013). Importantly, the site is an example of early Australian colonial shipbuilding, where innovative solutions and shortcuts were often found at the frontier (Harvey 1986, 1989). *Clarence* can thus inform us about aspects of cultural continuity in the transplanting of traditional techniques of shipbuilding from overseas into the Australian colonies by addressing the question: how did the colonists adapt foreign, primarily British, traditional shipbuilding methods to suit new environments and different timber types?



FIGURE 1: CONCRETE PLINTH ON THE CLARENCE SITE (PHOTO BY HERITAGE VICTORIA; COURTESY OF HERITAGE VICTORIA, MELBOURNE, VICTORIA).

The Clarence Fieldwork

In just a few short months after obtaining ARC funding, the AHSP Project Manager organized the logistics for fieldwork to commence on 16 April 2012 and continued for 29 days. Fieldwork operations were run from a 12 x 18 m jack-up barge (Figure 2), which was towed by a tugboat out to the site and placed alongside Clarence, off Edwards Point near the township of St. Leonards. Three shipping containers were placed on the barge – the first to manage surface supply and SCUBA diving logistics, the second to house conservation and dry field kit, and the third to X-ray and photograph *ex situ* artifacts prior to internment.

Over the month-long fieldwork, 65 professional and volunteer archaeologists, conservation scientists, photographers, commercial divers, marine ecologists, and artifact specialists participated in the project. Divers initially installed a system of star pickets around the site to use as datum points. In order to adjust for tide movement, the depth from the top of each datum was accounted for each time a dive team went in to take measurements, and the distances between each datum and at least five other points were also taken to establish the fixed points. This enabled archaeologists to utilize the Direct Survey Method (DSM) technique, instead of a standard baseline-offset and plumb bob measurement, to obtain more accurate information across the site (Rule 1989:157-162).

A partial excavation commenced along the starboard side of the shipwreck. The trench ran from the stern towards the bow. A 2D site plan of the excavation trench was assembled using data from the DSM technique, which was then overlaid with specific feature measurements, drawing frames, and photographs.

Minimal artifacts were recovered, consisting of an assemblage of 35 artifacts (and 109 artifact pieces). The artifacts were initially documented in situ before being recovered, cleaned, photographed, registered, and documented *ex situ*. All artifacts were separated by material (e.g. organic, ferrous, non-ferrous, ceramic, glass), wrapped with similar materials in geotextile and shade cloth and kept in wet storage until they were interred in the excavated area or buried in an underwater repository located 10 m off the stern.



FIGURE 2. JACK-UP BARGE ON CLARENCE SITE (PHOTO BY MARK STANIFORTH; COURTESY OF THE AUSTRALIAN HISTORIC SHIPWRECK PROTECTION PROJECT, 2012).

Due to the environmental factors (i.e. chemical, biological and physical environments) impacting the site, it was decided to structurally support the wooden hull structure with sandbags and then cover the site with shade cloth and a polyvinyl chloride (PVC) tarpaulin. Unfortunately, due to bouts of poor weather, the in situ preservation technique could not be applied during the April/May fieldwork. Subsequent visits in both June 2012 and November 2012 were required to complete the application of the in situ preservation method.

Who Built Clarence?

In his report on the historical research conducted on *Clarence*, Gesner (1984:13) was unsure who built the vessel and he wrote that: “There is no conclusive evidence which will answer by whom she was built, although it has been suggested by an authoritative source that she was most probably built by, or under the direction of, William Lowe at his Deptford shipyard.” The authoritative source in question was Ronald Parsons and, while his opinion may well prove to be correct, no definitive evidence has been yet found that actually proves that William Lowe built *Clarence*. The problem has always been that the British Register of Shipping for the Port of Sydney at this time did not always list the name of the shipbuilder and so it is often necessary to establish the builder from contemporary newspaper accounts which often, but not always, named the builder.

Tracey has suggested that “wooden shipbuilding on the coast of New South Wales was often a short-term

industrial activity where the shipwright selected a specific area in which to construct a single vessel” (Tracey 2009:35). In some cases this was undoubtedly true but in others, a shipwright would become firmly established in a single location and he would build vessels over a long period of time. Both models for shipbuilding are known to have existed in the Williams River area during the 1830s and early 1840s. From the available records at least two, and probably three, shipbuilders built vessels close to the head of navigation on the Williams River near Clarence Town around the time *Clarence* was built in 1841 – William Lowe, James Marshall and John Cameron. Each of these three individuals had different backgrounds, training, and levels of experience in the shipwright trade.

From recent research it is also evident that at least 27 vessels were built on the Williams River between 1831 and 1843, with four shipbuilders operating there during this twelve-year period – in addition to Lowe, Marshall, and Cameron, John W. Russell built three vessels between 1833 and 1836. *Clarence* is by no means the only vessel built on the Williams River in this period for which the builder remains unknown or unconfirmed. For example, there is the steamer *Australia* (1834) and the cutters *Challenger* (1840) and *George* (1842), which all lack positive evidence regarding who built them (Australian National Shipwreck Database [ANSD] nos. 340 and 2206; Register of British Ships [RBS], Port of Sydney 1834-1842; *Sydney Monitor* 7 March 1835; *The Australian* 13 March 1835).

Recent biographical research into two of these Williams River shipwrights, William Lowe and James Marshall, suggests that Lowe was an experienced shipwright who was born on 21 July 1805 at Leith, Scotland, the second son of William Lowe, a ‘landed proprietor’, and Margaret, *née* Steel, of Stirling. At 14 years of age, William Lowe (junior) was apprenticed to the shipbuilding trade at the Royal Dockyard, Deptford and at age 19 he was sent to Stettin, Prussia, to work on the building of several ships where he stayed for nearly three years. He returned to Scotland, where his father gave him a considerable share of his estate and thereupon Lowe sailed to South America where he visited Ecuador, Peru and Chile (Australian Dictionary of Biography [ADB] – William Lowe).

To date, no evidence about James Marshall’s life before 1828 has come to light, but archival records identify that he was in Chile in 1828. Both Lowe and Marshall embarked at Valparaiso, Chile on 18 July 1828 on board the 328-ton vessel *Tiger* for Sydney via Tahiti, where they

arrived on Monday, 22 September 1828 (*The Australian*, 24 September 1828). During the voyage, Marshall and Lowe proved so useful in repairing damage suffered in a gale that Captain W. Richards refunded their passage money, which suggests that Marshall also possessed at least some shipbuilding knowledge and skills (ADB: William Lowe).

In early 1830, the partnership of James Marshall and William Lowe, negotiated a contract with Joseph Hickey Grose to build a steam paddlewheel ship for the Sydney to Newcastle and Rivers trade (Ford 1995:65). Grose had applied for, and much later, on 6 September 1831, was authorized to possess, ten acres of land within the Government Reserve for Clarence Town, which was “for the erection of a wharf and other suitable establishment for a steam packet” (Ford 1995:45). It is likely that Lowe and Marshall had arrived on the Williams River sometime in 1830, perhaps a year or more before Grose had official permission for his venture, and on arrival they had found the area to be too steep and “totally unsuitable for the construction and launching of vessels” (Ford 1995:65). Lowe and Marshall then established their shipyard, which they named the “Deptford” shipyard, on the west bank of the Williams River adjacent to a small creek in the north-east corner of Francis Allman junior’s grant of 640 acres, almost certainly without Allman’s knowledge or permission. Subsequently Lowe and Marshall jointly purchased the Deptford shipyard site, consisting of ten acres, from the Reverend J.J. Therry, which had originally formed a part of 640 acres in the Parish of Uffington that had been first granted to Francis Allman junior in July 1829 (Ford 1995:41).

Lowe and Marshall built vessels at Deptford for about six or seven years until their partnership was officially dissolved in 1836 (Ford 1995:65). At least six, and possibly eight, vessels were built by Lowe and Marshall in partnership at Deptford, including at least two steamers *William IV* (1831) and *Ceres* (1836), the horse ferry (and later steamer) *Experiment* (1832), the schooners *Earl Grey* (later *Edward*) (1833), *Delight* (1836), and possibly *Kate* (1838), the brig *Courier* (date uncertain) and possibly the cutter *Young Queen* (1839) (ANSD nos. 488, 2486 and 7078; *Launceston Advertiser* 29 March 1838; RBS – Sydney 1834-1842; *Sydney Gazette* 30 June 1831, 7 March 1833, 21 April 1835 and 16 January 1836; *Sydney Herald* 19 November 1835).

In 1832 William Lowe and James Marshall had jointly applied to purchase an area of 640 acres on the east bank of the river, opposite to the Deptford shipyard, from the Church and School Corporation, which was

transferred to them on 13 June 1832 (Land Grant Index Serial 75:46; Ford 1987:10). On the dissolution of their partnership in 1836, William Lowe sold his interest in the 640 acres on the east bank, to James Marshall and purchased Marshall's interest in the Deptford shipyard on the west bank (Ford 1987:11). In early 1837 the *Sydney Herald* newspaper reported that "a fine vessel the *Delight*, was launched from the building-yard of Mr. Marshall, at Williams' River... there are now two building yards at Clarence Town, which create a bustle and activity not to be found at any other of our embryo townships" (*Sydney Herald* 9 February 1837:2). It appears that Marshall and Lowe may have continued to collaborate on building vessels even after their partnership dissolved in 1836, for example on the schooner *Kate* in 1838 and the cutter *Young Queen* in 1839, but the records are not clear enough at this stage to determine if this was actually the case nor to tell in which of the two shipyards (Deptford or Marshall's) these particular vessels were built (*Sydney Morning Herald* 17 October 1842, 16 February 1843).

For nearly a decade, from 1836 until his death in January 1845, James Marshall continued to build small schooners and cutters (all less than 100 tons) at his shipyard (Marshall's shipyard) (Mitchell Library Map Collection, Clarence Town 1864). Records suggest at least six, and possibly eight small vessels were built by Marshall during this period, including: two schooners *Yarra Yarra* (1837) and *Mary Ann* (1841) and four cutters *Jane Williams* (1838), *Lucy Ann* (1842), *Comet* (1843), and *Elizabeth* (by 1843) (*Australasian Chronicle* 24 March 1842; ANSD nos. 2341, 7474 and 7934; RBS – Sydney 1834-1842; *Sydney Herald* 6 July 1841; *Sydney Monitor* 6 October 1837; *Sydney Morning Herald* 1 December 1842, 22 April 1843 and 27 February 1844; *The Australian*, 13 March 1838).

During this period (1836–1845), William Lowe also continued to build vessels, mostly, but not exclusively less than 100 tons, at the Deptford yard, which had become a good-sized industrial complex by the 1840s. In the 1841 Census, for example, Lowe reported 19 people (15 male and four females) at Deptford including 7 "mechanics" (including shipwrights and carpenters), two shepherds and two domestic servants (five of the 19 were assigned convicts) living in three wooden houses, only one of which was described as "finished" (Census 1841). Lowe died on 8 May 1878 and was buried in the Clarence Town cemetery (Figure 3).

In addition to the schooner *Kate* in 1838 and cutter *Young Queen* in 1839, which may have been built by Marshall, Lowe or both jointly, Lowe is known to have

built at least six vessels around the time that *Clarence* was built. This included the schooner *Paul Pry* (1838), the brig *Victoria* (1840), the steamers *Aphrasia* (1840), *Harriet* (1842) and *Comet* (1843), and the cutter *Elizabeth* (1843) (*Australasian Chronicle*, 29 September 1842; ANSD nos. 6488; *Hobart Town Courier* 28 February 1840 and 8 December 1840; RBS – Sydney 1834-1842; *Sydney Gazette* 29 September 1842; *Sydney Monitor* 8 September 1840; *Sydney Herald* 5 March 1838, 13 November 1839 and 16 November 1839; *Sydney Morning Herald* 29 March 1843).

The third Williams River shipwright John Cameron, on the other hand, is far less well documented than either Lowe or Marshall, and records located to date only list him as the builder of a single vessel – the 104 ton schooner *Calypso*, which was built at the Williams River in 1842 (RBS – Sydney 1834-1842 – entry for *Calypso* no. 59 of 1842). Records also establish that Cameron only appears to have worked as a shipbuilder for a relatively short period (around 1841-1842), as he was declared bankrupt in late 1842 (*Sydney Gazette* 13 October 1842).

Conclusions

While research into pre-1900 colonial shipbuilding in Australia has been conducted for more than 20 years, the colonial shipbuilding industry overall, is still relatively poorly understood. Although the identity of the shipwright responsible for the building of *Clarence* cannot be confirmed, the biographical investigations of William Lowe, James Marshall and John Cameron further contribute to our greater understanding of the Australian colonial maritime shipbuilding industry. Research suggests Lowe, Marshall and Cameron all had the capacity to build *Clarence*, and at this stage, any one of them may have done so, although Cameron is considered to be the least likely. The identity of the *Clarence* shipwright may be directly linked to the quality of ship construction. Lowe, for example, would appear to be a highly trained, well-experienced shipwright capable of building a range of vessel types in different sizes, whose career lasted more than thirty years. Marshall also appears to be a competent shipwright who built vessels for at least 15 years but when building on his own he restricted his shipbuilding to small wooden sailing vessels under 100 tons (like *Clarence*). Very little is known about John Cameron, who may be an example of Tracey's single-vessel-in-the-bush style of shipwright, but it is hard to judge his shipwright skills. It is, however, possible that

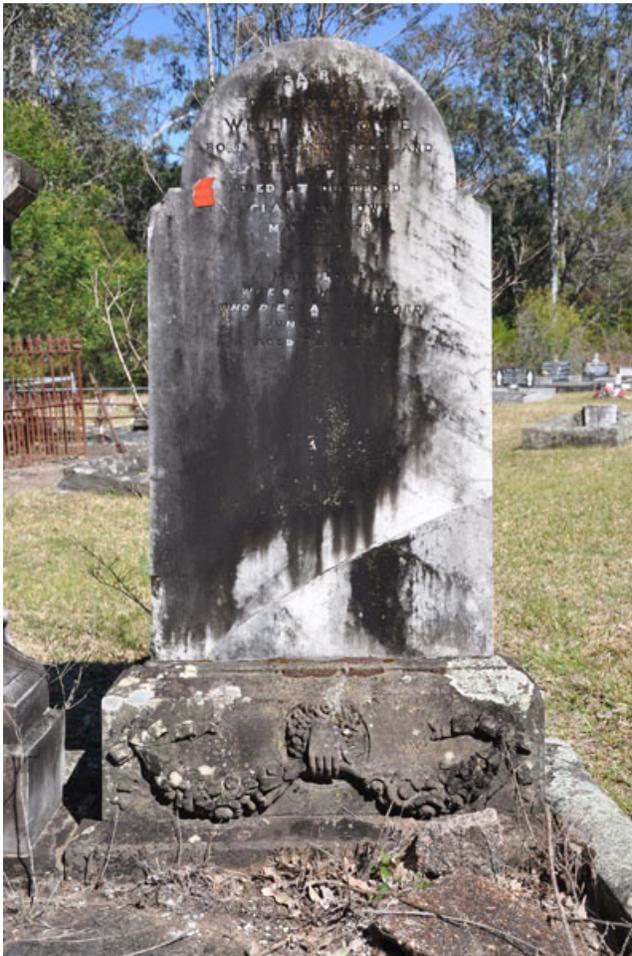


FIGURE 3: WILLIAM LOWE'S GRAVESTONE IN THE CLARENCE TOWN CEMETERY (PHOTO BY MARK STANFORTH; COURTESY OF THE AUSTRALIAN HISTORIC SHIPWRECK PROTECTION PROJECT, 2012).

Cameron had learnt to build vessels by working for either or both of Lowe and Marshall, or yet, had trained prior to joining Lowe and Marshall, leaving him a viable candidate for *Clarence's* shipwright.

Australian wooden shipwrecks represent significant submerged heritage sites with huge potential to inform on historic connections, technological innovation and early colonial behavioural systems. *Clarence* was one of the first Australian built vessels to be extensively surveyed (in the 1980s) and remains one of the best documented shipwrecks in Australia. The data available from this extensively monitored and partially excavated site allows for the comparison of information across more than 25 years. As an 'at-risk' site, with over 25 years of ongoing monitoring and research, *Clarence* was considered an ideal case study for AHSP.

Through contributions from projects such as AHSP, and the ongoing investigations of the *Clarence*

shipwreck, information is being added to a growing body of knowledge. It is evident that through research such as this, the amalgamation of historical documents and the investigation of shipwreck sites can assist in developing a greater understanding of local adaptations in ship construction.

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