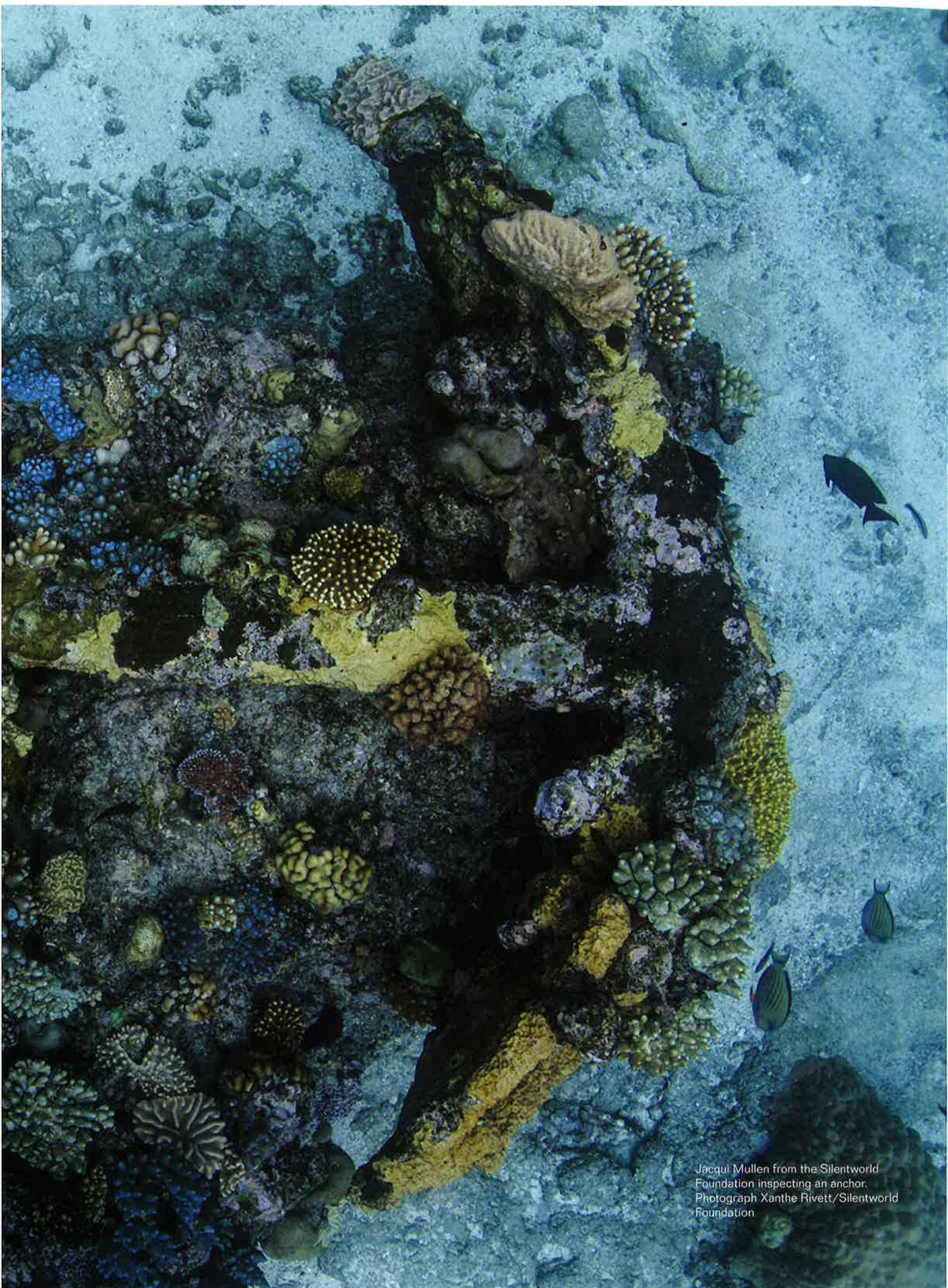




Exploring a mystery wreck

THE ASHMORE REEF EXPEDITION 2015

The Great Barrier Reef is the final resting place of many ships that have foundered in its confusing and sometimes imperfectly charted waters. An archaeological team set out early this year to explore one such wreck on Ashmore Reef. Maritime Archaeology Manager **Kieran Hosty** reports on what they found.



Jacqui Mullen from the Silentworld Foundation inspecting an anchor.
Photograph Xanthe Rivett/Silentworld Foundation

As the work progressed we slowly built up a picture of the mystery wreck

IN JANUARY 2015 ARCHAEOLOGISTS from the Australian National Maritime Museum, the Great Barrier Reef Marine Park Authority (GBRMPA) and the Department of the Environment joined the museum's research partner and sponsor the Silentworld Foundation to investigate an unidentified shipwreck that had recently been located on Ashmore Reef, some 950 kilometres north of Cairns and 250 kilometres east of Thursday Island, in the Australian Coral Sea Marine Reserve.

Ashmore Reef was first sighted by Captain Ashmore in the brig *Hibernia* in 1811 and subsequently called either Hibernia Reef, Claudine and Mary Reef, Jones Shoal or Great Ormond's Reef. Not until the late 1960s was it officially named after Ashmore.

As the reef was confusingly named and – like the nearby reefs of Boot, Portlock, Lagoon and Eastern Fields – imperfectly charted, there was a great deal of misunderstanding among 19th-century mariners regarding the location of this and adjacent reefs, which dangerously sat astride the northern section of the Outer Shipping Route around the Great Barrier Reef, guarding the north-eastern approaches to Torres Strait.

Isolated, rarely visited and even today still not completely surveyed, Ashmore Reef is believed to be the final resting place of some of the 35 vessels known to have been lost in the area between 1817 and 1923. One such site was recently located by the crew of HMAS *Benalla* when the vessel was surveying sections of the reef in 2014.

Although the wreck located by *Benalla* was possibly one previously discovered on Ashmore Reef (reported in 'Coral Sea Shipwreck', *Sport Diving*, No 137, Dec 2009) and later identified by Ben Cropp as being the 185-ton brig *The Sun*, the wreck appeared to be that of a much larger vessel and in a different location.

Given the confusion over the shipwreck's identity and its potential to provide additional information on early colonial trade routes, in late 2014 the Department

of the Environment – which manages the Australian Coral Sea Marine Reserve – approached the Australian National Maritime Museum to request our archaeological assistance and the expertise and resources of the Silentworld Foundation in surveying the site and assessing its significance.

As a result, a small team of archaeologists, photographers and volunteer divers departed from Horn Island, Torres Strait, in January 2015 to investigate the discovered wreck. Following an 18-hour trip through flat-calm tropical seas, the expedition vessel arrived off the northern edge of Ashmore Reef. After following the carefully worded directions provided by the crew of HMAS *Benalla*, the shipwreck site was speedily located and the first groups of divers entered the water.

Carronades were short, stubby cannons with incredible short-range muzzle velocity – earning them the nickname of 'smashers'

On first inspection the site – lying in water between two and eight metres deep – appeared to consist of a series of scattered iron concretions, sections of broken anchor chain and clusters of anchors, along with cannon, stone ballast, iron and copper fastenings and copper hull sheathing, strewn over a coralline rock bottom among patches of coral. However, closer examination of the various concretions allowed the divers to identify them as being different-sized hanging, lodging and rider knees along with iron stern crutches and breast hooks.

Knees are structural components of a ship that hang vertically from, or lodge horizontally between, the deck beams of a vessel, while rider knees hang down between the hold beams and are attached

to the vessel's floors (frame) through its ceiling planking to provide additional strength to the lower part of the hull. Crutches, on the other hand, are used to strengthen the stern and breast hooks of the bow of the ship by being placed horizontally across the inner stem or stern posts, cant frames and ceiling planks. The size, shape and number of these important structural components allowed us to estimate that the sailing vessel would have had at least two decks and displaced some 300 tons.

The divers also reported that all the anchors were found lying flat on the seabed rather than in the 'picked in' or deployed position. The numerous pieces of stud-link anchor chain, once plotted onto the overall site plan, revealed that they had been run out from all four anchors and across the reef top for a short distance before ending in a jumble of iron concretions. Together, these two discoveries seemed to indicate that the crew of the unfortunate vessel was caught unawares and had run out all anchors after striking the reef – perhaps in an attempt to prevent the vessel from drifting off and sinking in deeper water.

Over the next few days the dive teams, led by archaeologists Paul Hundley (Silentworld Foundation) and Peter Illich (GBRMPA), first buoyed and recorded the general position of the two anchor clusters, the iron carronades (small cannons) and the various groupings of iron knees and riders before assessing, measuring and recording the features. At the same time the photographic team – led by Xanthe Rivett (Silentworld Foundation) and assisted by Grant Luckman (Department of the Environment) – recorded the general artefact assessment and survey work and supplemented the survey teams' records by taking scaled photographs of distinctive site features to produce a scaled photomosaic of the entire site.

While the divers worked below, John Mullen (Silentworld Foundation) and Frits Breuseker (Seasee Pty Ltd) piloted the survey vessel *Maggie II* around the northern edges

- 01 Grant Luckman (Department of the Environment) photographing one of several iron carronades found at the wreck site on Ashmore Reef.
 - 02 Peter Illidge (GBRMPA) recording the bore on one of the site's carronades.
 - 03 Paul Hundley and Jacqui Mullen from the Silentworld Foundation recording the dimensions of one of the site's anchors.
- All photographs Xanthe Rivett/Silentworld Foundation



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of Ashmore Reef in an attempt to locate any other shipwreck material that might have drifted off into deeper water.

Purpose built by Silentworld Foundation, *Maggie II* is equipped with magnetometers – instruments that calculate and record changes in the earth's magnetic field caused by the presence of iron artefacts such as anchors, cannon and iron knees. Also on board are side scan sonars, which send out bursts of conical or fan-shaped sound pulses down to the sea floor that are then bounced back to the survey vessel after striking a submerged object such as ballast stones. These returned signals paint an acoustic picture of the seabed and can be interpreted on plotting screens.

Maggie II also carries a Differential Global Positioning System (DGPS) that employs both the normal navigational satellites used in conventional GPS and also a series of ground-based reference stations that broadcast similar signals from known fixed positions. The combination of the multiple sets of signals allows locational accuracy to be improved from the nominal 10–15 metres to about 100 millimetres.

As the work progressed we slowly built up a picture of the mystery wreck, aided by the artefacts being recorded on the site. The divers established that the anchors were of a type known as a Pering-Patent anchor, which had been designed by Richard Pering in July 1813. Being more compact, lighter and stronger than the earlier Admiralty longshank anchors, Pering-Patent anchors

were taken up by the Royal Navy in 1815 before becoming the preferred anchor for use on board merchant vessels between 1820 and 1835, after which the style was replaced by the Pering-Improved anchor.

Originally designed to be fitted with manila or hemp cables, the Pering-Patent anchors on the Ashmore Reef site had been modified to accept iron stud-link anchor cable, which had started to become common on board merchant ships by the early 1820s.

The method used to secure the iron cables to the two largest Pering-Patent anchors was quite unusual. A run of iron cable was passed through the iron anchor ring then run around the stock of the anchor two or three times, passed back through the anchor ring and then secured back onto the iron cable with a shackle – in a similar manner to a fisher tying a 'sheet bend' to a hook.

While quite novel, this must have been a result of an immediate necessity – perhaps the captain or owner of the vessel was unable to purchase a suitable-sized shackle before departing port, or the vessel had been recently fitted with iron cables, as this method of fastening was not only less secure but also resulted in weakening the anchor cable.

When the divers first inspected the wreck the cannons located on the site were identified as being of a type known as a carronade. Named after the Carron

Company of Falkirk, Scotland, this short, stubby cannon was developed in the mid-1770s. They quickly gained a reputation for reliability, ease of loading, and, at short range, incredible muzzle velocity – earning them the nickname of 'smashers'.

After a more detailed examination, the carronades on the Ashmore Reef wreck were recorded as having a reinforced loop cast into the bottom of the gun rather than having typical 'trunnions' – cylindrical protrusions which act as pivots – mounted on the side. The loop allowed the carronades to be mounted on a slide rather than on a gun carriage and made the weapon more portable and easier to use. The carronades on the site also had very pronounced foresites and backsites for improved accuracy, along with an iron loop cast into the uppermost portion of the back or 'breech' of the cannon, a type known as a 'Bloomfield Pattern' breech. All these innovations indicated a date of post 1820.

After all the major features had been recorded, a series of 100-metre long baselines was set up on the site and used by the divers to run a series of compass and tape transits out from the baselines, recording all the smaller site features as they went.

As the divers became more familiar with the site and their eyes became attuned to the sea bottom, they began to pick out and identify a number of other artefacts. These included two hawse pipes (cylindrical tubes mounted in the bulwarks of the ship

01 Storm front approaching Ashmore Reef with the expedition team's vessel *The Boss* in the foreground. Photograph Xanthe Rivett/Silentworld Foundation.

through which the anchor cable runs out from the chain locker to the anchors), several lead scuppers (a lead tube mounted at deck level that drains the deck of any seawater that comes on board), and a large iron winch or windlass axle.

Mixed in among the broken shell, coral fragments and sand grains, the divers also observed numerous copper sheathing tacks, coral-encrusted rolls of lead, smooth river-worn basalt, sandstone and shingle ballast, fragments of dark green bottle glass, a round glass deck prism (which, when laid flush into the deck of a ship, refracts and disperses light into a compartment below the deck), numerous pieces of copper sheathings and several larger copper fastenings.

Although small in size, all these artefacts were carefully examined and plotted just in case they might be able to provide us with additional information on the size, type, age and possible nationality of the wrecked ship, and hopefully, when compared with the historical records, allow us to identify with a fair degree of certainty what ship it was.

As the week progressed and the site slowly gave up its secrets, the weather started to deteriorate around us. The formerly flat-calm seas were now choppy and white capped, whipped up by 30-knot winds, and sets of deepening rolling swells were crashing over the top of the site, making working conditions below difficult.

With no break in the weather predicted and our survey work completed, we departed Ashmore Reef for the more sheltered waters of the Torres Strait – and for some of us, flights back to Sydney and the research resources of the museum's Vaughan Evans Research Library.

The field data obtained from the survey of the site on Ashmore Reef, followed by analysis of Lloyd's Rules for the building and classification of wooden vessels and various timber scantling and fastening guidelines, have allowed us deduce that our mystery wreck was an armed, timber-built, copper-sheathed, copper-fastened sailing vessel, with at least two masts.

The presence of numerous iron knees and riders also indicates that the vessel had at least two decks and a tonnage of some 300–350 tons. The style of knees, anchor cables, anchors and carronades also indicate a vessel built after 1820 but before 1840.

Although far from conclusive, an examination of the historical records has suggested one possible candidate – the 314-ton Canadian-built wooden brig *Comet*, wrecked on a voyage from Sydney to Batavia (now Jakarta) on an unknown reef south of Boot Reef in May 1829.

Comet was built in Portland, New Brunswick, in 1826. Archival information indicates that it was a two-decked, copper-sheathed, copper-fastened, armed trading vessel that had been retro-fitted with iron

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knees, iron riders and iron anchor cables before being re-registered in England in late 1827. It was then sent out on a speculative trading voyage to Van Diemen's Land and Port Jackson in 1828.

The circumstances surrounding the wrecking of the *Comet* are unclear, but according to the *Sydney Gazette and New Wales Advertiser* of 3 November 1829 the ship departed Sydney in ballast on 5 April 1829, and following the wreck the crew took to the ship's boats before being rescued by the brig *Fairfield* off Murray Island in Torres Strait. Interestingly, the same newspaper story also reports the wrecking of three other vessels on the Great Barrier Reef almost at the same time: the *Governor Ready*, the *Swiftsure* and HMCS *Mermaid*. The wreck of HMCS *Mermaid* was later discovered by divers from the ANMM and the Silentworld Foundation in January 2009. (See *Signals* No 86, March–May 2009, for the full story.)

The Ashmore Reef Project 2015 was a collaboration with the Silentworld Foundation, the Great Barrier Reef Marine Park Authority and the Department of the Environment. The project was greatly assisted by Frits Breuseker, Lee Graham, Peter Illidge, Grant Luckman, Xanthe Rivett and the volunteer divers from the Silentworld Foundation, including John and Jacqui Mullen, Paul Hundley and Captain Michael Gooding.