

THE TERRIBLE TOREDO

BY MICHAEL PIGNÉGUY



About to start chasing the toredo with my favourite chainsaw!



Giving the toredia a hell of a fright as I cut into the 10in x 3in kauri planking

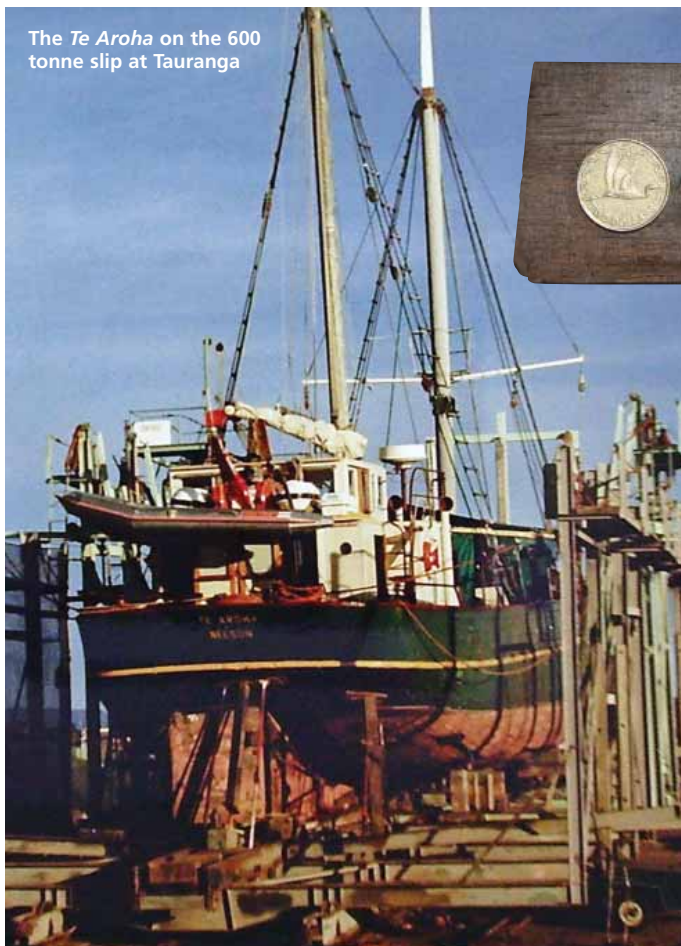


The hole filled with new planks of macrocarpa

One of the most useful tools I had when it was haul-out time for our 30m auxiliary trading schooner *Te Aroha* was a chainsaw with a 457mm blade!

Built by Lanes up in Totara North in 1909, the timber for *Te Aroha's* hull, decks and spars all came from one massive Northland kauri. Her garboard and sheer strakes measured 10in x 4in, while her hull and deck planks were a mere 10in x 3in and in some cases up to 70ft in length.

Just imagine getting those planks out of a steam box and onto the frames before they cooled too much to bend into the shape of the hull! These planks were fastened to huge 8in x 10in frames which, at the forepart of the vessel, were only at 10in centres.



The *Te Aroha* on the 600 tonne slip at Tauranga



Plank and coin gives an indication of the size of hole these critters chew

Te Aroha was the first auxiliary trading schooner to have twin engines. She was very stoutly constructed so she could take the occasional pounding when crossing bars to enter rivers such as the Wairoa River in Hawkes Bay. That was in the days before there was a road between Wairoa and Napier.

As big and strong as she was, she needed extra protection against minute larvae that had the potential to sink her. This was the larvae of the *Teredo navalis*, the dreaded shipworm that becomes a wood-boring bivalve mollusc, feared by ancient mariners, who frequently lost their ships due to this waterborne scourge.

To protect wooden ships' hulls in the 17th and 18th centuries, some, like Captain James Cook's *Endeavour*, were sheathed in iron. The hull below the waterline was coated with a mixture of tar and hair, which was then covered by 0.5in thick planks.

These planks were then imbedded with thousands of broadheaded nails made from wrought iron, providing an "ironclad" effect.

This worked well until salt water got in behind the tar, which often occurred in cold waters when the tar cracked with the movement of the hull planking. It was this that caused Cook to take the *Endeavour* to Batavia for repairs.

The ultimate sheathing for wooden vessels appeared in the early 19th century, when copper sheets were applied to their underwater sections, and by the middle of that century most of the wooden ships that plied the oceans were copper-sheathed.

As efficient as it was, copper sheathing was far too expensive for us to consider applying to the *Te Aroha*. I did some research on sheathing her with ferro-cement, but was concerned with possible cracking from movement of her hull. So for us it was back to the old way of a sacrificial sheathing of timber.

First the hull had to be thoroughly checked for any worm damage, as once the sheathing was on we didn't want to have to take it off again for a very long time! Unless a hull plank has been damaged it is very difficult to ascertain if it is home to some toredo worms.

It seems their larvae can only enter a plank through its end grain or where it has been damaged. Even a bruising where some fibres have been broken is enough to let them in, and once in they waste no time starting to munch away and digest the cellulose that's in the timber.

The worms have a special organ called the gland of Deshayes (the Frenchman who discovered it) which allows them to digest cellulose. Once they start growing they soon develop a head that is not dissimilar to that of an oil rig drill head!

The only good thing I found with the toredo is that they didn't travel from plank to plank unless both were damaged. So it was possible to have a completely decimated plank adjacent to a perfectly good one.

Attacking a 10in x 4in worm-holed plank with a hammer and chisel proved to be labour-intensive and expensive, especially on a boat with an 86ft waterline and a 25ft beam! If a plank looked like it was home to a few worms, out came the chainsaw and parts of the plank were cut out in seconds, giving us the most expensive firewood in the street!

Some planks would be completely honeycombed, while others would only show one worm tunnel. Each tunnel had a calcareous lining the worm had secreted for its protection. Observing this practice gave the French engineer Marc Brunel the idea of how to safely construct tunnels for the London Underground. I rarely found any worms in the act of eating our boat, but one I did was as thick as my little finger, about 320mm in length and a fearsome sight indeed!

As toredo breed and live in salt water, one form of protection was to moor the scows up a freshwater creek for a while. They also do not like being out of the water for any length of time, and after being hauled out for four days it was usually long enough for the boat to dry out enough to spell the end of any worms in the hull planking.

To assist in their demise I had a large gas torch, something like a flamethrower, which I used to dry out the exterior planking and the bilges. Apart from nearly burning the boat down it was very effective in finishing off any worms still in the timber!


Although resheathing the hull was labour-intensive and expensive, it had to be done to keep the old girl healthy. After ripping off the old sheathing the exposed hull planks were inspected for any worm damage by tapping them with a light hammer and listening, hoping you would hear a good, solid sound. Any suspect planks were taken out and replaced.

As kauri is no longer available we used macrocarpa, totara or even "marinised" pine to replace damaged planks. All the planks then had to be cleaned right back and any poor caulking between each plank raked out.

Re-caulking the deck is hard enough, but it's a picnic compared with having to do it upside down under the boat. With that job done the hull was given a good coat of bitumastic paint, followed by a good covering of shenam, a home-brewed mixture of fish oil and hydrated lime with its own, unique smell. If at all possible the job of applying it should be delegated, as it has to be applied using a large brush, and being upside a lot, it usually ends up on the applicator!

Tarred, felt paper, the next line of defence, is tacked on to cover everything done so far. Then it's time to plank up with the sacrificial planks. The timber of choice was 6in x 1in totara, but if that was not available then marine grade pine was used.

Being mostly flat-bottomed (she used to have a centreboard), planking up the flat areas on the *Te Aroha* was easy, but every plank had to be shaped around the curve of the bilge. It was nothing that time and money couldn't cure! Before spiking them to the hull, the inside of each plank also had to receive a bitumastic coat and be primed on the outside ready for anti-fouling.

It was always a relief, mentally, physically and monetarily, to see the 115 tonne *Te Aroha* slide back into the water after an expensive refit. The first thing we would do when she was afloat was to check to see if we had done a good job with the re-sheathing, and breath a sigh of relief when we found dry bilges. 



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