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# ✠ FERRO FLYER ✠

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November 2010



*"Just Imagine II"*  
Hartley Fijian owned by new member Peter  
Thompson

# Hartley Ferro Cement Boat Owners' Assn Inc.

**PATRON:** Myllys Hartley  
Ph 09 4108949

**COMMODORE:** Tony Butler  
Ph 09 8383171 Or 021127  
4254

**VICE COMMODORE:**  
Rob Nicholson  
Ph 021606707

**TREASURER:** Richard  
Petricevich Ph 09 445 9840

**SECRETARY:** Nova  
Petricevich Ph 09 445 9840

**EDITORIAL TEAM**  
Editor: Terri Butler  
Sub-editors/production team:  
Graeme Webber  
Richard Petricevich  
Ph 09 445 9840  
**EMAIL**  
[ferroassn@xtra.co.nz](mailto:ferroassn@xtra.co.nz)

**POSTAL;**  
**192A Bayswater Ave,**  
**North Shore City**

**Annual Subscription**  
**NZ\$40**  
**Bank account**  
**06 0273 0068393 00**  
**(National Bank,**  
**Takapuna)**

**INTERNET:**  
[www.ferro.org.nz](http://www.ferro.org.nz)

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**NEXT MEETING:** Tuesday 2nd November at Span Farm

We usually meet at Span Farm Boatyard, 20 Akatea Rd, Glendene on the first Tuesday of each Month (except January) at 8pm (bar opens 7pm)

**Visitors welcome, ferro owners or otherwise.**

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**Boom:** The sound produced when an alcohol stove is used to convert a boat into a liquid asset.

**Sailing:** The fine art of getting wet and becoming ill while slowly going nowhere at great expense.

**Anchor:** A heavy, hook-shaped device... designed to hold a vessel in place until (a) the wind exceeds two knots, (b) the owner and crew depart, or (c) 3 AM.

**Aneroid Barometer:** Meteorological instrument which sailors often use to confirm the onset of bad weather. Its readings, together with heavy rain, severe rolling, high winds, dark skies and a deep cloud cover, indicate the presence of a storm.



# CAR BOOT SALE

SPAN FARM

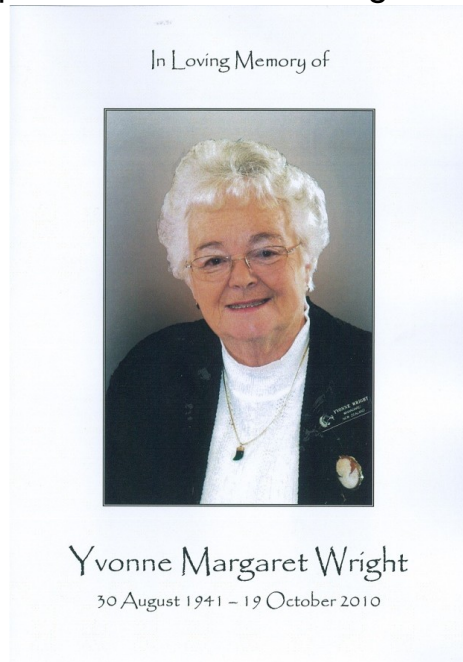
1900-2100 hours

2<sup>nd</sup> NOVEMBER 2010

**BRING YOUR UNWANTED BOAT BITS AND PIECES**

**Clear out that garage and the bilges!**

We wish to offer Bernie Wright and his family our deepest sympathy on the passing of Yvonne. Bernie and Yvonne have been life members of the Association for many many years. They were the previous owners of the good ship “Wanderlust”



## COMMODORES REPORT FOR NOVEMBER 2010

Greetings and salutations fellow Ferro Club members, IT'S THAT TIME AGAIN AS Nova has reminded me and during this last month just about nothing has happened, so, what to comment about. I guess it's back to my old training days when we frequently had to 'wing it', which is not inappropriate in the aircraft training game.

At last a few good days have arrived and I've spent some time rectifying a mistake I made, (yes, even Commodores make them occasionally). As many of you know a couple of years ago I rebuilt the cabin top on Mustang Sally. I did a good job, or so I thought of fairing the top to the ferro decks. Unfortunately I had not allowed for the differential expansion between wood, fibreglass and ferro. Guess what, yes it split away, and I am now replacing the glass with a Sika product which will also take paint, so in a couple of days she will look like a new one again and I will continue to complete the deck painting.

Our cat, Pisces, has settled back in once again and has decided this must be home as all she does is sleep, eats and other things then more sleep. Never thinks of running away and has not gone over the toe rail once since my return. In my somewhat humble opinion I think all members of the Ferro Association should have a pussy aboard!!!!

Finally here is a little hint I learned the other day, most people use quite a lot of epoxy during building, repairs and modifications. My pumps were looking pretty grungy, not so much the adhesive but the hardener, until a couple of days ago I thought it would be a good idea to get some solvent and make it work again. Pitching up at the counter of International Adhesives in Henderson, who deal with West System products, I was told to use warm soapy water to clean the hardener pump. I was somewhat surprised, however, I rush home and start the process, it all of five minutes and it looks and works like new again.

So that's it for another month, and I'm so glad I've not lost the art of 'Winging it'  
Take care out there, Tony and Terry, aboard the good ship, Mustang Sally.

### 500 Miles In A Seagoing Trimaran

Sorry folks – can't continue from my last as I can't find my notes!  
Will come back to this in a later print.

Meantime I have an interesting article which Myliss gave to me originally appearing in "Power Boat and Yachting" April 1963 and written by Richard Hartley himself.

Titled "500 Miles In A Seagoing Trimaran" it is the story of an attempted Northern tip navigation which ran into trouble off the West Coast of the North Island and the craft was surfed through huge waves into Piha Beach.

As an aside, I was actually there on the day, as a strapping young lad of 17, and saw the trimaran riding a breaker to the shore. I remember the excitement of the people on hand when it was realised that the craft was not just taking a close look but intended to reach the beach. It was almost with horror that we viewed the boat with sails set enter the line of breakers, and a huge wave pick the boat up and ride the wave (miraculously safely) to shore – arriving within the area known as Pakiti Point where a small amount of shelter exists at the far South end of the beach.

It wasn't a simple exercise as is related by Richard - and the article will have to be printed in 'Ferro Flyer' as a series.....and so we begin:

April 1963: Eighteen months ago, Norm Hart of Titirangi, NZ, started building a 28'6" Trimaran to a standard Hartley Sparkle plan. Nine months of spare time and 430pounds (\$860.00) later, Tolu Vaa (Samoan for 3 boats) was launched on the Manukau Harbour.

Tolu Vaa has an 18' afterdeck, the a 5' cockpit followed by another short bridge deck where the connecting beam goes across. Steps lead down into the main cabin which has 6'3" headroom. A 4'6" galley is to starboard and a WC and chart table to port. The main cabin has 2 bunks and there

are the usual 2 bunks forward. After 9 months of cruising the extensive but mainly shallow Manukau, Norm decided to shift his boat to the Auckland harbour, 4 miles away by land or 500 miles by sea round the northern-most cape of NZ.

We observed the usual courtesies when leaving port, and rang the Auckland Harbourmaster, who referred us to the Onehunga Harbourmaster. The Onehunga Harbourmaster enquired as to the strength, seaworthiness etc of the vessel, and the experience of the crew.

Norm Hart had built her, R Hartley had designed her and had previously passed a Marine Dept Coastal Navigation test. Athol Gubb company Manager and manufacturer had previous yachting experience and was also building a 'Sparkle' Trimaran for himself, as was Jeff Morris a merchant seaman. Last there was Jan Gorter, a Dutchman who had crewed in the Tolu Vaa and helped build her. Jan also intended to build himself a 'Sparkle' Trimaran.

Satisfied, the Onehunga harbourmaster referred us to the signal station at the Manukau Heads which overlooks the Manukau Bar. The station master was not too pleased to find we did not have a radio telephone which meant he would have to operate the semaphore arms by hauling them up and down by manpower – his manpower. He failed to give any signals! The Manukau Bar is the scene of NZ's greatest marine disasters but it was calm when we crossed it, with a weather forecast of North Westerlies, a head wind, backing to South Westerlies, a fair wind.

Tolu Vaa carried the mast-head rig best suited to a Sparkle design with 190 sq ft in the main and 250 sq ft in the headsail. This proved too much in the freshening N.W. headwind which was kicking up quite a cross sea on top of the predominant westerly swell, so we changed to a smaller headsail and hove to outside the bar. With the headsail down Tolu Vaa rose and fell to the seas. With helm hard to leeward she lay to perfectly. It did not make much difference whether the main was hard in or right out, she lay quietly making slight headway or sternway, depending on whether the main was hard in or slackened off.

For the next 5 hrs we laid our course up the coast into an increasing high wind sea and rain. For the first 3 hrs she marched to windward in grand style but as the afternoon wore on she did not seem to carry sail as well and we reefed the main down. We put this down to the size of the sea, the driving rain and the 30 kt wind. Sparkle Trimarans have carried full sail of 470 sq ft in the same wind strength, but we were down to 200 sq ft. An investigation seemed in order and we found the lee float was full of water.

To say I was astounded is to put it mildly. While I have complete faith in my trimarans, I do not expect them to sail with 200 sq ft of sail in half a gale with the lee float full of water. This float also had the weight of the dinghy on it.

The members of the crew who know the bar, stated flatly that we would not make it, but that there was a Surf Club at Piha. Did anybody know Piha well? No they did not! I had been to Piha once only, but I did see a chap bring a powerboat into the beach, where he winched it onto a trailer behind a truck and towed it off home. I had noticed the way he hugged the southern line of rocks and reefs for shelter and came in quite happily. There was quite a sea but his seamanship made it look easy. On airing my views on how this chap came in at Piha, I was given the helm. The coast was out of sight in the rain and distance, but a Japanese transistorized direction finder gave us the course to steer.

As the designer and father confessor of Sparkle Trimarans I was really stuck with it. While pulling on my lifejacket I was also stuck with the problem of being seasick under it, over it, and through it. My lifejacket was put on to show my confidence. The rest of the crew took the hint and put theirs on too.

We later learnt from the Surf Club boys that a lifejacket carried you to the top of the breaking surf where you are thrown forwards and down. A man in a lifejacket has no chance in an open ocean beach in a big sea. Without the jacket and a Surf Club nearby, he has every chance! Dark was closing in when Lion Rock to the North of Piha Beach, was sighted.

To be continued.....

## **LABOUR WEEKEND** Rob Nicholson, Vice Commodore

I took the vice commodore, because it usually means I don't have to do much...especially reports, but after this past long weekend...I have something to say.....

AND THAT IS THAT THIS PAST LABOUR WEEKEND WAS AWESOME!!!!



But it would have been a much better weekend if a few more of us ferro mad people had made the journey 25 miles north to Kawau Island..

Our illustrious member mister G Webber, aka Santa even got there... with a little help from yours truly... (the man in charge of vice....)..opps...vice commodore!!!

I had agreed to accompany Graham aboard "Escape" for the weekend; little did I know what I was getting into. Now as you ALL know I am not one to socialize and drink once out on the water....

We left Westhaven around 9am and set off down the harbour bound for Kawau...and off Rangi light all hell let loose.....alarms,, alarms.....temp & oil were fine....gas detectors.. don't like swimming in bilge water,,so off with it's head...problem solved.....ain't I good at problem solving...heh heh...

While sorting out this we found that water pump needs attending to...which I in a fit of sobriety I agreed to fix at later date,, After all this we continued on to Kawau....which was uneventual ...and also there was no wind.. so we could not try out Grahams sails...We dropped anchor in Harris Bay and after about half an hour???? Zelda arrive to join us. Followed sometime later by the clubs newest member Peter aboard JUST IMAGINE 2...with Trish his partner aboard, once they were anchored Richard and Graham rushed off and boarded them ( I don't think they even waited to be invited on board).. But it seems the boarding was okay as Peter & Trish DID come and visit Zelda for afternoon drinks.. I do hope they come back.

Sunday dawned bright and crisp...(no hang overs)..and Graham and myself left Escape at anchor and joined Richard and Nova for the day aboard Zelda, where we headed for Saddle Island at the entrance to Mahurangi Harbour,,to meet up with some of Nova and Richards family and friends... Mike, Guy, Andrea, Fynn, Ray and Debs. We discovered it was scallop season, so Richard...brave as he was..( or

was that the RUM) went diving for the scallops.....but we had to settle for bbq...I didn't know there was a smurf called Richard...he was very blue after his dive.

After dinner Richard took company back in rubber duck at about 60 knots.....lolls.. and caught up with us mid Kawau Bay and we the continued on to Bon Accord Harbour ..arriving around 10 pm....was like Queen St on a Friday night,, BUSY,,, but did manage to find a dark ESCAPE and anchored just inshore of her and dingied back for a night cap or two.....

Monday morning up early for brekky...bacon and eggs and coffee...bugger out of gas.. .and spare bottle don't fit.....so off to Zelda for brekkie.....THANKS Nova and Richard for saving our brekkie...back to Escape for a cast off at 9 am...and back to Westhaven....which was a non event...

CONCLUSION.....

ESCAPE is (it seems) a reliable boat and Graham needs to get her out more often..... And I hope he now has the urge to venture forth to further anchorages...the boat will do it.....

BRILLIANT WEEKEND

ROB N



**East Cape Lighthouse** is located on the east coast of the North Island. Situated on the Eastland peninsula, it is the most easterly lighthouse in New Zealand.

The lighthouse at East Cape was originally located on East Island, just off the tip of East Cape. The East Island light was first lit in 1900. This location was very troublesome right from the start. The government steamer capsized while bringing tower construction materials to East Island, and four men died.

East Island was also very unstable and the cliffs were constantly being eroded and slipping into the ocean. By the 1920s these slips were coming close to the lighthouse, and the decision was made to relocate the lighthouse to the mainland. The light on East Island was extinguished in April 1922. The tower and all the buildings were relocated to the mainland. The East Cape Lighthouse began operation in December 1922.

The light was originally illuminated with a paraffin oil burning lamp, however, this was later replaced with an incandescent oil burning lamp. In 1954 the light was converted from oil to diesel-generated electricity. In 1971 the lighthouse was connected to mains power. The station was automated and the last keeper was withdrawn in 1985.

The original light was replaced in February 2002 with a modern rotation beacon, illuminated by a 50 watt tungsten halogen bulb. The original light can be viewed in the base of the tower. The new light is powered by mains electricity and has a backup battery in case of a power failure. The light is monitored remotely from Maritime New Zealand's Wellington office.

Life at East Island Lighthouse was practically hard for the keepers. The clay soil made it hard to grow vegetables or keep stock. When the light station was relocated to the mainland life improved. Keepers could travel into town for supplies and their children could attend the local school. They were also able to grow vegetables and keep stock. The lighthouse at East Cape was originally a



three keeper station but this was reduced to two keepers and then just one keeper, until the last keeper was withdrawn in 1985.

East Cape Lighthouse is accessible to the public. It can be reached on foot from the car park at the end of East Cape Road. There is no public access to enter this lighthouse. Visible in the base of the lighthouse are the old lenses that were removed when the new beacon was installed. Today little remains to indicate that there was once housing and associated buildings for three keepers on this site. From the East Cape Lighthouse, visitors can look out onto East Island where the lighthouse was originally located.

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### **LIDGARD WHARF AT KAWAU ISLAND**

Hi everyone,

The construction of the new Lidgard Wharf will commence straight after Labour Weekend. Lidgard wharf will be out of action until construction is completed.

The Kawau Island Annual General Meeting has been scheduled for the 14th of November. Hope to see some of you there.

There are two important messages that we would like to get out to you all. All dogs are now to be on leashes when you bring them ashore. One of our locals was taken to court by D.O.C as his dog killed some wekas on the island. He was found guilty and is now awaiting the outcome. The sentence as it stands for killing a native bird is two weeks in jail or \$20,000 per bird. As you know we have plenty of wekas roaming around. The DOC rangers will be checking up on this over the summer, so it is better to be sure than sorry.

Walking tracks. The only walking tracks on the island are the ones at Mansion House, which are on DOC land. All the rest on the island are privately owned and these owners now no longer want people walking on their properties.

Also, we have another Island Market Day on the Sunday of Labour Weekend (24th October), weather permitting. The last one was very successful. Hope the weather improves this month as we are missing your company.

**- Paddy and Paddy, Operations Managers, Kawau Island Yacht Club**

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### **S.V.DUETTO**

Greetings from Morocco

It is over a year since our last news letter and as we are finally on the move again so it is time to put something down on paper again.

Our stay in N.Z. this time was much longer than anticipated due to a number of reasons. As many of you will know Pat had developed a large lump on her leg so when we got home in October we visited our Doctor. He sent us to the hospital for all the usual scans and x rays. The hospital then referred us to a private specialist. As the lump was attached to a muscle it was going to be difficult to remove. The specialist studied the scan results and x rays and said he would need to do a biopsy before he could operate. The biopsy was done in February and the good news was that lump turned out to be fatty tissue and was benign. The bad news was that we then fell off the urgent list so had to wait in line for our turn. The specialist did make it very clear however that we should not leave N.Z again until it was removed.

After a couple of false alarms the operation was finally carried out in early August and we are pleased to say went without any major problems. Pat recovered well and on the 30th August we were able to fly out of N.Z. on our trip back to Duetto. We flew to London where we were met at Heathrow by the friends we met in France last year and they treated us like royalty for the two days we had in London. They took us back to their home as their guests for the time we were there, entertained us, and then delivered us back to the airport for our flight to Lisbon and Faro in Portugal. At Faro we caught a bus to the railway station and caught the train to Portimao where Duetto was patiently waiting for us. We arrived at the marina yard in the early evening and the temperature was over 30 degrees. As you can imagine we were absolutely stuffed by that stage and all we wanted to do was climb into bed and sleep.

We awoke next morning feeling a bit jet lagged but not too bad. Poor old Duetto was not looking good after a year sitting in a dirty marina yard. There was paint peeling and blistering and about a quarter inch of dirt and grime over everything. We had mentally prepared ourselves for this and were keen to get stuck in so we could get back in the water. The first few days were hard work. The temperature in the middle of the day was 35 degrees in the shade and we had just arrived from a N.Z. winter. We found that it was too hot to work in those temperatures so had to restrict our activities to the morning and evening. The yard had lovely smooth concrete over all of it and the sun reflected off that onto the boat. It took us ten days, but on the 13th September the big travel lift lowered us slowly into the water. It was great to be floating again and we slowly motored out to the yacht anchorage in the harbour at Portimao. Now we had water under us we could use all our home comforts again like our freezer, shower and toilet. Also the temperature dropped about 10 degrees with having the boat in the water. We picked up the afternoon breeze to keep us cool. There were about 25 other boats in the anchorage so we had people around us again.

The next 10 days was spent stocking the boat and checking what systems still worked and what needed work doing on them after the long break. Boats are like all machinery, they like to be used. I wanted to be sure everything was working properly before leaving Portimao. A lot of time was spent down in the engine room checking and rechecking systems.

The trip from the anchorage to town in the dinghy takes about a half hour each way depending on the tide. We did lots of trips visiting the super markets and shops trying to buy all the things we thought we might need before we moved on. Portimao was a good place for doing that as there are at least 3 supermarkets and we had become very good at finding our way around there.

On the 22nd September I was reasonably satisfied that I had done as much as I could on the boat. I knew once we got to sea there would be more little maintenance items pop up but I was satisfied in my own mind that the boat was sea worthy again. We motored across to the marina, topped up with fuel and water, checked out of Portugal with Customs and Immigration and headed off for Mohammadia in Morocco.

I had been watching the weather forecasts over the previous couple of weeks and it would have been possible to have left at any time. Light winds all from the North seemed to be the norm for this time of the year. Once we were out of the harbour we hoisted our genoa and main and off we went. A nice afternoon breeze came up and we had one of the best sails we have had for a long time.

Mohammadia is about 220 miles from Portimao so it was a nice distance for the start of the season. Two days and two nights without any serious problems, and we were there. As expected my job list had increased considerably though.

A quick geography lesson! Morocco is on the North West corner of Africa. It has a population of about 36 million people, mostly Muslim. The official language is Arabic although most people speak French as well. Very little English is spoken except in the main centers. The capital is Rabat and the biggest city is Casablanca. Morocco is the largest exporter of phosphate in the world. Most people are either on the bread line or below it and so there is a lot of poverty. In saying that there is also some very wealthy people living in Morocco.

Mohammadia is about 180 miles south of Gibraltar and about a 20 minute train ride North of Casablanca. The marina is very small with only 2 piers and is absolutely full. However every day boats keep coming and going and they never seem to turn anybody away. We are rafted outside 3 other boats at the moment so it is a bit of a mission going a shore. Everybody here is very friendly and the price per night although not cheap is probably the best you will get around here. There is nowhere to anchor anyway so you are stuck with it.

Last Tuesday the berth holders here were guests of the local yacht club and we were all invited around for a traditional Moroccan breakfast and lunch. The yacht club is a very up market club set in beautiful grounds with a huge swimming pool. The breakfast started at 10 am and consisted mainly of various types of pancakes and lovely pastries served with plenty of black and white coffee. Also there was Moroccan mint tea. There were about 20 of us from the marina there from six different countries

In Morocco siesta time is from 1 pm to 3 pm and everything closes down during those two hours. The "lunch" started at 1 pm and consisted of a 3 course meal. The first course was all sorts of very elaborate salads. You could have had a meal with just the salads. The next course was a very spicy meat dish with vegetables potatoes and chips. The final course was the pudding and was all sorts of beautiful lemon meringue pie, a coconut pie, cream caramel, and apple pie and ice cream. You certainly wouldn't want an evening meal after that lot. We have been told we must try the Moroccan couscous before we leave but we haven't got to that yet.

Yesterday we caught the train to Casablanca. The first thing that hits you when you arrive is that there was no railway station. There is a small building there for selling tickets and that is it. In fairness there was a fenced off area with a huge hole in the ground so maybe they are going to build one. We risked our life by crossing the road to get to the Ibis Hotel and the nice lady at the reception was able to give us a small booklet with a map of the city in it. We spent the whole day wandering around the markets and streets just taking it all in. The traffic is unbelievable. Organised chaos. We must have walked for about 10 miles. We found the big Mosque that is a must to visit, but we were not appropriately dressed to go inside. Overall we felt Casablanca was another Cairo or Jakarta. We walked through some of the worst slums we have seen anywhere in the world. The city was dirty, smelly, run down, noisy and didn't have a lot going for it at all. On the plus side the people were very friendly and we have found that every where we have been in Morocco so far. The lady that sat next to us in the train spoke a little English and was keen to tell us about her country and learn about ours.

So from here? We will spend a few more days here and then our next stop will probably be the Canary Islands somewhere. It is about a 3 or 4 day sail from here and that is where we will start and get ready for our 3000 mile passage across the Atlantic to the Caribbean. That will be our biggest passage so far, so we are hoping for good weather. All going well we would like to think we will be in the Caribbean for Xmas.

One of our neighbours on the hardstand at Portimao. Unfortunately I never caught up with the owners but they were certainly making a great job. It was a big bit of boat.



Duetto nearly ready for the water at Portimao. Note the tidy yard.

Cheers  
Geoff and Pat  
S.V.Duetto

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### FACTS ABOUT CONCRETE BRIDGES IN NEW ZEALAND

Mangere Bridge, officially also called the Manukau Harbour Crossing, is a motorway bridge over the Manukau Harbour in south-western Auckland, New Zealand, crossing between the suburb also known as Mangere Bridge (southern side) and the suburb of Onehunga (northern side). Completed in 1983, the current bridge carries a four-lane motorway (carrying approximately 80,000 vehicles daily) with a cycle and pedestrian path also suspended underneath the western side of the bridge.

In April 2008, work began on a duplicate bridge to cater for increased traffic (Completed in 2010) and to serve up to 160,000 vehicles per day in 2021). The process was being delayed by disagreements over design and funding, as well as over the scope of the bridge project and an associated interchange - with the interchange being scaled down after concerns from the local community.



The bridge as seen from Onehunga

Initial bridge - The initial bridge in this location was built of timber and opened in January 1875. Rather narrow, it also soon began to be attacked by shipworms, and in 1910, more than 30 of the piles had been replaced, as well as the decking. The bridge was also single-lane, and so narrow, even pedestrians could barely pass a vehicle safely. The bridge was eventually considered structurally unsound and closed in 1914, before being fully demolished.

Old Mangere Bridge - In January 1914 (according to some sources, only in 1915), a 246 m long replacement bridge was opened instead. Designed by R.F. Moore, the designer of Grafton Bridge, it was also built by the same company, the Ferro-Concrete Company of Australasia (in a time when almost all bridges in the country were being built by the Public Works Department). The ferro-concrete bridge with driven concrete piles was considered a substantial engineering achievement in its time. With a width of 11.6m, it allowed for a double tram track. The bridge however did not provide for enough clearance to let anything but small boats pass under it. In World War II, an anti-tank road block was erected on the bridge near the middle of the spans, with a small sentry shelter close by. The structure has since been removed, and it is unclear whether the bridge had also been mined.

However, the new bridge also soon proved to have too little capacity, and sinking foundation piles created issues. The old bridge was closed in the 1970s to motor vehicles and is slowly deteriorating as of today, especially after it sustained damage when a ship accidentally rammed it some years ago. A second ship, the 300 ft container transport *Spirit of Resolution*, also crashed into the old bridge on 8 October 2005 as it attempted to leave a nearby Port of Onehunga berth during winds estimated later on as being between 30-40 knots (with stronger gusts) and against a strong incoming tide. The collision occurred despite the ship's bow thrusters working at full power and a small harbour tug assisting.<sup>[5]</sup>

As problems with the quality of the aging concrete and steel also make it unlikely that the 'Old Mangere Bridge' can be retained permanently, it was envisioned that the bridge would be dismantled and replaced by a newly designed footbridge. However, complaints about this course have for now (2006) stopped these plans while 'heritage options' are being considered as part of the general transport plans in the area. As of 2008, it is intended to retain the old bridge as a cycling / pedestrian link, and maintenance funds have been set aside for this continuing use.

Original Motorway Bridge - The current (as of 2009) Mangere Bridge was opened for traffic in 1983, and now carries approximately 80,000 vehicles a day. The motorway bridge had taken 8 years to build, due to labour and redundancy pay disputes which among other delays caused a stop to the work for 2 years.

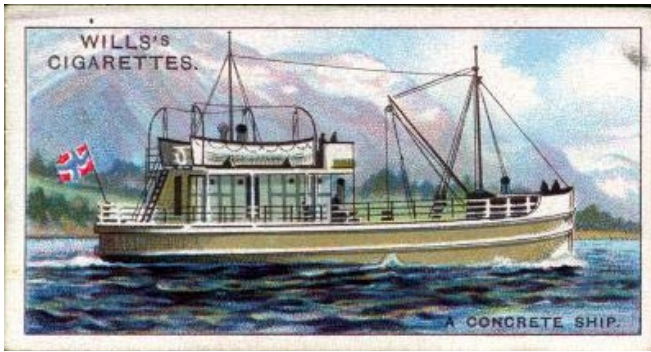


The new bridge being constructed on the eastern side of the existing bridge. Due to the limited capacity of the bridge, a duplication of the structure was decided on and completed in 2010.

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## **THE 1900'S**

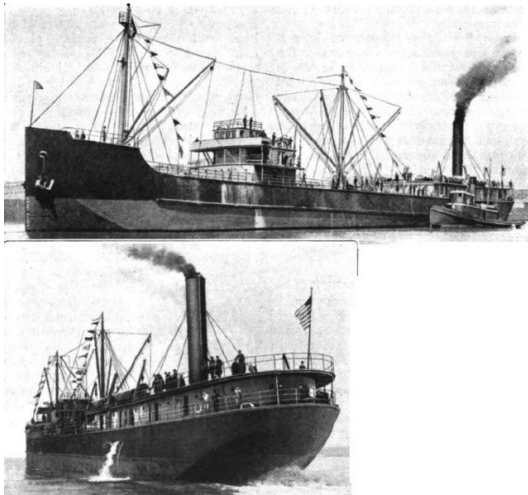
On August 2, 1917, N.K. Fougner of Norway launched the first ocean-going concrete ship, an 84 foot long boat named Namsenfjord. With the success of the ship, several more small concrete vessels were built.



Picture of the Namsenfjord

Numerous small concrete boats were built in the U.K in the 1910's. One of these ships, the *Violette*, was built in 1917 and is currently used as a boating clubhouse on the Medway River in England. This makes her the oldest concrete ship still afloat. In 1917, the United State finally entered World World I and steel became scarce while the demand for ships went up. The US government invited N.K. Fougner to head a study into the feasibility of concrete ships.

Meanwhile, businessman W. Leslie Comyn took the initiative and formed the San Francisco Ship Building Company (in Oakland, California) to begin constructing concrete ships. He hired Alan Macdonald and Victor Poss to design the first American concrete ship, a steamer named the *S. S. Faith*.



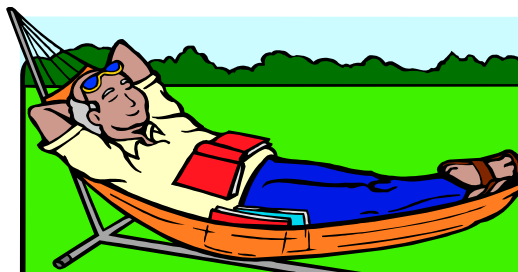
The *Faith* was launched March 18, 1918. She cost \$750,000 to build. She was used to carry cargo for trade until 1921, when she was sold and scrapped as a breakwater in Cuba.

President Woodrow Wilson finally approved the Emergency Fleet program which oversaw the construction of 24 concrete ships for the war. However, only 12 were under construction and none of them had been completed by the time the war ended. The 12 ships were completed and sold to private companies who used them for light-trading, storage and scrap.

With the advent of World War II, steel once again was in short supply. In 1942, the US government contracted McCloskey & Company of Philadelphia, Pennsylvania to construct a new fleet of 24 concrete ships. Construction of the fleet started in July, 1923 in Tampa, Florida. Innovations in cement mixing and composition made these ships stronger than the previous fleet.

Other companies were contracted to build barge ships. These too were large vessels, but they lacked engines to propel them. Instead, they were used for storage and towed around by other ships. After the war, several of the ships were turned into a floating breakwater in Canada and ten more were sunk as a breakwater in Virginia. Although the end of WWII marked the end of large-scale concrete ship building, to this day, smaller recreational boats are still being made from concrete.

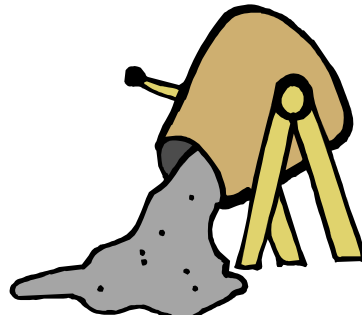
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