HMAS Diamantina.

In Perth last year, while we were looking over HMAS Stirling, we couldn't help noticing the number of times the Navy referred to the old WW2 frigate, the HMAS Diamantina. It seems she was something special and as we live in Brisbane we know where she rests today so we decided it was time we had a look over her, just to see what all the fuss was about.

Anyone familiar with Brisbane will also know Southbank which is the Phoenix that arose from the site left vacant when Expo (30 April 1988 – 30 October 1988) wound up. Prior to Expo, that area of Brisbane held old storage and warehouse sheds, dilapidated wooden wharves and at its eastern end, the old South Brisbane Dry Dock.

When Expo finished, the site lay vacant for a period while they figured out what to do with the land and eventually they got enough people to agree to a set of plans and today we have the wonderful open area that is extensively used by Brisbanites and visitors every day. But they left the old dry dock.

The dock was built in 1876, is 131 metres long and during the war was a strategic asset having provided facilities for the servicing of over a hundred RAN and USN ships. It was finally closed in 1972 and now, as part of the Queensland Maritime Museum, is the final resting place for the 2,120 ton HMAS Diamantina. A couple of years ago, when Brisbane flooded, so did the dock, the Diamantina floated off her chocks and after the two huge centrifugal pumps, which can

completely empty the dock in only 3-4 hours, pumped out the water, Diamantina was resettled on new chocks and that's how she rests today.

She was constructed in Maryborough Queensland, by Walkers Ltd, with the keel laid down on the 12th April 1943, launched on the 6th April 1944 and commissioned into the RAN on the 27th April 1945. She is most likely the last RAN unit to engage enemy forces in World War 2.

Walkers Ltd constructed ships between 1877 and 1974 and Diamantina was the 25th of 69 ships. At its peak during the war, Walkers employed 1200 men in the shipyard. Although welded construction techniques in ships were first used in about 1934, the River Class ships were designed for riveted construction with some welding permitted.

Early in the war (WW2) the Allies were losing too many transport and cargo ships to the German U-Boats and a convoy protection ship was urgently needed, one that could shepherd the convoys all the way across the wild waters of the Atlantic.

The German submarine operations in 1939/40 had revealed a severe shortage of convoy escorts. The corvettes, sloops and destroyers which the Allies had were not heavy-weather ships and did not have the endurance to escort a convoy all the way across the North Atlantic. In November 1940 a meeting was held at the British Admiralty to draw up the requirements for an ideal convoy escort vessel. The specifications were as follows:

- Good sea-keeping.
- A long foc'sle to help keep the ship drier in heavy seas.
- Deep propellers to prevent lifting clear of the water in rough weather.

- Good habitability for the crew including officers' accommodation in the forward section.
- A squarish hull and metacentre to give an easy roll.
- Long range, two engines and a single rudder.
- Adequate surface and anti-aircraft armament.
- Sonar (Asdic) and depth charges.
- Radar, High Frequency Direction Finding (HFDF) and good radio communications.
- Sufficient speed and acceleration to out manoeuvre surfaced submarines.

The River Class design was accepted and rushed into production. The Australian Naval Board also accepted the design and approved the construction of the frigates in 1941 and the first was laid down in 1942. 131 in total were built for Allied navies during that war; 57 in Britain, 68 in Canada, and 6 in Australia. The USA also liked the design and constructed 77 Tacoma class vessels based on the River Class design and placed orders for a 1,000 destroyer escorts derived from the River Class.

They were employed in Escort Groups for convoys, tactical response Support Groups and as the Senior Officer's ship. These frigates could handle rough water, had the endurance to escort convoys across the Atlantic; they had the sonar, radar and HFDF sensors to detect surfaced and submerged submarines and they had the speed and weaponry to attack submarines.

The warship classification *"Frigate"* which had not been used since the era of sail, was reborn in the guise of a modern naval frigate – a well-armed multi-role warship of medium size with good endurance capable of independent operations and which was economic to construct. Frigates have become one of the dominant classes of vessels in navies world-wide since 1943 and in Diamantina we see the origin of a significant line of warship development.

Lieutenant Commander Maurice George Rose Royal Australian Naval Volunteer Reserve (RANVR) was the ship's first Commanding Officer. He served with distinction in the Battle of the Atlantic from July 1940 to February 1944, in command of HMS Alisma (1941-43) (right) and HMS Fal (1943-44) undertaking convoy escort duties. He joined Diamantina in October 1944 and commenced the task of preparing the ship and her complement of 146 personnel for war service. You can see Diamantina's war service HERE.

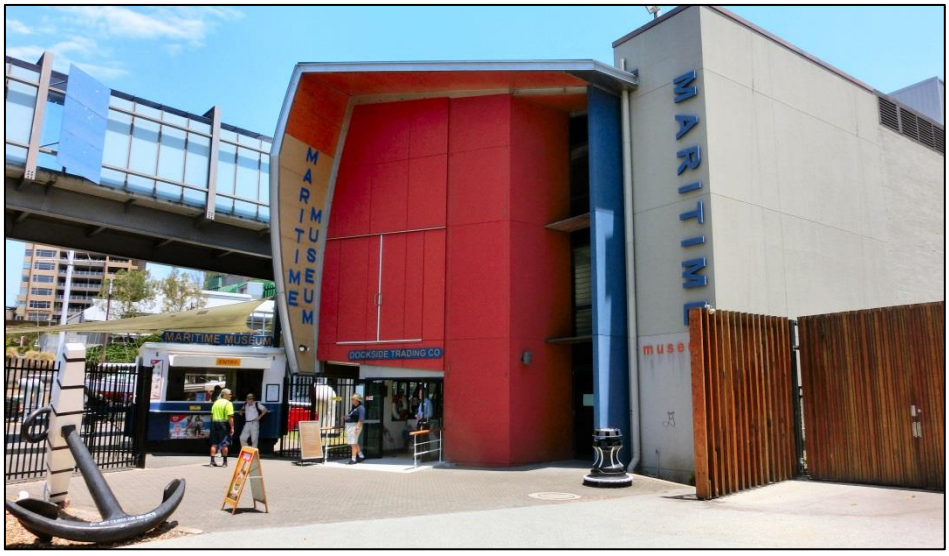
The Frigates have been described as the main reason for the 'turning point of World War II'. In 1943, four of the ships fought and won a seven-day battle against 30 U-boats forcing the Germans to withdraw their submarines from the North Atlantic Ocean.

In June 1945 Diamantina assumed duty as the senior ship supporting the 2nd Australian Corp's Bougainville campaign. On 8 September 1945 she embarked the Commander Japanese 17th Army for transfer to a surrender ceremony at Torokina, Bougainville and then embarked Brigadier J. R. Stevenson DSO representing the Australian Government to accept the surrenders of Japanese forces at Nauru and later Ocean Island, 1st October 1945. Both

ceremonies were conducted on Diamantina's quarterdeck and she is one of only two ships remaining in the world to have hosted surrender ceremonies – the other is the USS Missouri (on display in Pearl Harbour).

The ship was placed in reserve in 1946 and then re-commissioned by the RAN as an oceanographic, meteorological and hydrographic research vessel in 1959. Between 1959 and 1979, she conducted very significant operations in the Indian Ocean, South China Sea, Timor Sea, Coral Sea and Pacific Ocean. She also supported Australia's contribution to the International Indian Ocean Expedition (1959-65). That mission and the next 15 years of research of the Indian Ocean aboard Diamantina by the CSIRO and other agencies put Australia at the forefront of knowledge of that ocean.

On 8 February 1960 the ship discovered the 1200 nautical mile Diamantina Fracture Zone, the then deepest known part of the Indian Ocean. Approximately 150,000 square nautical miles of the Southern and Indian Oceans are named the Diamantina Zone in recognition of the ship's contribution to science. The research of the East Australian Current conducted aboard Diamantina changed the face of dynamic oceanography.



In February 1980, while in Sydney, the ship was de-commissioned and in October 1980 she was gifted to the Queensland Maritime Museum by the Australian Government and was dry docked at the Museum in April 1981.

Hic regit, ille tuetur (He who rules also protects) is the ship's motto. Her crest incorporates a heraldic eagle, ducal coronet and Martello tower. Both motto and crest come from the family of Countess Diamantina Candiano Roma, the Greek born wife of the first Governor of Queensland, Sir George Bowen who assumed duty in Brisbane in 1859. In 1862 the explorer Landsborough named a large river in western Queensland, Diamantina, also in honour of the Countess.

Diamantina is the only remaining River Class frigate in the world and she is the sole evidence world-wide of the origins of the modern naval frigate – so she is definitely worth saving. She has representative significance as the largest single World War 2 exhibit on display in Australia and one of only three remaining naval vessels in Australia that served in that conflict. She is an outstanding example of the contribution made to the defence of Australia by the ships of the Royal Australian Navy, Australian naval personnel and the Australian shipbuilding industry.

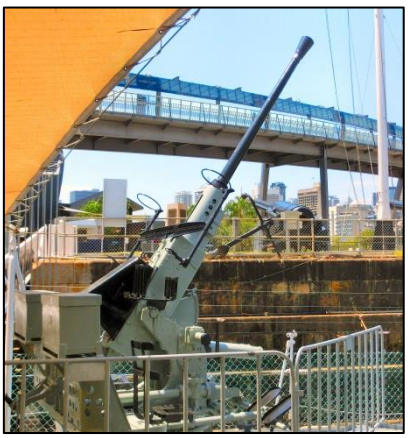
The ship is internationally significant as she marks an important transition worldwide in warship design and as the only surviving example world-wide of the first anti-submarine frigates. Her

work in support of oceanography has been described by CSIRO as outstanding and established Australia's offshore oceanographic capability.

Many years ago, while living in PNG, we worked with a great bloke who was ex-Navy and who had served on the Diamantina when she was undertaking the oceanographic work. He used to say, even though the conditions on board were a bit "old", those days were some of the best days of his life and from his many stories we felt as though we also knew what it was like to serve on her. It was well past time we had a look for ourselves.

We met with ex-Navy Ian Jempson who is the CEO of the Qld Maritime Museum at Southbank. Ian made us very welcome and gave us a detailed briefing on the history of the ship and how it came to be stored in Brisbane. He then asked John Thiele, who is one of the volunteers at the museum if he would show us over the ship. John is a retired Qld Public Servant whose hobby is WW2 Naval history, so what he doesn't know about the Diamantina is not worth knowing – we certainly got the royal tour.

You enter the Diamantina at the covered rear end via the hinged gangway and the first thing you notice is one of the three 40mm Bofors anti-aircraft guns. The Bofors gun was designed in the 1930s by the Swedish arms manufacturer AB Bofors. It was one of the most popular medium-weight anti-aircraft systems used during World War II and was used by most of the western Allies as well as by the Axis powers. The cannon remains in service today as the main armament in the Swedish tracked vehicle making it both one of the longest-serving and most widespread artillery pieces of all time. It required a number of men to operate it, 2 on the gun, one to operate it horizontally and the other to raise and lower the barrel and to fire the shells. 2 more men were required to load the ammunition and many more were needed to get the ammunition from the magazine downstairs to the gun positions. It had a useful range of 4,500 metres and could pump out 120 rounds a minute.



Bofors itself has been part of BAE Systems AB since March 2005.

Further towards the rear end are the depth charge throwers. Two were fitted on each side and the hydraulic systems could throw a 135kg canister 40 metres from the ship. The canisters, which were stored in the depths of the ship, would be armed to explode at a set depth, then brought up from the store and placed into the loading racks which sat beside each thrower. The ship carried a total of 100 canisters and contrary to what you see in popular movies, a canister would need to explode inside 6 metres of its target to destroy it and from 6 metres to 12 metres to do enough damage to bring it to the surface. Any further from the target would only give those on board a nasty scare, it would be a bit noisy but would not do any real damage. And, if they explode at depth, there is no huge burst of water that you also see in the movies. The throwers were aligned so they tossed the canisters in a box pattern, the front one tossed its canister directly out from the ship while the next tossed its, angled towards the rear. As well as the throwers, there were two racks at the rear where canisters could be simply rolled into the water.

The throwing and rolling of the depth charge canisters was controlled from the front of the ship from where the anti-submarine officer operated and worked in conjunction with the ASDIC operator (the Yanks called it Sonar).

Diamantina was ‘steered’ from an area below the top deck called the wheel house. The bloke on the wheel had no idea where he was going as he couldn’t see a thing, seems a strange way of doing things but it seemed to work. There would normally be at least 3 men on duty in this compartment, one on the wheel, and as the ship had two engines, one on each on the engine telegraphs. Orders to the 3 men would come via voice pipe from the bridge above.

There would also have been one or two senior bods making sure everything was being done as it should.

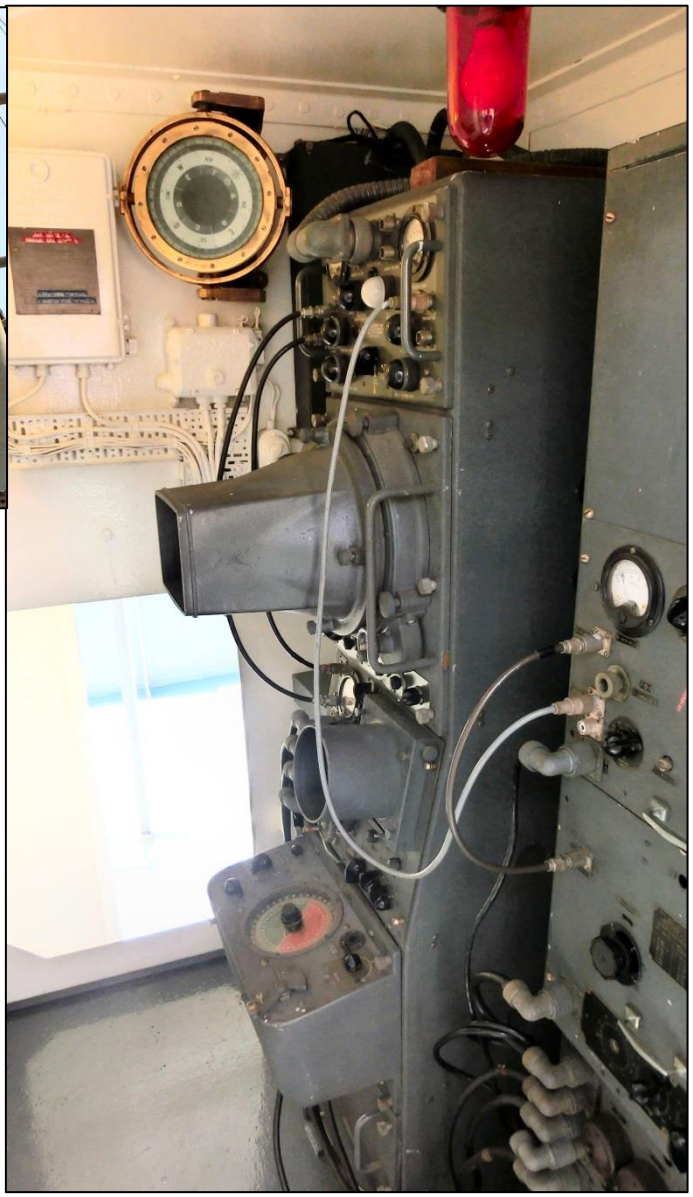
The Captain or his deputy would operate from the bridge, shown at left, which is out in the open air and from here he would pass directions to the men in the wheel house. Quite a few sailors would work at this position, blokes on signal lamps each side, look outs and of course gofors.

The small black door, partly seen through the gap in the surround, leads to the ASDIC position (below). The ASDIC operator could determine the range and depth of a submarine and this information would be fed to the weapons officer. This equipment was contained in an all metal 'box' and with the door usually closed, the temp inside, when operating in the tropics, would have been a bit warm.

Out to the side from the Captain's position was the Oilerkon cannon. These weapons were initially invented in Germany in about 1914, but after the treaty of Versailles which limited the manufacturing of weapons in Germany, production was moved to the Swiss firm, Semag. In 1924, the Semag company folded and the Oerlikon firm, named after the Zürich suburb where it was based, acquired all rights to the weapon, plus the manufacturing equipment and the employees of Semag, and continued to manufacture the cannon.

Diamantina also carried two 4 inch guns, one situated towards the front of the ship and one down the back. These guns could fire 12-14 rounds a minute and had a useful range of 17,000 metres. It required about 8 men to operate each, two sitting on the gun, one bloke operating the horizontal movement, the other raising and lowering the barrel and firing the gun. Shells, each weighing about 25 kg, would be brought up from the magazine below and manhandled to the gun where they would be loaded by the loader.

John Thiele, volunteer at the museum, showing his pride and joy, the big gun!!



Directly behind the Bridge position was the 10cm radar – another steel housing and another hot box for the operator. (See HERE)

The antenna was situated inside a round protective housing, situated above where the operator worked, and the signal was transferred from the transmitter to the antenna, then back to the receiver via a piece of 10cm wave guide bolted onto the outside of the housing.

Back in the war days, the poor old operator would have had to stand in front of the set, with his face glued to the PPI shield, keeping an eye out for Mr Enemy. No seat on which to take it easy, no air con to keep the area liveable – it was a case of grin and bear it.

There was quite a bit of radio gear on the ship, all very old stuff compared to today's standards and we have a lot of sympathy for the poor old Radtech whose job it was to keep it all going. Everything was run on inherently unreliable valves and associated circuitry and the ship must have carried tons of spares. The old AVO and the mighty scope iron would have really earned their money. Power to everything on the ship was provided from huge 220V DC generators, and being DC you can imagine the size of some of the equipment. Left, some of the old switch gear.

The ship normally carried a total of 140 sailors and the first thing you notice when looking over the ship, is the number of different messes. It seemed, back then, that each time you were promoted you moved into a different mess. The Seamen (Erks) did it tough, living right up the

front and bumpy end of the ship in some pretty rough and ready conditions with no permanent bed-space and a locker the size of a tea chest in which they had to store all their worldly possessions. You can see the metal lockers in the pic below, just to the left of the dining table.

Seamen were issued with a hammock which they kept for the whole period of their service but on board they had to find a spot to hang it. The way it worked, half the men would be on duty so they would roll up their hammocks and stow them, then those off duty would hang theirs and try and get some sleep. Not easy but I suppose you got used to it.

During meal times, all hammocks would need to be stowed so everyone could sit at the table and eat their meals which were cooked in the kitchen situated on the top deck. The kitchen (pic below) would provide meals for the full ship's company (140 men) but it wasn't a case of lining up bistro style to be served. In the sailor's mess, someone would be detailed off as the gofor and it was his job to head off upstairs, pick up all the food for the "lads", bring it down to the mess and dole it out.

Most of the ovens in the kitchen were steam heated, while the main range, behind the prep table, ran on diesel. You can just imagine how cramped and how hot it got in *there* at times.

As you moved up in rank you got it easier of course. The Mess below was the Engine Room Artificer's (ERA) mess. 4 blokes, who were tradesmen and who were responsible for the maintenance and repair of equipment in the engine and boiler rooms lived in here and ate their meals at the small table.

The Chief Petty Officers had a Mess, Petty Officers had a Mess, the Stoker Petty Officers had a Mess, and the Stewards had a Mess, most with foam beds though some would say, in rough weather, the bunks were a better choice and gave a better sleep.

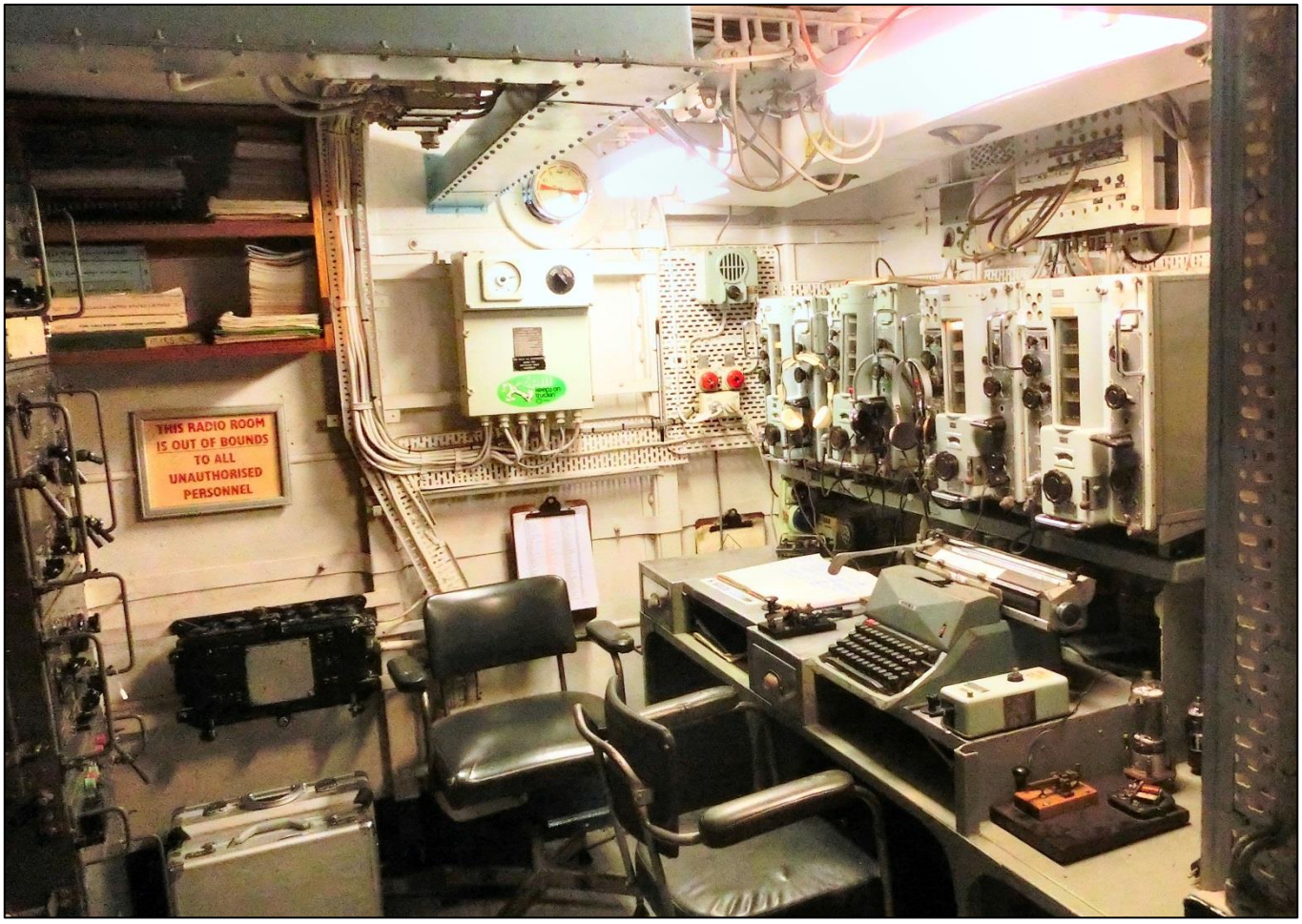
The officers got it a bit easier again. They had their meals and socialised in their wardroom (below).

The bar in the corner was “a pub with no beer” as RAN ships were dry when at sea, alcohol could only be served when in port and then at the Captain’s discretion. If allowed, each sailor was issued with 1 “tallie” each day – opened so it couldn’t be stored under the bed and enjoyed en masse on a Friday night – though if you had a mate who didn’t drink, you could definitely barter…...

The Captain, of course, had the best facilities, but then his was a lonely existence, unless invited by the other officers, he was not permitted into their Wardroom, instead, he had to live, eat and exist in his day cabin – though he was looked after by several stewards.

Of course, a bunch of blokes living together in close proximity required a number of ablution blocks otherwise deodorant use would have been extreme. As usual, the Sailors had the worst of it with the washing facilities below expected to cater for at least 100 blokes. The other Messes had their own facilities.

Privacy was non-existent, but back then girls on boats hadn't been invented so it was something you just got used to and got on with, though 5 shower stalls and 6 wash basins wasn't a lot for all those blokes – and you definitely didn't drop the soap!!



The Radio room was usually manned by a couple of sailors with Morse being the main method of communications. The radio room was situated close to the middle of the ship to minimise movement and if there was a ballot for jobs on this ship, this is the one I'd take….

Another 'device' that was situated in the middle of the ship, apart from the Captain's day cabin, was the main Gyro Compass. Ships rely predominately on a gyro compass, more so than the magnetic compass as the Gyro is not affected by the metal of the ship. Before the ship departs, the Gyro is spun up and set to point to true north and unless toppled or turned off, will continue to point to true north while the ship is underway. Slave compasses, receiving data from the main compass, were then situated around the ship.

As all charts are printed based on True North, the Gyro Compass is more handy than a magnetic compass when navigating as there is no requirement to adjust for magnetic deviation.

A ship like this would normally qualify for a Petty Officer sick bay attendant (Medic) but the Diamantina carried a doctor. The doctor would be responsible for:

- Looking after patient care and welfare,
- Performing first aid and emergency medical care,
- Looking after surgical wounds,
- Looking after patients before they go to a hospital,
- Monitoring the overall standard of hygiene on board ship,
- Looking after medical stores and equipment,
- Looking after medical records and forms.

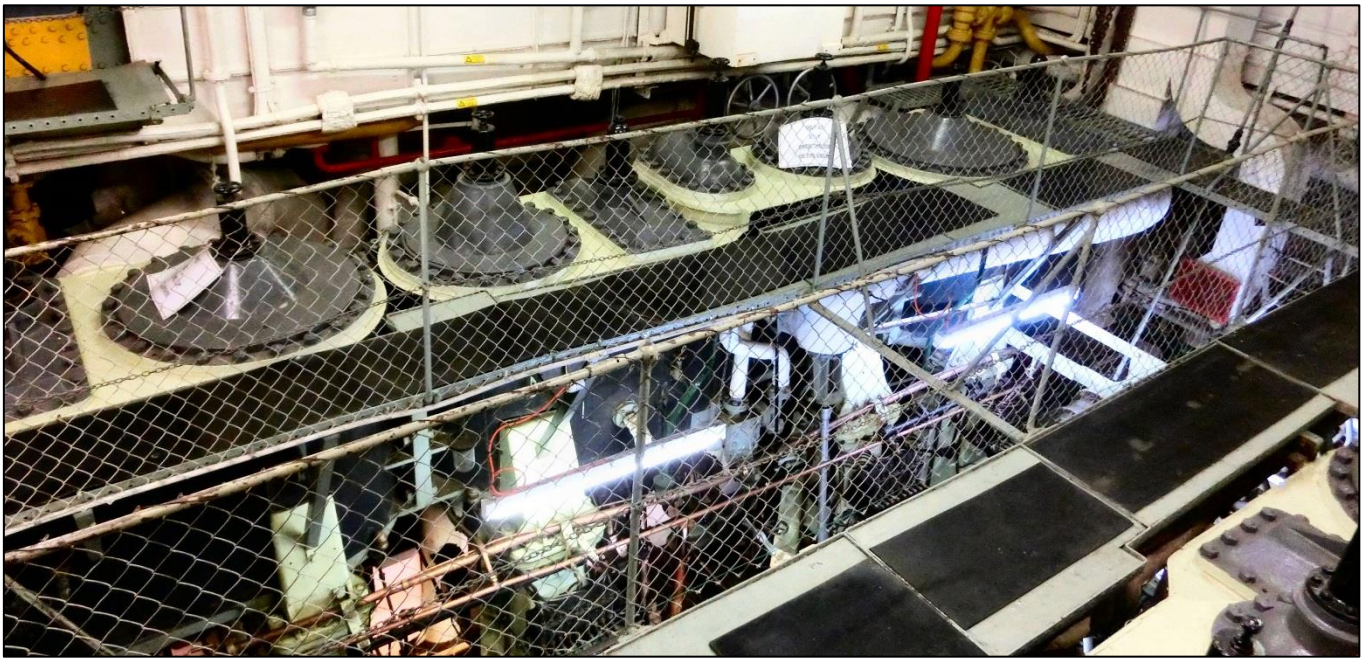
The doctor, of course, had his own 'room' though dined in the Officers' Wardroom.

The sick bay (below) was not the most salubrious of places, but then, when you're crook, it was probably a very welcome sight. (The counterpane on the bed below right looks familiar!!)

The Diamantina was powered by an oil fired boiler which produced high pressure steam, which drove two 4 Cylinder Triple Expansion Compound Steam Engines, each developing 2750 H.P. Each engine was direct coupled to a propeller giving the ship a top speed of 20 knots.

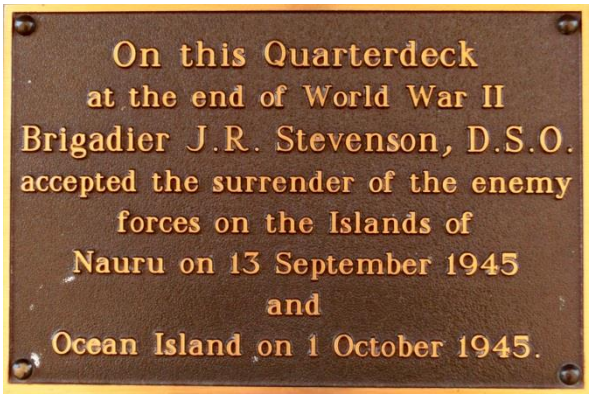
High pressure steam was generated in the ship's boiler room and then piped to the engines where it was injected into the smallest of 4 cylinders, forcing that piston down. The steam was then exhausted into another cylinder, much bigger in displacement than cylinder number 1, it forced piston number 2 down and the spent steam was then exhausted into 2 larger again cylinders where it forced those two pistons down. At first thought this seems all wrong, you would normally think that HP steam would be injected into the large cylinders first and as the pressure was expended, injected into the smaller ones. Not so!! Boyles Law states that $P_1V_1 = P_2V_2$ or as the pressure is decreased, the volume has to be increased to maintain the constant. Whatever, it worked!!!

After doing its job in the 2 number 3 cylinders, the steam was passed to a condenser, turned back into water and then returned to the boiler where the process started all over again.



In the pic above, cylinder 1 is to the right, behind the white sign on the fence, cylinder two is the one second in from the left and the two cylinders (number 3) are on each end of the bank.

Invented in 1781, this technique was first employed on a Cornish beam engine in 1804 and in around 1850, they were used to power the Lancashire textile mills.



It was then time to leave, we walked out onto the quarterdeck where, at the end of hostilities after WW2, several surrenders were signed.

Thanks to Ian Jampson and to John Thiele for a wonderful and informative afternoon. The Museum relies on donations and 'bums on seats' to fund the upkeep of all the exhibits so if you've got a spare afternoon and would like to see a very interesting and very professional display, we suggest you take the family down to Southbank and have a look over the old girl – we can guarantee you won't be disappointed.

Admission is very reasonable, Adults = $12, Family = $28, Seniors and Students = $11.

You can see additional information on the Navy's web site HERE.

o

This page left vacant.