SOUTH PACIFIC WWII MUSEUM

South Pacific WWII Museum

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Coolidge to sing again.

We've been sitting on this one for months. In fact since December of last year. However, we thought it time to make a significant announcement regarding the SS President Coolidge 80th anniversary event happening in October.

The voice of the Coolidge will once again ring out over Santo.

One of the items donated to us by the Allan Power Estate, following the Coolidge caretaker's sad passing in 2018, was one of the pair of ship's whistles or horns that was mounted on the front of the forward funnel of the ship.

The Coolidge blasts her whistles as she comes up the Hudson River in New York.

The whistle was in pieces and in very poor condition. The large steel rod that fastens the main bell chamber to the base had severely corroded and was completely beyond repair.

(continued...)

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It was still connected to the big brass end cap, but had corroded away where the bolt fastened to the heavy base.

The decorative bell nut off the top of the bell chamber was also missing, as was some of the hardware to fasten the steam pipe to the base.

While the principle behind its operation is very simple - a bit like blowing across the top of an empty bottle - making sure they didn't damage the bell when stripping it down into its component parts, was Museum Chairman Bradley Wood's main concern.

The Coolidge's whistle as it was when it was donated to the Museum.

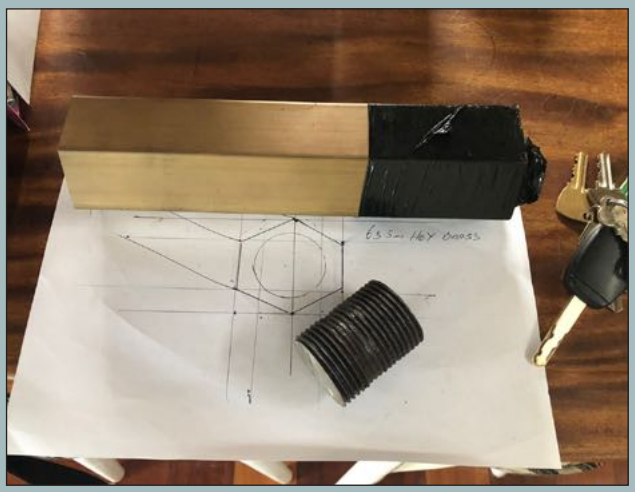
Hence why he's personally supervised the work on the whistle since day one (that and the fact that Bradley is like a kid in a lollyshop with this project).

The first task the restoration team set themselves, was to remove the broken stub of steel rod still in the base. Given the rod was fitted over 100 years ago, had seen service throughout the world, sank with the ship and was then recovered some 30 years later, it was going to be a challenge to remove it. (continued...)

An assembled whistle very similar to that of the Coolidge, by the same manufacturer.

The whistle's heavy brass base with the broken piece of threaded rod still jammed in its top.

The Coolidge's whistle base with the stubborn, broken piece of rod finally extracted by the team.



The large piece of brass stock that forms the basis of the new decorative end cap that will sit on top of the bell.

Various methods were employed - lubricants squirted around the stub, drills, hammers, chisels and a lot of heating with a blow torch. Finally it relented and the stubborn piece of steel was removed.

Taking those learnings, a blow torch was applied to the top of the bell. After some effort and more lubricant, the cap popped out with the remains of the steel rod still in place. Again, days of work was required to remove the corroded bell rod without damaging the brass cap.

To replace the missing upper bell nut, a new one will be created from new solid brass stock.

Whistle restoration team member Romel stands with the removed end cap. Note the corrosion in the centre steel rod.

The large diameter brass stock has been sourced in Brisbane and the heavy piece will come over to Santo with Bradley's son Jayden.

Soon everything will be reassembled and the real fun will start. So just how do you tune a ship's whistle?

You don't so much tune it, you adjust it to get the perfect 'clean' sound. It is a combination of air pressure and air volume as well as the height of the whistle's bell.

However to be certain, we needed some advice.

(continued...)

Enter the SS John W. Brown.

Museum Project Manager James Carter started researching other restored ship's whistles similar to that of the Coolidge. It turns out one was fitted to the SS John W. Brown. A Liberty Ship that has been restored and is now on the National Register of Historic Places in the United States. In fact the ship is fully operational and has been certified by the US Coast Guard for ocean voyages.

The magnificent, fully restored SS John W. Brown in her home port of Baltimore, Maryland USA. Photo M Kelly | nps.gov

After making contact with the organisation behind the ship, we were contacted by Mike Schneider a volunteer crewmember. He was in fact the last person to work on and adjust the steam whistle. Mike was impressed with our efforts to get the whistle going again and was more than happy to assist us where he could.

He said that the last time they had their whistle apart, it was "tuned" to get the resonant sound they wanted. This was done by blowing the whistle with compressed air (a lot cooler than steam) and then adjusting the bell housing by screwing it up or down to obtain the right sound.

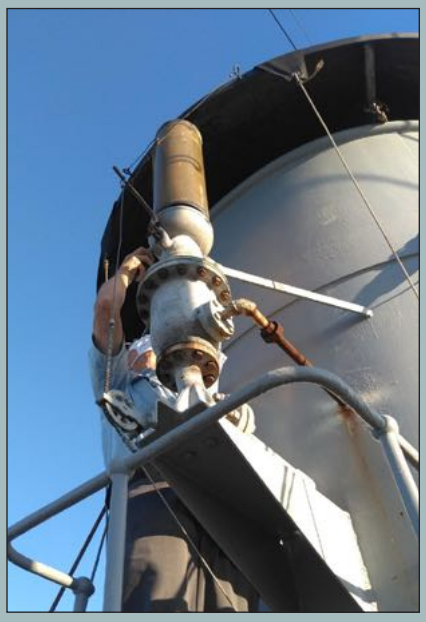
The base of the John W. Brown's whistle with the brass bell removed. It screws down on the threaded bold in the centre.
Photo ssjohnbrown.org

The Liberty ship steam plant produces steam at 200psi and its whistle is designed to operate at around that pressure. However, their compressed air system operates at a pressure of about 160psi. Luckily for us, the sound works just as well whether it is blown with steam or compressed air, at either pressure.

The amount of pressure required to gain the optimum sound and resonance will come down to trial and error.

Mike contacted us again with some more information on steam ship boiler pressures from a reference book he has entitled, *Steam at Sea*. Mike said that the book talks about passenger ships built in the 1930s with turbo-electric propulsion - similar to that of the Coolidge.

"The boiler steam pressures generally ranged from 350 - 395psi", he said. "I discussed this with other engineering volunteers on JWB and the consensus



A volunteer makes adjustments to the whistle on the John W. Brown. Photo Mike Schneider - ssjohnbrown.org

was that a turbo-electric steamship built in that era would likely have had a boiler pressure in the range 350 - 450psi. It is possible President Coolidge also had lower pressure steam systems to operate some machinery."

So does that mean we need some massive boiler or air compressor to generate the large volume of air we potentially require? Possibly.

(continued...)

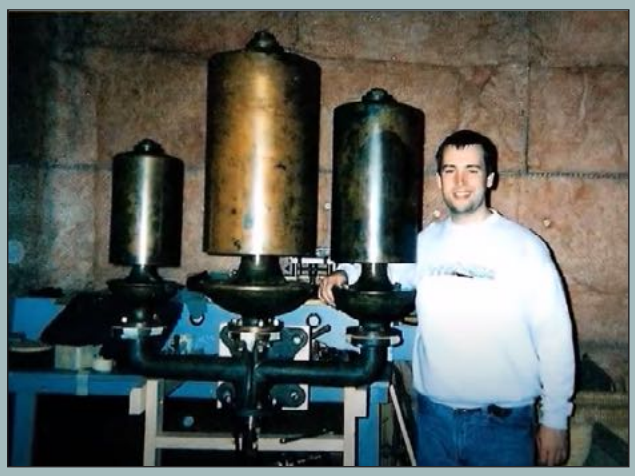
When the Titanic's whistles were recommissioned and sounded for the first time in 100 years, they operated on just 150psi - and they were unbelievably loud. A wonderful video on bringing those whistles back to life can be watched on YouTube here:

https://tinyurl.com/2t5k8rf9

So now it's up to Bradley and the team to experiment and adjust and tweak and whatever else they need to do to bring the whistle to life again. October 26 will be when we know if they've been successful.

In the meantime, the next problem facing the team is locating a compressor big enough to generate the minimum 150 pounds per square inch of pressure and in the volume that's needed.

Luckily for us, Bradley knows someone, who knows someone, who...



Erick Kahlenberg of Kahlenberg Industries in the United States (the original manufacturers of the Tiitanic's whistles), poses beside the restored whistles following their final testing.

The main components of the Coolidge's whistle - the bell, base and cap are cleaned up almost ready for assembly.

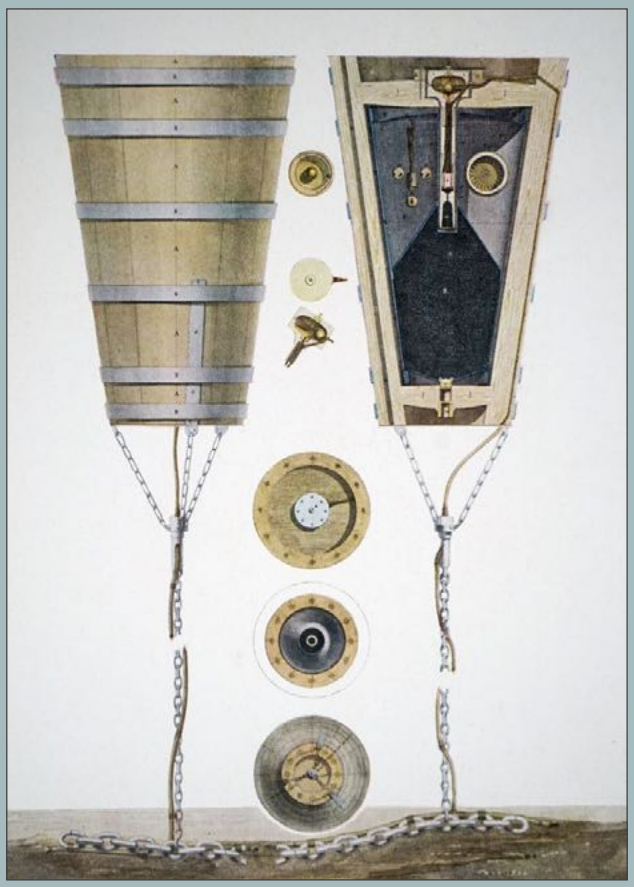
The underside of the bell cap, cleaned up and ready for reassembly, showing its manufacturer, Star Brass in Boston, Massachusetts.

In two mines.

With the 80th anniversary of the sinking of the SS President Coolidge coming up next month, we thought it timely to look at the weapon that sank the great steam ship - the simple but effective sea mine.

Sea mines actually date back to the American Revolution. While a student at Yale, David Bushnell, discovered gunpowder could be detonated underwater.

So In 1777, General George Washington authorised the use of this new invention to sink ships of the British fleet that were stationed at the Delaware River, off Philadelphia.

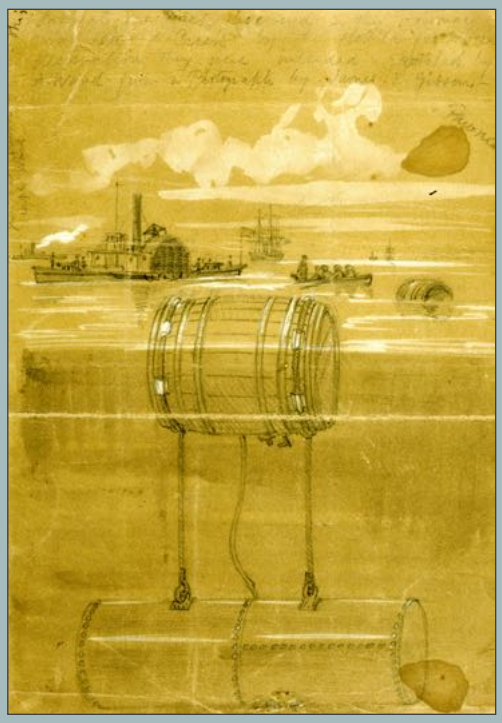


An illustration of the 1777 mine, used for the first time on the British fleet while they lay at anchor.

The mine was simple. A keg containing a gunpowder charge was supported by a float. Inside the keg, a gunlock was rigged, so that light impact would cause the hammer of the gunlock to release and theoretically explode the gunpowder.

Unfortunately for Bushnell, none of the British ships sustained any damage. However, the idea of the mine created a great deal of interest among the Continental Navy and not surprisingly, the British.

During the Civil War, the Confederates put mines to better use and sank a good number of Union vessels.



Sketch of an American Civil War-era mine – known as an "infernal machine" – in the Potomac River, 1861.
Photo Alfred Waud | Library of Congress.

Fast forward to World War I and sea mines were used to restrict German submarines to the North Sea.

However it wasn't until World War II, that a shift in sea mine applications and strategy was employed. They become an offensive, not just a defensive, weapon.

British ports and sea routes, became targets of German U-boats in the Atlantic. The Germans had developed a new type of mine that could explode based on magnetic, acoustic and even pressure changes in the water. Some were even pre-programmed to only detonate when contact was made with certain ships.

(continued...)

During World War II mines were also used strategically to starve the Japanese economy. During Operation Starvation, the US Navy laid more than 12,000 mines along Japanese shipping routes and harbour approaches. Around 650 Japanese ships were sunk, disrupting the majority of their maritime shipping and inflicting a form of psychological warfare inflicted upon the Japanese people.

US bombers dropped mines into the shipping channels and approaches in and around Japan in April 1945.

Sea Mine Damage

The damage a sea mines creates, is a result of ' shock factor value'. That is, a combination of the power of the explosion and of the distance between the detonation and the target. A number of other factors take into account on which part of the ship the detonation occurred.

The Coolidge suffered damage as a result of 'direct damage' by Mark 6 sea mines laid by USS Gamble, in early August 1942. As its name suggests, this type of damage will result in a hole blown in the ship and fragmentation wounds amongst the crew.

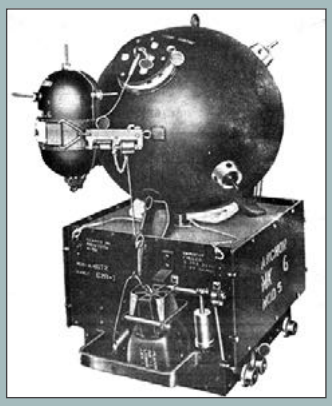
It's not hard to imagine the damage done to the Coolidge when you see a mine explode like this.
Photo Naval History and Heritage Command

Flooding will usually occur in one or two of the main watertight compartments, which can be catastrophic for smaller ships, and certainly disable larger ones.

Damage usually occurs at, or close to the waterline near the bow. However, as was the case with the Coolidge, one mine struck on the port side directly beneath the engine room, while the second blasted the starboard side bottom plates also quite close to the engine room.

Mark 6 (Moored Contact) Mine

The Mark 6 mines laid in the Segond Channel were 34 inches (87 cm) in diameter. This particular type of mine was designed specifically for the North Sea in World War I. However, the design was so successful it was still in use in 1978. In fact it remained in US inventories until about 1985, making it the USA's longest-lived mine.



The Mark 6 mine sitting on its 'anchor'.

The Mark 6 weighed 1,400lbs. (635kg), which included a charge of TNT weighing 300lbs. (136kg). It could be moored in waters up to 3,000 feet (914 metres) deep. To ensure the mine couldn't detonate prematurely, three safety devices were installed:

A time delay.

A hydrostatic, which held a switch open until the mine had sunk several feet underwater.

A device to keep the explosive steps open until the mine had reached a considerable depth.

Contact detonation of a mine occurs by either galvanic action (as the result of contact of dissimilar metals in salt water), or by simple closure of a switch as the result of impact by a ship.

(continued...)

Ironically, the Mark 6 mines laid by the USS Gamble, were assembled on nearby Aore Island at the Mine Assembly Depot - just eight kilometres away.

Laying the mines

The mines in the Segond Channel, were moored to an 'anchor' that sat on the ocean floor at the entrance to the shipping channel. So just how were they moored to the seafloor?

An ingenious automatic mooring system was used, that could measure the depth of where it was being laid and secure the mine via a cable to the anchor. Here's how it worked.

1: The mine is launched from a ship.

2: The mine floats and the 'plummet' sinks down.

3: The plummet has unwound the deep line to the set length and opens the connection between the anchor and the mine.

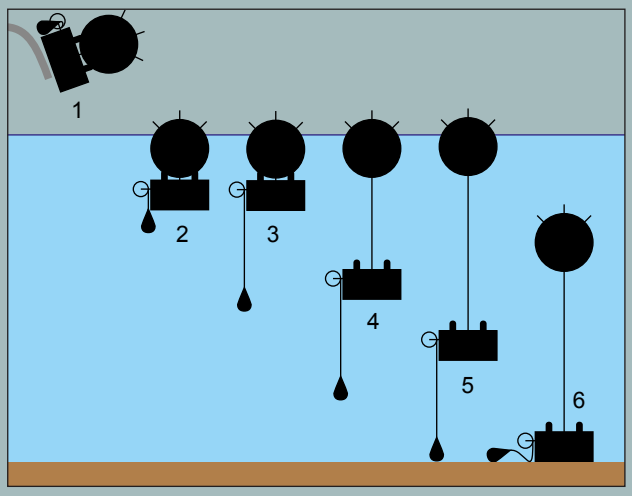
4: The anchor sinks down and unwinds the mooring cable as it continues down.

5: The plummet reaches the seabed and a brake prevents further unwinding of the mooring cable.

6: The anchor pulls the mine at the mooring cable to the desired depth. (continued...)

The building in the lower right of frame above the aircraft wing, is where thr mines that sank the Coolidge were assembled on Aore Island.

The ship that laid the mines in the Segond Channel that were struck by the Coolidge - USS Gamble, at San Diego, California, circa 1919. Photo US Naval History and Heritage Command.



The ingenious system for laying moored mines such as the Mark 6. Illustration Martin Meise - sites.google.com/site/martinmeiseen

Protecting a ship

A steel-hulled ship can be protected from the galvanic action of sea mines via degaussing to reduce the ship's magnetic field.

This can be achieved via electrical coils fitted along the ship from bow to stern and have an electrical current passed through them, to nullify the ship's field. Alternatively, during WWII, a ship could travel to a special 'degaussing station' where a technique called 'wiping' would literally drag a current-carrying cable up and down a ship's hull temporarily cancelling the ships' magnetic signature.

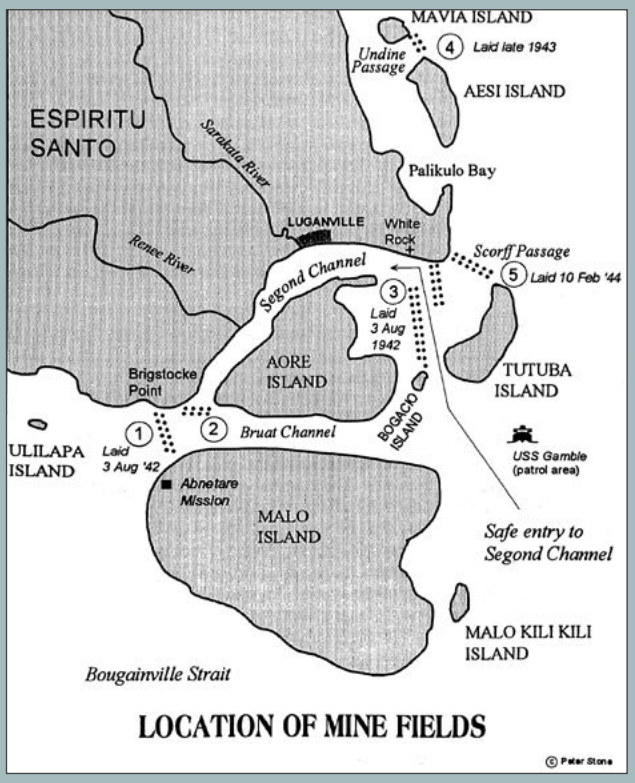
The down side to the process is magnetic compasses need recalibration and ships regain their magnetic field as they travel through the Earth's magnetic field. Therefore the process has to be repeated every six months.

Base Button in Espiritu Santo actually had a degaussing station built on Bokissa Island.

Degaussing still goes on today. In this shot, an LA-class USS Toledo (SSN-769) prepares to get underway after four days at the Magnetic Silencing Facility. Photo US Navy.

As is specified in the 'Santo Base Summary' for 1944, "Shallow Range can take a ship of destroyer class and smaller for check-runs and complete degaussing coil calibration. Loop range for S.M.S.D. gear. Inspection, repair and compass compensation service."

Being a passenger steam ship, the Coolidge was no doubt never degaussed. However, as the ship more than likely made physical contact with the mines, degaussing would have been of no use anyway.



The mine fields protecting the Segond Channel in the south east corner of Espiritu Santo. Illustration Peter Stone.

Forewarned is forearmed

As can be seen in the great map from Peter Stone's book *The Lady and the President* - probably the finest book ever written about the Coolidge, the ship never stood a chance. It would have been more luck than anything else for the Coolidge to make it through, and ultimately dock in Luganville.

The Mark 6 mines certainly did their job, just on the wrong ship - or ships, if you include the USS Tucker that also hit mines at the Western end of the Segond channel and sank.

In fact, no enemy ships or submarines were known to have been damaged or destroyed by the mine fields of the Segond Channel in Espiritu Santo. The reason for that is probably quite simple - the Japanese Navy probably suspected the channel would be mined.

In the words of Lt. D. W. Kralovec the Base Button Historian in his report entitled, *A Naval History of Espiritu Santo*, "This, if it be a fact, is alone enough to justify the existence of the fields."

THIS MONTH IN MILITARY HISTORY

To hell and back.

The epic battles of Guadalcanal have just been marked in 80th anniversary commemorations, and rightly so.

But it's unlikely a year from now that there will be same level of modern-day attention marking the battles of August 1943, in what was the New Georgia island group.

By February 1943, Japan had evacuated Guadalcanal. But that was in many ways a beginning, not an end. The empire had had time to strengthen its defences further along the Solomon Islands chain of islands that led towards the key base of Rabaul.

Infantry of the 172nd Regiment advancing toward Munda Point, August 1943. Photo US Army & National US WWII Museum, New Orleans.

The Allies would have to overcome those. The foothold won so far, and the massively growing bases in the New Hebrides (Vanuatu) would be the stepping off points for the New Georgia campaign.

Once again it would be about airfields, either building them or capturing them – and the first objective would be a Japanese airbase at Munda Point, on the southwest tip of New Georgia.

Operations began in early July, and were a shock for the largely green US army troops fighting in the energy and morale-sapping jungle for the first time, and encountering fierce Japanese resistance – including nerve wracking banzai charges.

An official report of one night attack against the 43rd Division's 169th Infantry Regiment noted: (continued...)

"Some men knifed each other. Men threw grenades blindly in the dark. Some of the grenades hit trees, bounced back, and exploded among the Americans. Some soldiers fired round after round to little avail.

A soldier of the 25th Infantry Division on New Georgia, July 1943.
Photo US Army & National US WWII Museum, New Orleans.

In the morning no trace remained of the Japanese dead or wounded. But there were American casualties; some had been stabbed to death, some wounded by knives. Many suffered grenade wounds, and 50 percent of these were caused by fragments from American grenades."

A general was sent to review the fast-collapsing command. The critical report by General Oscar Griswold saw him instead put in charge of turning matters around. Troops were rested and refitted.

Fighting resumed in late July, and there was no fast victory. However, the American troops were no longer as green or shaky, and were learning how to work together with tanks, artillery and flamethrowers to methodically take out the Japanese defences.

Finally, in early August 1943, the airfield at Munda Point was captured. The army division had won their spurs – and three Medals of Honour. The airbase would be operational within two weeks, and the Solomons campaign would continue on.

Thanks to the National US WWII Museum, New Orleans, for information and images.

Inspiring everyday heroes

If you've ever been in our Luganville museum at the same time as some young Ni-Vanuatu visitors, you'll know how much of a thrill they often get.

It really is a whole new world for the youngsters – who have no idea about the war, or just how big and influential it was. It's very rewarding to see them soaking up information, and who knows where that will lead as they grow older.

So, we can only applaud recent words from a founding father of Vanuatu, Pastor Sethy John Regenvanu.

As reported in the Vanuatu Daily Post, Mr Regenvanu told a group of young journalists that they should write more about Vanuatu's history.

"I am one of the few leaders who is still around, and we are sort of a rare commodity," he said.

"You may say that you cannot find important books that pertain to us, then you have to ask why.

"I want you people to feel able to come and interview us who have lived in different stages of the country's evolution and have had the experience of leading this country into independence – and interview us and write books about us."

The 78-year-old author wrote his autobiography entitled 'Laef Blong Mi' in 2004 – and said not many had written about important people in Vanuatu's history.

Sethy Regenvanu with the foundation stone he laid in Unity Park, at the opening of the South Pacific WWII Museum Development Office in 2017.

As we've said, we applaud those words. It would be great to have our Museum as a genesis for Ni-Vanuatu people to build on the knowledge of those who have gone before, and make sure many more people know the remarkable wartime stories of these islands.

Inspiring Everyday Heroes is our Museum brand and means how the stories of yesteryear and our project can inspire today's new generation.

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