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Australia Will Need to Develop its Own Space Force



Australia's ongoing Defence planning review, culminating in a new Force Posture Review and eventually a new Defence White Paper, will have to factor in one major domain: space. And while many criticised America's creation of the Space Force, the growing tactical and strategic dependence on the domain means Australia's own Space Force should be a top priority.

It's 2020, all of Australia's multibillion-dollar advanced weapons systems and capabilities are relying on secure tactical communication technologies to function and deliver the joint military effect, none of which would be possible without utilising and controlling the space domain.

With the battlefield of tomorrow driven and controlled by communications and information, it is vital to know the impact an aggressor would have should these assets be disabled in a conflict.

Why space matters to Defence

The general public often forgets the importance of space in their everyday lives. The ubiquitous GPS (global positioning system) is a satellite system that provides precise position, navigation and timing capabilities to our iPhones, fitness devices and general satellite navigation products.

GPS satellites also provide our Defence Force with the capability to pinpoint enemy locations, aid in search and rescue missions, even to find shelter for troops under fire. In fact, every mobile or kinetic system, including precision guided weapons, relies on GPS to accurately navigate to fixed targets.

Meanwhile, Intelligence, Surveillance and Reconnaissance (ISR) satellites – often referred to as “spy” satellites – inform Defence and Intelligence communities of concerning developments in urban environments or on the battlefield. ISR satellites provide real-time data associated with enemy and friendly troop or vehicle movements; they are used to keep track of those who seek to do harm to our nation, and give advance notice of incursions in or near Australia’s borders from maritime or airborne threats.

Communications satellites (SatCom) enable Defence personnel to maintain contact with each other anywhere in the world and to deliver updates from ISR satellites and other sensors in the field. SatComs support unmanned drones and vehicles on land that operate semi- or fully autonomously. Indeed, future systems will need a combination of GPS navigation sensors and satellite communications to deliver the potent response we will need to fight and win.

More recently, internet of things (IOT) technologies are enabling a large number of sensors (thermal/infrared, among others) to be deployed into the battlefield, relaying information through an orbiting satellite to command and control locations.

Without these critical assets in space, our Defence Forces could effectively be rendered inoperable, relying on World War II-like communications technology (as described in a 2017 AARC article by Lieutenant Colonel (Ret’d) Greg Rowlands), and our multibillion-dollar strategic and tactical assets, such as the F-35, Growler and P-8A, would have their capabilities severely degraded.

What has changed

We can no longer assume that satellites are safe in orbit. Key adversaries have already demonstrated potent anti-satellite (ASAT) weapon systems from Earth and in space, proving that all of our key communications infrastructure are at risk as high-value targets.

The Russian, Chinese and Indian armed forces, among others, have successfully tested ASAT missiles. The Chinese are purported to have the ability to attack geostationary satellites over 36,000 km in altitude, and the Russians recently put to test small satellites capable of changing orbits to “shadow” larger reconnaissance satellites. Indeed, the latter’s potential to destroy strategic satellites in orbit has generated great concern in our key ally, the US.

What’s more, given recent geopolitical events, we can no longer assume that our allies will come to our aid with launch and satellite technology. They too could be suffering similar losses, and in such cases would likely prioritise their own national interests.

Our response...?

It is vital for Australia’s Defence Force to recognise that today our satellite network has the same strategic importance as an Air Force base, an Army tank platoon or a Navy destroyer, and that it is significantly more vulnerable to threats.

A coordinated attack from a capable adversary could destroy a significant number of our key defence and civilian satellites within 24 hours, altering our way of life and ability to defend ourselves faster than any virus ever seen.

In this new world, tactical responsive and sovereign space is no longer just a “nice to have” but a Defence capability that would ensure we have:

- back-up satellites ready to be placed into orbit;
- the ability to launch and replace destroyed or damaged satellites within a 24-hour period in the event of a conflict;
- to control when and where these satellites are placed (perhaps even launching ISR satellites to specific orbits over troubled areas); and
- directly protect and control the launch site they are launched from.

Standard military doctrine requires key assets/equipment (tanks, fighter planes, ships etc) to be held in reserve during a sustained conflict. The size of this reserve or “magazine” is monitored across a whole range of Defence systems. Our magazine in space is zero.

Sovereign space, responsive launch

The good news is that Australia is naturally blessed with a coastline that would allow us to launch into almost every orbit possible from Earth. Very few countries have that capability today, making an Australian launch capability valuable to our allies for their own tactically responsive space needs.

What is also significant and different now is that there are Australian companies working on small satellite manufacturing (e.g. Skycraft, Inovor), orbital launch vehicles (Gilmour Space) and launch sites (Southern Launch, Equatorial Launch) to support this sovereign launch capability.

With relatively small investments from Defence, these Australian companies could be producing ‘mission-ready’ space vehicles within the next two to three years.

As ASPI’s senior analyst, Malcolm Davis, highlighted: “Australia’s space industry can directly support Defence’s space requirements in coming years through local development of small satellites for defence purposes, and to build the capability to launch those Australian satellites on Australian launch vehicles from Australian launch sites.”

Decisive action will be needed for Australia to have its own sovereign space and launch capabilities, to manufacture and secure its own supply chain, to support our allied interoperability in space, to protect our cherished way of life and our national security – all of which should be brought together by an Australian Space Force.

It’s time for a Defence strategy that encompasses land, sea, air, cyber – and space.

Adam Gilmour is the CEO and founder of Gilmour Space, a leading Australian orbital rocket and launch company based in Queensland, which recently signed a collaborative agreement with the Defence Science Technology group.

DefenceConnect

The Italian Attack on Alexandria Harbour

18/19 December 1941

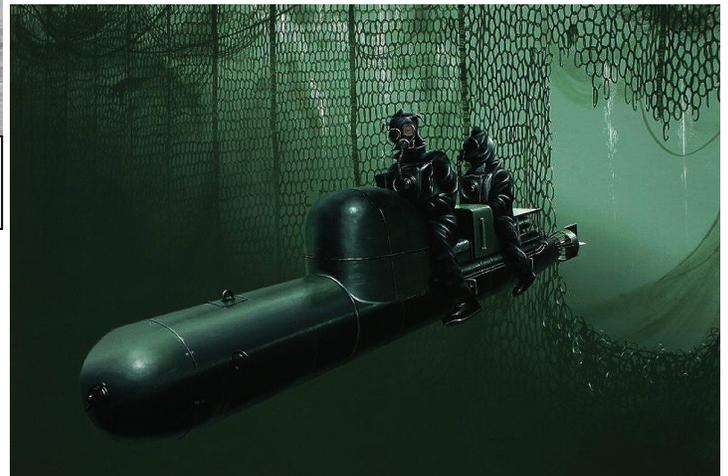
The **Raid on Alexandria** was carried out on 19 December 1941 by Italian Navy divers of the Decima Flottiglia MAS, who attacked and disabled two Royal Navy battleships in the harbour of Alexandria, Egypt, using manned torpedoes.

On 3 December, the submarine Scirè of the Italian Royal Navy (Regia Marina) under the command of lieutenant Junio Valerio Borghese left the naval base of La Spezia carrying three manned torpedoes, nicknamed maiali (pigs) by the Italians. At the island of Leros in the Aegean Sea, the submarine secretly picked up six crewmen for them. Commanding the group was Lieut. de la Penne



HMS Valiant (front)

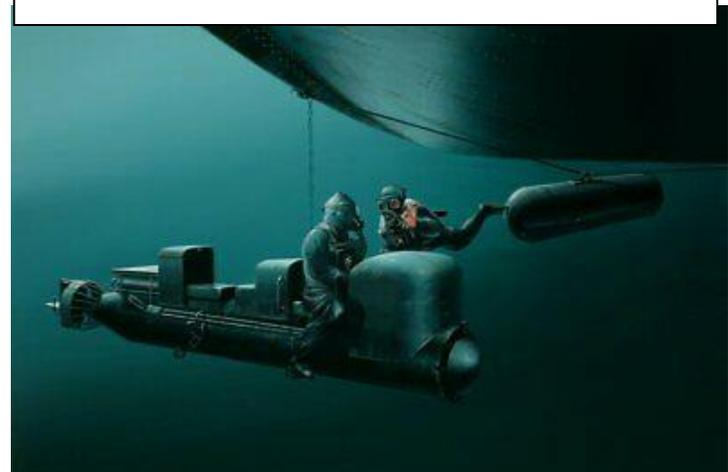
On 19 December, Scirè—at a depth of 15 m (49 ft)—released the manned torpedoes 1.3 mi (1.1 nmi; 2.1 km) from Alexandria commercial harbour,^[4] and they entered the naval base when the British opened their defenses to let three of their destroyers pass. There were many difficulties for de la Penne and his crewmate Emilio Bian-



Torpedo Frogmen detaching the Limpet mine

chi. First, the engine of the torpedo stopped and the two frogmen had to manually push it; then Bianchi had to surface due to problems with the oxygen provider, so that de la Penne had to push the maiale alone to where HMS Valiant lay. There he successfully placed the limpet mine, just under the hull of the battleship. However, as they both had to surface, and as Bianchi was hurt, they were discovered and captured.

Questioned, both of them kept silent, and they were confined in a compartment aboard Valiant, below the water line, and coincidentally just over the place where the mine had been placed. Fifteen minutes before the explosion, de la Penne asked to meet with Valiant's captain Charles Morgan and then told him of the imminent explosion but refused to give further information, so that he was returned to the compartment. When the mine exploded just beneath them, neither was severely injured by the blast, de la Penne only receiving a minor injury to the head from a ship chain. Meanwhile, Marcegaglia and Schergat had attached their device five feet beneath the battleship HMS Queen Elizabeth's keel as scheduled. They successfully left the harbour area at 4:30 am, and slipped through Alexandria posing as French sailors. They were captured two days later at Rosetta by the Egyptian police while awaiting rescue by Scirè and handed over to the British. Martellotta and Marino searched in vain for an aircraft carrier purportedly moored at Alexandria, but after some time they decided to attack a large tanker, the 7,554 gross register ton Norwegian Sagona. Marino fixed



the mine under the tanker's stern at 02:55. Both divers managed to land unmolested, but were eventually arrested at an Egyptian police checkpoint.

In the end, all the divers were made prisoners, though they succeeded in severely damaging both Queen Elizabeth and Valiant, disabling them for nine months and six months respectively. Eight members of Queen Elizabeth's crew were killed. Sagona lost her stern section and the destroyer HMS Jervis, one of four alongside her refuelling, was badly damaged. Neither of the two capital ships sank but they were out of action for several months.

This represented a dramatic change of fortunes against the Allies from the strategic point of view during the next six months. The Italian fleet had temporarily wrested naval supremacy in the east-central Mediterranean from the Royal Navy.

Valiant was towed to Admiralty Floating Dock 5 on the 21st for temporary repairs and was under repair at Alexandria until April 1942 when she sailed to Durban. By August, she was operating with Force B off Africa in exercises for the defence of East Africa and operations against Madagascar.

Queen Elizabeth was in drydock at Alexandria for temporary repairs until late June, when she sailed for the United States for refit and repairs, which ended the following June. The refit was completed in Britain.^[17]

Jervis was repaired and operational again by the end of January.

Postscript

Written by Admiral Morgan, R.N. who, as a Captain, was in command of "Valiant" at the time of her sinking awarding the Decoration of Lieut. de la Penne with the Italian Gold Medal for Valour, the Italian equivalent of our VC.

On the 19th December, 1941, the British Fleet in Alexandria Harbour was attacked by 3 Italian 2 man torpedoes. The Senior Officer of the flotilla Lieut. de la Penne, Royal Italian Navy, with his Artificer Diver attacked HMS "Valiant" of which I was then Commanding Officer. They were captured swimming in the water alongside the ship at about 3 am and for the next 3 hours de la Penne was my prisoner onboard the ship. As he refused to say whether he had attached anything to the ship, I placed him down below close to that part of the ship's side where I thought the explosive charge might have been fixed.

At about 05.45 I was told that Lieut. de la Penne wished to speak to me and I had him brought up to the Ward-room. All he would say was that very soon there would be some explosion but he still refused to say whether or not any charge had been attached to the ship. I therefore had him taken down below again, closed all WIT doors, cleared lower deck and ordered all officers and men onto the upper deck.

At 06.04 an explosion occurred under the ship which blew a very large hole in the hull abreast "B" turret, twenty one feet below the waterline. There were no casualties, but as a result of the damage the ship was out of action for over 5 months. Neither Lieut. de la Penne nor his assistant were injured by the explosion as they were in a compartment well forward of the damage. Later on I learnt from de la Penne that the charge was not slung under the ship, as he had intended, but owing to a mishap had to be placed on the bottom of the harbour below the ship, and he was uncertain what effect the explosion would have on the ship with the bomb in this position. Lieut. Penne was taken ashore about 06.30 and I did not meet him again until he was repatriated from India in 1944 when I was Admiral Commanding Taranto and the Adriatic. After this he came to see me quite frequently, and not only gave me his version of the attack on HMS "Valiant" but explained many other matters of which I had been in doubt. He was also most helpful in keeping me supplied with valuable information on the attitude and reactions of Italian Naval Officers especially the younger ones at that time. He subsequently played a most gallant part in the attack on Spezia and I did my utmost to obtain a British decoration for him. However, as we were officially still at war with the Italian nation, no awards were being granted to Italian naval officers.

In March 1945, the Crown Prince of Italy came down to Sorrento to inspect the Italian ships and establishments. I lunched with him on the second day and accompanied him during his inspections which included a visit to St. Vito barracks where a presentation of medals was to take place. The first officer to be decorated with the Italian Gold Medal for Valour (equivalent to our VC) was Lieut. de la Penne for this attack on HMS "Valiant" on 19 December, 1941. After the citation had been read out to the parade, de la Penne came forward to the platform. As he did so, the Crown Prince turned round and said:

"Come on Morgan, this is your show".

I stepped forward took the medal from the Crown Prince's hand and pinned it on Lieut. de la Penne's breast.

I thus had the pleasure, and honour of decorating Lieut. de la Penne with the highest award granted by the Italian Navy for the very courageous and gallant attack he made on my ship 3 years and 3 months before.

18 Oct. 1946

Wikipedia, Museo Storico Navale Venezia



Luigi Durand de la Penne