A Secret Submarine off the coast of New South Wales

By Tom Lewis

Military history sometimes turns up surprises. In the Royal Australian Air Force's official history there are no enemy submarines listed as sunk in the Pacific. There are several credited to their skills in the Atlantic, but Japanese boats apparently escaped unscathed. But that is not so. New research encapsulated in *The Secret Submarine* shows that the *I-178*, with a crew of 86 men, was sunk by two RAAF Beaufort bombers off New South Wales in 1943.

Enemy submarines took an appalling toll off Australia's coasts in World War II. Scores of ships were attacked, hundreds of lives lost. The country was very badly defended: almost totally unprepared for war, with military forces issued contrary or confusing orders or in some cases none at all. Although willing to fight, on many occasions the defenders were under-equipped or untrained.

Air raids were little resisted as they devastated northern towns with hundreds of attacks, for there were no Hurricanes or Spitfires to oppose them – two years, incredibly, after those same aircraft had proved their worth in the Battle of Britain.

Japanese submarines ranged down the eastern coast to prevent US forces reaching Australia to use it as a base. The submarines had it easy. Cities were not blacked out, providing excellent silhouettes to target ships emerging from their harbours. The submarines launched aircraft to overfly the harbours to see what targets were there. The planes were clearly marked as Japanese, but they overflew cities without being fired at. The naval forces which initially countered the submarines were poorly prepared if at all; some had no weapons, and their training was minimal.

The Imperial Japanese boats came and went almost with impunity. In the total submarine war, it appeared Allied forces had only sunk three of the enemy: one fleet submarine off Darwin and two midget two-man submarines in Sydney.[1] But as the war developed the defending forces improved their capabilities.

How, Why, and Where did this action take place?

The How is likely by depth charges dropped from two Beaufort bombers of the Royal Australian Air Force. But did the submarine not return to its base at Truk Lagoon, to the north-east, one of the many island bases held by the Japanese? There was no wreckage found to indicate it was sunk.

The Why is more complex. In the entire war, there were thousands of real or imagined "contacts" off the coasts of Australia. But only four submarines, with this being one, were sunk. The other three were from the attacks of Royal Australian Navy ships.

The Allies in the Pacific were not very effective in air attacks on submarines compared to their colleagues in the Battle of the Atlantic. Only 16 were sunk by air out of the 174 the Japanese lost. By comparison, in the Atlantic, of the 632 German U-boats sunk at sea, Allied shore-based aircraft accounted for 245. Percentage-wise, this is 9% against 39% - the Atlantic air attacks were four times more effective.

The *I-178* appears to have been caught by surprise on the surface at night, probably charging its batteries off its diesel engines. That was not too unusual, but for an experienced submarine commander – this one was – to be caught in this way, and for him not to dive in a timely fashion, was indeed unusual. So the book explores what may have happened there.

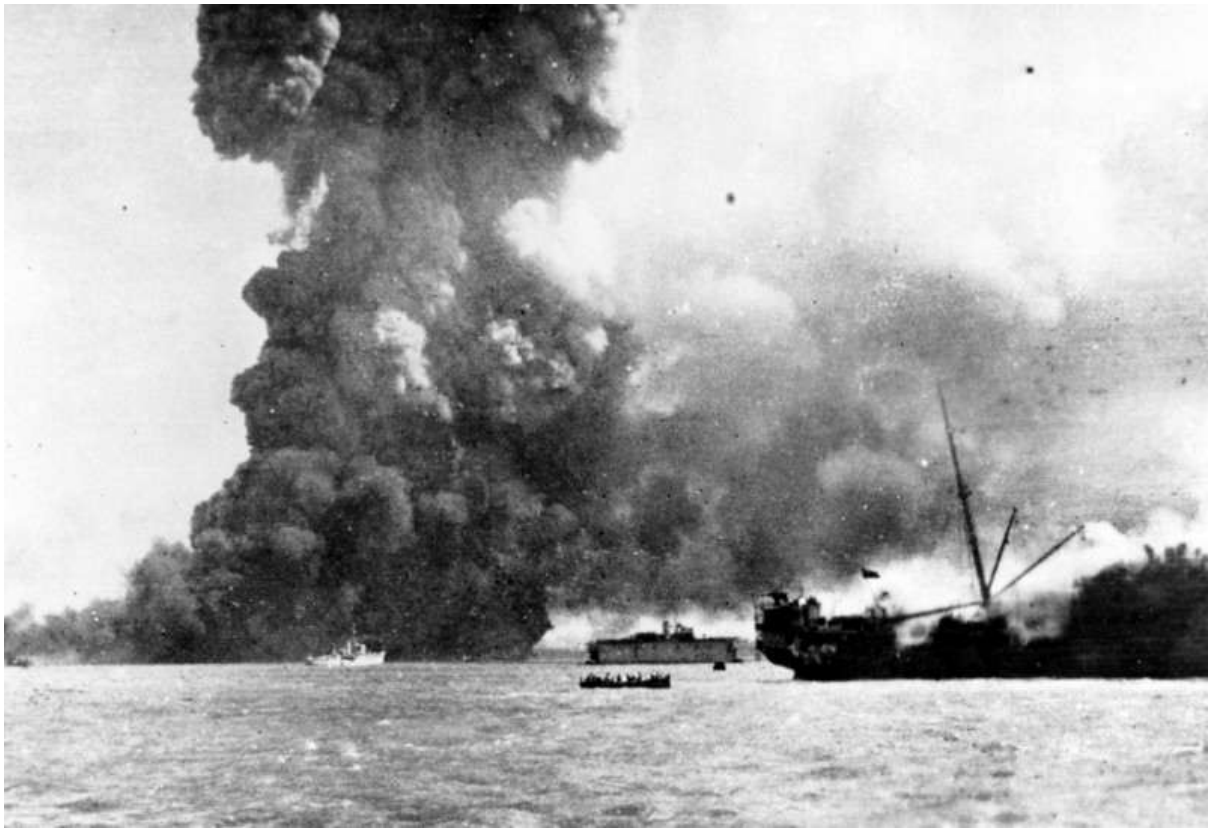
[1] The third midget submarine, which torpedoed HMAS *Kuttabul*, killing 21 men, escaped and was found scuttled outside Sydney harbour in 2006. The same author's *Attack on Sydney Harbour* analyses the action.

The Where is answered, for the locations of the Beauforts, when the submarine disappeared, are known. *I-178* never made it home, so if she did manage to regain some motive power she will lie on a line between the last sighting and Truk Lagoon. If she didn't regain the ability to move she lies somewhere south of her last location, off Port Macquarie, north of Newcastle.

The Secret Submarine was written primarily for the reader who wishes to understand what it was like to go to war in a bomber in WWII, or to take part in combat in a submarine. The reader will find these worlds were extremely demanding, even horrifying. They are an insight into a world of the brave and the few, for aircrew and submariners, although numbering in the hundreds of thousands by the end of the war, were much less in number than their comrades in arms otherwise. And they were all volunteers too – so this is salute to those men who ventured into these strange and fantastic worlds of the undersea and the air above.

The submarine war commences

Many people will have heard of the massive air raid carried out against Darwin in February 1942. 188 Japanese aircraft, launched from four aircraft carriers to the north-west of the northern capital, struck the town at 958 on a Thursday morning. The Kate three-man bombers dropped their bombs; the Val divebombers then moved in and attacked ships and buildings, and the Zero fighters circled to shoot down any opposition. The defence was minimal. Strangely it was flown entirely by Americans – ten Kittyhawk fighters put up a brave defence, but nine were shot down and four of the pilots killed. The town's anti-aircraft guns put up a spirited defence – 30 of the attacking machines were hit – but only four of the Japanese aircraft were brought down. 236 people were killed; eleven ships sunk, and 30 Allied planes destroyed.

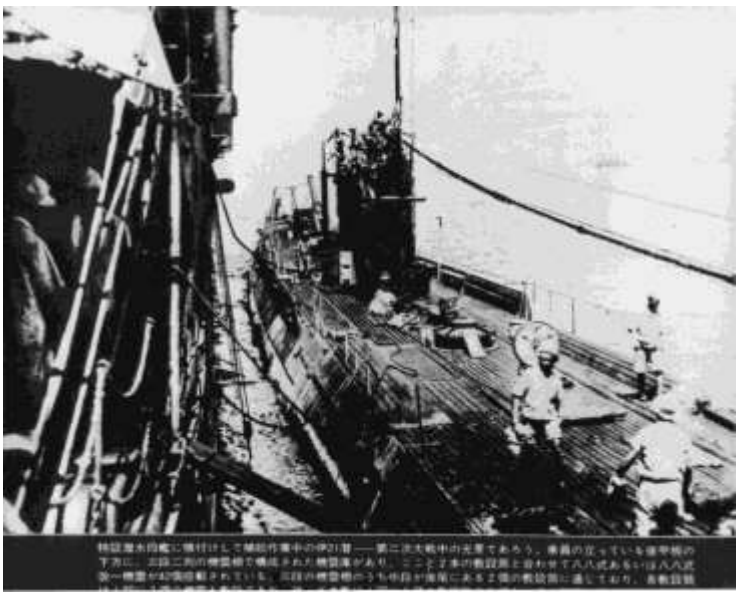


The cargo of depth charges on the freighter Neptuna detonates in the first Darwin raid, and the freighter Zealandia (right) burns and sinks

However it was with submarines a month before that the Japanese had commenced their assault on Australia. The four 8th Submarine Squadron boats were deployed to Darwin, Australia's northern capital, then a small town but possessing strategically positioned runways and refueling tanks. The submarines laid mines and lay in

wait to attack shipping, and on the morning of 20 January one of them attacked a three-ship convoy in its way into port. Two of the ships were US destroyers, and they turned and hunted unsuccessfully before continuing their escort duty. So the alarm was now raised, and several warships came out of harbour to continue the search.

That afternoon *I-124* fired a torpedo at the corvette *HMAS Deloraine*, in a typical example of the IJN's submarine mindset – attack everything, rather than go after the freighters and tankers, as other navies did. But firing at a warship specifically equipped to hunt submarines often had a price, and *I-124* paid it – she lies with her 80 crew still outside Darwin today. The other three submarines beat a retreat.[2]

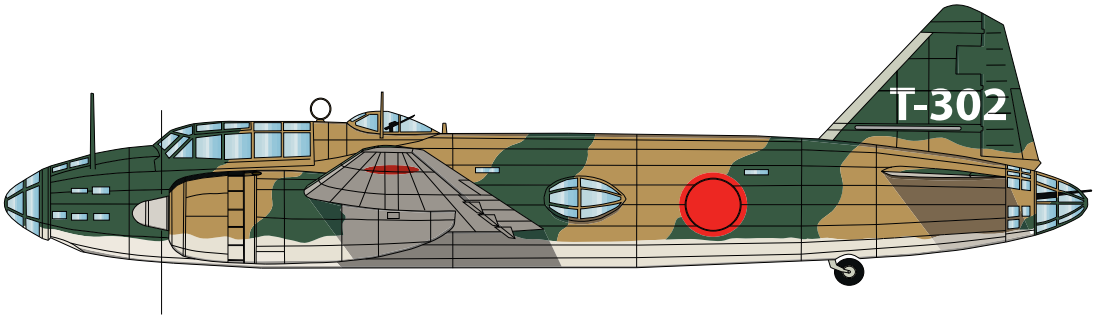


The I-122, one of the four submarines in the first attacks, preparing for sea. (IJN)

The air war progresses

The February raid showed that air assaults were a good alternative, especially as Allied defence was minimal. There had been a second attack on the 19th – 54 land-based bombers of the Imperial Japanese Navy attacked the airfield runways at 1145. This time there were no defenders flying at all. Within days further raids commenced, and they continued for another two years, with 1,883 individual enemy flights having been carried out over northern Australia.

The main bomber was the extremely capable Betty, a twin-engined long-range machine. By the war's end this type alone had dropped 6,711 60kg bombs across the north.



The submarine war resumes

Despite the failure of the first submarine assault on Australia, the Japanese persisted. The reason for this was strategic. Japan's grand strategy was to cut America off from any plan to use Australia as a base. The Allied reason behind this was a case of simple distance. To attack the enemy's main centre of Tokyo it would be

[2] See the same author's *Darwin's Submarine I-124*. This submarine has been controversial, however. It has been alleged she was somehow involved in the sinking of HMAS *Sydney*, three months earlier; that she was entered by US divers for her codebooks; that mercury was contained in her ballast; and that she was later entered by salvage diver Harry Baxter in the 1970s. *I-124* was certainly responsible as a result of the latter controversy to be the cause of the formation of the Historic Shipwrecks Act, being the first vessel protected under it.

necessary to get aircraft and ships within range. To fight from the west coast of the USA would be extremely difficult, if not impossible. To attack Japan from USA was a distance of 5,400 miles or 8,690 kilometres. To carry that out from Australia was 3,378 miles / 5,436 kilometres.

The Battle of the Coral Sea was part of the rationale behind the Japanese plan. If they could run submarines and aircraft out of New Guinea's Port Moresby, then their ability to mount a barrier campaign down the Australian east coast would be so much more effective. They tried an invasion in early May 1942. Their three carriers were met by two US Navy fleet carriers, and in the first battle in history where all of the sighting and the fighting was done by aircraft, the two forces drew away from each other after several days of combat. The Japanese had lost a small escort carrier; the US a larger fleet carrier; but the Japanese had been prevented from acquiring their new base. Nevertheless they persisted, and operating out of their bases at Truk Lagoon and Rabaul, the submarines sortied.

One raid was centred on Sydney Harbour. Taking advantage of a remarkably poor lack of preparation, three midget two-man boats entered the port on the night 31 May 1942. The attack was centred on the USS cruiser *Chicago*, but the torpedoes missed and instead an accommodation vessel, *HMAS Kuttabul*, was sunk with 21 lives lost. None of the submarines returned to their motherships: two sunk in the harbour and one failing to rendezvous outside.

But other submarine attacks were more successful. Over two main periods, the Japanese achieved some impressive results:

Submarine successful attack totals by state/territory:		**Overall result over 1942-43**
New South Wales	47	86 attacks with success – out of a probable 200
Western Australia	10	
Northern Territory	8	35 ships sunk
Queensland	8	
Victoria	2	705 Allied lives lost
Tasmania	2	

South Australia	1	
Australia Station	8	

That is not to say that the Allied defenders lacked competence. However at the beginning of the war the Allies did not have positive results in their anti-German submarine combat. The war against submarines had got into high gear immediately upon the start of hostilities between what was to be the Axis powers, and the Allies, from 1939. The German U-boat fleet put to sea and had an immediate "Happy Time" as they called it, with submarine attacks against surface ships. For in confusion and chaos the Allied naval authorities seemed to have forgotten most of the lessons of the Great War, about convoys, aggression, and anticipating the enemy's moves. It was to take some time to improve.

Sonar – or ASDIC – was coming into its own, but the weaponry employed was primitive compared to what it would become. Depth charges were still largely rolled off the sterns of warships rather than thrown, and the charges themselves were well behind in explosive power from what they would become. The aircraft versus submarine war was in an even worst state, for it had not been an aspect of anti-submarine combat much practised in the previous conflict. There was a lot to learn. It was known that a submarine could easily be spotted from the air while at periscope depth although the extent of that depended on the condition of the sea.[3]

I-176, a sister boat of I-178, running on the surface.

(Photo courtesy Matthew Jones of Imperial Japanese Navy (1872-1945) Facebook Group)

Depth-charging was the submarine's main threat. This weapon was developed in the Great War, but in WWII it was perfected. The depth charge was basically a canister full of explosive which was thrown or dropped over the side of a ship. Through setting a detonating "pistol", the charge could be set to explode at a chosen depth, determined in WWII by the amount of water in an internal container, which filled as the depth charge dropped. Rails and throwing devices were used to launch the depth charges, which quite often weighed in the vicinity of a quarter-ton or more.

[3] Cook, Graeme. *Silent Marauders*. London: Granada, 1976. (p. 107)

The Royal Air Force in the Atlantic was in the front line of the air war at sea, and it was from this theatre that the weapons and techniques grew.

The only weapon available to aircraft was a 100-pound anti-submarine bomb. Its explosive power was insufficient, and the methods of dropping it were crude: simply fly over the submarine and hope for the best. There was little in the way of set techniques nor aiming devices.

The Royal Navy's 450 lb. depth charges were a better alternative than the much weaker bomb. Depth charges could be set to go off at a depth rather than explode when they contacted the ocean – an important aspect, as submarines would be crash-diving when under attack. Their casing at least would be awash, if not under ten foot or so of water, with the conning tower the last to be submerged. But even when the submarine was diving, a depth charge could be set to a usefully accepted depth. The RAF set a detonation depth of 100 feet, and began attacking U-boats wherever its Coastal Command aircraft could find them.

The results were not impressive. Attacks on U-boats killed a solitary one percent of those attacked. "Probably sunk" was 2%, and "damaged" thought to be 15%. Some of the problems seemed to be in the height of attack – too high and it missed; too low and the aircraft risked getting smashed by its own depth charge explosions. But even when an explosion hit it was not powerful enough.

The problem was studied by a group of young scientists formed by the Air Force. The explosive used in the depth charges was Amatol, a mixture of TNT and ammonium nitrate. The explosion was confined to an area of only around seven yards across.

Some idea of the height required for a low-level attack – off Burma, in Nov 1942, Blenheims of No. 60 Squadron level out for a mast-head attack on a Japanese coaster. (RAAF)

In the end the problem was solved by a combination of changes and new ideas. They were:

- Change the explosive to a new combination of TNT, aluminum powder, and RDX, or cyclotrimethylene trinitramine, an organic compound obtained by treating hexamine with white fuming nitric acid. This all brought together became known as Torpex.
- Change the depth settings to 50 feet, and then after experiments, to 25 feet.

- Drop the charges in groups, set by the aircraft's release system, of what eventually became 36 feet apart, in sets of three or four – depending on the aircraft's load and bomb-bay.

The Torpex depth-charge was rolled out by the thousand, not only in Britain but across the world. The Canadians flew with it, as did the Australians. By the end of the war, in Coastal Command, an attack from the air on a U-boat resulted in a kill 45% of the time. It is worth a moment to ponder over the changes in attitude and tactics the U-boats adopted as a result. At the beginning of the war aircraft attacking your submarine were a minor risk, almost not worth diving for. In 1944-45 they were deadly: if one sighted your boat then you now had a one in two percent chance of survival.

Although being depth-charged was a terrifying experience, the submarine was fairly safe until one detonated very close – mere yards or metres – from the hull. Even then, with the boat "shut off for depth charging" the flooding of one compartment would not necessarily mean the end. But two or three breached compartments could mean flooding to the extent the submarine's descent was unstoppable. In deep water this could mean the hull would implode, and the split-second smash of the incoming water would kill anyone exposed to it. In shallower seas the submarine might settle hard onto the seabed, and if the hull was not breached then death would come slowly as the air gradually ran out.

The submarine had a number of measures available to defend itself from attack. Primarily, that was to hide. Being at depth meant it was very much concealed. Although warships routinely operated their sonar sets their ability to hear a submarine was degraded by speed – they were useless over 19 knots; weather conditions, and the type of sea they were operating in: the layers of temperature and the currents also played a part.

250 lb Torpex depth charge 2 (RAF)

Surface vessels which were well aware they could be targeted could adopt various defensive measures. They could zig-zag, and even in convoy could extend that to having a pre-arranged longer "zig", for example, to throw off a submarine commander's predictions of track. They could use speed – submarines were slower submerged than on the surface; the reverse of today's boats – and many a fast lone troopship could be running at high speed, maybe 30 knots, and be on top of a submarine's position and away before he could get into position for a shot. Freighters and tankers and troopships could have escorts, with the best convoy escort of all a vast circle of warships with aggressive foraying anti-submarine ships. But as the war developed the

knowledge developed that being detected from the air was the best resource surface vessels had to keep submarines away. It was the dawn of the age of the escort aircraft carrier.

During the war the Germans sank 2,828 merchant ships with their submarines. Additionally, the U-boats destroyed 187 warships, including six aircraft carriers and two battleships. But in the end the Kreigsmarine effort at undersea warfare did not achieve its aim: Britain kept fighting, their supplies were not cut off sufficiently, and they began supplying the USSR through Arctic convoys.

In the largely British-fought Battle of the Atlantic flying boats such as Sunderlands and Catalinas menaced the U-boat fleet of Germany. They were armed with the powerful Leigh Light searchlight to counter the tactic of operating at night to defeat daytime hunting; and dropped depth charges with ever-increasing accuracy. The escort carrier provided on-the-spot attack aircraft to menace the submarines. Surface warships and aircraft became even more adept at hunting their prey when the British developed centimetric radar capable of detecting a submarine periscope on the surface. Forward firing patterns of mortars proved to be a new and powerful weapon.

The strange worlds of submariners and bomber crews

In many ways the life of a submariner was the reverse of life as a bomber aircrew member. The submariner was under pressure; as the aviator ascended his world lost pressure. The man underwater could not see anything at all – the bomber gunner had the world below him to contemplate. The submariner went on a mission for weeks; the aviator for hours.

Submarines stored for war by packing everything they would need in the long cylindrical hull. Edward Lipscomb recalled in his book *The British Submarine* going to sea with "gun ammunition stored in every possible place, including under the wardroom table."[4] But it was not just the weapons that needed supplying. There were spare parts for the engines and other machinery, oil and grease, canned food – often in a false floor in passageways; and a miscellaneous mass of items experience taught might be needed: medical equipment, games to keep morale up, paper for writing letters home that might nevertheless never get the chance to be passed to another vessel; clothes to suit where they were going. Experience taught them to land anything not needed to give up space: ceremonial uniforms, swords for the officers, even anchors and excess lines.

Submarines had their own particular smell. Those inside got used to it, but it shocked visitors until the submarine had been open to the fresh air for some time. One RN officer described it as "diesel and cabbage and sweat." [5] Space was at a premium. Most sailors "hot-bunked" – that is, they shared a bunk with someone else who was on watch when they weren't.

It was sometimes impossible to attend to simple tasks such as washing one's clothes. Mochitsura Hashimoto recalled in *I-58* in 1945 that:

> It was over twenty days since we had put out from Kure and we were all pretty dirty. We had few changes of even summer clothing and we wore the same day and night. There was no water with which to do any laundry, and in any case there was no place to dry the clothes. If they weren't properly dried the dampness inside the boat made them very sticky, and this was dangerous with a lot of electrical gear about.[6]

Everyday duties

[4] Lipscomb, Edward. *The British Submarine*. Greenwich: Conway Maritime Press; 1975.
[5] Winton, John. *Down the Hatch*. London: The Companion Book Club, 1962. (p. 189)
[6] Hashimoto, Mochitsura. *Sunk: the story of the Japanese submarine fleet, 1942-1945*. London: Cassell, 1954. (p. 169)

Edward Young of the Royal Navy describes what took up each day:

> At "diving stations" every one of the forty-odd men in the ship had a job to do, either when diving and surfacing or when carrying out an attack. But during the long hours of waiting for something to happen, we were at "watch diving," the crew divided into three watches (red, white and blue), two hours on and four off. The watch consisted of just enough men to maintain the required depth and work the periscope: the two planesmen, sitting on the port side facing the large dials of the depth-gauges and giving occasional turns to the control wheels; the helmsman in the port for'ard corner, steering by gyro compass; an Engine-Room Artificer responsible for operating the vent-and-blow panel on the starboard side and the lever which raised and lowered the periscopes.
>
> Besides these men in the control-room, there was a Leading Torpedo Operator in the motor-room aft who obeyed the speed-telegraphs (Exactly similar to those in all surface ships: hand-operated dials with pointers to the speed required – slow, half and full, and ahead or astern – with repeaters in the engine-room and motor-room) operated from the control-room; a seaman for'ard who listened, through headphones connected to an external revolving disc called a hydrophone, for the sound of approaching ships; and finally, in a tiny compartment under the control-room, a stoker who, by operating the ballast-pump motor and opening various valves, could flood or pump on any of the trimming tanks throughout the submarine in obedience to the orders of the First Lieutenant or the officer-of-the-watch. [7]

Attack and search periscopes on the WWII USS Bowfin submarine in Hawaii (Author photo)

Life and Death in bombers

The bomber world in World War II is a very different realm than everyday life in military aircraft both then and now. What was its reality?

To fly in a World War II bomber was to enter a universe few other military men experienced. It was an odd surreal existence. An airman could leave a comfortable squadron, with hot meals, uninterrupted sleep, and reasonable surroundings, then on a mission, he could be subject to the extremes of cold or heat, sometimes both. Almost all WWII bombers were unpressurised, so his body's air-filled spaces – ears, lungs and more – would be subject to contractions and expansions. He could be cramped, uncomfortably crammed into a tiny gun turret for hours on end. He might be bored, flying often over territory familiar to him. He was linked to the

[7] Young, Edward. *One of our Submarines*. Great Britain: Richard Clay and Company, 1952. (p. 31)

rest of the crew over an intercom, but idle chat was discouraged. Many airmen, if they were flying in the daytime, took a book to read before enemy territory was reached. If he was a flight engineer or a navigator however, he would be busy, monitoring the aircraft's vital systems if the former, or working out where they were and where they were going if the latter.

Once over enemy territory the situation changed to one of extreme stress. The enemy could be firing bullets at the crew from fighters, flak from anti-aircraft guns, and the aircraft faced the risk of collision with one of the other bombers heading for the same target. They might be fighting for their lives; flinging the aircraft about the sky if a pilot; firing guns if he was a gunner, and simply hanging on for dear life if neither. If a crew member was wounded, he didn't have the first-aid available even to an infantryman, for there were no medical personnel anywhere but back at his base. He could be experiencing all of this at night with its attendant mysteries and terrors.

If the airman survived he would be back at his squadron within hours, there to return to his comforts – although as the war deepened he was deployed further away from the trappings of civilization. He might even be able to visit local hotels and towns, or take extended leave and return to his family every month or so. All of this was a pleasurable world denied to the army men or to the naval men in warships. Sometimes he faced the risk of his airfield being attacked. But if it wasn't for the terrors involved in "ops" it could sometimes be said to be a pleasant war. It was a very strange world for the bomber airman.

Temperature and pressure – their effects on you

Next time you're flying in a modern airliner, experiment with the entertainment screen in front of you until you find the flight information. It will tell you amongst other things how high you're flying. If you're at an often-used cruising altitude of 36,000 feet – about 11,200 metres – you'll see it is about minus 50 degrees Centigrade outside.

The sole pilot controls in the cockpit of Beaufort of No. 217 Squadron RAF in 1940. (RAF)

The aircraft at the beginning of the war were hardly heated; often just with some hot water radiators fitted with fans. The aircrew sometimes were so cold after completion of a mission they had to be lifted out of their positions on landing. The freezing temperatures sent them to sleep; highly dangerous for gunners who failed to see a fighter coming in fast.

Some bombers were very much open to the elements. Max Sanders wrote of tail gunners:

> If Flip had wanted to toss [bricks and bottles] out of his part of the aircraft, he could because, like many rear gunners, he had removed the central part of perspex from the canopy of his rear turret to improve visibility….At the high operational altitudes, the open rear turret was not only a lonely place but also a very cold one – often with temperatures below -40C. Rear gunners were equipped with electrically heated boots and flying suits but, if these failed, frostbite was not uncommon.[8]

[8] Madill, Frank. *Sanders DFC Out of the Darkness*. Launceston: Bokprint, 2011. (pp. 98-99)

This was the same in all forces, including the enemy's. In regard to the leading bombers of the Japanese forces, the Betty**,** one source says: "There were no conventional bomb bay doors. When loaded this bomb bay was left open at the bottom with a deflector at the rear of the bay to reduce turbulence."[9]

The cold was a deadly enemy. There were measures to take against it, but they were primitive and sometimes failed. Crewmembers often wore three sets of gloves: USAAF pilot Ralph Elliot recalled: "nylon inner gloves, then a wool pair and finally a leather pair over that."[10] Robert Morgan recalls in his B-17:

> The arctic atmosphere in our planes never let up – it never ceased to take its toll. Our flight jackets and fleece collars and leather helmets may have become glamorous collectors' items in later years, but in actual use they barely kept us alive. For warmth, we relied on exhaust heat from our engines that was funneled through the cockpit. It gave the pilots some warmth, and the bombardier and navigator caught a little of it, and the radio man and top turret gunner, if they were lucky. The other gunners wore electrically heated suits. Sometimes these failed, and hypothermia and frostbite would begin their deadly business.[11]

Being in the Pacific theatre was no different. Height meant cold.

> When they first went up over Hawaii, the men were surprised to learn their arctic gear hadn't been issued in error. At ten thousand feet, even in the tropics, it could be sharply cold, and occasionally the bombardier's greenhouse windows froze. Only the flight deck up front was heated, so the men in the rear tramped around in fleece jackets, fur-lined boots, and sometimes, electrically heated suits. [12]

Pressurization was a factor. Air pressure drops as you ascend. This is why your ears "pop" as an aircraft in which you are flying climbs and comes back to earth: the air spaces contained within your skull are under pressure as they expand and contract.

Bombers in WWII were generally non-pressurized before the advent of platforms like the B-29 Superfortress. This meant that as the aircraft climbed, a person needed to breathe harder and deeper to obtain the same amount of oxygen for the brain and body. The heart and lungs have to work harder for the same result as obtained at ground level.

Part of the problem with pressurization was that crewmen had to wear oxygen masks over 12,000 feet to compensate for the lesser oxygen as they ascended. If the masks failed – and in the earlier years of the war they often did – this meant a crewman who could not function. Often he fell asleep and if that wasn't detected early enough he lost consciousness. Morgan again in his B-17: "Fourteen bombers had taken off from Bassingbourn, each carrying ten 500-pound bombs. Six had to abort the mission because of equipment problems and chilled, oxygen-deprived crewmen". [13] Some bombers did not have oxygen and so were limited to the lower levels. The Beaufort, the bomber which went up against the *I-178*, was one of these:

> The Beaufort did not have oxygen on it. The Hudson did and when we operated over Koepang and that [sic] we could fly in at twenty thousand feet or twenty two thousand feet whatever. To operate the Beaufort we were limited by the lack of oxygen and you should not have flown above ten thousand for any length of time…[14]

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[9] Hawks, Chuck. "The Great Bombers of World War II." http://www.chuckhawks.com/great_bombers.htm Accessed April 2015.
[10] Bowman, Martin W. *B-24 Combat Missions*. New York. Fall River Press, 2009. (p. 40)
[11] Morgan, Robert, with Ron Powers. *The man who flew the Memphis Belle*. New York: NAL Caliber, 2011. (p. 184)
[12] Hillenbrand, Laura. *Unbroken*. New York: Random House, 2010. (p. 68)
[13] Morgan, Robert, with Ron Powers. *The man who flew the Memphis Belle*. New York: NAL Caliber, 2011. (p. 117)
[14] University of NSW. Australians at War Film Archive. John Russell (Jack) - Transcript of interview. 28th April 2003 http://australiansatwarfilmarchive.unsw.edu.au/archive/92 Accessed June 2022.

These are just a few examples from the book, but give some insight into these strange worlds.

The end of the I-178

The book culminates in the fight between the bombers and the submarine. *I-178*'s final combat action came when the boat engaged in a running fight with two Beaufort bombers of the Royal Australian Air Force. Depth-charged, the submarine then fought back with her anti-aircraft guns.

On 18th June 1943, one of three Beauforts operating out of Coffs Harbour recorded responses on its radar and just after midnight saw a submarine on the surface. The captain, Pilot Officer Alan Harrison,[15] made a direct attack.

A9-261's air crew are joined by ground staff to celebrate their attack on a Japanese submarine on 17 June 1943. Note the newly painted name "Subconscious" on the machine. (Public domain)

The Japanese submarine was surprised on the surface – that much we do know. The Beaufort bomber was on top of it within seconds after acquiring the "blip" on its radar at 1.5 miles out.[16]

Harrison gave the orders to open the bomb bay doors, and depth charges 3,4 and 5 were selected for the drop. The Beaufort came in low and slow, and then fired an illumination flare, its massive burst of light showing up everything. There was the submarine below and ahead, fully surfaced, on a course almost due south, presumably charging its batteries off its diesels.

Everything had combined to take the enemy boat by surprise. It is possible the bridge watch team had not heard the aircraft, with the noise from the diesel exhausts drowning out its distant engines. The night had combined with a rough sea, a full bomber's moon – the WWII phrase meaning enough light to see the target –

[15] Footnote in the original text: F0 AL Harrison, 408190. 7, 32 and 100 Sqns, 530 Sqn USAAF. Orchardist; of Cradoc, Tas; b. Cradoc, 29 Aug 1915. Killed in action 29 Oct 1944. (Service Record lists first names as Alan Lindsay)

[16] Information used in the bombers' action is derived from RAAF records of the time, now held in the Australian War Memorial. Pilots filled in an "anti-sub" form, formally a "Report of Anti-Submarine Action by Aircraft" after each combat incident. This had space in part III for a penned description of what had happened. There were also "Incident Sheets" which contained analysis. The Beaufort reports are AWM54 622/5/3 [Item ID 469659], and AWM54 622/5/5 [Item ID 469663]

and a blacked out camouflaged aircraft all adding up to being caught with no place to run and no place to hide.[17]

The book goes into considerable detail analyzing why the submarine could not dive, and speculates where it is now. It also outlines a tragic end for three of the aircrew – they were together in another bomber that failed to return from a mission later in the war.

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This article is drawn from *The Secret Submarine*, where a complete list of the original sources for the book can be found. It was published by Big Sky in March 2025.

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A naval officer for 20 years, Dr Tom Lewis OAM served in Baghdad at the height of the Iraq war, where he commanded a US forces intelligence team. Originally a high school teacher, he has also lectured at the Royal Australian Naval College and ADFA, and is in popular demand for radio, television, documentaries and cruise line speaking. Awarded the Order of Australia Medal for services to history, he was the historian for commemorations of Albert Borella VC's WWI service, and the 75th anniversary of the Top End air raids. The author of 23 books, one of his works – *Atomic Salvation* – argues that the A-Bomb attacks, although brutal, saved the lives of around 30 million combatants, most of them Japanese, who would have died in a conventional invasion of the Home Islands.

Another recent work is *Cyclone Warriors* – the Armed Forces in Cyclone Tracy (Avonmore). His book *The Sinking of HMAS Sydney* has just been awarded the 2024 Commodore Sam Bateman Book Prize from the Australian Naval Institute.

[17] MoonPhases. https://moonphases.org/phases/june/1943