Historical Arms & Military Society of Tasmania Inc.

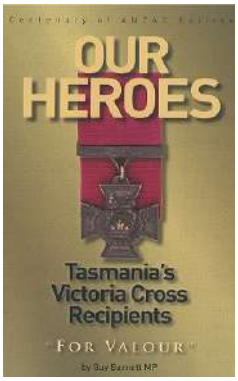
Patron - PETER HODGE RFD RETD

Volume 39 Newsletter N. 4 – October, November, December 2023

Captain Percy Cherry

AUSTRALIAN WAR MEMORIAL P02939.012

Unit: 26th Battalion Date & Place of Action: 26 March 1917, Lagnicourt, France Percy Cherry was born on 4 June, 1895, in Drysdale, Victoria, where he lived until he was seven, when his parents took up an apple farm at Cradoc, Tasmania. Cherry worked for his father, becoming an expert apple packer, and at 14, won the case making championships at the Launceston fruit show. In 1913, Cherry was commissioned in the 93rd Infantry Regiment. On 5 March 1915, Cherry enlisted with the AIF and was posted to the 26th Battalion. Although a trained infantry officer, Cherry was considered too young for an AIF appointment, and was instead sent to Egypt as a quartermaster sergeant in June 1915. In August, Cherry



was made a company sergeant, and in September arrived at Gallipoli where he fought at Taylor's Hollow and Russell's Top. He was wounded just before the evacuation of 1 December and a week later promoted to second lieutenant. In 1916 Cherry was transferred to the 7th Machine Gun Company and sent to France, where he served at Armentieres and Messines and on the Somme until he was wounded on 5 August following a duel with a German officer at Pozieres. In this remarkable incident, Cherry promised the dying German officer that his letters would be passed on to his family in Germany. In September he was made temporary captain and again transferred to the 26th Battalion as company commander. His rank was confirmed on 14 February 1917. On 3 March Cherry led his company in an attack on Malt Trench, where he captured two machine gun posts. For this Cherry was awarded the Military Cross. In the same month, (26 March, 1917) Cherry performed the following act for which he earned his Victoria Cross: "Cherry's battalion was ordered to storm the village of Lagnicourt. His company encountered fierce opposition and when all the other officers had been killed or wounded, he led his men forward and cleared the enemy from the village. At one stage a stoutly defended crater temporarily checked the attackers. Cherry sent for mortars but before they were brought down on the crater Cherry rushed the position under Lewis gun and rifle grenade cover. After the crater was taken, Cherry and his party pushed through the village. Sensing the possibility of counter-attacks, he kept his party in position to strengthen the sector. The Germans did counter-attack and the battle raged all day long. Next day the Germans shelled the Australian positions killing Cherry among others." Cherry's service medals are displayed in the Australian War Memorial.

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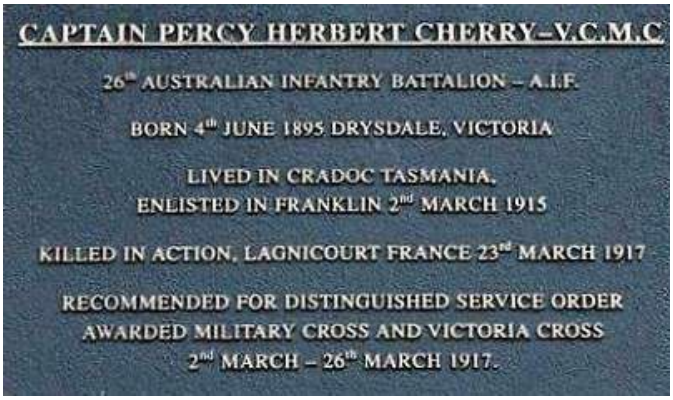

Percy Cherry wooden statue Channel Highway, Cradoc Park, Cradoc,

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Unless otherwise advertised, the Society meets at 7:00 pm on the last Friday of every months at the Glenorchy ex Bowls Club Hall, 322 Main Rd, Glenorchy TAS 7010. Visitors welcome.

Contributions are more than welcome. Please email in Word, Pub and JPG format to Vince Merlo at **merlo.vince@gmail.com.** All contributions must be received before the end of February, May, August and September. The material published in this newsletter has been checked at the best of our knowledge, for authenticity and accuracy; however, some, for reasons outside our control, may be incorrect. Therefore, we cannot assume any responsibility for the misleading information. The articles published in this newsletter, unless otherwise specified, have been obtained with the permission of the original authors or publishers'. T he opinions expressed in this publication are not necessarily those of the Historical Arms & Military Society of Tasmania Inc. Further more, whilst every care is taken, no responsibility can be accepted for the advertisements in these pages.

From the Editor

With sadness we learnt that long term HAMST member Reg Hardwick passed away yesterday after a long illness. Our thoughts go to the family.

HAMST has had been busy with a successful Military fair that has attracted more than 500 visitors and potential new members.
A job well done by all the organizers, volunteers, helpers and exhibitors.
Christmas is almost onto us and as this is the last Bulletin for the year I would like to thank all those people who spent time and energy for the prosperity of the Association. We wish all the members and families a Merry Christmas, a safe, prosperous and Happy New Year

Thanks to John Tucker for his support to HAMST . What is important is not what the Association does for you, but what you do to the Association.
Buon Natale from Vinny

HAMST Presidents Report Nov 23

As the year is coming to an end it is a good time to reflect on the year that was for our society. It is pleasing to report that we have had a fantastic year with member participation with club events, our connections with like minded clubs and our focus to share our military history with our community.

I guess the highlight has been the recent Military History Fair at the clubrooms (No 2) which was a great success for all involved. This has enabled our society to connect with many who have similar interests and share our military history. During the fair it was a great honour to meet the last survivor of the Bombing of Darwin, 103 yr old Brian Winsperar who was a Radio Air Gunner protecting airfields. Brian and Derrick Millhouse, (life member) who was in dressed in full WW2 uniform posed for a great photo in front of the Bofors. These connections with the community and veterans have been a real highlight for us all.

Over the last 12 months the committee have been a pleasure to work with and their endorsement of the many interests which HAMST support have ensured enjoyable meetings and events. It would also be remiss of me not to sincerely thank all the volunteers who have given hundreds of hours to your society during the year.

With the approaching new year, the committee are already planning events for members to enjoy, and I am reminded of a quote from Robert Kennedy, "Some men see things and ask why? I dream things that never where and ask why not. It's great to work with a committee that think "why not" and then make their ideas a reality.

I wish you all a great safe Christmas and holiday time with your family & friends.

I'm sure you will all enjoy another sensational newsletter from our newsletter editor Vinny as we all look forward to 2024.

Keep Safe

Steve Denenholm

President

Introducing HAMST new Patron

Peter Hodge RFD Ret
President of Hobart Legacy

Peter was born in Queensland and educated at the Launceston Church Grammar School. He worked in schools for 36 years as a teacher (computing, mathematics and science) and school principal. Peter has a Master's Degree in Education from the University of Tasmania. He is a Fellow of the Australian Council of Educational Leaders and a Fellow of the Commonwealth Council for Educational Administration and Management.

Peter comes from a family of soldiers. His Grand Father was a Gallipoli veteran. In WWII his father fought in New Guinea with 2/5 Bn AIF. His mother was a CAPT in the Australian Women's Army Service who served in Lae, Papua New Guinea where she commanded the 400 female soldiers. One uncle was killed at Jazzine, Lebanon serving with 2/31 Bn AIF; the other commanded 2/14 Fd Regt, AIF in Darwin. Today his eldest son commands the indigenous rifle company in the Torres Strait as part of 51 Far North Queensland Regiment. His nephew is an Infantry Captain in the Special Air Service Regiment.

Peter enlisted in 6 Field Regiment in 1966, initially serving as a gunner before being commissioned in 1969. After filling a number of Regimental appointments he moved on to staff and training appointments. He concluded his service at 6 Training Group as Chief Instructor of the Reserve Command and Staff College. From 1998 to 2001 he was the Director of the Army Personnel Agency – Hobart. He served full-time in the Army from 2002 to 2012, initially as the Project Manager for Operations Doctrine working with the US Army and NATO. His last appointment was as SO1 Pacific Armies Management Seminar which brought together thirty two armies from around the Pacific Rim to study Humanitarian Assistance and Disaster Relief. Peter retired from the Army as a Lieutenant Colonel in 2012 after 46 years service.

Community service has been a big part of Peter's life. In university days he was Tasmanian State Secretary of the Australian Student Teachers Association and later national Vice-President. He was the inaugural State Secretary for the Tasmanian Children's Film and Television Association. Following graduation he joined World Education Fellowship and served on the state executive. As a member of the Australian Council of Education Leaders he served as Hobart Branch Secretary, State President and Tasmanian Director. He also served on the executive of the Commonwealth Council for Educational Administration and Management as International Vice-President. During his time teaching in Sheffield he was Chairman of Kentish Action for Restoring Employment which introduced the now well-known murals. He was Treasurer of the Lions Club of NE Tasmania. He is a member of the Royal United Services Institute where he has been Launceston Branch Secretary, Hobart Branch President and State President. He is a foundation member of the Royal Australian Artillery Association-Tasmania and for three years was President of the Artillery Historical Trust of Tasmania. He is a member of the RSL and currently is the chairman of the Reserve Forces Day Council of Tasmania. He is a past committee member of the Naval, Military and Air Force Club of Tasmania.

Peter joined Hobart Legacy Inc. in 2006. He has served as the Membership Officer, Development Officer and Junior Vice-President.

Peter is married to Jeanne. They have two adult sons. One is an army officer, the other is an architect in Hobart. He and Jeanne have five grand-children.

New merchandises with HAMST logo are available from the treasurer.
Polo shirt , Lapel pins, Pens
Zip up polar fleece Jackets
Dress shirts, Car stickers

Show your colours and help advertising our Society

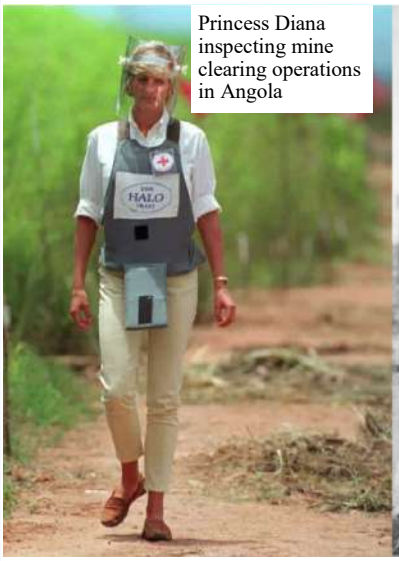

Radio HOBART


Wanted


LOOK BUT PLEASE
DO NOT TOUCH


Defence Transport
Heritage
TASMANIA


25 POUNDER
FIELD GUN



Princess Diana inspecting mine clearing operations in Angola

WW2 Italian Bersaglieri in North Africa

The explosive history of land mines

Story by Stars Insider

The land mine is one of the most destructive and indiscriminate weapons of war ever devised. The history of this insidious explosive device can be traced back to China and the invention of gunpowder, and it's since been described as the perfect soldier: "ever courageous, never sleeps, never misses." It is estimated that there are 110 million land mines in the ground right now, and despite a 1997 international treaty banning their use, these unseen killers are still being deployed.

How much do we know about these violent, hidden weapons, and where in the world are they most prolific? Click through and read more about the explosive history of land mines.

Caltrop

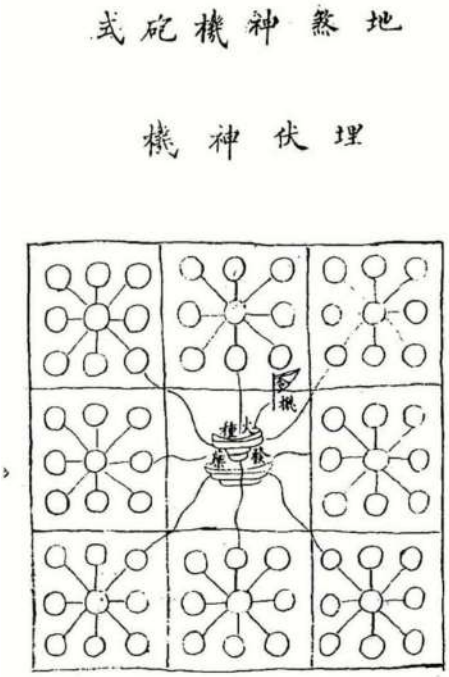
Before the use of explosives, the nearest device resembling a mine was that used by the Romans—the caltrop. Best described as an area denial weapon, a caltrop is made up of two or more sharp nails or spines arranged in such a manner that one of them always points upward from a stable base. They were used en masse throughout antiquity to deter troops, horses and chariots, and war elephants. The modern-day caltrop, such as the example pictured here designed to puncture car tires, is based on its ancient counterpart.

First land mines

The arrival of gunpowder in China in the 13th century enabled the manufacture of the first bombs used in warfare. The 14th-century Chinese military treatise known as the Huolongjing outlines a crude land mine system known as the "divine ground damaging explosive ambush device."

The land mine evolves

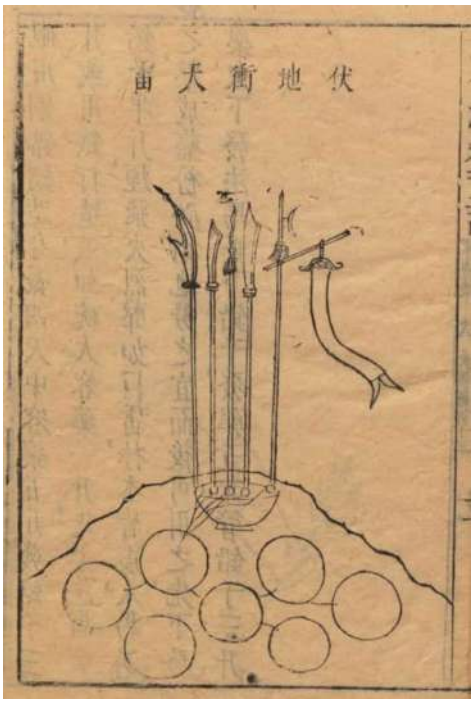
The 17th-century Chinese military handbook Wubei Zhi describes the effect of an explosive device used earlier in the 13th century as "underground sky soaring thunder"—a land mine connected to



weapons above ground.

The fladdermine

The invention in 1573 by German military engineer Samuel Zimmermann of the fladdermine ("flying mine") effectively saw the introduction of a buried cluster-bomb mine, activated by stepping on it or tripping a wire that made a flintlock fire. The fladdermine was used widely over the next couple of centuries in conflicts across Europe, including the Franco-Prussian War (1870–1871).



The fougasse

Zimmermann's weapon was modified as

an improvised mortar, known as a fougasse. Constructed by making a hollow in the ground or rock and filling it with explosives, this device was well known to military engineers by the mid-18th century. One of the best surviving examples is found in rocks near the Madliena Tower in Malta (pictured).

Explosives technology

Advances in explosives technology and

military know-how in the 18th century included the invention of the safety fuse. Later use of electricity to detonate a charge greatly promoted the deployment of land mines. The percussion cap (pictured), developed in the early 19th century, made them much more reliable.

First pressure-operated mines

The first pressure-operated mines using percussion caps were deployed on land and sea in the Crimean War (1853–1856).

First use of anti-personnel mines

Precursors of the modern-day mine

were used during the American Civil War. In fact, the development of the first modern mechanically fused high explosive anti-personnel land mine was attributed to Gabriel J. Rains (pictured), a general in the Confederate Army.

Explosive booby traps

Rains pioneered the use of "torpedo" or

"subterra shells" consisting of munitions with pressure caps. They were detonated either by direct contact with the friction primer of the buried shell, or movement of an object attached to the primer by strings or wires. These explosive booby

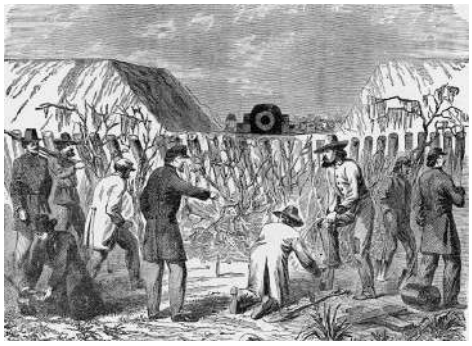
traps made their debut at the Battle of Yorktown in 1862.

A barbaric weapon

Many on both sides of the conflict were appalled by the use of such an arbitrary weapon, and considered the use of mines barbaric. After the war ended, General Sherman and other high-ranking Union officers ordered Confederate prisoners to remove and deactivate mines, a task seen in this illustration where prisoners of war are clearing mines set in front of Fort McAllister in Georgia.

Use of guncotton

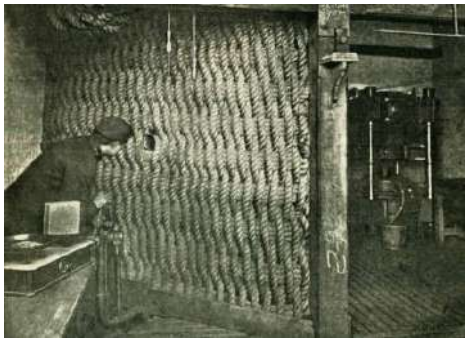
Guncotton, up to four times more pow-



erful than gunpowder, was used from the 1870s to the First World War as the primary explosive component in the manufacture of mines. Pictured in 1901 is an employee of a cordite works using a rope screen for protection while pressing guncotton.

First World War

The destructive power of the mine was



put to the test during the Great War when on June 7, 1914 no less than 19 mines were placed underneath German positions near Messines in West Flanders by the British. The resulting blast killed approximately 10,000 enemy soldiers with the explosion heard as far away as London and Dublin. The salvo remains one of the biggest non-nuclear explosions of all time. This rare color Autochrome Lumière shows the bomb crater,

its diameter 116 m (380 ft) and depth 45 m (147 ft).

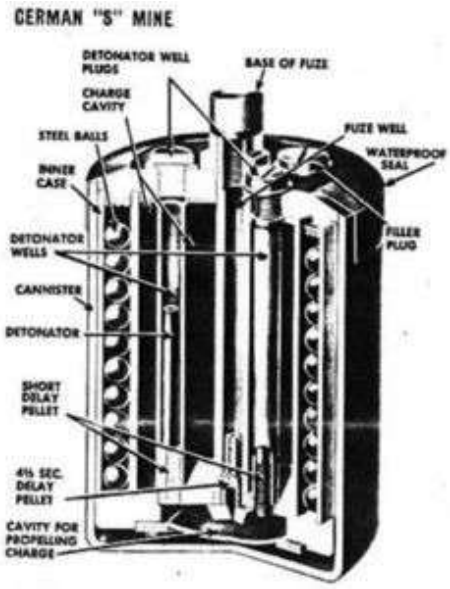
Appearance of the first minefields

The First World War saw the wide-

spread appearance of minefields as a way of killing and maiming the enemy. In this image, another rare Autochrome Lumière, the "Death's Head" warns of laid mines in a Flanders' poppy field. The warning was left by rapidly retreating Germans who didn't have time to remove the notice before Allied troops entered the area. Had the sign been taken down, advancing soldiers would have no doubt strayed into the deadly meadow.

Second World War

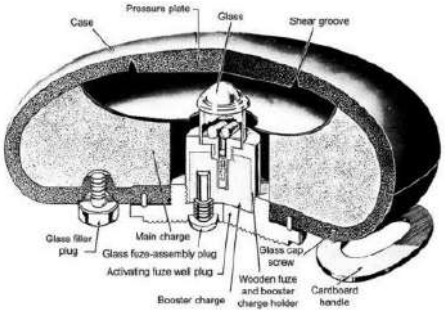
Between the wars, victorious nations



did little work on land mines. The German, however, were developing a new range of weapons, including anti-tank mines and the S-mine, the first bounding mine ever manufactured. When triggered, this dreadful device jumped up to about waist height and exploded, sending thousands of steel balls in all directions within 853 sq-m (2,800 sq-ft). The Americans modelled their M16 anti-personnel mine on the S-mine design. Both were used throughout the Second World War, with both proving particularly lethal.

The topfmine

Entering service in 1944, an entirely



non-metallic mine, the German topfmine, was much more difficult to detect. It was a pressure-activated device meant to be buried so that its top would be flush to the ground's surface.

The Schu-mine 42

To counter increasingly sophisticated

mine detectors, the Germans developed the Schu-mine 42. This anti-personnel mine was housed in a wooden casing, its kill count so effective it became the most widely used mine in the Second World War.

Grim warning

The North Africa Theater saw the most

mines laid of any campaign during the conflict. Here, a British officer, clutching a funeral cross, digests a macabre warning, noting a sign that reads: "IF GOING MUCH FURTHER PLEASE TAKE ONE." Beyond the board is a German minefield, laid across the El Alamein battlefield in North Africa.

"Devil's gardens"

The "Devil's gardens" was the name given by German field marshal Erwin Rommel to the defensive entanglements of land mines and barbed wire built to protect Axis defensive positions at El Alamein. Pictured are Italian infantry soldiers defusing anti-tank mines that the British Army had placed before the Second Battle of El Alamein in late 1942.

Mine clearance methods

The main method of breaching minefields involved prodding the dirt with a bayonet or stick at an angle of 30 degrees (to avoid putting pressure on the top of the mine and detonating it). This proved laborious and dangerous. Furthermore, German mines were set within wooden housings, thus fooling most detectors. British and American tanks were soon fitted with a flail comprised of chains and weights fitted to a rotating drum that would sweep the area ahead of advancing infantry. Pictured is a Matilda scorpion tank equipped for mine clearing.

Anti-handling devices

During the Korean War, American

forces developed the M15 anti-tank mine (pictured) and the M24 anti-personnel mine. These were designed as anti-handling devices, set to detonate if someone attempted to lift, shift, or disarm them.

The Claymore mine

One of the most recognized anti-

personnel explosive devices in the the world is the Claymore mine. Developed for the United States Armed Forces, the Claymore first appeared in 1960 and was soon being laid in the Korean Demilitarized Zone and sown across the jungles and fields of Vietnam and Cambodia. Pictured is the M18A1 Claymore.

Use of land mines today

Many countries have developed and

used mines like the Claymore. American forces last used anti-personnel land mines in 1991 during the Gulf War. The United States has not signed or ratified the 1997 Mine Ban Treaty, but has not sold mines to other countries since 2002. The US currently reserves the right to deploy land mines in defense of South Korea in the event of invasion by North Korea.

Mine Ban Treaty

To date, 164 nations have signed the

Mine Ban Treaty, also known informally as the Ottawa Treaty. Non-signatories besides the US include Russia and China.

Egypt: most mined country in the world

According to Land Mine Free, Egypt remains the most mined nation in the world, a terrible legacy of the Second World War. An estimated 23 million unexploded mines are buried under the desert sand, mostly around border areas.

Angola

Angola in Africa has anywhere between 10-15 million mines hidden within its borders. On January 15, 1997, Diana, Princess of Wales paid a well-publicized visit to the country to promote the work of the mine clearing charity The HALO Trust.

Iran

Iran has 16 million of these devices yet

to be cleared, laid during the disastrous Iran-Iraq War. And the deadly roll call also includes Afghanistan, Iraq, China, Cambodia, Mozambique, Bosnia, Croatia, Somalia, Eritrea, and Sudan, all in the millions.

Land mine victims

Egypt, Angola, and Iran account for

more than 85% of the total number of mine-related casualties in the world each year. The most common injury associated with land mines is loss of one or more limbs.

Explosive force

Overall, about 80% of reported land

mine casualties are men, many of whom are soldiers. But numerous civilians, many of them women and children, also fall victim to these insidious weapons.

Land mine use in Ukraine

According to Human Rights Watch,

Russian forces in Ukraine have used at least seven types of anti-personnel mines in at least four regions of Ukraine: Donetsk, Kharkiv, Kyiv, and Sumy. Pictured is a mine-warning sign installed near a lake and field in the village of Horenka.

Hidden weapon

Besides pressure-activated devices,

mines are set for detonation by trip wire, as seen in this photograph, the green wire camouflaged by foliage. Human Rights Watch adds that while both Russian and Ukrainian forces have extensively used anti-vehicle mines, "There is no credible information that Ukrainian government forces have used anti-personnel mines in violation of the Mine Ban Treaty since 2014 and into 2022."

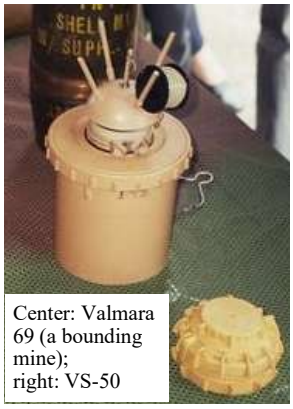
PFM-1 mine

From Wikipedia, the free encyclopedia PFM-1 (Russian: ПФМ-1 — Противопехотная Фугасная Мина-1, lit. 'Anti-infantry high-explosive mine') is a scatterable high explosive anti-personnel land mine of Soviet and Russian production. It is also known as a Green Parrot or Butterfly Mine. The

mines can be deployed from mortars, helicopters and aeroplanes in large numbers; they glide to the ground without exploding and will explode later upon contact.

The mine consists of a polyethylene plastic container containing 40 g of explosive liquid. The two wings of the PFM-1 allow it to glide after being released in the air, then spin, stabilizing it and slowing its descent. The thick wing contains the liquid explosive. The two wings together are 120 mm (about 5 inches) long. The plastic body can be produced in a variety of colours for best camouflage. As existing stocks were in European green rather than sand coloured, the first examples used in 1980s Afghanistan were green and easily visible. This led to their name 'green parrots'.

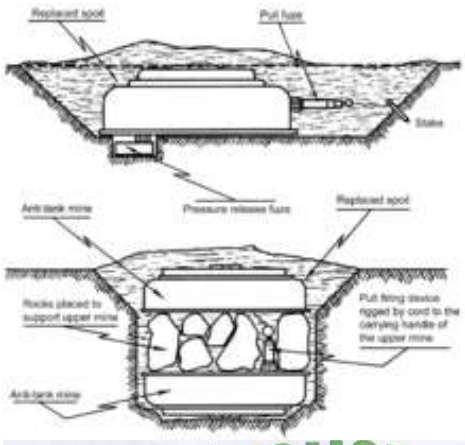
The shape and bright colour is attractive to children, inspiring claims that they were deliberately designed to look like a toy.



Center: Valmara 69 (a bounding mine); right: VS-50

The British also developed the L9 bar mine, a wide anti-tank mine with a rectangular shape, which covered more area, allowing a minefield to be laid four times as fast as previous mines.

Anti handling devices



Fulton's military handkerchief, 1885.

Intro by V. Merlo

Almost one year ago a middle aged couple arrived to the HAMST Military Fair with a plastic shopping bag. Inside the bag there was an “historical treasure” they didn’t know anything about.

When they unfolded the roughly rolled scarf one of our members had a gasp as they recognised what it was and apparently there is only one in Australia at the AWM in Canberra. Unfortunately they didn’t want to part with it and we never saw them again.

Fortunately during my internet reserches I found, not the original of course but a replica, a poster with similar dimensions that now, thanks to the skilled hands of Peter Carmichael it is nicely framed and on display on the Clubroom wall.

This is what I found out about it from the AWM site.

Handkerchief, white and red border printed with instructions for soldier. Includes Martini Henry rifle in section, army signalling, infantry kit, bugle calls maxims for soldiers and shelter trench.

Twenty illustrations around outside section picture various military tactics with explanatory notes underneath.

Handkerchief patented by Fulton, C. (Haymes) - see British patents alphabetical index 1885, which records patent application as September 11, 1885 and number of application 10774, imparting military instruction to infantry.

A convenient guide for soldiers to memorize military activities and training.

Physical Description

White handkerchief with red border featuring black printed military instructions, diagrams and images for soldiers. Underneath crossed flags (union jack and royal standard).

More Information

Date of Pattern 1885

Date patented

Inscriptions Panel above Martini-Henry rifle bears: "Fulton's military handkerchief. Patent no. 10774".

Classification Military history, Service, Uniform accoutrements

Overall Dimensions 67 cm (Length), 79 cm (Width)

Maximum dimensions 670mm (Length), 781 mm (Width)

References BOGLE, MICHAEL. MOUCHOIR (Handkerchief) D' INSTRUCTION MILITAIRE. JOURNAL OF THE AUSTRALIAN WAR MEMORIAL NO.2 APRIL 1983 P. 20-23.

Northrop P-61 Black Widow

From wikipedia.org

The Northrop P-61 Black Widow is a twin-engine United States Army Air Forces fighter aircraft of World War II. It was the first operational U.S. warplane designed as a night fighter.

Named for the North American spider Latrodectus mactans, it was an all-metal, twin-engine, twin-boom design armed with four forward-firing 20mm Hispano M2 autocannon in the lower fuselage, and four .50 in (12.7 mm) M2 Browning machine guns in a dorsal gun turret. Developed during the war, the first test flight was made on May 26, 1942, with the first production aircraft rolling off the assembly line in October 1943.

Although not produced in the large numbers of its contemporaries, the Black Widow was operated effectively as a night fighter by United States Army Air Forces squadrons in the European Theater, Pacific Theater, China Burma India Theater, and Mediterranean Theater during World War II. It replaced earlier British-designed night-fighter aircraft that had been updated to incorporate radar when it became available. After the war, the P-61 was redesignated as the F-61 and served in the United States Air Force as a long-range, all-weather, day/night interceptor for Air Defense Command until 1948, and for the Fifth Air Force until 1950. The last aircraft was retired from government service in 1954.

On the night of 14 August 1945, a P-61B of the 548th Night Fighter Squadron named Lady in the Dark was unofficially credited with the last Allied air victory before VJ Day.

The P-61 was also modified to create the F-15 Reporter photo-reconnais-sance aircraft for the United States Army Air Forces and subsequently the United States Air Force.

Design

The P-61 featured a crew of three: pilot, gunner, and radar operator. It was armed with four 20 mm (.79 in) Hispano M2 forward-firing cannon mounted in the lower fuselage, and four .50 in (13 mm) M2 Browning machine guns lined up horizontally with the two middle guns slightly offset upwards in a remotely aimed dorsally mounted turret, a similar arrangement to that used with the B-29 Superfortress using four-gun upper forward remote turrets. The turret was driven by the General Electric GE2CFR12A3 gyroscopic fire control computer, and could be directed by either the gunner or radar operator, who both had aiming control and gyroscopic collimator sight assembly posts attached to their swiveling seats.

The two Pratt & Whitney R-2800-25S Double Wasp engines were each mounted approximately one-sixth out on the wing's span. Two-stage, two-speed mechanical superchargers were fitted. In an effort to save space and weight, no turbo-superchargers were fitted, despite the expected 50 mph (80 km/h) speed and 10,000 ft (3,000 m) ceiling increases.

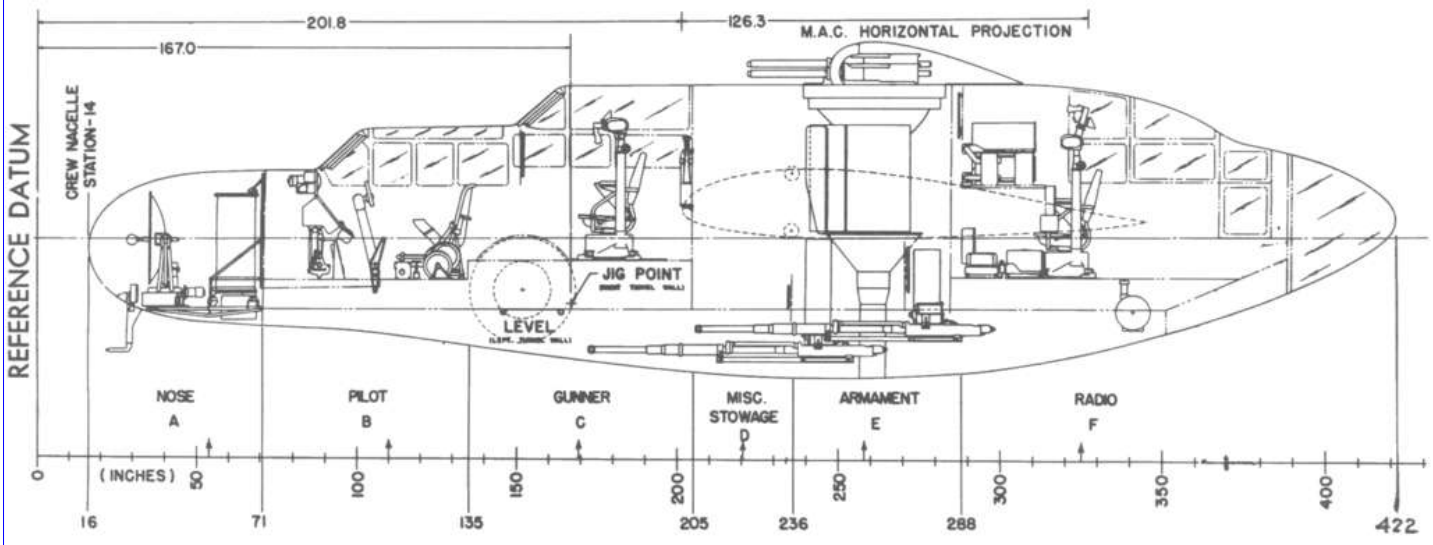
Main landing gear bays were located at the bottom of each nacelle, directly behind the engine. The two main gear legs were each offset significantly outboard in their nacelles, and retracted towards the tail; oleo scissors faced forwards. Each main wheel was inboard of its gear leg and oleo. Main gear doors were two pieces, split evenly, longitudinally, hinged at inner door's inboard edge and the outer door's outboard edge.

Each engine cowling and nacelle drew back into tail booms that terminated upwards in large vertical stabilizers and their component rudders, each of a shape similar to a rounded right triangle. The leading edge of each vertical stabilizer was faired smoothly from the surface of the tail boom upwards, swept back to 37°. The horizontal stabilizer extended between the inner surfaces of the two vertical stabilizers, and was approximately 3⁄4 the chord of the wing root, including the elevator. The elevator spanned approximately 1⁄3 of the horizontal stabilizer's

AIRPLANE DIAGRAM

(CREW NACELLE)

P-61A



NOTES:

1. JIG POINT IS A LINE SCRIBED ON A PLACARD LOCATED ON RIGHT TUNNEL WALL 167 INCHES AFT OF REFERENCE DATUM.
2. LEVELING LUGS ARE LOCATED ON LEFT HAND TUNNEL WALL.

width, and in overhead plan view, angled inwards in the horizontal from both corners of leading edge towards the trailing edge approximately 15°, forming the elevator into a wide, short trapezoid. The horizontal stabilizer and elevator assembly possessed a slight airfoil cross-section.

The engines and nacelles were outboard of the wing root and a short "shoulder" section of the wing that possessed a 4° dihedral, and were followed by the remainder of the wing which had a dihedral of 2°. The leading edge of the wing was straight and perpendicular to the aircraft's centerline. The trailing edge was straight and parallel to the leading edge in the shoulder, and tapered forward 15° outboard of the nacelle. Leading edge updraft carburetor intakes were present on the wing shoulder and the root of the outer wing, with a few inches of separation from the engine nacelle itself. They were very similar in appearance to those on the F4U Corsair—thin horizontal rectangles with the ends rounded out to nearly a half-circle, with multiple vertical vanes inside to direct the airstream properly.

The P-61 did not have normal-sized ailerons. Instead, it had small ailerons which allowed wider span flaps and a very low landing speed. These ailerons, known as guide ailerons, gave some roll control and provided acceptable feel for the pilot in rolling manoeuvres. Control of the aircraft about the roll axis was augmented with circular-arc spoilerons which provided about half the roll control at low speeds and most of it at high speeds. The spoilers were located outboard of the nacelle in front of the flaps.

The main fuselage, or gondola, was centered on the aircraft's centerline. It was, from the tip of the nose to the end of the Plexiglas tail-cone, approximately five-sixths the length of one wing (root to tip). The nose housed an evolved form of the SCR-268 Signal Corps Radar, the Western Electric Company's SCR-720A. Immediately behind the radar was the multi-framed "greenhouse" canopy, featuring two distinct levels, one for the pilot and a second for the gunner above and behind him, the latter elevated by approximately 6 in (150 mm). Combined with the nearly flat upper surface of the aircraft's nose, the two-tiered canopy gave the aircraft's nose a distinct appearance of three wide, shallow steps. The forward canopy in the XP-61 featured contiguous, smooth-curved, blown-Plexiglas canopy sections facing forward, in front of the pilot and the gunner. The tops and sides were framed.

Beneath the forward crew compartment was the nose gear wheel well, through which the pilot and gunner entered and exited the aircraft. The forward gear leg retracted to the rear, up against a contoured cover that when closed for flight formed part of the cockpit floor; the gear would not have space to retract with it open. The oleo scissor faced forwards. The nosewheel was centered, with the strut forking to the aircraft's left. The nosewheel was approximately 3⁄4 the diameter of the main wheels. Nose gear doors were two pieces, split evenly longitudinally, and hinged at each outboard edge.

The center of the gondola housed the main wing spar, fuel storage and piping and control mechanisms, control surface cable sections, propeller and engine controls, and radio/IFF (Identification Friend or Foe) equipment, but was predominantly occupied by the top turret mounting ring, rotation and elevation mechanisms, ammunition storage for the turret's machine guns, the GE2CFR12A3 gyroscopic fire control computer, and linkages to the gunner and radar operator's turret control columns, forward and aft, respectively.

The radar operator's station was at the aft end of the gondola. The radar operator controlled the SRC-720 radar set and viewed its display scopes from the isolated rear compartment, which he entered by way of a small hatch with a built-in ladder on the underside of the aircraft. In addition to the radar systems themselves, the radar operator had intercom and radio controls, as well as the controls and sight for the remote turret. The compartment's canopy followed the curvature of the gondola's rear section, with only a single rounded step to the forward canopy's double step. The rear of the gondola was enclosed by a blown Plexiglas cap that tapered quickly in overhead plan view to a barely rounded point; the shape was somewhat taller in side profile than it was in overhead plan view, giving the end of the "cone" a rounded "blade" appearance when viewed in perspective.

The cross-section of the gondola, front to back, was generally rectangular, vertically oriented. The tip of the nose was very rounded to accommodate the main AI radar's dish antenna, merging quickly to a rectangular cross-section that tapered slightly towards the bottom. This cross-section lost its taper but became clearly rounded at the bottom moving back through the forward crew compartment and nose gear well. Height increased at both steps in the forward canopy, with the second step being flush with the top of the aircraft (not counting the dorsal gun turret). At the rear of the forward crew compartment, the cross-section's bottom bulged downwards considerably and continued to do so until just past the midpoint between the rear of the forward crew compartment and the front of the rear crew compartment, where the lower curvature began to recede. Beginning at the front of the rear crew compartment, the top of the cross-section began to taper increasingly inwards above the aircraft's center of gravity when progressing towards the rear of the gondola. The cross-section rounded out considerably by the downward step in the rear canopy, and rapidly became a straight-sided oval, shrinking and terminating in the tip of the blown-Plexiglas "cone" described above.

The cross-section of the nacelles was essentially circular throughout, growing

then diminishing in size when moving from the engine cowlings past the wing and gear bay, towards the tail booms and the vertical stabilizers. A bulge on the top of the wing maintained the circular cross-section as the nacelles intersected the wing. The cross-section became slightly egg-shaped around the main gear bays, larger at the bottom but still round. An oblong bulge on the bottom of the main gear doors, oriented longitudinally, accommodated the main wheels when the gear was retracted.

Wingtips, wing-to-nacelle joints, tips and edge of stabilizers and control surfaces (excluding the horizontal stabilizer and elevator) were all smoothly rounded, blended or filleted. The overall design was exceptionally clean and fluid as the aircraft possessed very few sharp corners or edges.

Remote turret

The XP-61's spine-mounted dorsal remote turret could be aimed and fired by the gunner or radar operator, who both had aiming control and gyroscopic collimator sighting posts attached to their swiveling seats, or could be locked forward to be fired by the pilot in addition to the 20 mm (.79 in) cannon. The radar operator could rotate the turret to engage targets behind the aircraft. Capable of a full 360° rotation and 90° elevation, the turret could be used to engage any target in the hemisphere above and to the sides of the XP-61.

The P-61 had an inauspicious start to its combat in the European theater. Some believed the P-61 was too slow to effectively engage German fighters and medium bombers, a view which the RAF shared, based on the performance of a single P-61 they had received in early May.

The 422d Night Fighter Squadron was the first to complete their training in Florida and, in February 1944, the squadron was shipped to England aboard the RMS Mauretania. The 425th NFS soon followed aboard the RMS Queen Elizabeth.

The situation deteriorated in May 1944, when the squadrons learned that several USAAF generals – including General Hoyt Vandenberg – believed the P-61 lacked the capability to successfully engage German fighters and bombers, being too slow. General Spaatz asked for de Havilland Mosquito night fighters to equip two U.S. night fighter squadrons based in the UK. The request was denied due to insufficient supplies of Mosquitoes which were in demand for a number of roles.

At the end of May, the USAAF insisted on a competition between the Mosquito and the P-61 for operation in the European theater. RAF crews flew the Mosquito Mk XVII while crews from the 422nd NFS flew the P-61. In the end the USAAF determined that the P-61 had a slightly better rate of climb and could turn more tightly than the Mosquito. Colonel Winston Kratz, director of night fighter training in the USAAF, had organized a similar competition earlier. He said of the results:

I'm absolutely sure to this day that the British were lying like troopers. I honestly believe the P-61 was not as fast as the Mosquito, which the British needed because by that time it was the one airplane that could get into Berlin and back without getting shot down. I doubt very seriously that the others knew better. But come what may, the '61 was a good night fighter. In the combat game you've got to be pretty realistic about these things. The P-61 was not a superior night fighter. It was not a poor night fighter. It was a good night fighter. It did not have enough speed.

However, on 5 July 1944, General Spaatz ordered a competition be held between the P-61 – using an example from the 422nd which had been "'tweaked' to get maximum performance" for the competition – against a Mosquito NF.XVII and Lieutenant Colonel Kratz made a $500 bet in favor of the Mosquito being a faster and more maneuverable night fighting platform. The "tweaked" P-61 proved Kratz wrong, as according to the 422nd's squadron historian it "... proved faster at all altitudes, outturned the Mossie at every altitude and by a big margin and far surpassed the Mossie in rate of climb."

In England, the 422d NFS finally received their first P-61s in late June, and began flying operational missions over England in mid-July. These aircraft arrived without dorsal turrets, so the squadron's gunners were reassigned to another NFS that was to continue flying the P-70. The first P-61 engagement in the European Theater occurred on 15 July when a P-61 piloted by Lieutenant Herman Ernst was directed to intercept a V-1 flying bomb. Diving from above and behind to match the V-1's 350 mph (560 km/h) speed, the P-61's plastic rear cone imploded under the pressure and the attack was aborted. The tail cones failed on several early P-61A models before this problem was corrected. On 16 July, Lieutenant Ernst was again directed to attack a V-1 and, this time, was successful, giving the 422nd NFS and the European Theater its first P-61 kill.

Pacific Theatre

The 6th NFS based on Guadalcanal received their first P-61s in early June 1944. The aircraft were quickly assembled and underwent flight testing as the pilots changed from the squadron's aging P-70s. The first operational P-61 mission occurred on 25 June, and the type scored its first kill on 30 June 1944 when a Japanese Mitsubishi "Betty" bomber was shot down.

In the summer of 1944, P-61s in the Pacific Theater saw sporadic action against Japanese aircraft. Most missions ended with no enemy aircraft sighted but when the enemy was detected they were often in groups, with the attack resulting in several kills for that pilot and radar operator, who would jointly receive credit for the kill.

In the Pacific Theater in 1945, P-61 squadrons struggled to find targets. One squadron succeeded in destroying a large number of Kawasaki Ki-48 "Lily" Japanese Army Air Force twin-engined bombers, another shot down several Mitsubishi G4M "Bettys," while another pilot destroyed two Japanese Navy Nakajima J1N1 "Irving" twin-engined fighters in one engagement but most missions were uneventful. Several Pacific Theater squadrons finished the war with no confirmed kills. The 550th could only claim a crippled B-29 Superfortress, shot down after the crew had bailed out having left the aircraft on autopilot.

On 30 January 1945, a lone P-61 performed a mission as part of the successful raid carried out by U.S. Army Rang-

ers to free over 500 Allied POWs held by the Japanese at the Cabanatuan prison camp (Camp Pangatian) in the Philippines. As the Rangers crept up on the camp, a P-61 swooped low and performed aerobatics for several minutes. The distraction of the guards allowed the Rangers to position themselves, undetected within striking range of the camp.

Poet and novelist James Dickey flew 38 Pacific Theater missions as a P-61 radar operator with the 418th Night Fighter Squadron, an experience that influenced his work, and for which he was awarded five Bronze Stars.

The 418th NFS produced the only US Army Air Force night fighter aces in the Pacific, a pilot-radar operator team.

Historian Warren Thompson wrote that "it is widely believed" that the last enemy aircraft destroyed in combat before the Japanese surrender was downed by a P-61B-2 named "Lady in the Dark" (s/n 42-39408) of the 548th NFS. The aircraft piloted by Lieutenant Robert W. Clyde and R/O Lieutenant Bruce K. LeFord on 14/15 August 1945 claimed a Nakajima Ki-44 "Tojo."

The destruction of the "Tojo" came without a shot being fired; after the pilot of the "Tojo" sighted the attacking P-61, he descended to wave-top level and began a series of evasive maneuvers.

These ended with his aircraft striking the water and exploding. Clyde and LeFord were never officially credited with this possible final kill of the war.

General characteristics

Crew: 2–3 (pilot, radar operator, optional gunner)

Length: 49 ft 7 in (15.11 m)

Wingspan: 66 ft 0 in (20.12 m)

Height: 14 ft 8 in (4.47 m)

Wing area: 662.36 sq ft (61.535 m2)

Airfoil: Zaparka

Empty weight: 23,450 lb (10,637 kg)

Gross weight: 29,700 lb (13,472 kg)

Max takeoff weight: 36,200 lb (16,420 kg)

Fuel capacity: 640 US gal (2,400 L) internal and up to four 165 US gal (625 L) drop tanks

Powerplant: 2 × Pratt & Whitney R-2800-65W Double Wasp 18-cylinder air-cooled radial piston engines, 2,250 hp (1,680 kW) each

Propellers: 4-bladed Curtiss Electric constant-speed feathering propellers, 12 ft 2 in (3.72 m) diameter

Performance

Maximum speed: 366 mph (589 km/h, 318 kn) at 20,000 ft (6,100 m)

Range: 1,350 mi (2,170 km, 1,170 nmi)

Ferry range: 1,900 mi (3,100 km, 1,700 nmi) with four external fuel tanks

Service ceiling: 33,100 ft (10,100 m)

Rate of climb: 2,540 ft/min (12.9 m/s)

Time to altitude: 20,000 ft (6,100 m) in 12 minutes

Wing loading: 45 lb/sq ft (220 kg/m2)

Power/mass: 0.15 hp/lb (0.25 kW/kg)

Armament

Guns: 4 × 20 mm (.79 in) Hispano AN/M2 cannon in ventral fuselage, 200 rounds per gun

4 × .50 in (12.7 mm) M2 Browning machine guns in remotely operated, full-traverse upper turret, 560 rpg

Bombs: for ground attack, four bombs of up to 1,600 lb (726 kg) each or six 5-in (127 mm) HVAR unguided rockets could be carried under the wings. Some aircraft could also carry one 1,000 lb (454 kg) bomb under the fuselage.

Avionics

SCR-720 (AI Mk.X) search radar

SCR-695 tail warning radar

Lumber Jills: The Women Who Made Up Britain's Timber Corps

War history on line By Clare Fitzgerald

Throughout the Second World War, women in Britain stepped up wherever they were needed. Many volunteered as air wardens or joined civilian organizations dedicated to providing aid to soldiers abroad. Some of those women enlisted in the Air Force, while others opted for the Women's Land Army.

Most received immediate praise and recognition for their work, except one group: the Women's Timber Corps.

A shortage of timber

The origins of the Women's Timber Corps dates back to World War I, when the Women's Timber Service was formed. Shortly after the war, the British government established the Forestry Commission and tasked it with increasing the country's timber production. Unfortunately, the trees planted to replace those cut down during the conflict were still immature.

By the time WWII broke out, Britain was importing 96 percent of its timber requirements. There was also a labor shortage, as the men working in the forests had joined the battle in Europe. To combat this, the Forestry Commission began recruiting women.

In 1942, the German occupation in Norway was causing a shortage of imported timber. In response, the Home Grown Timber Production Department created the Women's Timber Corps. A month later, Scotland followed suit and formed its own Corps. While the work was grueling and arduous, the women were eventually accepted as being just as good as the men they had replaced.

The women of the Timber Corps

The Women's Land Army was charged with the administration and recruitment of the Women's Timber Corps, despite being an entirely separate branch. The Corps had a similar uniform to its counterpart, except that members, nicknamed "Lumber Jills," wore berets and a different armband. Their badges also depicted a fir tree instead of the sheaf of wheat featured by the Women's Land Army.

The exact numbers are unknown, but it's estimated between 6,000 and 13,000 women signed up for the Corps. While the official recruiting age was 17 and over, girls as young as 14 also joined. Many traded city living for more rural settings, and the main requirement was that they have the enthusiasm and resilience needed for the job.

Training took approximately four-to-six weeks and occurred at Corps depots in Culford, Wetherby, Lydney, and Hereford. Once complete, the women were stationed across the United Kingdom.

Grueling and dangerous work

The Women's Timber Corps work included a host of jobs, including crosscutting, felling, snedding, and operating sawmills. They also learned how to drive tractors and trucks and to work with horses. The most specialized skill was measuring, which had three objectives: identifying trees for felling, assessing the timber in a tree, and measuring the amount felled.

A large portion of what was produced was mining timber used to keep the country running. It was also used for pit props for the mines, crosses on soldiers' graves, telegraph poles, gun mats, railway sleepers, roadblocks, ladders, newsprint, mobile tracking to support tanks and ships' masts.

The women of the Timber Corps worked from 7:00 A.M. to 4:30 P.M. This created resentment between them and the Women's Land Army, who worked longer hours and considered the Timber Corps the "soft option." They were subjected to meager living conditions and often had to find their own accommodations. This was difficult, as many held prejudices against them for doing a man's job.

Another point of contention was the pay. Tree fellers earned between 35 and 46 shillings per week, while measurers earned more than 50. They were paid piece-work instead of a set wage, meaning their average wage was much higher than those in the Women's Land Army.

A long wait for recognition

The Women's Timber Corps was disbanded in 1946. While its members received a letter from Queen Elizabeth, they were offered no other form of recognition nor afforded the gratuity or retraining of women who'd served in the Armed Forces.

In 2007, The Department of Environment, Food and Rural Affairs announced that all surviving members would be given a new badge to commemorate their service. That same year, a memorial statue dedicated to them was unveiled in Queen Elizabeth Forest Park in Aberfoyle, Stirling, Scotland.The Forestry Commission marked the 70th anniversary of the Women's Timber Corps in 2012, after which BBC's Countryfile aired a tribute to the work they'd done. The most recent tribute occurred in 2014 when a statue honoring the Women's Timber Corps and the Women's Land Army was unveiled at the National Memorial Arboretum in Alrewas, Scotland.

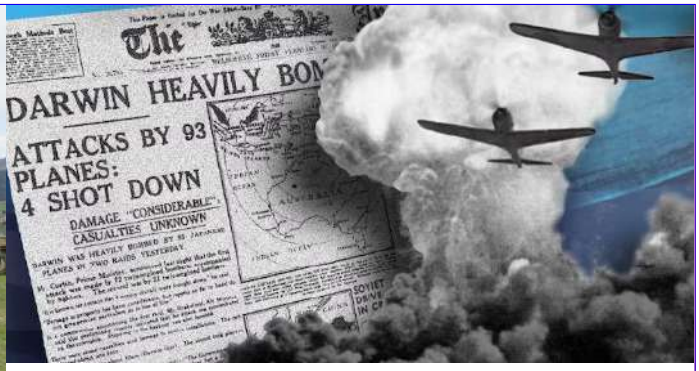
103 yr. old Darwin bombing veteran attends HAMST Military Fair.

103-year-old Brain Winspear was all smiles at the HAMST fair on Sunday Oct 8th, recalling his days in Darwin during the 1942-43 Darwin bombings by the Japanese. Brian was a radio-air gunner in the RAAF at the time and was involved in the protection of Australian airfields during the early bombings (there were 64 bombings in all over a time period of 1 year and 8 months from Feb 1942 to Nov 1943). Brian was wounded by shrapnel during one of the raids, but his beaming smile belie any permanent scars of his ordeal. Although based on the ground at the early stages of the attacks, he was a trained communications-gunnery-navigation expert who flew in the Voltee Vengeance dive bombers. He could also fly the plane in an emergency if the pilot became incapacitated.

He was at an airfield when the Japanese launched their first attack on Darwin. He said he could even see the pilots faces in some of the dive bombers and fighters as they homed in on their target. A few days later he saw planes flying high overhead and thought they were American. That is until he saw what looked like confetti at a wedding dropping down from them, towards him!

Brian lives in Rosny and is a life member of several military history clubs around the country.

Brian lives in Rosny and is a life member of several military history clubs around the country. Brian in a smiling match with Derek Millhouse.



BA-64B armoured car in Nizhniy Novgorod Kremlin, Russia.

BA 64 WW2 Russian scout car

From Wikipedia

The BA-64 (БА-64, from Russian: БронированныйАвтомобиль, Bronirovaniy Avtomobil, literally "armoured car") was a Soviet four-wheeled armoured scout car. Built on the chassis of a GAZ-64 or GAZ-67 jeep, it incorporated a hull loosely modeled after that of the Sd.Kfz. 221. The BA-64 was developed between July and November 1941 to replace the BA-20 then in service with armoured car units of the Red Army. Cheap and exceptionally reliable, it would later become the most common Soviet wheeled armoured fighting vehicle to enter service during World War II, with over 9,000 being manufactured before production ended.

The BA-64 represented an important watershed in Soviet armoured car technology, as its multi-faceted hull gave its crew superior protection from small arms fire and shell fragments than the BA-20. BA-64s also possessed a much higher power-to-weight ratio and the placement of their wheels at the extreme corners of the chassis resulted in exceptional manoeuvrability. Following the adoption of the BTR-40, the Soviet government retired its remaining fleet of BA-64s and exported them as military aid to various nations. In East German service, they served as the basis for the later Garant 30k SK-1. North Korean BA-64s saw action against the United Nations Command during the Korean War.

History and Dvelopment

During the 1930s, the Soviet Union devoted much effort and funding to the development of six-wheeled medium or heavy armoured cars. A primary shortcoming of these vehicles was their lack of all-wheel drive, however, which restricted them to roads. In 1940, the Main Directorate of Soviet Armoured Forces (GABTU), issued a requirement for new armoured car designs which could operate effectively on open terrain and possessed an all-wheel drive chassis. This ushered in the development of several new 4X4 designs, such as the LB -62 and the BA-NATTI. Although these were the first all-wheel drive Soviet armoured cars, neither was accepted for service with the Red Army, as they suffered from excessive weight, fuel consumption, and poor operating range.

During Operation Barbarossa, Nazi Germany's rapid offensives in Ukraine and western Russia temporarily disrupted new military projects as most Soviet factories involved with the production of armoured fighting vehicles were forced to evacuate their facilities and relocate operations east of the Ural Mountains. Gorkovsky Avtomobilny Zavod (GAZ) was one of a few exceptions to the rule, as it was already located east of Moscow. Its contribution to the early Soviet war effort was strategically vital, since it could continue manufacturing vehicles to replace the massive losses then being sustained by the Red Army while the rest of the local defence industry was struggling to relocate and reorganise. GAZ increased its manufacture and assembly of light tanks accordingly, as well as continuing to produce military trucks. Since the programme to mass produce a new all-wheel drive armoured car had been interrupted by the German invasion, it also fell to GAZ to investigate possibilities in that regard.

GAZ technicians initiated concept work on a new armoured car designated Izdeliye 64-125 on July 17, 1941, basing its construction and design on a preexisting light vehicle chassis. This was to ensure the manufacturing process could in be undertaken in an economical and rapid manner. After some deliberation, the GAZ-64 jeep was chosen as the base for the Izdeliye 64-125. This chassis was considered ideal due to its short wheel base and excellent ground clearance, and the fact that its mechanical parts were already in serial production. The original Izdeliye 64-125 bore almost no similarities with what would later become the BA-64; it resembled little more than a shorter BA-20.

On August 23, a captured German Sd.Kfz. 221 scout car was exhibited near Moscow by the Red Army. Vitaliy Grachev and other GAZ engineers were permitted to inspect the vehicle; a month later Grachev arranged to have it brought to the GAZ factory for a detailed analysis. Grachev was impressed by the highly faceted armour plate on the Sd.Kfz. 221, which was angled for maximum ricochet, and he ordered that a similar hull be incorporated into the Izdeliye 64-125. In late November, GAZ assembled the first three prototypes carrying the new hull. Field trials with the Red Army commenced on January 9, 1942. The Izdeliye 64-125 was accepted for service as the BA-64 on March 14, 1942.

The BA-64 was initially armed with a single 7.62mm Degtyaryov machine

gun in an open-topped turret. The machine gun was mounted on a fixed mount that allowed it to be elevated sufficiently to engage low-flying aircraft. BA-64s started being issued in large numbers to Soviet units in early 1943. Around the same time a specialist driving school was set up to train BA-64 drivers. For reasons still unclear, only fifty armoured cars of this type were manufactured in 1942 and mass production was not undertaken until the first six months of 1943, when over a thousand were manufactured. Even after 1943, production figures remained inconsistent and could fluctuate greatly from year to year. In June 1943, the GAZ workshops that produced the BA-64 were heavily damaged or destroyed by German air raids, and production ceased altogether until the plant could be restored. A few technical shortcomings of the GAZ-64 chassis had to resolved in that time.

BA-64s remained unique in that they were the only new Soviet armoured car design to be produced during World War II. They had better armour, speed, range, and off-road capability than any other wheeled fighting vehicles in Soviet service, although due to the limitations of the chassis they could only carry a single light machine gun. Unlike the BA-3/6 and BA-20 heavy armoured cars, which were armed with anti-tank cannon, the BA-64 was not considered suitable for front-line combat against German armour. It was, however, widely used for transporting officers, liaison purposes, reconnaissance, and other secondary battlefield tasks.

In September 1943, production of the GAZ-64 was superseded by the improved GAZ-67B jeep, which had a wider wheel base. Consequently, the BA-64 was modified to accommodate the new chassis. This alteration proved to be a major improvement for the BA-64, which was notoriously unstable on slopes due to its narrow track and somewhat top-heavy nature; the wider GAZ-67B track increased the vehicle's side slope angle to 25°. The modified BA-64 was designated BA-64B by the Soviet government. Other detailed improvements included firing ports, a wider range of armament and a new carburetor which gave better performance on low grade fuel. Most BA-64Bs continued to be fitted with the same turret and 7.62mm machine gun as the original series; however, Soviet troops removed some of the original BA-64B turrets and replaced them with PTRS-41 anti-tank rifles or captured German 2 cm KwK 30 cannon. Another, more extensive, field modification involved removing the turret and even part of the upper hull, as well as adding a windshield salvaged from captured Volkswagen Schwimmwagens. This converted the BA-64B into an open-topped staff car.

In 1944, GAZ produced a variant of the BA-64B mounting a single 12.7mm DShK heavy machine gun in a larger turret. Although this greatly improved the vehicle's firepower, the turret remained insufficient to adequately rotate the bulky machine gun, and there was not enough space in the hull to accommodate adequate 12.7mm ammunition stowage. Only a small number were manufactured.Another unusual variant, the BA-64ZhD, was produced using surplus, old BA-64 hulls, albeit mounted on the GAZ -67 chassis. It possessed flanged, steel rail wheels which allowed it to patrol railroad tracks.

Production of the BA-64B was severely curtailed by the end of World War II, as the Red Army no longer had any interest in maintaining such large numbers of new armoured cars. The last 62 BA-64Bs were manufactured in mid 1946. Approximately 9,110 BA-64s of all variants were produced in the Soviet Union between 1942 and 1946. Of that figure, about half were fitted with communications equipment, chiefly RP radios, which were inferior to the 71-TK models used in Soviet heavy armoured cars.

After the war, Soviet interest in wheeled armoured vehicles shifted primarily to purpose-built armoured personnel carriers (APCs). Soviet military officials wanted armoured vehicles capable of keeping pace with tanks that could transport infantry to an engagement. As early as mid-March 1943, GAZ had developed an APC variant of the BA-64B, the BA-64E, which could accommodate six passengers. This vehicle was open-topped and the passengers debarked through a door in the rear hull. The BA-64E was rejected as being too small for a practical APC; however, a number of its features would later be incorporated into a new design better able to combine the traditional roles of an armoured car with that of a general transporter: the BTR-40.

GAZ manufactured new parts for the existing BA-64 fleet until 1953, the last year it remained in operational service with the Soviet Armed Forces. Thereafter the BA-64 was superseded by the BTR-40 and subsequently, by the BRDM-1. All the remaining vehicles were placed in storage, and some were gradually disposed of as military aid to Soviet client states, particularly North Korea. Prior to export, the stored BA-64s were refurbished at the same Soviet facilities responsible for the maintenance of the BTR series.

Service

The first BA-64s produced were deployed to the Don Front in 1942. However, larger quantities were operated by Soviet units on the Voronezh Front and the Bryansk Front from mid to late 1943. BA-64s also took part in the final phases of the Battle of Stalingrad. During prolonged road marches, Soviet crews retrofitted them with standard tread road tyres to save fuel. BA-64Bs were deployed during Soviet offensives in Austria, Germany, Hungary, and Romania, seeing extensive combat during the Second Battle of Kiev and the Battle of Berlin. Eighty-one BA-64Bs were also donated by the Soviets to the Polish People's Army and ten to the 1st Czechoslovak Army Corps. The Czechoslovak BA-64Bs were used in the Prague Offensive of 1945.

During the early to mid 1950s, ex-Soviet BA-64s were shipped to a number of Soviet client states in Eastern Europe and Asia, including Bulgaria, East Germany, Romania, Albania, North Korea, and the People's Republic of China. Small quantities were later also supplied to Yugoslavia. In North Korean service, the BA-64 engaged ground forces of the United Nations Command during the Korean War, where it received the nickname "Bobby" from American soldiers. This was a likely play on the armoured car's Russian nickname, "Bobik".

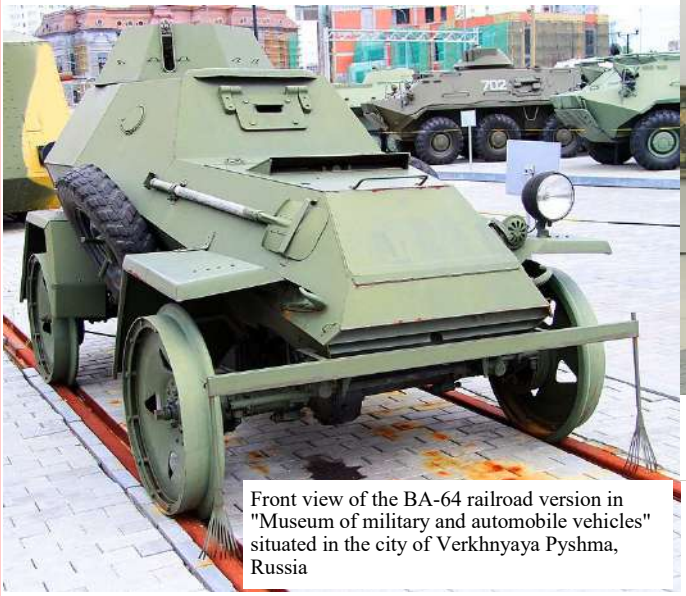
The last country known to have received BA-64s for its armed forces was North Vietnam, although it is not known whether these saw actual combat during the Vietnam War.

By the 1970s, BA-64s had been retired by all Warsaw Pact armies, being typically donated to paramilitary groups such as the East German Combat Groups of the Working Class, and similar workers' militia units. However, some remained in service with the national armies of North Korea and Albania. In 2013, the Korean People's Army continued to hold an number of BA-64s in reserve.

The BA-64 consisted of the chassis of a GAZ-64 or GAZ-67 jeep modified to accept an armoured hull. The jeep chassis required some alterations to accept the hull; for example, the cooling, fuel, and electrical systems had to be relocated while the rear suspension was braced to accommodate the additional weight.

Suspension consists of semi-elliptical springs front and rear, and steering is restricted to the front wheels. A BA-64's gearbox initially had one reverse and three forward gears on a two-speed transfer case, although a few models appear to have one reverse and four forward gears and no transfer case.

All BA-64 hulls were of all-welded steel construction and varied in armour thickness from 15mm on the hull front to 6mm on the hull sides. To provide maximum ballistic protection, most armour plates were angled at approximately 30°. Both the driving and engine compartments were located at the front of the



Front view of the BA-64 railroad version in "Museum of military and automobile vehicles" situated in the city of Verkhnyaya Pyshma, Russia

Soviet light armoured car BA-64B in Militä - rhistorisches Museum der Bundeswehr, Dresden, Germany

hull. The crew members are seated in tandem, with the turret gunner seated behind and above the driver. The driving compartment is fitted with a one-piece hatch cover opening upwards. When the hatch is closed during combat, the driver continues to navigate via a triplex auxiliary sight. The sight was developed from a similar device on the T-60 light tank.

Both the BA-64 and BA-64B were powered by a four-cylinder GAZ petrol engine developed 50 hp (37 kW) at 2,800 rpm. The engine was particularly reliable and known for operating for extended periods even on low octane fuel and poor quality oil with minimal maintenance. Under wartime conditions it was capable of providing good operational service up to 15,000 kilometres without needing major repair. The BA-64 could be fitted with bullet-proof GK combat tyres, although these resulted in higher fuel consumption and reduced road speeds to 40 km/h. Red Army mechanics typically fitted standard tires from the GAZ-M1 passenger car with civilian tread to the BA-64 for use in convoys, long-distance road marches, and rearguard duties.

An open-topped turret was fitted as standard to the BA-64 series, with a 7.62mm light machine gun mounted on a pintle to the right. The machine gun mount was designed for maximum elevation so it could engage low-flying aircraft or infantry in the upper floors of a building during urban combat. A very small number of BA-64s were fitted with a 12.7mm heavy machine gun in a larger, open-topped turret. This model included splash guards and armoured fillets on the hull roofline. Personal crew weapons, such as hand grenades, were also stored inside the vehicle's hull.

The BA-64 underwent some minor modifications as the BA-64B. While the most noticeable of these changes were the new carburetor and the wider track, successive models of BA-64Bs also included firing ports, cylindrical sheet metal exhaust shields, an additional air intake atop the engine compartment, and an air intake for the driving compartment on the hull roof.

M8 and BA-64 models both in 1/72 scale for size comparison next to a match box

Specifications

Type	Armoured Scout Car
Place of origin	Soviet Union
Service history	Service history
Used by	See Operators
Wars	World War II Korean War
Production history	Production history
Designer	Vitaliy Grachev
Designed	July—November 1941
Manufacturer	GAZ
Produced	1942—1946
No. built	9,110
Variants	See Variants
Specifications	
Mass	2.4 tonnes (2.6 short tons; 2.4 long tons)
Length	3.66 m (12 ft 0 in)
Width	1.74 m (5 ft 9 in)
Height	1.9 m (6 ft 3 in) (hull)
Crew	2 (commander, driver) + 6 passengers (BA-64E only)
Main armament	7.62mm DT machine gun (1,070 rounds)
Engine	GAZ-MM four-cylinder liquid-cooled petrol 50 hp (37 kW) at 2,800 rpm
Power/weight	21.2 hp/tonne (15.8 kW/tonne)
Transmission	4fwd 1rev
Ground clearance	0.21 m (8.3 in)
Fuel capacity	90 L (24 US gal)
Operational range	500 km (310 mi)
Maximum speed	80 km/h (50 mph)

MD-160: The Aircraft-Ship Hybrid Known as the 'Caspian Sea Monster'

By Clare Fitzgerald, warhistoryonline.com

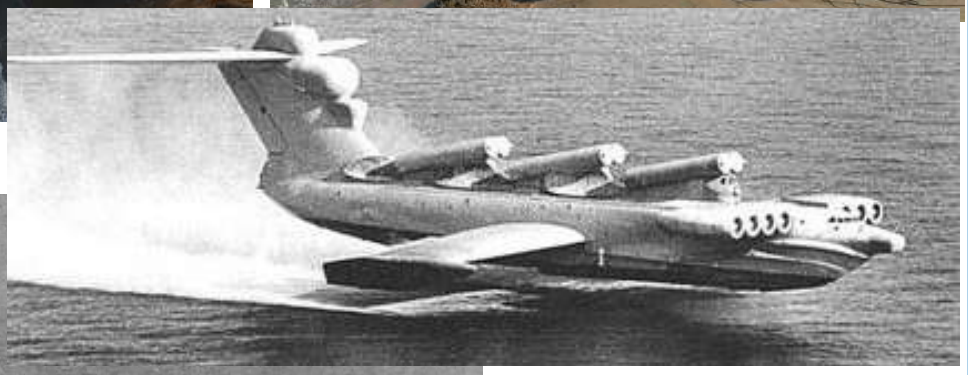
There have been some really unusual military vehicles built over the course of history, but none have amazed us more than the Lun-class MD-160. A form of Ground Effect Vehicle, this ekranoplan is a unique aircraft-ship hybrid that could have played a pivotal part in the Cold War, had it not been for the collapse of the Soviet Union.

Is the MD-160 an airplane or a ship?

The ekranoplan was a form of Ground Effect Vehicle, meaning it glided over water without ever touching it. To many, it appears to be a hybrid between an airplane and a sea vessel. The International Maritime Organization (IMO) actually classifies it as a ship, despite the fact it flies above the surface of the water at a height of one-to-five meters.

Ground Effect Vehicles are known for taking advantage of the aerodynamic principle "ground effect," meaning they derive their speeds from their ability to glide over bodies of water. They are typically difficult to detect via radar, due to their proximity to the water, and this combination of stealth and speed made the concept especially appealing to the Soviet Union.

The USSR experimented with variations of the ekranoplan throughout the course of the Cold War, which the Soviet



Navy nicknamed the "Caspian Sea Monster," due to its deployment in the body of water between the country and Iran.

The Lun-Class MD-160

The Lun-class of ekranoplan was one of the last to be designed under the USSR's Ground Effect Vehicle program. It was longer than an Airbus A380 Superjumbo airliner and nearly as tall, with a top speed of 550 kilometers per hour. This was due to its eight Kuznetsov NK-87 turbofans mounted on forward canards, each of which produced 127.4 kN of thrust.

Able to takeoff and land in stormy conditions thanks to its flying boat hull, the intention was for it to conduct lightning seaborne attacks. It was equipped for anti-surface warfare, with six P-270 Moskit guided missiles held in launchers situated in pairs along the dorsal surface of the fuselage. It also had advanced tracking systems mounted to its nose and tail.

The first and only Lun-class ekranoplan to reach completion was the MD-160, which entered service with the Soviet Navy Caspian Flotilla in 1987. There was a second craft – unnamed and assigned to rescue and supply missions – that was abandoned in the early 1990s, following the cancellation of the program and the collapse of the Soviet Union. It was around this time that the MD-160 was also removed from service.

Future as a tourist attraction

The MD-160 was stored at Kaspiysk Naval Base, where it sat for over three decades. In July 2020, it was moved from the location to the ancient Russian city of Derbent, some 100 kilometers away. The plan was to make it the main attraction of "Patriot Park," a yet-to-be-built military museum and theme park.

The effort to move the craft took 14 hours and included the use of rubber pontoons, three tugs and two escort vessels, which slowly maneuvered it along the shore of the Caspian Sea. It is here that it's remained, waiting for the museum to be built up around it. Name Lun

Operators Soviet Navy
Russian Navy
In service 1987–late 1990s
Planned 2
Completed 1
Cancelled 1
Retired 1
Preserved 1
General characteristics General characteristics
Type Attack/transport ground effect vehicle
Displacement Displacement n/a, weight 286 tonnes unloaded
Length 73.8 m (242 ft 2 in)
Beam (Wingspan) 44 m (144 ft 4 in)
Height 19.2 m (63 ft 0 in)
Draught (2.5 m (8 ft 2 in)
Propulsion 8 × Kuznetsov NK-87 turbojet engines, 127.4 kN (28,600 lbf) thrust
Speed 297 knots (550 km/h; 342 mph)
Range 1,000 nmi (1,900 km; 1,200 mi)
Capacity 100 tonnes (220,000 pounds)
Complement six officers and nine enlisted men
Sensors and processing systems Puluchas search radar
Armament 6 × fixed-elevation P-270 Moskit anti-ship missile launchers
2 × twin 23 mm PI-23 turrets

Zimmerit: The Unique Coating Along the Outside of German WWII Armored Vehicles

By Jesse Beckett

War history on line

When looking at German tanks from WWII, you may have noticed a strange texture covering most surfaces of their armor. Although this looks like some sort of interesting type of camouflage, it's actually a special coating devised by the Germans to decrease the magnetic properties of a tank's armor, to decrease a magnetic mine's ability to stick to it. Named Zimmerit, the coating was difficult and time-consuming to apply. It ultimately proved to be unnecessary, as ironically, Germany was the only combatant in WWII to field magnetic mines in any appreciable amount.

Panzer V Ausf.G Panther with Zimmerit applied.

In 1942 Germany introduced the Hafthohlladung anti-tank magnetic mine, which contained a shaped charge warhead and three strong magnets that held the device onto a tank's armor. Its operation was simple: run-up to a tank, stick the mine on any magnetic surface, pull the safety pin and run for cover. The shaped charge then blasted a jet of molten metal through up to 140 mm of armor. The magnets ensured the device was the correct distance from the armor for the jet to form properly.


Close-up of Zimmerit on a Tiger II at Bovington Tank Museum

As it was magnetic, the device removed any advantages gained by armor angling. However, it was a dangerous job for the user, exposing them to enemy fire and the defenses of the tank itself.

The Germans feared that the weapon would soon be copied by the Allies and used against them, so they began working on countermeasures in case this happened.

Zimmerit

Zimmerit was Germany's principal defense against magnetic mines. It served as a physical barrier between the armor and the magnetic mine to stop it from sticking, relying on the principle that magnetostatic fields decrease quickly with the cube of distance. Although it did not make the tank entirely anti-magnetic, it did significantly reduce a mine's holding ability.

It was made from mixing pine crystals, benzene, barium sulfate, zinc sulfide, pine sawdust, PVA glue, ochre, and pebble dust. The putty-like mixture was applied to vehicles with a trowel, and each vehicle that received it had specific instructions on where exactly it should be applied. The layer of Zimmerit was 6 mm thick and had to dry to a rock-hard finish before the vehicle could be sent to the front.

To save time, it was mainly applied to the areas of a vehicle in reach of soldiers


StuG III with waffle pattern

on foot. It started being applied to vehicles at factories in August of 1943. It could also be applied to vehicles that had already been deployed.

Workers applied a 2 mm layer of Zimmerit first, leaving it to dry for four hours. After this time had elapsed, a blowtorch was used to quickly burn off excess moisture and harden the coating. The final 4 mm of Zimmerit was then applied, patterned, and blowtorched.

The excess benzene often burst into flames when the blowtorch was used, making it a rather hazardous process for the workers. However, this was a small price to pay as Zimmerit took 8 days to dry naturally.

200 kg of Zimmerit was needed to coat a Tiger I.

The coating came in a number of different patterns, which usually varied between the factories that applied it. The most common pattern was ridging, but some vehicles, like the StuG-III, had Zimmerit applied in a waffle pattern.

The raised areas of the patterns increased the distance between the magnets and the armor without adding weight.

Flammability and Discontinuation

Zimmerit was used until September 1944, when rumors circulated that the coating could catch on fire when hit by incoming rounds. The Germans tested the theory and found it to be untrue, but Zimmerit was never ordered back into use. As it turned out, the Allies never used magnetic mines on any appreciable scale, meaning the coatings were never necessary.

Stug III with waffle-pattern zimmerit, IWM Duxford museum

At the time Germany was in desperate need of tanks, and adding days to a tank's production time to protect it from a weapon that didn't exist was simply unacceptable.

North American B-25H Mitchell. (Photo Credit: San Diego Air and Space Museum

North American B-25 Mitchell: The Most Produced American Medium Bomber of World War II

Ryan McLachlan
War history on line

The North American B-25 Mitchell was an American twin-engine medium bomber that saw service throughout the Second World War. Flying in all theaters of the conflict, it's perhaps most famous for taking part in the Doolittle Raid on Japan in April 1942. By the end of the war, 9,816 had been built, seeing service across the US military and with multiple Allied air forces.

Development of the North American B-25 Mitchell

In March 1939, the United States Army Air Corps (USAAC) published requirements for a new twin-engine medium bomber that needed the ability to carry a 2,400-pound payload and travel up to 1,200 miles at 300 MPH. North American Aviation submitted the NA-62, a reworking of its NA-40B design. That September, the USAAC selected it, with the aircraft's new designation being the B-25 Mitchell.

North American B-25C Mitchell. (Photo Credit: US Air Force / Wikimedia Commons / Public Domain)

The B-25 flew for the first time on August 19, 1940. Early production models had issues with the wings, with the first nine having a wing dihedral – an upward-angled wing that made the bomber less stable. The problem was fixed by flattening the outer wing and keeping the angled one between the fuselage and the engines.

Other design changes, such as the enlarging of the bombers' tail fins and changing their inward tilt, were made between 1940-41. The following year, the B-25B entered service with the US Army Air Forces (USAAF). After seeing combat, further modifications were made, allowing it to take on other roles, such as that of a gunship and strafer.

Durable and safe

The B-25 Mitchell was a very safe and forgiving medium bomber. While in the air, if one engine was lost, it could still fly, making 60-degree banking turns at speeds as low as 145 MPH. The landing gear also provided the crew with visibility while taxiing.

The aircraft was known for its durability. For instance, one B-25C, nicknamed "Patches," had each patch covering flak damage painted in yellow zinc chromate primer. It completed over 300 missions and six belly landings, and was pockmarked with over 400 holes from enemy fire.

The only complaint made by B-25 crews was the noise. The engine's exhaust, due to restrictions in the design and space, pointed toward the crew compartments, which led to deafening flights.

North American B-25 Mitchell specs

The B-25 Mitchell was nearly 53 feet long; had a wingspan of 67 feet, seven inches; and weighed 29,300 pounds. Depending on the variant, the bomber could be armed with up to 18 .50-cal. machine guns. It carried to 3,000 pounds of bombs, with later models given the ability to hold up to eight 5-inch high-velocity aircraft rockets (HVAR) or one Mark 13 torpedo. Some were even modified to carry a 75 mm cannon.

Two Wright R-2600-92 Twin Cyclone 14-cylinder two-row air-cooled radial piston engines, each producing 1,700 horsepower, powered the B-25. These allowed the bomber to maintain a cruising speed of 233 MPH and reach a maximum of 328 MPH. Its range topped out at around 2,500 miles with auxiliary fuel tanks, and it had a ceiling of 21,200 feet.

Doolittle Raid

The B-25 Mitchell quickly shot to fame following its use during the Doolittle Raid. On April 18, 1942, 16 were launched from the USS Hornet (CV-8) to drop bombs on the Japanese cities of Tokyo, Yokohama, Yokosuka, Nagoya and Kōbe.

The bombers, along with their five-man crews and maintenance personnel, arrived aboard Hornet on April 1. Each would carry four 500-pound bombs, three high-explosive and one incendiary. To reduce the B-25s' weight, their armament was reduced to two .50-caliber guns in the upper turret and a single .30-caliber gun in the nose.

Photo Credit: US Navy / US Navy Naval History and Heritage Command /

North American B-25 Mitchell assembly line at Kansas City, Kansas, 1942.

On April 2, Hornet departed San Francisco Bay to join Task Force 16 (TF-16), made up of the aircraft carrier USS Enterprise (CV-6), along with three heavy cruisers, a light cruiser, eight destroyers and two fleet oilers. The vessels then sailed for Japan. On the 18th, TF-16 was roughly 750 miles from Japan. While they were 200 miles further away than planned, it was decided the attack would begin. Despite none of the B-25 pilots ever having taken off from a carrier, all 16 successfully launched from Hornet.

"Sunday Punch" Mitchell B-25 showing the amazing nose armament

After flying for about six hours, the bombers reached Japan. During the attack, none of the B-25s were shot down, and only one received damage from anti-aircraft fire. Having dropped their bombs, 15 of the American aircraft turned to the southwest, toward eastern China. All 15 reached their destination, with their crews either crash-landing or bailing out. The last B-25, with extremely low fuel, flew to the Soviet Union, where the crew was detained and the bomber impounded.

While the Doolittle Raid caused relatively minor damage to Japan, it did show the Japanese that the Americans could attack the mainland. It also proved to be a great morale booster for the American public, showing that they were now in the fight after Pearl Harbor.

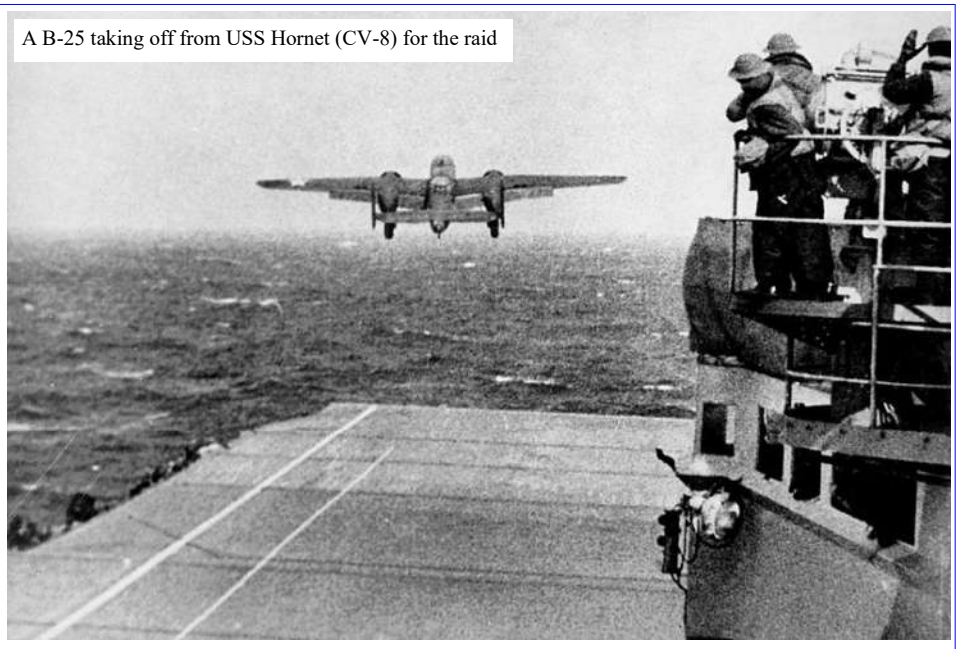
North American B-25B Mitchells aboard the USS Hornet (CV-8) en route to Japan for the Doolittle Raid, 1942. (Photo Credit: US Navy / National Museum of the US Air Force / / Public Domain)

Extensive service throughout World War II

The B-25 Mitchell would go on to see service in all theaters of the Second World War. While the medium bomber's primary operator was the United States, it served with numerous other air forces during the conflict. The Royal Air Force (RAF), for instance, received B-25s as part of the Lend-Lease Act and they were used for training in the Bahamas and as a bomber over Europe. The Royal Canadian Air Force also used the Mitchell for training purposes.

As well, the Royal Australian Air Force (RAAF) was equipped with the B-25, which it used as part of the No. 2

Squadron and the joint Australian-Dutch No. 18 (Netherlands East Indies) Squadron. While most air forces stopped using the aircraft after the war, the Indonesian Air Force continued to operate it until 1979, a testament to the aircraft's abilities.Overall, the B-25 was the most-produced American medium bomber of the Second World War.


A B-25 taking off from USS Hornet (CV-8) for the raid

The American Doolittle Raid And The Brutal Japanese Reprisals

From the Editor
V. Merlo

On April 18, 1942, Doolittle led the raid on the Japanese homeland, bombing a number of Japanese cities with 16 B-25 bombers. The raid, totally unexpected by the Japanese, was a success. Most of the bombers, after passing over Japan, landed in the Chinese provinces of Zhejiang and Jiangxi.

Much of China was occupied by Japan at this time, and as a result of the brutality of their invasion, the Japanese occupiers were much hated by the Chinese. Consequently, local Chinese peasants helped many of the American airmen after they crash-landed their bombers on Chinese soil. The Japanese response to the Doolittle Raid was swift and brutal. In a campaign called the Zhejiang-Jiangxi campaign, 180,000 troops of the Japanese Army's China Expeditionary Force set out not only to find the American airmen but also to punish anyone they suspected of aiding them in any way.

Japanese troops swept through the provinces of Zhejiang and Jiangxi. They managed to capture eight US airmen, of whom they executed three. The worst horrors, though, were suffered by the Chinese civilian population.

When Japanese troops arrived in a town or village in Zhejiang and Jiangxi, they presumed guilt and complicity with the US airmen on the part of the entire village. The sentence the Japanese troops imposed for this crime of suspected complicity was death. This applied to men, women, and children all the way down to domestic animals, regardless of whether any US airmen had even been anywhere near the settlement.

All in all, it is estimated that 250,000 Chinese civilians lost their lives in this campaign of wanton brutality and bloodshed.

Few of the troops and officers involved were ever prosecuted for the egregious war crimes that were committed during this campaign.

Field Marshal Shunroku Hata, who orchestrated the campaign, was convicted of war crimes and sentenced to life imprisonment but was paroled in 1954.

The Maxim Gun Changed Warfare With Devastating Results

Todd Neikirk
War history on line

The Gatling gun, first created in 1861, was used by the Union Army during the Civil War. The powerful weapon also saw use in the Spanish-American War, the Anglo Zulu War, and the Boshin War. An inventor named Hiram Maxim thought that he could improve upon the Gatling gun and his creation soon became a staple of the British Army.

Maxim Gun's Creator

The Maxim gun is named for its investor, Hiram Stevens Maxim. The inventor created a number of things that weren't weapons as well. A sufferer from bronchitis, he came up with a pocket methol inhaler to ease suffering. Maxim also created the first known automatic fire sprinkler. The inventor also developed an incandescent lightbulb and long had a patent dispute over the creation with Thomas Edison. Maxim, though, is most well remembered for the automatic gun he created in the late 19th Century.

The inventor grew frustrated over the patent process and being credited for his inventions. He is said to have remarked to a friend, "In 1882 I was in Vienna, where I met an American whom I had known in the States. He said: 'Hang your chemistry and electricity! If you want to make a pile of money, invent something that will enable these Europeans to cut each others' throats with greater facili-


Hiram Maxim demonstrates the machine gun that he invented

ty."

Development and Design of the Maxim Gun

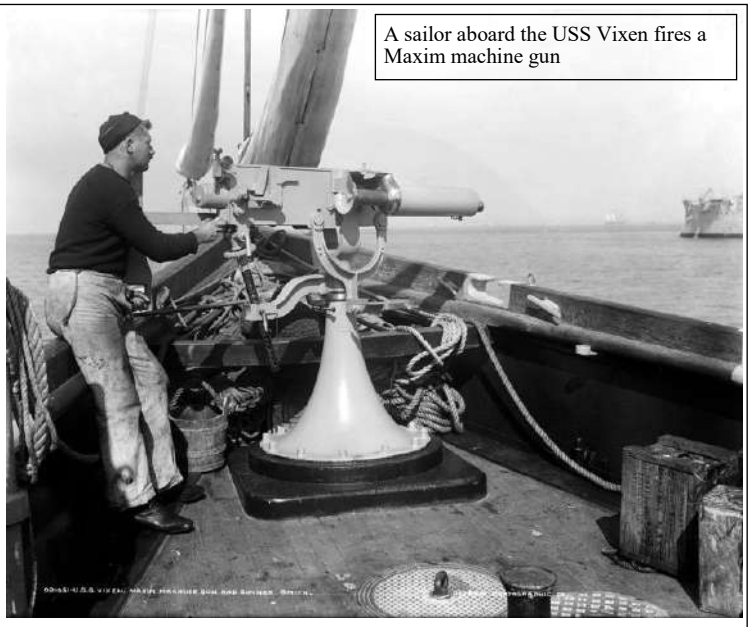
The inspiration for the gun's action came from Maxim's memory of being knocked back by the recoil of a gun. He decided to use this memory to improve upon the popular Gatling Gun. According to PBS, "Maxim's innovation was to harness the recoil power of each bullet, a force strong enough to eject the used cartridge and draw in the next one. Structured in this way, the portable gun needed only one barrel to fire all of its bullets automatically." In addition to creating the gun, Maxim also invented cordite, smokeless gunpowder.

Maxim worked and tested his gun at home and eventually found a backer in Albert Vickers, whose father Edward was a steel entrepreneur. In 1883, the first patent for the gun was awarded and it was first demonstrated to prospective buyers the next year.

The Colonial Wars

The first important British Army figure to embrace the Maxim gun was Sir Garnet Wolseley who purchased 120 of them. Wolseley was known for his forward-thinking. Many in the British Army were against machine guns due to their propensity to jam. Wolseley was an ardent supporter of machine guns and his embrace of the Maxim gun helped others take notice.

Soon, the Maxim gun was ubiquitous throughout the British Empire. The power of the weapon soon became legend. It was said that during the Battle of Shanghai, 700 British troops were able to fight off 5,000 Matabele warriors due to the presence of their five Maxim guns.



A sailor aboard the USS Vixen fires a Maxim machine gun

Not only did the Maxim prove to be much more reliable than its predecessors, it also created a psychological advantage. At times the thought of the weapon tearing through an opposing army was enough to stop them in their tracks. Especially when enemy combatants had nothing near as powerful.

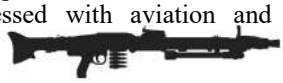
World War I use

By the time World War I began, many countries had either purchased Maxim guns or developed machine guns of their own. The weapons became so common during the conflict that some called it, "the machine gun war." The machine gun used by the British was an updated version of the Maxim called the Vickers Machine gun. The German Maschinengewehr 08 and the Russian Pulemyot Maxim were essentially copies of the original Maxim. The Hotchkiss machine gun, created in France, was used by the French, Americans, and Japanese.

The Legacy of the weapon and Hiram Maxim

The Maxim had an incredible impact on 20th-century warfare and inspired several copycats. The Vickers company also continued to improve upon Maxim's original idea as technology improved. The weapons continued to commonly be used in conflicts up until the end of the 1960s.Hiram Stevens Maxim himself moved to England from the United States and became a naturalized British citizen in 1899. Two years later, in 1901, he was knighted by the British crown. Maxim stopped working on weapons, though, after he created his famous machine gun.

The Inventor spent much of his remaining years obsessed with aviation and flight.



Hobart's Vickers machine gun

Photos and text by V. Merlo

Many Months ago, possibly in March 2022 the Mercury printed a picture of a child posing with a machinegun. It was supposed to be located on a concrete plinth not far away from the Bellerive pub. Further research didn't discover much more than that apart from some HAMST member recalling having played with it in their young years. Some suggested it was melted down with other "military scraps" and lost forever.

Thanks to a special access granted, I was later allowed to visit the Hobart Police ballistic section, where a similar weapon but not the same, was in storage, and these are the images from that visit.

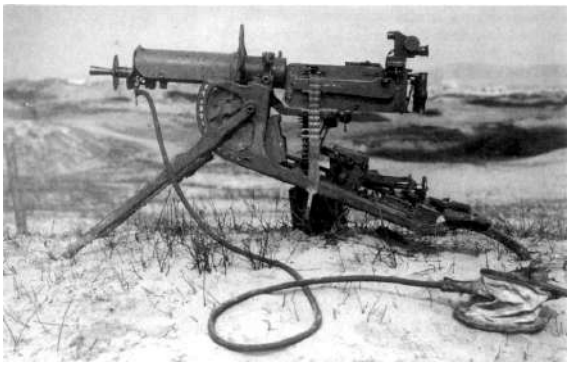
And that was as close I could get to a Machinegun.

The image in the photo was a Maschinengewehr 08, or MG 08, that was the German Army's standard machine gun in World War I and is an adaptation of Hiram S. Maxim's original 1884 Maxim gun.

From Wikipedia, the free encyclopedia

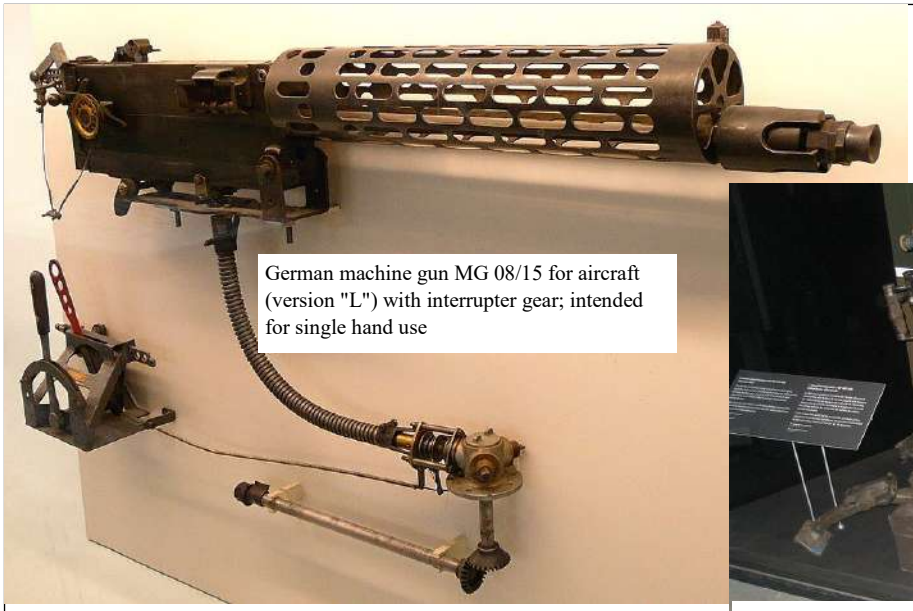
It was produced in a number of variants during the war. The MG 08 served during World War II as a heavy machine gun in many German infantry divisions,

Possibly the model of the car could give an idea of the year



although by the end of the war it had mostly been relegated to second-rate fortress units.

The Maschin engewehr 08 (or MG 08)—so-named after 1908, its year of adoption—was a development of the license made Maschine ngewehr 01. The firing rate depends on the lock assembly used and averages 500 rounds per minute for the Schloss 08 and 600 rounds per



German machine gun MG 08/15 for aircraft (version "L") with interrupter gear; intended for single hand use

A MG 08 at the en:Canadian War Museum in Ottawa

minute for the Schloss 16. Additional telescopic sights were also developed and used in quantity during World War I to enable the machine gun for its long-range direct fire and indirect fire support roles.

History Development and adoption.

The German Rifle Commission began firing tests of the Maxim gun a t Zorndorf in 1889.In 1892, Ludwig Loewe's company signed a seven-year contract with Hiram Maxim for production of the gun in Berlin. The Imperial German Navy ordered Maxim guns from Loewe in 1894. The Navy deployed them on the decks of ships and for use in amphibious warfare. In 1896, Loewe founded a new subsidiary, the Deutsche Waffen- und Munitionsfabriken (DWM), to handle production. The agreement with Maxim concluded in 1898 and DWM received orders from Austria-Hungary, Argentina, Switzerland and Russia.

The Imperial German Army first considered using the Maxim gun as an artillery weapon The German light infantry Jäger troops began trials of the gun in 1898. The Guards Corps, XVI Corps and XVI Corps made more experiments in 1899. The tests produced a recommendation of independent six-gun detachments to march with the cavalry, with the guns mounted on carriages pulled by horses.

The Army purchased the modified MG 99 and MG 01 versions of the Maxim gun from DWM in limited quantities. The MG 99 introduced the sled mount that would remain standard in the MG 08. The MG 01 added lightweight spoked wheels, making possible the pushing and pulling of the weapon. The MG 01 was also exported to Chile and Bulgaria. By 1903, the German Army had 11 machine-gun detachments serving with cavalry divisions.

Two sideviews of the original water-cooled MG 08 infantry version

Criticisms of the MG 01 stressed its limited mobility and inability to keep up with the cavalry. The DWM and Spandau Arsenal developed the design further, decreasing weight by 7.7 kg, adding a detachable gun shield, an option for an optical sight, and removing the wheels. The result was the MG 08, which went into production at Spandau in 1908.

The German Army observed the effectiveness of the Maxim gun in the Russo-Japanese War of 1904–1905, many of them German exports. With the importance of the machine gun apparent, the Army asked for additional funding from the Reichstag to increase the supply of machine guns. After criticism of the request from Socialist deputies, the Army's demand for six guns per regiment was reduced to six guns per brigade in 1907. The Army Bill of 1912 finally gave the Army its demanded six guns per regiment. On 3 August 1914, soon after the outbreak of World War I, the Army had 4,411 MG 08s, along with 398 MG 01s, 18 MG 99s and two MG 09s.

At the onset of World War I, Germany developed an aerodynamically refined bullet intended for machine gun use. This 12.8 grams (198 gr) full metal jacket s.S. (schweres Spitzgeschoß, "heavy spitzer bullet") boat tail projectile was loaded in the s.S. Patrone. The s.S. Patrone had an extreme range of approximately 4,700 m (5,140 yd). From its 1914 introduction the s.S. Patrone was mainly issued for aerial combat and as of 1918 in the later stages of World War I to infantry machine gunners.. Another early-WWI improvement introduced in 1915 was a muzzle booster, a patent-protected Vickers invention, which was designated Rückstos sverstärker 08 S. Thanks to that MG 08 came up to its British and Russian analogs with their Vickers-licensed recoil boosters in its rate of fire (up from about 300-350 to 450-600 rds/min) and reliability.

Design Details

The gun used 250-round fabric belts of 7.92×57mm ammunition. It was water-cooled, using a jacket around the barrel that held approximately 3.7 litres (0.98 US gal) of water. Using a separate attachment sight with range calculator for indirect fire, the MG 08 could be operated from cover.

The MG 08, like the Maxim gun, operated on the basis of short barrel recoil and a toggle lock. Once cocked and fired the MG 08 would continue firing rounds until the trigger was released or until all available ammunition was expended.

The standard iron sightline consisted of a blade front sight and a tangent rear sight with a V-notch, adjustable from 400 to 2,000 metres (437 to 2,187 yd) in 100 metres (109 yd) increments. The Zielfernrohr 12 (ZF12) was an optional 2.5× power optical sight that fea-

Ottoman soldiers with some of them armed with MG 08s. Notice the MG 08s are mounted on tripods instead of sledge mounts that were common to the MG 08

tured a range setting wheel graduated 400 to 2,000 metres (437 to 2,187 yd) or 400 to 2,600 metres (437 to 2,843 yd) in 100 metres (109 yd) increments. With the addition of clinometers fixed machine gun squads could set renges of 800 to 3,475 metres (875 to 3,800 yd) and deliver plunging fire or indirect fire at more than 3,000 m (3,280 yd). This indirect firing method exploits the maximal effective range, that is defined by the maximum range of a small-arms projectile while still maintaining the minimum kinetic energy required to put unprotected personnel out of action, which is generally believed to be 15 kilogram-meters (147 J / 108 ft□lbf). Its practical range was estimated at some 2,000 metres (2,187 yd) up to an extreme range of 3,500 metres (3,828 yd) when firing the long-range s.S. Patrone.

The MG 08 was mounted on a sled mount (German: Schlittenlafette) that was ferried between locations either on carts or else carried above men's shoulders in the manner of a stretcher.

Pre-war production was by Deutsche Waffen und Munitionsfabriken (DWM) in Berlin and by the government Spandau arsenal (so the gun was often referred to as the Spandau MG 08). When the war began in August 1914, 4,411 MG 08s were available to battlefield units. Production at numerous factories was markedly ramped up during wartime. In 1914, some 200 MG 08s were produced each month, by 1916—once the weapon had established itself as the pre-eminent defensive battlefield weapon—the number had increased to 3,000; and in 1917 to 14,400 per month.

The MG 08/15 was the "rather misguided attempt"[14] at a lightened and thus more portable light machine gun from the standard MG 08, produced by "stepping-down" the upper rear and lower forward corners of the original MG 08's rectangular-outline receiver and breech assembly, and reducing the cooling jacket's diameter to 92.5 mm (3.64 in). It was tested as a prototype in 1915 by a team of weapon designers under the direction of an Oberst, Friedrich von Merkatz; this became the MG 08/15.

The MG 08/15 had been designed around the concept of portability, such as the French Chauchat, which meant that the firepower of a machine gun could be taken forward conveniently by assaulting troops, and moved between positions for tactical fire support; as such, the MG 08/15 was to be manned by two trained infantrymen, a shooter and an ammo bearer. In the attack the weapon would be fired on the move (marching fire) while on the defense the team would make use of the bipod from the prone position. To accomplish that, the MG 08/15 had a short bipod rather than a heavy four-legged sled mount, plus a wooden gunstock and a pistol grip. At 18 kg (40 lb) the MG 08/15 had minimal weight savings over the MG 08, being "a cumbersome beast to use in the assault." Intended to provide increased mobility of infantry automatic fire, it nevertheless remained a bulky water-cooled weapon that was quite demanding on the crews and never on par with its rivals, the Chauchat and the Lewis Gun. Accurate fire was difficult to achieve and usually in short bursts only. The fabric ammunition belts were prone to stretching and there were cartridge extraction problems when they were wet.

It was first introduced in battle during the French Second Battle of the Aisne (Chemin des Dames offensive) in April 1917.

Deployment in increasingly large numbers with all front line infantry regiments continued in 1917 and during the German offensives of the spring and summer of 1918.

There were other, less prominent, German machine guns in WWI that showed more promising understanding of tactical firepower; such as the air-cooled 7.92 mm Bergmann MG 15nA which weighed "a more manageable 13kg," had a bipod mount and was fed from a 200-round metal-link belt contained in an assault drum instead of fabric belts.

Despite its qualities, it was overshadowed by the production volumes of the MG 08/15 and exiled to secondary fronts, being largely relegated to use in limited numbers on the Italian Front.

The Bergmann MG 15nA was also used by the Asien-Korps in Sinai, Mesopotamia and Palestine.

Being air-cooled, the Bergmann MG 15nA's barrel would overheat after 250 rounds of sustained fire.

Other light machine guns would maintain the water-cooling system, such as the Dreyse MG 10 and MG 15; with an air-cooled version produced just before the war, known as the Dreyse-Muskete or the MG 15.

What we have in Hobart is a 1941 Vickers

The Vickers machine gun or Vickers gun is a water-cooled .303 British (7.7 mm) machine gun produced by Vickers Limited, originally for the British Army. The gun was operated by a three-man crew but typically required more men to move and operate it: one fired, one fed the ammunition, the others helped to carry the weapon, its ammunition, and spare parts. It was in service from before the First World War until the 1960s, with air-cooled versions of it on many Allied World War I fighter aircraft.

The weapon had a reputation for great solidity and reliability. Ian V. Hogg, in Weapons & War Machines, describes an action that took place in August 1916, during which the British 100th Company of the Machine Gun Corps fired their ten Vickers guns to deliver sustained fire for twelve hours. Using 100 barrels, they fired a million rounds without breakdowns. "It was this absolute foolproof reliability which endeared the Vickers to every British soldier who ever fired one. It never broke down; it just kept on firing and came back for more.

History

The Vickers machine gun was based on the successful Maxim gun of the late 19th century. After purchasing the Maxim company outright in 1896, Vickers took the design of the Maxim gun and improved it, inverting the mechanism as well as reducing its weight by lightening and simplifying the action and using high strength alloys for certain components. A muzzle booster was also added.

The British Army formally adopted the Vickers gun as its standard machine gun under the name Gun, Machine, Mark I, Vickers, .303-inch on 26 November 1912. There were shortages when the First World War began, and the British Expeditionary Force was still equipped with Maxims when sent to France in 1914. Vickers was threatened with prosecution for war profiteering, due to the exorbitant price demanded for each gun. As a result, the price was much reduced. As the war progressed, and numbers increased, it became the British Army's primary machine gun, and was used on all fronts during the conflict.

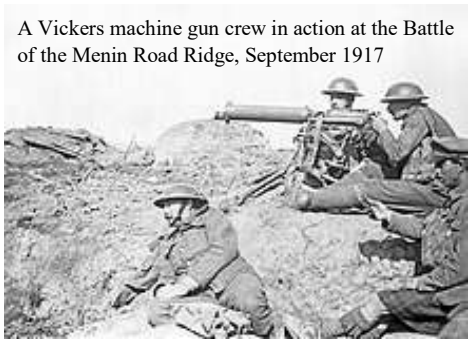
When the Lewis Gun was adopted as a light machine gun and issued to infantry units, the Vickers guns were redefined as heavy machine guns, withdrawn from infantry units, and grouped in the hands of the new Machine Gun Corps (when heavier 0.5 in/12.7 mm calibre machine guns appeared, the tripod-mounted, rifle-calibre machine guns such as the Vickers were further reclassified as "medium machine guns"). After the First World War, the Machine Gun Corps (MGC) was disbanded and the Vickers returned to infantry units.

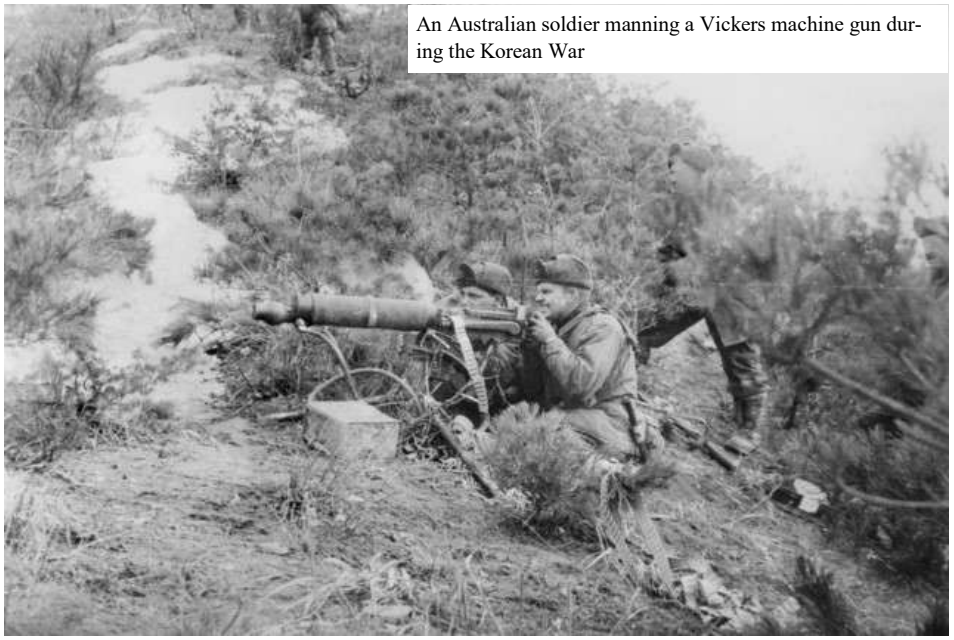
Before the Second World War, there were plans to replace the Vickers gun as part of a widescale change from rimmed to rimless rounds; one of the contenders was the 7.92mm Besa machine gun (British-built Czech ZB-53 design), which eventually became the British Army's standard tank-mounted machine gun. However, the Vickers remained in service with the British Army until 30 March 1968. Its last operational use was in the Radfan during the Aden Emergency. Its successor in UK service is the British L7 variant of the FN MAG general purpose machine gun.

The larger calibre (half-inch) version of the Vickers was used on armoured fighting vehicles and naval vessels. The Gun, Machine, Vickers, .5-inch, Mk. II was used in tanks, the earlier Mark I having been the development model. This entered service in 1933 and was obsolete in 1944. Firing either single shot or automatic it had a pistol type trigger grip rather than the spades of the 0.303 in (7.7 mm) weapon.

Variants

The Gun, Machine, Vickers, .5-inch, Mk. III was used as an anti-aircraft gun on British ships. This variation was typically four guns mounted on a 360° rotating and (+80° to −10°) elevating housing. The belts were rolled into a spiral and placed in hoppers beside each gun. The heavy plain bullet weighed 1.3 oz (37 g) and was good for 1,500 yd (1,400 m) range. Maximum rate of fire for the Mark III was about 700 rpm from a 200-round belt carried in a drum. They were fitted from the 1920s onwards, but


A Vickers machine gun crew in action at the Battle of the Menin Road Ridge, September 1917


An Australian soldier manning a Vickers machine gun during the Korean War

in practical terms, proved of little use. During the Second World War, the naval 0.5 in (12.7 mm) version was also mounted on power-operated turrets in smaller watercraft, such as Motor Gun Boats and Motor Torpedo Boats.

The Mark IV and V guns were improvements on the Mark II. Intended for British light tanks, some were used during the war on mounts on trucks by the Long Range Desert Group in the North Africa Campaign.

The Vickers machine gun was produced, between the wars, as the vz.09 machine gun

Service after World War II

The Union of South Africa retained a large inventory of surplus Vickers machine guns after World War II.

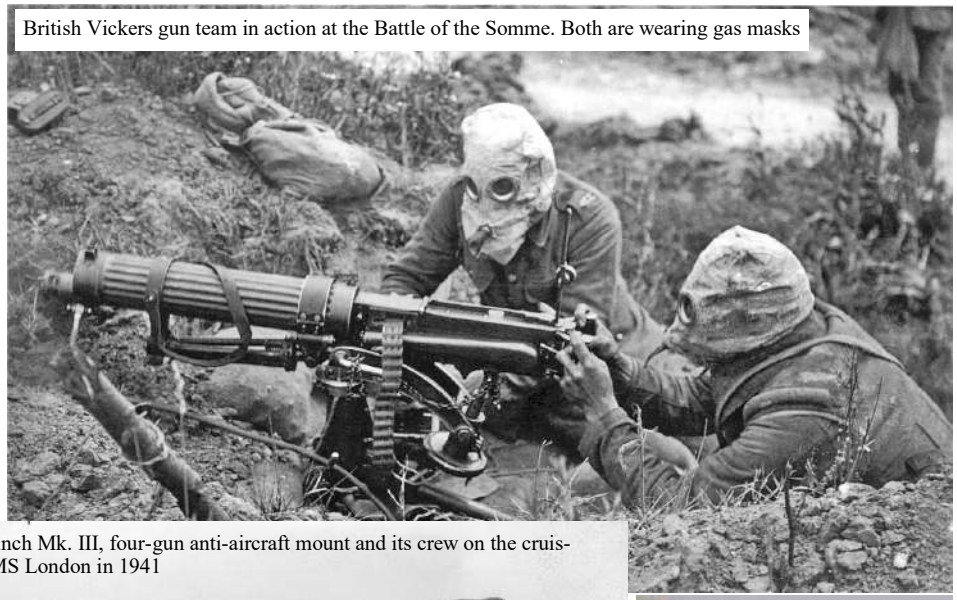
Many of these were donated to the National Liberation Front of Angola (FNLA) and National Union for the Total Independence of Angola (UNITA) during the Angolan Civil War. Angolan militants were usually trained in their use by South African advisers. Small quantities re-chambered for 7.62 mm NATO ammunition remained in active service with the South African Defence Force until the mid-1980s, when they were all relegated to reserve storage. Six were withdrawn from storage and reused by a South African liaison team operating with UNITA during the Battle of Cuito Cuanavale, after which the weapons were finally retired.

In the mid-1960s, the Vickers machine gun remained in service in countries such as India, Israel and Egypt.

It saw action with the Ceylon Army in the 1971 JVP insurrection.

Water-cooled machine guns just arrived from the USA under lend-lease are checked at an ordnance depot

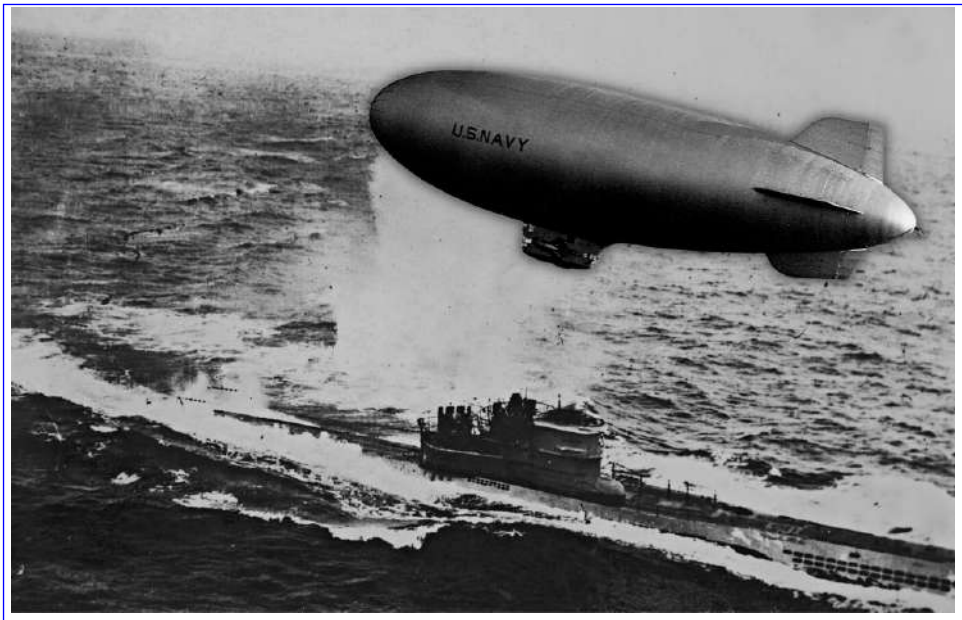
British Vickers gun team in action at the Battle of the Somme. Both are wearing gas masks



A .5-inch Mk. III, four-gun anti-aircraft mount and its crew on the cruiser HMS London in 1941

A Bellerive family travelled to Cairns and visited the Armor and Artillery Museum. They bad a ball and managed a ride on an APC . These are some of the photos they brought back. Not bad for a reception desk of solid bullet proof steel!!! Thank you Jo for the pics.

As it happened at the October 23 Meeting
The speaker of the evening was Emma Zeeman seen here with Bernadette and talking of the role of Women at War



The Oddest Showdown of WWII? American Blimp vs. German U-boat

Samantha Franco War history on line

In what was arguably the oddest battle to take place during the Second World War, a US Navy blimp duked it out with a German U-boat. It wasn't a long encounter, but it certainly showed that blimps can do more than search and rescue when their hands are forced. This blimp vs U-boat engagement serves as the only time such an aerial vehicle was ever taken out during the conflict.

Blimps were an integral part of US Navy operations

When the US entered the Second World War, blimps became a major part of the Navy's aviation fleet. Goodyear produced the airships and, by mid-1943, were pumping out 11 per month. The largest blimps were the K-class, and the company manufactured 134 until the close of the conflict.

Blimps participated in over 37,000 patrols with the Navy during World War II. They were excellent at conducting search and rescue operations, particularly because they flew low and for extended periods of time – sometimes up to 26 hours. Although picking up survivors was a difficult task for the airships, they often carried medical equipment and supplies, as well as inflatable lifeboats, to aid survivors until they could be picked up.

Their sheer size made blimps easy to spot by other aircraft and ships. They also had superior visibility, even in heavy fog or low cloud cover. This was invaluable when conducting anti-submarine patrols, as they could easily spot periscopes or oil slicks that indicated the location of enemy U-boats.

Line-handling crew landing L-6, 1942.

Operation Paukenschlag

In mid-January 1942, the Kriegsmarine launched Operation Paukenschlag, also known as "Second Happy Time." It involved U-boats attacking Allied merchant ships in the Atlantic Ocean, which were carrying vital wartime supplies to Britain, North Africa and Russia.

The US Navy immediately countered by deploying its K-class blimps to conduct anti-submarine patrols. In all of the convoys escorted by the airships, not a single vessel was lost to enemy action. This may not have been entirely the result of the blimps, however, as there were also surface ships and escort carriers with aircraft present.

K-class blimps were fitted with extensive radar equipment.

Each blimp was operated by a crew of 10. A keen eye wasn't the only tool they had to spot unwelcome enemy vessels. Two crew members were radiomen responsible for operating radar that could detect German U-boats during nighttime operations and in cases of extremely low visibility. They also operated long-range radio communications with other US Navy vessels.

K-class blimps were also equipped with a Magnetic Anomaly Detector (MAD), capable of detecting distortions in the Earth's magnetic field. This is notable because large metal objects, like massive German U-boats, caused such field distortions.

The system only had a range of 400 feet, so the low-flying airships were perfect. However, it wasn't always accurate. It sometimes detected distortions caused by other large metal objects, such as shipwrecks. As such, the system was often used in tandem with sonobuoys that were dropped to produce sonar contacts.

Blimps could attack enemy U-boats, if necessary.

Typically, when a US Navy blimp spotted an enemy U-boat, the crew immediately alerted nearby surface ships and land-based aircraft. Other attack vehicles were largely expected to fire at the enemy, not the airships. In fact, Navy doctrine outlined that blimps were to stay out of range of surfaced submarines and to simply serve as guides for attack vessels and aircraft.

However, in certain instances, the K-class blimps were permitted to engage U-boats by attacking. To do this, they had a small arsenal of weapons. This arsenal changed throughout the course of World War II, but, for the most part, it consisted of two types.

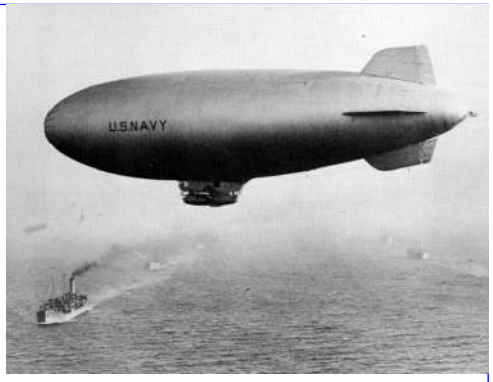
First, each could carry up to four depth charges, mines or acoustic torpedoes. Additionally, a .50-caliber machine gun was located in the turret at the front of the control car. These weapons were meant to damage the enemy vessels or, at the very least, make them surface until reinforcements arrived – they weren't necessarily intended to defeat the U-boats themselves.

Blimp vs U-boat.

In an instance of a blimp vs a U-boat, K-74 attacked U-134 after it spotted the vessel and determined her to be an immediate threat. During the evening of July 18, 1943, K-74 was patroling the Florida Straits after launching from Naval Air Station Richmond when it detected the U-boat on its radar.

The German vessel was approximately 20 miles from the nearest convoy, which included a freighter and tanker. Still, K-74's commander, Lt. Nelson G. Grills, felt U-134 was close enough that his crew needed to interfere.

When the vessel surfaced, she struck the blimp with machine gun fire. K-74 suffered damage and retaliated by firing 100 rounds from its own gun, before the weapon was unable to depress



US Navy K-class blimp, World War II.

sufficiently. However, the blimp had already begun its bombing run and released depth charges over U-134. These did little damage, and the U-boat opened fire, again, with her own machine guns.

In the end, K-74 sustained too much damage and began to fall from the sky.

K-74 was the only downed blimp of World War II.

Several holes were made in K-74, causing the blimp to quickly lose altitude. Its crew jettisoned the extra fuel tanks in an attempt to temporarily regain control of the airship. However, it ultimately went nose-up, its tail plunging into the sea – it had lost this blimp vs U-boat show-down.

Fortunately, the crewmen were able to bail out in time. They floated near the wreck for eight hours before being rescued. When they landed in the water, they quickly swam away from the wreck to avoid the possible detonation of its remaining depth charges. For the most part, the men remained safe, but, unfortunately, one didn't survive the incident. Isadore Stessel was attacked by a shark before they were rescued.

The wreck of K-74 was pulled apart by U-134's crew, who analyzed the ship, took photographs and recorded observations. The U-boat was able to leave the area following the incident, reporting only minor damage. She carried on with her patrol, but was later sunk off the coast of Spain in August 1943.

Ellen Savage GM

From Wikipedia, the free encyclopedia

Ellen Savage, GM (17 October 1912 – 25 April 1985) was an Australian army nurse (AANS) and hospital matron from Quirindi, New South Wales.

Savage was the only nurse to survive the sinking of the hospital ship Centaur off the Queensland coast in 1943. She was a founding member of the Australian College of Nursing, and a recipient of the George Medal and of a Florence Nightingale memorial schoolarship.

Name

Savage signed herself as Ellen in formal letters, and most reporting is by that name, including her official war service record. However, significant reporting in otherwise reliable sources is with Eleanor.

Her own family referred to her as Nelly.

Early life and education

Ellen Savage was born on 17 October 1912 at Quirindi, New South Wales, where she grew up as a child. She was the third daughter of Henry Savage and Sarah Ann Savage (née Mulheron). Her father was born in Russia and her mother was born in New South Wales.

Savage was a good swimmer, keen on surfing, at Newcastle, but did suffer from seasickness.

Education

As a child Savage attended Quirindi Convent school.

Savage trained as a nurse at Newcastle Hospital from 1929 and graduated in 1934. She studied obstetrics at the Women's Hospital, Crown Street, Sydney, and mothercraft at Tresillian Mothercraft Training School, Petersham.

She passed her midwifery examination in June 1936.

In 1947 she won a Florence Nightingale memorial scholarship for postgraduate study in England, where she gained a diploma in nursing administration from the Royal College of Nursing. Savage was the inaugural recipient of this scholarship for New South Wales. Her overseas studies also included observational tours of hospitals in England, Scandinavia, and Canada. Savage complete her scholarship studies with distinction. The scholarship was supported by funding provided through a Red Cross appeal.

Adult life

Savage was an army nurse from 1941 to 1946, and then worked in other hospitals until she retired in 1967, a nursing career of 41 years.

She was a Catholic, and while overseas after her scholarship studies, had a private audience with the Pope. One report on the sinking of the Centaur states that she snatched up her rosary beads while abandoning ship, while another directly contradicts this.

Savage lived in Gordon, Sydney, New South Wales.

Savage was a founding member (1949), council-member (1952–59), and president (1957–58) of the Australian College of Nursing.

Public interest

There was considerable public interest in Savage's activities, and what she did, her presentation to Mrs. Roosevelt, and for example attending reunions and presenting nurse trainee awards, when she was taken ill, and the launching of ships. Reporting on her included when and where she went for holidays.

Media attention to Savage's actions after the Centaur sinking was wide and varied in nature and includes presentation in cartoon comic strip format.

Savage was presented to the British Royal Family in May 1948 while she was in England studying. The public's interest in Savage continued after her return from her scholarship studies in England. Reporting followed her to many places and on many activities, for example nurses outings organised by the Royal Queensland Yacht Club, as a guest speaker, meeting survivors of other war incidents, and presentation to Lady Louis Mountbatten.

Savage was formally described by the Women's Weekly as one of their Interesting People in 1949.

Savage was the first guest at Centaur House. A sponsor provided her a car for the five days of her visit and stay.

Public interest followed Savage well after the war, for example, at ANZAC Day reunions, being individually noteworthy in 1983 ANZAC day radio programming, and being singled out in AHS Centaur commemorations in 1995.

Charity work

The public's interest in Savage was an opportunity realised by her. Savage took many opportunities to support charity work, especially war related, for example Legacy, or nursing related, and the Red Cross.

Centaur House

She was actively involved in fundraising that helped to establish Centaur House, Brisbane, an educational and social centre for nurses. Of note is that Savage wrote an open letter while studying in England supporting Centaur House. Savage was the guest of honour for multiple events for this cause.

She was given a special suite on her stay at Centaur House.

Advocacy

Savage was a strong advocate for nurse education, voicing her opinion that nurse education must be advanced to compete internationally, especially post graduate. And she was actively involved in fund raising for nurse education.

She was also an advocate for nursing generally, espousing the capabilities of married nurses, especially nursing with chronic cases.

Later life

Savage participated in a film about the Australian War Memorial in 1977. The film, Australia Remembers, screened in 1978.

Savage died on 25 April 1985 after attending an Anzac Day reunion. She collapsed outside Sydney Hospital and died that day. She never married.

Career

Savage undertook general training from 1929 to 1934 at Royal Newcastle Hospital. From 1934 to 1937 while private nursing she gained midwifery and Tressilian mothercraft certificates, in 1937 she had 12 months at Tressilian Home, Petersham. Savage was with the New South Wales Public Health Department from 1937 to 1941, and in 1941 she joined Australian Army Nursing Service (AANS). From 1946 to 1947 she was in charge of a health centre in North Sydney, and in 1947 took the 18 month Florence Nightingale Memorial scholarship. In 1949 became a Supervisory Sister, part of administrative staff, at Newcastle General Hospital.

Savage's first professional position was at the Baby Health Centre in the regional Australian city of Tamworth, in 1938.

She was a triple certificate sister: general nursing , midwifery, mothercraft

Savage joined Australian Army Nursing Service on 24 May 1941, being appointed to the 113th Australian General Hospital (AGH), Concord, Sydney. She transferred to the Australian Imperial Force on 18 November 1941 and served in the Middle East in the hospital ship Oranje.She was promoted to sister on 25 May 1942 and commissioned as a lieutenant in March 1943.

Savage survived the sinking of the Centaur hospital ship in May 1943.

She resumed nursing at the AGH on 14 August 1943 and served there until demobilised on 8 March 1946.

After her AIF discharge, Savage returned to the Public Health Department of New South Wales. Posting on discharge was the hospital ship Oranje.

Savage resigned from Division of Maternal and Baby Welfare, Department of

Public Health 17 February 1949.

Appointed senior sister at (Royal) Newcastle Hospital, she was respected and somewhat feared for her insistence on high standards of discipline and

knowledge.

At Newcastle Hospital she was unexpectedly passed over for the post of director of nursing by the medical superintendent, Dr Christian McCaffrey, because she was ‘entrenched in the "old school mode" wanting to maintain subservience and military discipline’.

She was matron of the hospital's chest unit at Rankin Park from 3 April 1951 until ill health forced her resignation in 1967, and she continued to live in Gordon, Sydney.

AHS Centaur

On 12 May 1943 Savage was one of twelve nurses who sailed in the hospital ship Centaur bound for Port Moresby to recover wounded military personnel. Two days after leaving Sydney the vessel was sunk off Moreton Island, Queensland, by a Japanese torpedo. A strong swimmer, Savage was the only nurse to survive.

Savage suffered severe bruising, a fractured nose, burst ear drums, a broken palate, and fractured ribs. She joined other survivors on a makeshift raft and concealed her own injuries. She assisted the others, many of whom were severely burned. She raised their morale with group prayer and recitation of the rosary, and supervised the rationing of scant water and food supplies. Other records state she also had a broken jaw.

Savage spent two hours in the water before being dragged onto a raft. They

George Medal for Sister Savage

SURVIVOR OF CENTAUR

Canberra, Aug. 19.—The George Medal has been awarded to Lieutenant Ellen Savage, of Gordon, New South Wales, for courage and fortitude when the Australian hospital ship Centaur was sunk in May, 1943. Sister Savage was the sole survivor of 12 officers of the Australian army nursing staff on board.

The citation to the award, which was announced to-day by the Governor-General, Lord Gowrie, states that, although suffering from severe injuries received as a result of the explosion and immersion in the sea, she displayed great heroism during the period while she and some male members of the ship's staff were floating on a raft to which they clung for some 34 hours before being rescued by a U.S. destroyer. The citation said that she rendered conspicuous service while on the raft in attending to wounds and burns sustained by

AUSTRALIAN WAR MEMORIAL

were rescued by the destroyer, USS Mugford, thirty-four hours later, a total of thirty-six hours after the sinking.

George Medal

For "conspicuous service and high courage" arising from the sinking of the Centaur, in 1944, she became the second Australian woman to be awarded the George Medal.

The citation for her award read:

Although suffering from severe injuries received as a result of the explosion and immersion in the sea, she displayed great heroism during the period while she and some male members of the ship's staff were floating on a raft, to which they clung for about 34 hours before being rescued by a US destroyer.

She gave conspicuous service while on the raft in attending to wounds and burns suffered by other survivors.

Her courage and fortitude did much to maintain the morale of her companions.

Memoria

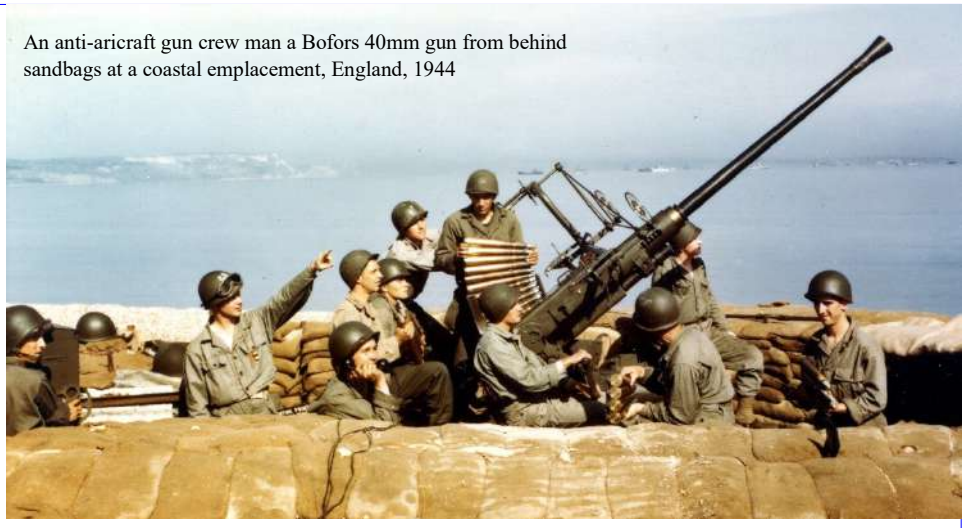
On 7 April 1993 Australia issued a postage stamp in honour of Ellen Savage.

Savage is also commemorated in street art, for example at the corner of Logan Road and Chatsworth Road, Green slopes, Brisbane.

AUSTRALIAN WAR MEMORIAL ART09088

The Bofors 40MM Revolutionized Anti-Aircraft Combat

Jesse Beckett War history on line



An anti-aricraft gun crew man a Bofors 40mm gun from behind sandbags at a coastal emplacement, England, 1944

The job of an anti-aircraft gun is surprisingly demanding. It must be able to destroy or deter a fast-moving target by aiming not where it is, but where it will eventually be, depending on many factors. High-speed aircraft, when first introduced, were small targets and were incredibly hard to hit with accurate fire before the introduction of guided missiles. Anti-aircraft guns when first introduced didn't focus on hitting aircraft with precise accuracy and instead relied on sheer volume to bring down planes. This was the case with the Bofors 40 mm, which was designed in the 1930s and is so effective that it is still in use today.

Although this gun is often seen in WWII images and films in British and American service, neither of these countries actually designed it. That distinction goes to Sweden, which, ironically, was a neutral country during the conflict.

Development

In the early 1920s, Sweden's Navy desired a more capable replacement for their Vickers Pom-Pom anti-aircraft guns. The navy handed this request over to Bofors, who entered into a contract in 1928. Soon into this new weapon's development, Bofors encountered problems with its cycling. Compared to most fast-firing weapons, this design used a much larger 40 mm round. Any system that was capable of handling the forces involved with such rounds was also too heavy to fire quickly.

After a few changes were made to the feed mechanism in 1930 the weapon began to fire at an acceptable rate. Interestingly, around this time Krupp (the major German industrial company that produced tanks, guns, battleships, and U-boats for Nazi Germany during WWII) purchased a one-third share of Bofors. Fortunately, Bofors kept their new anti-aircraft weapon a secret.

The weapon was ready for production by 1933.

The result was an anti-aircraft gun that could fire 900-gram high-explosive shells to a maximum of 23,600 ft. Its real word maximum was around 12,500 ft. The gun operated on a gravity-assisted feeding mechanism that was loaded with four round clips by hand and could achieve a maximum rate of fire of 120 rounds per minute.

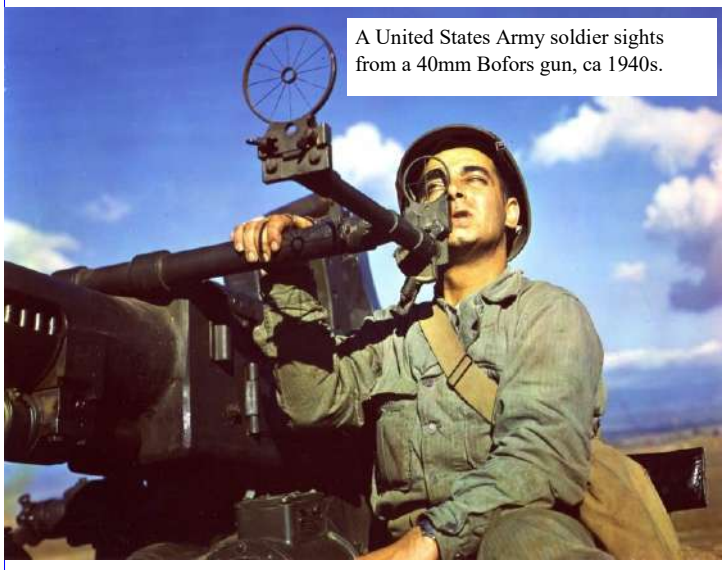
Usage

By the time it was completed the Swedish Navy was no longer the only ones wanting to use the weapon. The Dutch Navy was one of the first to order in the Bofors 40 mm, placing five twin-gun mounts on the cruiser De Ruyter in the mid-1930s. Soon, many more nations wanted the anti-aircraft gun, especially after Bofors unveiled a towed version in 1935.

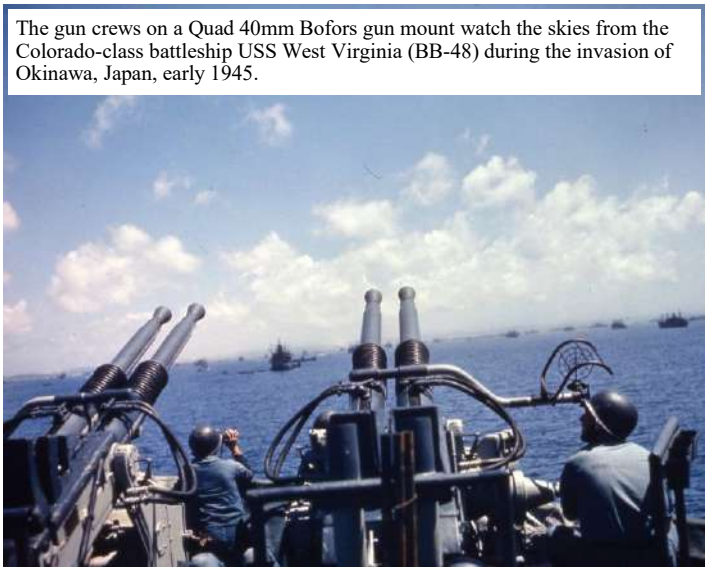
The British inspected the system in 1937, made a few changes, and began building it themselves under license, where it was called the "QF 40 mm Mark I." After having difficulty laying the weapon on particularly fast-moving aircraft, the British added the Kerrison Director mechanical analog computer, which electronically aimed the gun. While this system was a remarkable piece of engineering, it proved to be impractical in combat, and it was eventually replaced by a much simpler system.

The British held the gun in extremely high regard and put a massive emphasis on its production during the war. In fact, Commonwealth factories produced over 19,000 Bofors 40 mm guns. The gun could be mounted on any platform it could fit, like tanks and even civilian trucks. Both the British Army and Navy made extensive use of the Bofors. During D-Day, Bofors guns were vital in protecting newly captured areas, with crews from the Light Anti-Aircraft Regiment, Royal Artillery shooting down 17 enemy aircraft over the Orne River in France.

During the war they were also used as signaling tools, firing color-coded tracers over safe areas of minefields and indicating the directions of enemy movements.



A United States Army soldier sights from a 40mm Bofors gun, ca 1940s.



The gun crews on a Quad 40mm Bofors gun mount watch the skies from the Colorado-class battleship USS West Virginia (BB-48) during the invasion of Okinawa, Japan, early 1945.

The weapon also holds the title of being the first ground-based anti-aircraft weapon to shoot down a jet aircraft – in this case, it was a German Me 262.

The US was a major manufacturer of the weapon, with the Army and Navy needing large numbers of them. To fulfill these orders production was given to Chrysler. The process of manufacturing the weapon on a large scale was difficult, as the drawings were in Swedish and the dimensions were in metric. Chrysler made changes to the gun's manufacturing methods to make it faster and easier to build, cutting its original projected production time in half. As a result, Chrysler built a staggering 60,000 guns and 120,000 barrels.

World War Two: Canadian soldiers manning a 40-mm Bofors anti-aircraft gun in Normandy, France, Jun 1944

HAMST Bofors

A shipment of Bofors ready for D-Day

In 1940 the US Navy was shown a demonstration of the weapon, and they knew such a weapon would be extremely useful. However, during the discussions that sought to give the Navy a license to produce the weapon, Sweden requested that the US give them the manufacturing licenses for aircraft in return. The Navy declined, and supposedly, secretly acquired imperial drawings from the British. With these, they started building guns illegally. An official deal was made with Bofors in 1941.

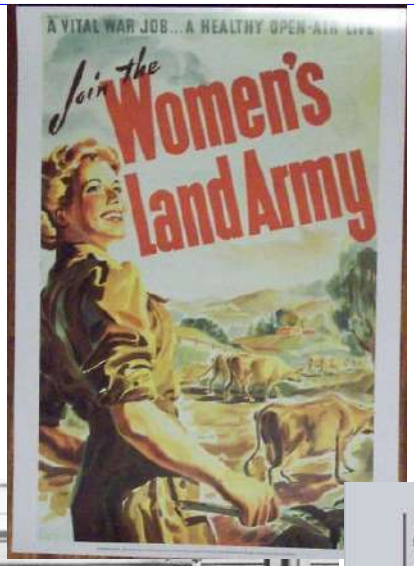
The gun was in such demand that even Germany and Japan operated captured versions.

After the war, the gun remained both in production and in use, with twin mounted guns finding themselves in the M42 Duster self-propelled anti-aircraft gun. One of their more notable roles was aboard AC-130 gunships.

Even today, modernized versions of the Bofors 40 mm gun are still in production.

photograph of Australian, British, New Zealand and Indian Camel Corps troopers

From these to this



Some of our members would have loved to get their fingers there

'Crane girls' at work at the National Filling Factory, Chilwell, c. 1917. They can be seen hanging down from cranes above rows of shells.

A general scene showing workers, both male and female, amid rows and rows of shells in a large warehouse at the National Filling Factory, Chilwell, c. 1917.

Old cannons from Genoa fort are used now as mooring bollard in the old port of Camogli (Italy)