



Historical Arms & Military Society of Tasmania Inc.



Patron - LTCOL PETER HODGE RAA RFD RETD

Volume 40 Newsletter N. 1 – January, February, March 2024

Captain James Newland

Unit: 12th Battalion Date & Place of Action: 7-9 and 14 April, 1917, Boursies and Lagnicourt, France



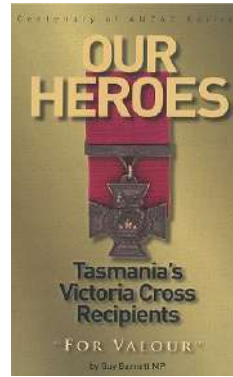
James Newland was born on 22 August 1881 at Highton, in Geelong. He enlisted with the 4th Battalion, Australian Commonwealth Horse and served in the Boer War in South Africa. On returning to Australia, he joined the Victorian artillery for five years, eventually becoming a permanent instructional staff of the Commonwealth Military Services. While stationed in Tasmania, war was declared. Newland joined the AIF on 22 August 1914 as a regimental quartermaster sergeant of the 12th Battalion.

He was sent to Gallipoli, but was wounded shortly after the landing.



North Beach (north of Anzac Cove) looking south, 2014

However, on 22 May 1915, Newland was commissioned a second lieutenant, promoted to lieutenant on 15 October, and in March 1916, was promoted to captain as his battalion embarked for France. In France, the 12th Battalion's first major battle was at Pozieres. Newland was mentioned in dispatches for conspicuous courage, leadership and organisation. In December 1916 he left his battalion to serve at Headquarters, but was reposted back to the 12th Battalion in February 1917 as commander of A Company for the drive on Bapaume. After an injury, Newland returned to the frontline for the April attacks. Newland received the Victoria Cross for actions performed on 7-9 and 14 of April, as follows: *"In the initial advance on Boursies, which began at 3am, Newland's company was confronted by heavy fire and many casualties were sustained. Newland then successfully led a bombing attack on a ruined mill located about 400 metres short of the village. The attack dislodged the enemy and enabled the company to move on the objective. The Australians then came under heavy shellfire during the day and at 10pm the Germans launched a violent counter-attack. By his personal exertion, disregard of fire and judicious use of reserves, he succeeded in dispersing the counter-attack and holding the position. The Germans broke through the company to the right of A Company, which was being led by Newland,*



and forced them back. Newland consolidated his men on the very position which Captain Cherry (also a VC winner) had held during the taking of Lagnicourt three weeks earlier. By personal example he encouraged his men to repel the combined attack and although the enemy renewed the attack three or four times Newland's company held out. The 9th Battalion came to reinforce the 12th and the two units combined to counterattack.



James Newland's medals at the Australian War Memorial, Canberra



A group of Victoria Cross recipients lined up to march on Anzac Day in Melbourne, 1927. Newland is front row, far left.

The line was restored about 11am
Printed with permission from Guy Barnett MP

He was wounded twice more during the war and medically discharged in March 1918; he returned to service with the permanent army.

Newland held several appointments between the two world wars, and retired a lieutenant colonel in 1941.

He died of heart failure in 1949.



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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'. The 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

Welcome back to a new year and another edition of the Bulletin. I hope you enjoyed the Italian food served at the Xmas dinner, as much as I did. If you did, without the need of medical attention, and would like to know how it was prepared (thanks to our capable and dedicated volunteers) please let me know and I will email you the recipes for the "False Fish" "Russian Salad" and "Nonna Teresa Parsley Sauce". With the state

elections approaching we have the letter boxes, the media full of politicians promises, promises and more promise.

Pity that most of the promises disappear after elections, for one reason or another.

Nevertheless we would like to acknowledge John Tucker for his support to the Society and the printing of the Bulletin. Thank you



**Proudly supported and printed by
John Tucker - Independent for
Lyons**

very much.

On this Bulletin last page there is a list of the Society's merchandise available from the treasurer and if you wish to advertise on the Bulletin please contact the treasurer



HAMST Presidents Report March 2024

Firstly, I would like to touch on 2023, this was a great year for our society as we were able to establish several initiatives to carry in the new year. These include our sensational Christmas Dinner, Military History Fair, HAMST club trips, Sub Lease groups, HAMST Subgroups and many events and contacts we have now made throughout the community. The success of last year was due to members actively being involvement in club events activities and the positive promotion of our society.

This has given us a solid foundation to grow in all these areas in 2024 as we continue to promote our society aims of preserving and sharing our military history throughout the community.

We have made some great achievements over the past two years and with your continued support of active involvement, time, advice, and of course the most important humour I'm sure we are going to have another sensational year ahead.

Thank you all as you enjoy another sensational newsletter from Vinny.

Steve Denholm
(President)



HAMST at 2023 Hobart Remembrance day



HAMST Safety Officer checking the angle of fire



HAMST floral tribute with Bernadette, Steve and Kim

Hobart Mercury REMEMBRANCE DAY'S RE- MINDER OF BRUTAL TOLL

By TIA EWEN

Bloody fighting in Israel, Palestine and Ukraine are sombre reminders of the "new and complex challenges" facing the world, Tasmania Governor Barbara Baker said during her Remembrance Day address. Ms Baker, speaking at the Hobart Cenotaph on Saturday, called for peace, unity and a commitment to ensuring that the past sacrifices made by servicemen and women were not in vain. "We recognise that conflicts continue to rage across our globe.

The ongoing high-intensity war in Ukraine is now well into its second year, with little hope for speedy resolution," she said. "Tragically, we are witnessing the devastating loss of life in Israel and in Palestine. "In both current conflicts, young and not so young soldiers have been killed or wounded in large numbers but beyond the military losses, there have been and continue to be devastating losses among civilian populations." On Saturday, Historical Arms Military Society Tasmania, Women in Wars sub-branch members Bernadette Peck and Kim Denholm laid a wreath at the Cenotaph in honour of Tasmanian nurses who

served in World War I. "We are commemorating women and nurses at war," Mrs Peck said. "There was a nursing sister and army matron Jean Nellie Miles Walker who was a Tasmanian nurse who died before she was able to return from service." Mrs Peck's great grandfather was a member of the 3rd Light Horse Regiment and her grandfather served in World War II. "That's another reason why we are a part of HAMST, we think it's important to protect and preserve the memory," Mrs Peck said.

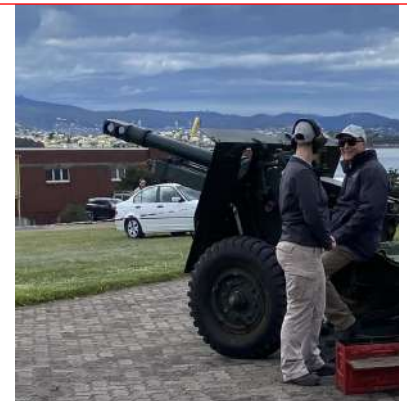
With thousands attending

Remembrance Day services across the state, special tribute was paid to Tasmanian war hero Corporal Cameron Baird, a Victoria Cross recipient killed while fighting in Afghanistan in 2013. At the Cenotaph in Burnie, Corporal Baird's father Doug Baird, along with Burnie Mayor Teeny Brumby and councillor Justin Grave, unveiled the official renaming of the internal road in Burnie Park as Corporal Cameron Baird MG Drive.

Correction needed. In the newspaper blurb it should have said: Mrs Denholm's Great Grandfather was in the 3rd Light Horse Regiment and her Grandfather fought in WW2....(rather than Mrs Peck)



Kim Denholm and Bernadette Peck, of the Historical Arms and Military Society Tasmania, dressed in period costume on Remembrance Day to pay their respects to nurses serving in war zones. Inset: Lining up to lay wreaths at the Cenotaph. Pictures: NMAI David-Jones



HAMST 25 pounder's Gun Crew

As it happened at the 2023 Military/Lego Fair



The sound of gun fire for the 21 guns salute at the Hobart Cenotaph on Australia Day. The Australian Army soldiers from the 2nd/10th Battery of 9th Regiment fired 21 blanks from four 105mm M2A2 howitzer

WW1 Austrian helmet and steel "brow plate" or *Stirnpanzer*

1914 Military Bugle with Austro Ungarian crest and original straps



Above Diecast Model 1/72 scale WW2 T-60 USSR light tank and at right Diecast Model 1/72 scale M3 Lee (Early) Lend-Lease with USSR markings

1/72 scale Jagdtiger Porsche .





Hello HAMST members. I can frame any of your prints, pictures or artefacts. Please see examples of my recent framing projects above. This is a side interest of mine and I can guarantee my prices for framing are the cheapest in town. Happy to discuss your framing needs. Peter. For contacts see add on page 12



Floral Tribute marking the 220th Anniversary of the Landing by Lieutenant Governor David Collins and party. With HAMST members as guard of honour



A collection of water bottles .From top left to clockwise: German WW2 , Australian Light Horse canteen, 1914-1918 , WW2 Japanese water bottle. WW2 German DAK canteen, WW2 Russian glass bottle and bag, 1943 USA canteen and pouch on a belt with Thompson SMG magazine carriers



M-3 Lee, Land lease to



T35 b

At right some models of tanks with multiple turrets. Mainly developed in the period between the two wars, with outdated principles from when the tanks were considered as "Land Ships" to be deployed against fortifications and infantry support. They were soon obsolete.



T26



T-28



How Did An A-10 Warthog Wind Up With A Cow Kill Marking?

Samantha Franco War History on Line

Among the Fairchild Republic A-10 Thunderbolt IIs operated by the US Air Force, there's one that stands out from the rest. The reason? Among its many kill markings is the outline of a cow. This particular aircraft was assigned to the Red Devils of the 107th Fighter Squadron, 127th Wing of the Michigan Air National Guard, and how it came to earn the cow kill marking remains unclear.

Why are there kill markings on A-10 Warthogs? Placing kill markings on the side of A-10 Warthogs wasn't always the norm. The practice only really started in 2017, when it was decided new paint jobs would be done on the 107th Fighter Squadron's aircraft. They were painted green with devil characters to honor the 100th anniversary of the Red Devils, one of the oldest flying units in the Air Force.

In 2018, the specific A-10 with the cow kill marking could be seen flying during the commemorative flights over the beaches of Normandy, which were conducted in honor of the 74th anniversary of the D-Day landings that occurred on June 6, 1944.

Was the cow collateral damage?

The most commonly accepted rumor as to how this A-10 got its cow kill marking comes from a Close Air Support (CAS) mission.

It's believed the pilot was performing a sortie over an enemy village in an undisclosed location in Iraq. Using the aircraft's GAU-8/A Avenger 30 mm cannon, they attempted to blow away the enemy. However, when ground troops moved in to secure the area and conduct a kill count, they found a cow shredded to pieces by 30 mm ammo.

Penelope Carroll, spokeswoman for the 127th Wing, said the A-10 responsible



Fairchild Republic A-10 Thunderbolt II with the 107th Fighter Squadron painted with the World War II-era Red Devil scheme, 2017. Its cow kill marking can be seen toward the front of the aircraft.



on an A-10.

The strange cow kill marking isn't the only unexpected one to be present on an A-10 Warthog. There's another that features markings of both a Lockheed Martin F-22 Raptor and a General Dynamics F-16 Fighting Falcon.

The likely origin of these markings is that the attack aircraft belongs to the Air Command A-10 Demo Team. As such, it sports the marks of the F-16 and F-22, as they're typically the types that fly in formation during airshows. As incredible as the A-10 is, it would likely be difficult for it to actually score hits against F-22s or F-16s.



had "inadvertently" killed the animal during the 107th Fighter Squadron's deployment in Iraq. About 350 airmen and 12 of the attack aircraft from Selfridge Air National Guard Base, Michigan had been sent to the country and Syria as part of Operation Inherent Resolve in 2015.

While unable to disclose more details about the mission, Carroll did clarify that the cow kill was the result of ordnance, rather than the A-10s iconic "BRRRT" gun.

The cow kill isn't the only strange marking



A sergeant air-gunner mans his .303 Vickers K-type gas-operated machine gun from the rear cockpit of a Fairey Battle of No. 103 Squadron RAF at St-Lucien Ferme near Rheges. Note the unofficial flight and squadron pennant flying from the radio mast.



Beaufort L4461 'OA-J', of No. 22 Squadron RAF. The turret has a Vickers K machine gun; for protection against beam attacks, another K gun is mounted in the port entry hatch.

Vickers K machine gun

From Wikipedia, the free encyclopedia

The Vickers K machine gun, known as the Vickers Gas Operated (Vickers G.O.) or Gun, Machine, Vickers G.O. .303-inch in British service, was a rapid-firing machine gun developed and manufactured for use in aircraft by Vickers-Armstrongs. The high rate of fire was needed for the short period of time when the gunner would be able to fire at an attacking aircraft. The weapon was adopted for land use during World War II.



A Vickers K machine gun without its pan magazine in Batey ha-Osef Museum, Tel Aviv, Israel.

Development

The Vickers K was a development of the Vickers-Berthier (VB) light machine gun, adopted in 1932 by the Indian Army. The VB, like the Bren light machine gun, used a locking tilting breechblock. Unlike the Bren, the VB locked its breech only at the last moment of forward travel. With lighter moving parts and the VB locking design, the Vickers K had an adjustable rate of fire between 950 and 1,200 rounds per minute; faster than the German MG34.

The weapon was adopted for British service as the VGO. It was test-flown with a large 300-round pan magazine, and beat the .303 Browning in reliability. However, the wide pan made it difficult to fit into fighter wings and would have interfered with wing structures. When the belt-fed Browning Mark II was selected as the standard machine-gun armament for RAF aircraft, the VGO became redundant for the RAF. These guns found secondary use in many roles. It continued to be used by the Fleet Air Arm until 1945.

Variants.

Some were made in 7.7mm for the Belgians before the war and at least one example of the ground variant survives in a Brussels museum.

VGO No.1 Mk.1.

The Vickers class K/Vickers G.O. machine gun is a gas-operated weapon, firing from an open bolt (thus making it non-synchronizable for firing through a spinning propeller) in full automatic mode only. Its gas cylinder is located

use, it was normally mounted on single or twin pintle mounts on various jeeps and trucks.

Vickers GO No.2 Mk.1 Land Service

Originally intended for RAF airfield defence units, these guns were remanufactured from original Vickers G.O. No.1 Mk.1 aircraft guns. A number of these 'Vickers G.O. Land Service' machine guns found their way to a variety of British commando and reconnaissance units

SAS returning from a 1943 patrol in North Africa with their twin-mounted Vickers K machine guns.



below the barrel, and a long-stroke gas piston operates a vertically tilting bolt. Feed is from top-mounted flat pan magazines with a nominal capacity of 100 rounds, although it was customary to load only 96 or 97 rounds to ensure reliable feeding. The gun is fitted with a single spade grip at the rear of receiver, with trigger to control fire. In ground

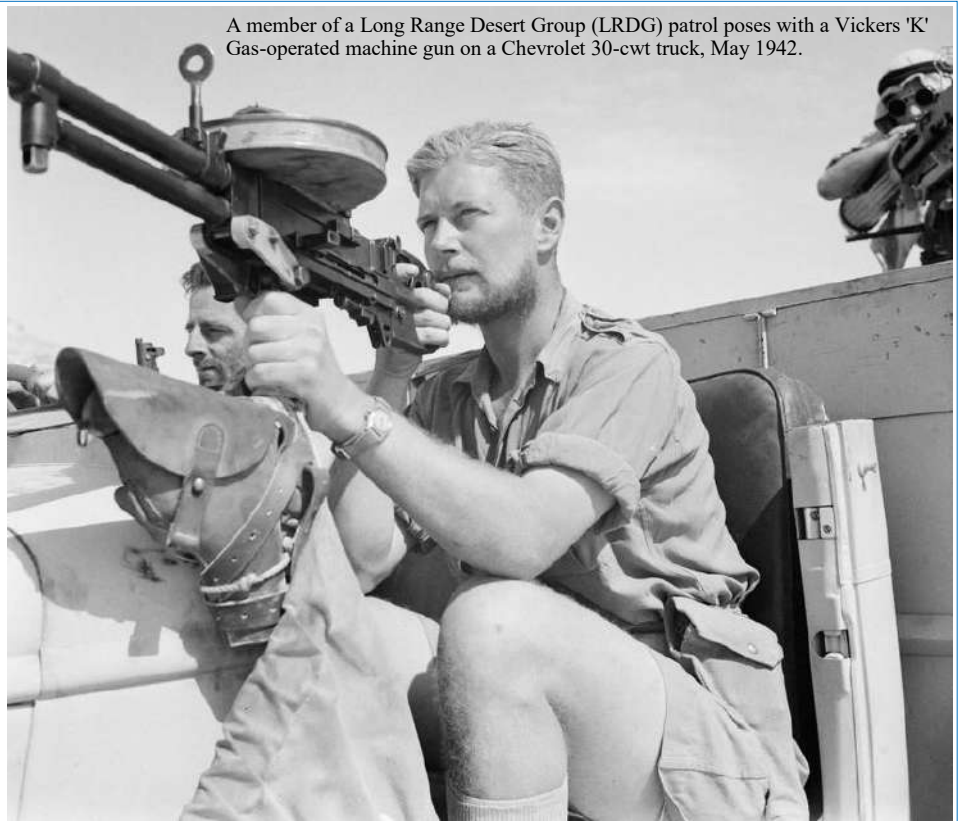
which operated in Europe during 1944 and 1945. The Land variant has the spade grip replaced with a "semi bullpup" short stock at the rear and a pistol grip with trigger below the receiver. A short forend or a folding carrying handle are added below the gas cylinder, and a folding bipod is attached to the gas block. New iron sights are provided on folding bases.

Vickers G.O. Camera Gun

A camera gun version was made for training. The body was of cast metal. The grip and trigger mechanism were realistic. Gunners in training exposed film when "shooting" at attacking aircraft and these images were analysed later. This was a technique developed in World War I with Lewis Camera Guns.

Combat use

The Vickers K was fitted to light and medium bombers in RAF service such as the Fairey Battle and Handley Page Hampden. It was also used in gun turrets, such as the dorsal turret in the Bristol Blenheim, the nose turret in the Armstrong Whitworth Whitley and the rear of the cockpit in the Fairey Battle. It was the standard Royal Navy Fleet Air Arm "Telegraphist Air Gunner" machine gun, on British built carrier (Torpedo Strike Reconnaissance) aircraft - the Fairey Swordfish, the Fairey Albacore and the Fairey Barracuda. As supplies of air-cooled .303 in (7.7 mm) Browning machine guns increased the Vickers G.O. was phased out of use with the RAF. These machine guns were then



A member of a Long Range Desert Group (LRDG) patrol poses with a Vickers 'K' Gas-operated machine gun on a Chevrolet 30-cwt truck, May 1942.



From Aircraft to Improvised Infantry: the Vickers MKI No2

reallocated from RAF stocks to units of the British and Commonwealth armies. The gun continued in service with the Fleet Air Arm and its last recorded use by the navy was by 812 Squadron RNAS Barracudas in anti piracy patrols off Hong Kong in October 1945.

A member of a Long Range Desert Group (LRDG) patrol poses with a Vickers 'K' Gas-operated machine gun on a Chevrolet 30-cwt truck, May 1942.

The Long Range Desert Group was supplied with large numbers of the Vickers G.O. for use on its vehicles. They were used in single or custom built twin mountings. The Special Air Service adopted it for their hit and run tactics, mounting it in pairs on their jeeps. Over the years, it was assumed by some that the latter services took the phased-out VGO because they could obtain no other suitable machine guns but with its high rate of fire and low-friction locking design (which proved resistant to jams

from sand), the LRDG and SAS found the G.O. markedly superior to either the .303 in (7.7 mm) water-cooled Vickers or the Bren gun. In a similar manner, the Airborne Reconnaissance Squadron of the Reconnaissance Corps mounted the VGO on jeeps when they were attached to the 1st Airborne Division during Operation Market-Garden in September 1944. Royal Marine and Army Commandos used the VGO for infantry support/squad automatic weapon briefly around D-Day.

In the Coastal Forces of the Royal Navy, the Vickers K began to replace the Lewis gun on board Motor Torpedo Boats, Motor Launches and other light craft, from 1942.

Type Machine gun
Place of origin United Kingdom

Service history
Used by United Kingdom

Vietnam

Wars World War II

Production history Production history

Designed 1935

Manufacturer Vickers-Armstrongs

Variants See Variants

Specifications Specifications

Mass 29.5 lb (13.4 kg)

Length 37 in (0.93 m)

Barrel length 20.8 inches (529 mm)

Cartridge .303 British

Calibre .303 in (7.7 mm)

Action Gas operated

Rate of fire 950-1,200 round/min

Muzzle velocity 2,500 ft/s (760 m/s)

Feed system pan 60/100 rounds

Sights Iron

Tilting bolt action is a type of locking mechanism often used in self-loading firearms. Essentially, the design consists of a moving bolt driven by some mechanism, most often a piston with gas pressure from the gas port behind the muzzle. The bolt drops down into receiver recess and locks on bolt closing. Tilting the bolt up and down locks-unlocks in the breech. This tilting allows gas pressure in the barrel from firing the gun to lower to safe levels before the cartridge case is ejected.

SAS and Vickers MG



Sydney morning Herald Missing Anzac's ID tag found in Egyptian desert, 81 years after crash

Story by Damien Ractliffe.

The identity tag of an Australian airman has been found in an Egyptian desert, more than 80 years after a plane he was on went missing over the Western Desert during WWII.

Royal Australian Air Force sergeant John Campbell Daley was 30 years old when the plane carrying him, Victorian soldier Ian Aubrey Baines and five other Allied airmen, is believed to have crashed over Egypt on August 3,



1942.

Neither their bodies nor the wreckage were ever found, and they were declared dead in 1948.

But a week ago, two Egyptian tour guides came across a metal tag in the desert in El Alamein, identifying the lost

war museum and cemetery in El Alamein.

The Australian War Memorial lists Sgt Daley's cause of death online as "flying battle". His name is listed at the Alamein memorial, but this is the first time any trace of the crew or the downed plane has been found.

Daley – whose parents eloped from Australia – was born in South Africa before the family of three moved to Canada, where his younger siblings Betty, Sheila and Peggy were born. But on November 6, 1918, when John was aged seven, both of his parents died of the Spanish flu.

Only days earlier, Daley's mother had written to her siblings back in Queensland, telling them about the flu sweeping Canada. The authorities were able to find Daley's aunties and uncles back in Queensland, so the four children went back to Australia to grow up with their cousins.

As an adult, Daley worked as a taxi driver and learned to fly at the Royal Queensland Aero Club.

He enlisted in the RAAF in 1940, and commenced training on April 29, 1940, at 1 WAGS (Wireless Air Gunners School) at Ballarat, part of the first intake of RAAF trainees for WWII.

Daley spent his last Christmas, in 1940, with his family and married his fiancée,

Wellington Z 8778 took off at 10am, and by 1pm, it had sent a signal, saying: "Search had up to that time been unsuccessful, but continuing." However, when an attempt was made to contact the Wellington Z 8778 at 4.42pm, it was unsuccessful. No one heard from them again.

"Following post-war enquiries and searches when no trace of the missing aircraft or crew were found, it was recorded in 1948 that the missing crew had no known grave," Storr wrote in his project.

Daley, listed as being a first wireless operator and air gunner, was the oldest of the seven airmen aboard the plane, aged 30, and one of two Australians. The other was Ian Aubrey Baines, 23, also a first sergeant wireless operator and air gunner.

Baines lived in Gordon Street, Boort, Victoria, and was a law student before he joined the war.

He had no spouse or children, according to ancestry records, but may have had half-siblings.

The other troops on that flight were captain pilot John Thomson Dick, aged 21, from what is now Tanzania, Canadian second pilot officer Harry Gordon Locke, 26, Canadian third pilot and fire control Roy Campbell Prince, 20, English first sergeant navigator Henry Stephen Impett, 24, and Welsh sergeant air gunner Robert Selwyn Hughes, 20.

Hayward said she was shocked to learn an ID tag had been found in the desert more than 80 years after Daley's plane



Sgt John Campbell Daley, on a motorbike in his Signals Corps uniform before enlisting in RAAF c. 1939



RAAF Vickers Wellington Medium bomber 1936–1945 retired 1953

Australian soldier days out from Remembrance Day.

It was one of a number of metal items found. The tag had the name Daley engraved on it, along with the service number 404014 and the letters RAAF.

The tag also had the letters PRES, which is believed to represent Daley's religion as presbyterian. A WWII sergeant badge was also found.

One of the tour guides, who asked not to be named to protect his privacy, said he lived in El Alamein and had been running tours of the battlefield for 13 years, and said little remained of the war except for burnt sand and iron. There's also a

Sheila Mildred Prettejohn before leaving for battle.

"He was assigned to the Royal Air Force in Egypt and given various postings around the Middle East until on 19 November 1941, he was assigned to RAF Sea Rescue Flight in the Nile Delta, which was to be his final posting," said Fiona Hayward, whose grandfather was a brother of Daley's mother.

The story of Sgt Daley's final hours form a chapter in the project titled "Missing With No Grave", a compilation of war stories derived from the collections of the Australian War Memorial and the National Archives of Australia, authored by Alan Storr.

On August 3, 1942, the aircraft Daley was on was sent to search for a missing Wellington aircraft which had signalled five hours earlier it was forced to land.

went missing.

"It was nearly disbelief," Hayward said.

"But then it went from disbelief to amazement, and then it was emotional too because it's 81 years that aircraft's been out there and no one has found it, and they found it, these random guys from El Alamein."

Hayward said Daley's story was "an incredible part of our family history".

Hayward said she was hopeful the family could get its hands on the ID tag and sergeant badge, also believed to belong to Daley.

"We'd all love to go out into the El Alamein desert and see the crash site," she said. "We'd love to get there, I don't think we're going to, but we are hoping we can get the identity disk and the sergeant's badge, which is quite likely John Daley's as well."



Izhorsk improvised armoured car USSR 1941



Gun trucks

“Necessity is the mother of invention”

By V. Merlo and Wikipedia

Many nations approached the problem of transport protection in different way and adapting it to the specific battlefield environment .

During WW2 both sides of the conflict used ordnance of various calibre, mounted on truck escorting unarmed supplies convoys.

Sometimes these armed vehicles were non standard issues but improvised by utilizing available material.

The tall-turret Armored ADG Lorry. USSR



German soldiers riding on armored truck with trailer. Dreux, France. 7 June 1944

Improvised vehicle armour is a form of vehicle armour consisting of protective materials added to a vehicle such as a car, truck, or tank in an irregular and extemporized fashion using available materials. Typically, improvised armour is added in the field and it was not originally part of the design, an official up-armour kit, nor centrally planned and distributed. Improvised armour is used to protect occupants from small arms, crew-served weapons, artillery (or tank gun) fire, and mines. Improvised additions have included metal plate, scrap metal, sandbags, concrete, wood, and, since at least the 2000s, Kevlar. These materials vary widely in their ballistic protection.

Improvised vehicle armour has appeared on the battlefield for as long as vehicles have been used in combat. Though usually used in military or conflict contexts, improvised vehicle armour has also been used in non-combat con-

texts, such as to protect the vehicles of strikebreakers.



Improvised armour added to a truck by railway shop workers for the Danish resistance movement near the end of World War II



The Bedford OXA was a British heavy improvised armoured car, produced during the Second World War.

It was developed by mounting an armoured body onto a Bedford OXD 30cwt (1.5 ton) truck chassis, armed with a Boys anti-tank rifle.

Its official designation was "Lorry 30cwt Anti-Tank". A total of 948 units were built in 1940–1941.

Operational use

The vehicle was used by regular British Army units in 1940 and British Home Guard units until 1942.

Type Improved Armoured car

Place of origin United Kingdom

Service history Service history

In service 1940-1942

Production history

Manufacturer Bedford Vehicles, Luton

Produced 1940-1941

No. built 948

Specifications Specifications

Mass6.5 t (6.4 long tons)

Length 4.68 m (15 ft 4 in)

Width 1.63 m (5 ft 4 in)

Height 2.14 m (7 ft 0 in)

Crew 8

Armour up to 9 mm

Main armament 0.55 in Boys anti-tank rifle

Secondary armament 0.303 in (7.7 mm) Bren light machine gun

Engine Bedford 6 cylinder petrol engine 72 hp (54 kW)

Power/weight 11.1 hp/tonne

Suspension 4x2 wheel, leaf spring

Operational range 300 mi (480 km)

Maximum speed 40 mph (64 km/h)

The Armadillo was an extemporized improvised armoured fighting vehicle produced in Britain during



the invasion crisis of 1940–1941. Based on a number of standard lorry (truck) chassis, it comprised a wooden fighting compartment protected by a layer of gravel and a driver's cab protected by mild steel plates. Armadillos were used by the RAF Regiment to protect aerodromes and by the Home Guard.

Bedford OYD Armadillo Mk I Type

Armoured gun truck

Place of origin United Kingdom

Production history

Manufacturer Bedford Vehicles

Produced 1940-1941

No. built 877

Specifications Specifications

Crew 5

Armour Wood, gravel and steel plate

Main armament Mk III: COW 37

mm gun

Secondary armament Lewis Gun

Drive 4x2 wheel

Suspension leaf spring



The Bison was an improvised fighting vehicle frequently characterised as a mobile pillbox. Bisons were produced in Britain during the invasion crisis of 1940-1941. Based on a number of different lorry chassis, it featured a fighting compartment protected by a layer of concrete. Bisons were used by the Royal Air Force (RAF) to protect aerodromes and by the Home Guard.

They acquired the generic name "Bison" from their main manufacturer.

Soviet SU-12 anti-tank gun truck,



WWII (Russian: CY-12) self-propelled gun battery (gun truck) was created in

1934 by the Union of Soviet Socialist Republics by mounting a 76 mm regimental gun M1927 onto a modified GAZ-AAA truck, and was in production from 1933 to 1935. The cannon's barrel and recoil system were modified to reduce recoil. It was the Soviet Union's first self-propelled gun. It had a four-man crew, including the driver, and the gun could rotate 270 degrees, but no armor protection.

Place of origin Soviet Union
 Service history
 In service 1933–1938 (SU-12), 1941 (SU-1-12)
 Used by Soviet Union
 Wars World War II
 Winter War
 Soviet–Japanese border conflicts
 Production history
 Designer Leningrad Kirov Plant
 Designed 1933
 Manufacturer Kirov Plant
 Produced 1933–1935
 No. built 48 (SU-12), 51 (SU-1-12)
 Specifications
 Mass 3.7 tons
 Length 5.61m
 Width 1.9m
 Height 2.325m
 Crew 4

Armor 4 mm gun shield, 4 mm roof plate, 4 mm rear shield, 2 mm rear window (SU-1-12 only)
 Main armament 76 mm regimental gun M1927 (36 rounds)
 Engine GAZ M-1
 Suspension Leaf spring
 Operational range 370 km
 Maximum speed 60 km/h, highway
 Nicknamed the "Meat Chopper", the



M16 was famous for its effectiveness against low-flying aircraft and infantry, making it extremely popular with soldiers. It was used by the United States Army, the British Commonwealth,



M16A1 from the German Army 2019

"Bounty Hunter" with the Quad .50 was a M54 5-ton truck



and South Korea. A similar version of the M16, the M17, was based on the M5 half-track and exported via Lend-Lease to the Soviet Union

During the Vietnam War, it was the



1/72 scale model of the M17 MGMC, half-track exported via Lend-Lease to the Soviet Union



1967 REO M35A1 Gun Truck Snoopy



mission of the US Army Transportation Corps to ferry supplies from the coastal ports of Qui Nhon and Cam Ranh Bay to inland bases located at Bong Son, An Khe, Pleiku, Da Lat and Buon Ma Thuot. The logistical requirements of the MACV were huge, and 200-truck convoys were not uncommon.

These convoys were tempting targets for Vietcong (VC) guerrilla groups, who often sprung ambushes in remote areas.

One unit that often fell victim to such attacks was the 8th Transportation Group, based in Qui Nhon. Two dangerous stretches of Route 19 between Qui Nhon and Pleiku became the VC's favorite kill zones, the "Devil's Hairpin" in An Khe Pass and "Ambush Alley" below Mang Yang Pass as incidents occurred there on an almost daily basis.

This gun truck, as it became known, was based on the two-and-a-half-ton cargo truck, protected by a barrier of sandbags, and armed with two M60 machine guns. Hardened convoys were smaller than previously, being composed of only 100 trucks, and their security detail was increased until there was one gun truck for every 10 transport trucks.

The crew consisted of a driver, two gunners, a non-commissioned officer in charge (NCOIC), and sometimes a grenadier armed with an M79 grenade launcher.

In October 1968, the factory-made

hardening kits arrived to replace the sandbag and wood gun trucks

The first more sophisticated conversions of the pattern were performed by the U.S. military in Vietnam. U.S. Army Artillery Battalions (Automatic Weapons, Self-Propelled) were often assigned Artillery Batteries (.50-caliber), units equipped with M35 trucks and



M55 Quadmount systems mounting four M2 Browning machine guns. Units were also authorized a single M60 machine gun and M79 grenade launcher. While the M35 was designed to act as the prime mover for the M55 Quadmount system, which included a towed trailer, the M45 mount was often removed or the wheels removed from the trailer, and the system mounted on the bed of the truck.



1/72 Scale model

The M55 system was also mounted on the M54 truck. More simplified armoring projects were conducted as well, adding armored walls of various thicknesses to standard cargo variants. A smaller bed-mounted multi-angle "box" was also tried. U.S. Army gun trucks used a wide variety of weapons including the M2 Browning machine gun, M60 machine gun, and even the M134 Minigun.

Lunge Mine's Were A Terrifying Japanese Weapon That Claimed The Lives Of Its Users

By Jesse Beckett
War History on line



A statue of a Viet Minh soldier holding a Lunge Anti-Tank Mine. Photo taken from the Vietnam Military History Museum, Hanoi, Vietnam

Japan was famous for its suicidal attacks against its enemies. Although to many this may seem strange, Japan understood the overwhelming odds they faced and concluded that traditional warfare was not enough to stop the US. Also, Japanese military culture regarded self-sacrifices in combat as an honorable end that ensured a heroic legacy. These at-

tacks were carried out in various different ways. One piece of equipment used towards the end of WWII was the lunge mine, which would be used in a suicidal attack against enemy tanks.

Suicide attacks
Suicide attacks were seen as a costly but effective way to hamper the enemy, after all, a single Japanese aircraft laden with bombs could sink a US aircraft carrier. Japanese Special Attack Units that specialized in their own unique forms of attacks were set up.

The most famous Japanese suicide missions were kamikaze attacks. Kamikaze pilots used their aircraft, which was usually filled with explosives, as human-guided missiles.

When successful, kamikaze attacks were extremely effective, but the aircraft were usually destroyed before reaching their target or the pilot was killed by the hail of anti-aircraft fire.

To begin with, conventional Japanese aircraft were used in kamikaze attacks, but as the practice matured, dedicated aircraft were designed, like the rocket-powered Ohka.

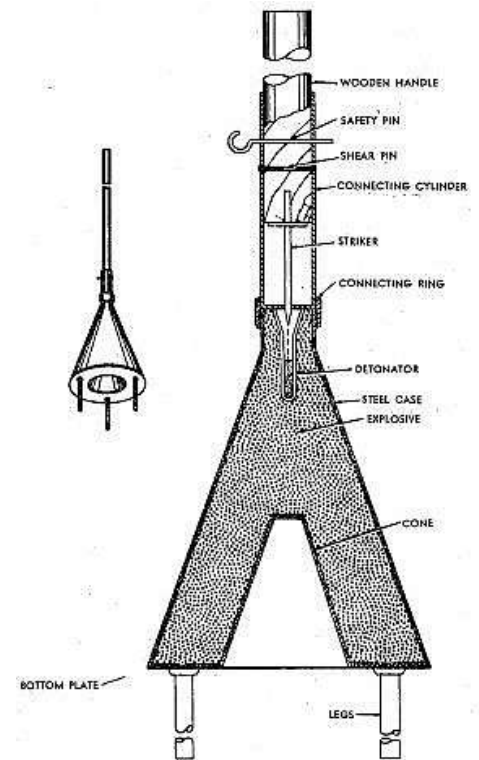
Suicidal attacks were used on the ground too, as seen with banzai charges, which saw swarms of Japanese troops rush enemy positions when defeat seemed inevitable. Naturally, these ended in devastating losses for both sides.

Other types of suicide attacks used

boats, manned torpedoes, and midget submarines.

As mentioned, dying in combat was regarded as a heroic and honourable death. This idea was heavily reinforced and romanticized by wartime propaganda.

The Shitotsubakurai (lunge mine dur-



From a US Department of Defense catalog of enemy ordnance materials of World War II (Public Domain)

ing WW2.

Compared to their European counterparts, Japan often lacked powerful anti-tank weaponry during the war. To make up for this, tactics and equipment were created to help infantry deal with the threat of enemy tanks.



Viet Minh soldier Nguyen Van Thieng holding a lunge mine at Hàng Đậu Street on December 1946.

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United States. War Department. Military Intelligence Service - Intelligence Bulletin Vol.03, N°07, march, 1945



One method was with the lunge mine, a 2-meter long pole tipped with an explosive charge. These weapons were first encountered by the US in 1944 when Japan was becoming increasingly desperate.

The wooden pole made up the physical bulk of the lunge mine and served as the handle. At the end, a shaped explosive charge (essentially a HEAT charge, similar to the Panzerfaust) was located in a conical metal housing. The flat base of the housing had three metal legs welded to it. The legs kept the charge at the optimum distance from the armor for maximum penetration.

In total the lunge mine weighed 6.5 kg and contained 3 kg of explosives.

The wooden handle slid into the metal

housing via a tube. The handle was stopped from sliding further into the housing by a safety pin. Once the safety pin had been removed, the pole was free to slide into the explosive housing, triggering the detonator.

To use the device, a soldier would remove the safety pin and charge at a tank, explosive tip first. The soldier, carrying the device with two hands, would

slam the explosive flush against the target, causing the handle to slide into the housing and trigger the detonator. The explosion would kill the user, and hopefully destroy the tank.

Despite its rather primitive appearance and operation, the lunge mine, when used correctly, was surprisingly capable. It could penetrate 150mm of armor at 90°, easily enough to blast through the 38mm side armor of the M4 Sherman.

Japanese forces versus tanks

The lunge mine was used as a part of Japan's wider set of tactics against armored vehicles. This involved luring or waiting until a tank is in a vulnerable position, launching an attack to scatter the tank's infantry support, and then moving in to destroy it.

Simply knocking the tracks off a tank to disable it was usually enough, as the Japanese learned the crew would quickly flee with the hopes of recovering it later. This may be achieved with anti-tank guns if available, or with weapons like the lunge mine and makeshift devices.

Like the lunge mine, most of these improvised methods involved suicide.

Sometimes a soldier would run at a tank with an explosive vest, climbing onto or under the vehicle before detonating the device. To ensure the vehicle was disabled, another technique was to dive under the tank's tracks while wearing an explosive vest.

More From Us: 4,000 Sea Mines Were Set Off By The Sun During the Vietnam War

A more devastating attack involved a Japanese soldier sitting in a foxhole in the path of an enemy tank. Between his knees would lie an aircraft bomb, which he would trigger when the tank was directly overhead.

Success or failure?

US reports on encounters with the lunge mine indicate it was a rather unsuccessful weapon. When a soldier managed to place the device on a tank it was extremely effective, but they were usually killed before this happened. Like many other suicidal tactics employed by the Japanese during WWII, their psychological effect was much greater than their strategic impact.

A Condom, Aniseed Ball, and a Bowl of Porridge – The Creation of the Highly Effective Limpet Mine

Andrew Knighton War History on line



Built using an aniseed ball, a condom, and a bowl of porridge, the limpet mine quickly became a vital part of the Allied arsenal in World War Two.

Setting the Challenge

It was the spring of 1939, and the threat of war was hanging over Europe when Stuart Macrae, the editor of Britain's Armchair Science magazine, received a mysterious phone call.

A man named Millis Jefferis, who Macrae had never met before, wanted to know more about the powerful magnets featured in an issue of the magazine. The gruff-sounding Jefferis wouldn't tell

Macrae why he needed the information, but he was insistent.

Two days later, Macrae met the mysterious Jefferis for lunch. There he learned

Limpet mines being carried on a harness on the back of a soldier.

that Jefferis worked for a secret branch of the War Office and was trying to develop a new weapon.

Jefferis wanted to create an explosive with a time delay and a magnetized shell. It would be attached by divers to the hulls of enemy ships, to breach them beneath the waterline and sink them. Jefferis had not been able to find a reliable enough trigger or a powerful enough magnet – hence the call about the magazine article.

Well fed and plied with alcohol at Jefferis's expense, Macrae offered to take on the challenge. A former engineer, he was confident that he could make the weapon work.

But once he sobered up, he realized that he was going to need help.



MD1 MK1 Limpet Mine Resin Replica

The Caravan Maker

Fortunately, Macrae knew just the man for the job.

Cecil Clarke was an inventor and caravan maker from Bedfordshire. He was continually looking for ways to improve his caravans. Two years earlier, Macrae had met him while editing Caravan and Trailer magazine. He had seen Clarke's workshop and witnessed his passion for creating novel solutions.

Macrae returned to Clarke's home,



EOD2 Nate Karls, assigned to Explosive Ordnance Disposal Mobile Unit 8, defuses a simulated limpet mine in the Mediterranean Sea during Exercise Noble Melinda 2017

where he was greeted with enthusiasm. Clarke was fascinated by the challenge Jefferis had presented. Together, he and Macrae set about trying to solve it.

After discussing their ideas for the mine, they went into Bedford. There, they bought large tin bowls from a Woolworths department store and high-powered magnets from a hardware store. They commissioned a custom-made grooved metal ring from a tinsmith.

Using these parts, they assembled their trial mine. The ring was screwed onto the bowl and bitumen fixed the magnets inside the ring. The device was then filled with porridge in place of the blasting gelatine that would give the final version its explosive power. A watertight lid was fixed on top.

After several tries, they created a device that seemed light enough for the magnets to hold it in place. Now they needed to test it.



Cecil Vandepuer Clarke wearing an early version of the limpet mine on a keeper plate. It is in the position used by a swimmer although Clarke is not appropriately dressed.

government work. Nevertheless, he agreed to let Clarke and Macrae use the baths after hours to test their top secret project.

The inventors placed a large steel plate in one end of the pool as a stand-in for the hull of a ship. Then Clarke strapped the porridge mine to himself and swam back and forth, playing at being a saboteur. Eventually, he removed the device from his belt, attached it to the plate, and swam away again.

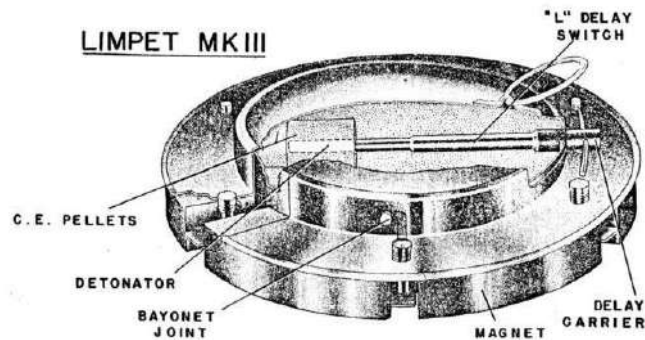
The magnetic side of the mine was a success. Now came the second challenge: the trigger.

They found their solution in the candy being eaten by Clarke's children, namely aniseed balls. Testing revealed that these slowly and reliably dissolved in water in just over half an hour, which was perfect for the device.

Clarke and Macrae bought every aniseed ball in Bedford's shops to make sure they had enough for their devices.

If that purchase raised questions from shopkeepers, Clarke and Macrae's next shopping trip raised even more. Needing something to keep each aniseed ball dry until the mine was in place, they bought up the town's supply of condoms to cover the trigger mechanisms.

Mass Production
Macrae and Clarke gave their invention the name "limpet" and presented it to Jefferis. He was deeply impressed. The



Sweets and Swimming Pools

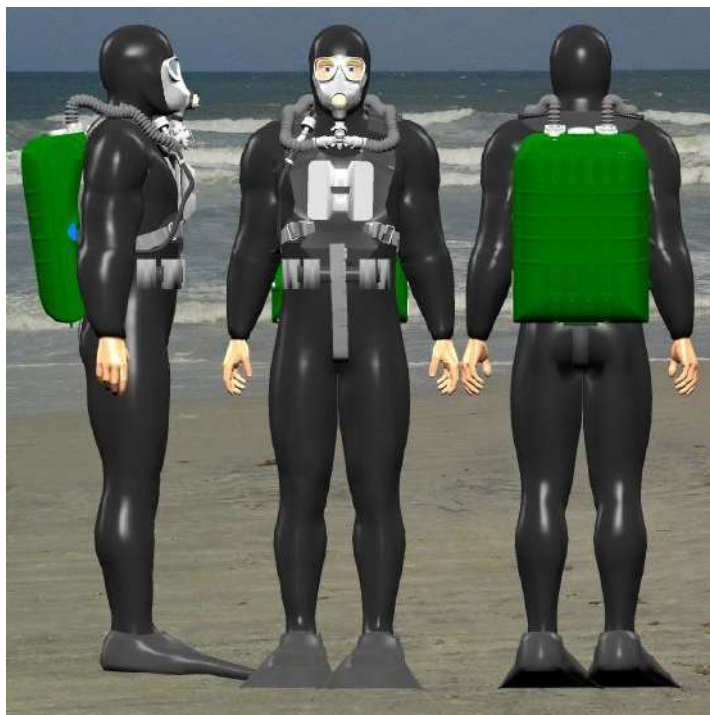
The janitor at Bedford Public Baths might have been surprised when he was approached by two men claiming to be doing secret

two men had created a light, powerful weapon for only £6 per mine, including labor. It was exactly what the military needed. Soon, Jefferis had Clarke producing hundreds of limpet mines at his caravan workshop.

After adding commission for Macrae, the inventors charged the government £8 per mine. Both men made around £500 for the first batch and £2,000 for the next, as Jefferis increased his demands.

Clarke had to start buying aniseed balls direct from the manufacturer. He also commissioned miniature condoms from a rubber company to cover a smaller firing mechanism.

The limpet mine was used throughout the war. Light and versatile, it was perfect for sabotage operations both on land and at sea. Clarke and Macrae ended up in government employ, significant play-



3 views of a frogman with IDA71 rebreather breathing set, supplied with keeper plate to clip a limpet mine to his chest

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Germans were the largest user of magnetic mines during the war



Lance Corporal Lodge of 278 Field Company, Royal Engineers, holding a German hollow charge anti-tank magnetic mine during Operation 'Epsom', 26 June 1944.

each with a pair of poles creating a strong magnetic field across their gap, an infantryman could attach it to an enemy's tank no matter the angle of the surface. As the blast axis should be flush and perpendicular to the plane of the armour at the point

ers in Britain's specialist armaments program that helped saboteurs set Europe ablaze.

From a bowl of porridge, a small candy, and a condom, the limpet mine went on to remarkable things.

Hafthohlladung

The Hafthohlladung, also known as the "Panzerknacker" ("tank breaker", German connotation "safe cracker"), was a magnetically adhered, shaped charge anti-tank grenade used by German forces in World War II, and was sometimes described as a mine.

The Hafthohlladung (lit. "adhesive hollow charge") was primarily used by Wehrmacht tank killer squads. Designed with three magnets at the base,

of placement, and armed by pulling the igniter on the rear of the mine, the degree of a tank's sloped armour was irrelevant for the device's penetration. However, since this required direct placement on an enemy tank by an infantryman, using the device was very dangerous, since the deploying infantryman placing it on an enemy fighting vehicle would be highly vulnerable to enemy fire. The Hafthohlladung device was very effective against armour, able to penetrate 140 mm of rolled homogeneous armour (RHA). The H3 (3 kilogram) and H3.5 (3.5 kilogram) models are easily distinguishable; the H3 is conical and the H3.5 is bottle-shaped.

Specifications

Weight: 3 kg (H3 version) or 3.5 kg (H3.5 version)



First issued: November 1942

Penetration: At 0°, 140 mm of RHA or 508 mm (20") of concrete

Fuse: Friction ignited, 4.5 second delay, later 7.5 seconds in May 1943

Number produced: 553,900

Declared obsolete in May 1944 in favour of the Panzerfaust, but remaining stockpiles used until exhausted

USA Army 30th Engineer Battalion

The 30th Engineer Battalion Distinctive Unit Insignia, often referred to as a unit crest or a DUI, was approved 1 May 1940. Inscribed in scarlet letters on a gold base is the unit motto IMPRIMIS, Latin for "In the First Place." "First; among the first." A shield with a red background and charged with a symbol that at first blush appears to be the sign of Scottish Rite Freemasonry, but is in fact two geometry tools, a compass laid

over a 45-degree drafting triangle—two indispensable items for those in construction and related fields.

The 30th Engineer Battalion (Topographic) (Airborne) conducted geospatial engineering missions in support of XVIII Corps, Third Army, and other Major and Unified Commands as directed from home station or upon deployment to any theatre of the world. The unit provided extremely accurate field surveying, detailed terrain analysis, and high-volume map production to the manoeuvre com-

mander and soldiers. It would, on order, assume oversight of all geospatial assets in the Theatre of Operations and directs



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their integrated employment. The Battalion's mission essential task list included:

Conducting deployment operations, conducting force protection operations, conducting sustainment operations, conducting survey operations, conducting terrain analysis operations, conducting map production operations, commanding and controlling geospatial operations, and maintaining a theatre database.

The 30th Engineer Battalion was activated in 1939 as an engineering base topographic battalion. During World War II, the Battalion deployed to North Africa, where it earned the Meritorious Unit Citation for combat action in Algeria. After a brief stay in the continental United States, the unit deployed to Hawaii in 1944, where it provided the Tenth US Army with topographic support and earned its second unit citation. After "V-J Day," the Battalion moved to the Presidio of San Francisco, where it was reorganized as the 30th Engineer Group (Topographic Survey). The unit mapped and surveyed Alaska and the Pacific Is-

lands with aircraft and boat detachments.

All of the Battalion's companies and detachments deployed and served as part of XVIII Airborne Corps, VII Corps or Third Army in Operations Desert Shield and Desert Storm. The Battalion provided geodetic survey, firefighting, well-drilling, topography, bridging, and construction support from Riyadh, Saudi Arabia, to the Euphrates River. From August 1993 to January 1994, the 362nd Engineer Company provided sustaining engineering. The Battalion deployed to Haiti in support of Uphold Democracy to provide terrain analysis, topography, bridging, and construction support in and around Port-au-Prince. The 30th Engineer Battalion had a few deployments in support of real world mission. This included the 89th Firefighter Detachment deploying to Kosovo for 6 months in support of Task Force Falcon at Camp Bond Steel and 2 terrain analysis soldiers deploying to Bosnia for 8 months.

Sd.Kfz. 252+Sd.Ah. 31/1 Stug. Abt 210 - Smolensk, USSR 1941

The Sd.Kfz 252 was a half-track that was used by Germany during World War II. The SdKfz 252 had a Maybach HL 42 engine that was capable of propelling it at speeds of up to 65 km/h. Since the SdKfz 252 is an ammunition carrier, it had no offensive armament, but in case of attack, the SdKfz 252 was armed



1/72 scale model



with a single MG 34.

The SdKfz 252 also had a crew of two men, a driver and commander, and had no room for passengers.

The armor thickness of the 252 was about 18 mm in most areas.

In order to carry more cargo, the SdKfz 252 was also fitted with a Sonderanhänger 32 ammunition trailer. The vehicle was equipped with a FuG 15 radio and was capable of traveling 320 kilometers on roadways.

The total length was 4.7 meters while its total weight was 4,700 kilograms. The double door exits of vehicle were located on the rear wall and the SdKfz 252 also had a 7 speed forward, 1 speed reverse transmission



system.

An unexpected bonus to the design of the SdKfz 252 was that the sloped armor added to the protection of the vehicle. The chassis itself was based upon the SdKfz 250.

Technical Specifications
Length 4.7 meters
Weight 4.7 tons

Engine 1 x Maybach HL 42 engine
Speed 65 kph
Range 320 km
Armor 18 mm
Armament 1 x 7.92 mm MG 34
Crew 2
Usage Ammunition carrier
Year introduced 1939

Focke-Wulf Fw 189 Uhu

From Wikipedia, the free encyclopedia

The Focke-Wulf Fw 189 Uhu ("Eagle Owl") is a German twin-engine, twin-boom, three-seat tactical reconnaissance and army cooperation aircraft. It first flew in 1938 (Fw 189 V1), entered service in 1940 and was produced until mid-1944.

In addition, Focke-Wulf used this airframe in response to a tender request by the RLM for a dedicated ground-attack airplane, and later submitted an armored version for trials. However, the Henschel Hs 129 was selected instead.

Design and development

In 1937, the German Ministry of Aviation issued a specification for a short-range, three-seat reconnaissance aircraft with a good all-round view to support the German army in the field, replacing the Henschel Hs 126, which had just entered service. A power of about 850–900 hp (630–670 kW) was specified. The specification was issued to Arado and Focke-Wulf. Arado's design, the Ar 198, which was initially the preferred option, was a relatively conventional single-engined high-wing monoplane with a glazed gondola under the fuselage. Focke-Wulf's chief designer Kurt Tank's design, the Fw 189, was a twin-boom design, powered by two Argus As 410 engines instead of the expected single engine. As a "twin-boom" design like the earlier Dutch Fokker G.I, the Fw 189 used a central crew gondola for its crew accommodation, which for the Fw 189 would be designed with a heavily glazed and framed "stepless" cockpit forward section, which used no separate windscreen panels for the pilot (as with many German medium bombers from 1938 onwards). Blohm & Voss proposed as a private venture something even more radical: chief designer Dr. Richard Vogt's unique asymmetric BV 141. Orders were placed for three prototypes each of the Arado and Focke-Wulf designs, in April 1937.

The Fw 189 had as part of its defensive armament, an innovative rear-gun emplacement designed by the Ikaria-Werke: a rotating conical rear "turret" of sorts, manually rotated with a metal-framed, glazed conical fairing streamlining its shape, with the open section providing the firing aperture for either a single or twin-mount machine gun at the unit's circular-section forward mount.

The Fw 189 was produced in large numbers, at the Focke-Wulf factory in Bremen, at the Bordeaux-Merignac aircraft factory (Avions Marcel Bloch's factory, which became Dassault Aviation after the war) in occupied France, then in the Aero Vodochody aircraft factory in Prague, occupied Czechoslovakia.

Total production was 864 aircraft of all variants.



Operational history

Called the *Fliegende Auge* (Flying Eye) of the German Army, the Fw 189 was used extensively on the Eastern Front with great success. It was nicknamed "Rama" ("frame" in the Russian, Ukrainian and Polish languages) by Soviet forces, referring to its distinctive tail-boom and stabilizer shapes, giving it a quadrangular appearance.

Despite its low speed and fragile looks, the Fw 189's manoeuvrability made it a difficult target for attacking Soviet fighters. The Fw 189 was often able to out-turn attacking fighters by flying in a tight circle into which enemy fighters could not follow.

Nocturnal reconnaissance and night fighter versions

Night Reconnaissance Group 15, attached to the 4th Panzerarmee in southern Poland during late 1944, carried out nocturnal reconnaissance and light bombing sorties with a handful of 189A-1s. These planes typically lacked the main model's rear dorsal machine gun. Small numbers of A-1s were used as night fighters in the closing weeks of the war – the aircraft were modified by having their reconnaissance equipment removed and then fitted with FuG 212 AI radar in the nose and a single obliquely-firing 20 mm MG FF autocannon in the common *Schräge Musik* upwards/forward-firing offensive fitment also used for heavier-airframed German night fighters, like the Bf 110G. For the Fw 189 the installation was in the crew nacelle in the space where the rear dorsal gun was normally housed.

The majority of the *nachtjager* 189s was operated by NJG 100, were based at Greifswald.

Chronic fuel shortages and enemy air superiority over the 189 defence area (chiefly Berlin) meant that few aircraft were shot down by these craft.

General characteristics

Crew: 3

Length: 11.9 m (39 ft 1 in)



The rotatable, Ikaria-designed twin barrel machine gun mounting in the crew nacelle's tail cone

Wingspan: 18.4 m (60 ft 4 in)

Height: 3.1 m (10 ft 2 in)

Wing area: 38 m² (410 sq ft)

Empty weight: 2,690 kg (5,930 lb)

Gross weight: 3,950 kg (8,708 lb)

Powerplant: 2 × Argus As 410A-1 V-12 inverted air-cooled piston engines 465 PS (459 hp; 342 kW)

Propellers: 2-bladed Argus variable-pitch propellers

Performance

Maximum speed: 344 km/h (214 mph, 186 kn) at 2,500 m (8,200 ft)

Cruise speed: 317 km/h (197 mph, 171 kn)

Landing speed: 120 km/h (75 mph; 65 kn)

Range: 940 km (580 mi, 510 nmi)

Service ceiling: 7,000 m (23,000 ft)

Rate of climb: 5 m/s (980 ft/min)

Time to altitude: 4,000 m (13,000 ft) in 8 minutes 18 seconds

Armament

Guns:

2 × 7.92 mm (.312 in) MG 17 machine guns mounted in the wing roots, firing forward

1 × 7.92 mm (.312 in) MG 15 machine gun in dorsal flexible mount position firing to rear

1 × 7.92 mm (.312 in) MG 15 in rear cone firing to rear (optional)

Bombs:

4 × 50 kg (110 lb) bombs

Is Historical design somehow repeating itself in the Bronco?

North American Rockwell OV-10 Bronco: The Vietnam-Era Light-Attack Aircraft That's Looking to Make a Comeback

Clare Fitzgerald,
warhistoryonline.com

The North American Rockwell OV-10 Bronco was a Vietnam-era light-attack and observation aircraft that was favored by the US Air Force, Navy and Marine Corps. While capable of conducting a variety of tasks, it struggled to produce enough power to make it a truly invaluable asset. That being said, the OV-10's deployment to the Middle East in 2015 shows the unique aircraft may one day make a triumphant return to service.

Development of the OV-10 Bronco.

The OV-10 Bronco was introduced into service with the US military via the "tri-service" program, which required an aircraft that could conduct "jungle fighting," carry an array of weapons and up to 2,400 pounds of cargo, house a two-man crew, operate from an aircraft carrier, feature a twin-engine and takeoff with very little runway space.

Eleven proposals were submitted, including the North American Aviation/Rockwell NA-300, designed by H.K. Beckett and US Marine Corps Col. K.P. Rice. The pair came up with a design and approached North American Aviation with it. After the concept was selected, seven prototypes were ordered, with the light-attack aircraft, by then called the "OV-10 Bronco," taking to the skies in August 1967.

Once it was proven effective, the OV-10 was put into large-scale production, with 360 rolling off the manufacturing line between 1965-86.



of 1,240 miles.

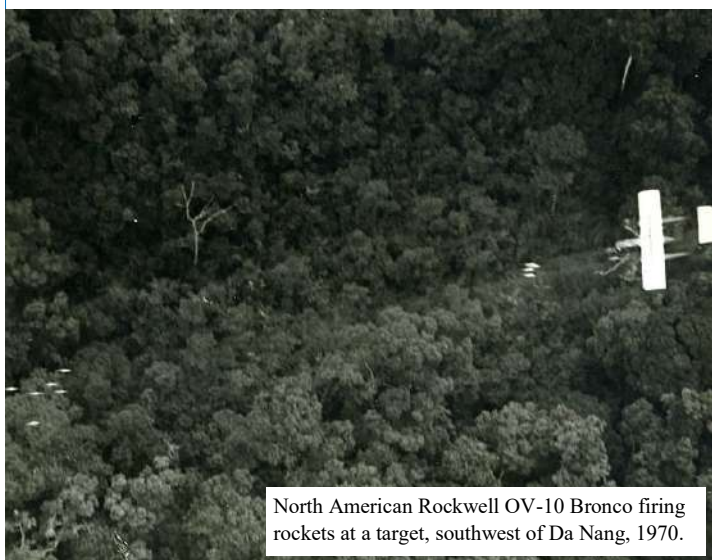
In terms of the body, the OV-10 featured cut-off wing tips and a cockpit that afforded the pilot excellent visibility during combat. The underneath portion of the fuselage included "stub wings" – officially known as sponsons – that could be used for storage, while the inside of the cockpit featured ejection seats that ensured aviators could bail out, should the need arise.

As aforementioned, one of the main requirements of the OV-10 was that it could take off within short distances. It was given this capability, as well as the ability to take off from aircraft carriers without the use of catapults or arresting wires.

In terms of armament, the OV-10 was equipped to the brim with guns, rockets

Broncos were deployed to Vietnam in July 1968 as part of Operation Combat Bronco, the branch's chance to test and evaluate the aircraft's capabilities in combat. Along with conducting various missions, it was also put into service as a forward air control (FAC) aircraft and as an escort during Operation Ranch Hand.

Between April and June 1969, the OV-10 underwent additional testing under an operational exercise known as "Misty Bronco" in the tactical zone under South Vietnam's III Corps. The aim was to prove the aircraft could act in light-attack roles, which led units to be equipped with M60C machine guns. This was followed by additional modifications two years later, aiding in the interception of enemy troops and supplies along the Ho Chi Minh Trail.



North American Rockwell OV-10 Bronco firing rockets at a target, southwest of Da Nang, 1970.



North American Rockwell OV-10 Bronco firing a white phosphorus smoke rocket at a ground target.

OV-10 Bronco specs.

The OV-10 Bronco had twin booms, connected by a horizontal stabilizer and containing twin Garrett T76-G-420/421 turboprop engines that could, in times of need, be filled by high-octane automobile fuel. These powered three-bladed feathering propellers and allowed the aircraft to travel at a maximum speed of 281 MPH and have a maximum range

and missiles. The "D" variant could feature either four 7.62 mm M60C machine guns or a single 20 mm M197 cannon. Through its seven hard points, it could also carry the AIM-9 Sidewinder, bombs, flares, rockets with white phosphorus, high-explosive rockets and seismic sensors.

Service with the US Air Force.

The first US Air Force-operated OV-10

Following the Vietnam War, the OV-10 remained active with the Air Force, but saw limited deployments. In September 1991, the aircraft was retired from service with the US military branch.

Service with the US Marine Corps

Out of the three US military branches under which the OV-10 Bronco saw service, it was the US Marine Corps that put it to work. Upon entering service, the



North American Rockwell OV-10A Bronco at Patrick Air Force Base, Florida

OV-10A Bronco on the flight deck of the USS Nassau (LHA-4), 1983



aircraft was employed by two observation squadrons, which each flew nine of the "A" variant and nine of the "D" model. On top of this, the Marines established an Air Reserve Observation Squadron with the aircraft.

Combat operations for VAL-4 began in April 1969, with the squadron's aviators flying over the Mekong Delta in both surveillance and combat scenarios, particularly during the Cambodian Campaign. It was during this time and the

former using it for research purposes and the latter – in particular, the Department of State – operating the aircraft via DynCorp International for drug interception purposes in South America.

Both the Bureau of Land Management



A Bronco with Light Attack Squadron Four (VAL-4) firing at a target, 1969.



NASA-operated North American Rockwell OV-10 Bronco, 2009.



The Marine Corps received 114 units of the OV-10A, which initially favored the aircraft for its ability to take off from virtually any platform, whether that be an aircraft carrier or a primitive dirt road. Over the course of the Vietnam War, the branch operated it during a host of missions and in several roles, with it surpassing everyone's expectations.

Outside of Vietnam, the OV-10 saw service with the Marine Corps during Operation Desert Storm. This was a decision the US Air Force and the US Navy refused to copy, as there were fears the aircraft wasn't powerful enough to withstand the advancements of modern combat. Some units were lost, leading the Marines to officially phase out the OV-10 in 1995.

Service with the US Navy.

The US Navy also operated the OV-10 Bronco, but in a lesser capacity than the US Air Force and US Marine Corps. On January 3, 1969, the branch established Light Attack Squadron Four (VAL-4) and tasked its pilots with conducting aerial reconnaissance and offensive action, as well as fire support and enemy interdiction for Navy SEALs, the Marines and naval river patrol craft.

latter years of the Vietnam War that VAL-4 saw the most success, with its last combat mission taking place in March 1972. The squadron was dissolved less than a month later.

The OV-10 Bronco has seen service with other countries while in service with the US military during the Vietnam War, the OV-10 Bronco showed the aforementioned issues with being underpowered, which put it at risk in certain combat scenarios, particularly those in sloping terrain. Despite this, several nations adopted it for use by their air forces. West Germany, Colombia, Venezuela, the Philippines, Morocco, Indonesia and Thailand all operated it at one point.

Outside of military purposes, the OV-10 has been operated by the likes of NASA and the US government, with

(BLM) and the California Department of Forestry and Fire Protection have also adopted a number for fire prevention and control.

While widely believed to have been completely retired from military use in the United States, it was reported in 2015 that two OV-10s flew 120 combat missions in the Middle East, presumably in Iraq and Syria, over 82 days.



Blohm & Voss BV P.178 Bomber Interceptor Jet (One of the many oddities on the drawing board)

From Wikipedia, the free encyclopedia \

The Blohm & Voss P 178 was a German jet-powered dive bomber/fighter-bomber of unusual asymmetric form, proposed during World War II

Overview

This asymmetrically-designed dive bomber had one Junkers Jumo 004B turbojet located under the wing to the starboard side of the fuselage. The pilot sat in a cockpit in the forward fuselage, with a large fuel tank located to the rear of the cockpit. Beneath the fuel tank, there was a deep recess in which an SC 500 bomb could be carried within the fuselage, or an SC 1000 bomb which would protrude slightly out of the fuselage. Two solid-fuel auxiliary rockets extended from the rear, used for take-off. Two 15 mm (.60 in) MG 151 cannons were located in the nose.

Specifications

900 kilograms-force (8.8 kN)

Data from Masters (1982). except where noted.

General characteristics

Crew: 1

Wingspan: 12.0 m (39 ft 4 in)



German Secret Projects of WW2
Blohm und Voss Bv P178
Asymmetric Jet Dive Bomber/Ground Attack.
1944(?)

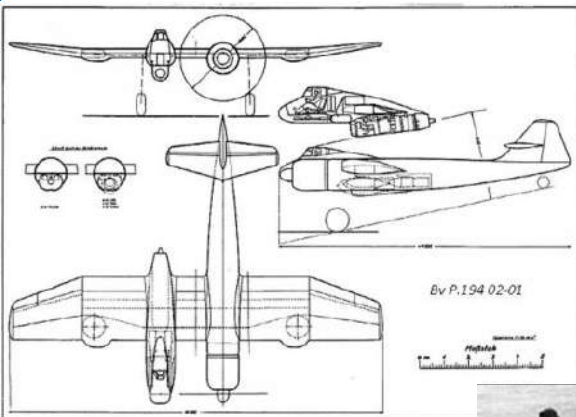


Powerplant: 1 × Junkers Jumo 004B turbojet, 8.8 kN (2,000 lbf) thrust (900 kg static thrust)
Powerplant: 2 × (unknown) rockets
Armament
Guns: 2 × 15 mm MG 151/15 machine

guns
Bombs: 1 × 500 kg or 1 x 1,000 kg
Role Dive bomber/Fighter-bomber
Manufacturer Blohm & Voss
Designer Richard Vogt
Status Design project



Blohm und Voss Bv-141- WW2 lopsided plane



issued a specification for a single-engine reconnaissance aircraft with optimal visual characteristics. The preferred contractor was Arado with the Ar 198, but the prototype proved unsuccessful. The eventual winner was the Focke-Wulf Fw 189 Uhu; even though its twin-boom design using two smaller engines did not match the requirement of a single engined aircraft. Blohm & Voss (Hamburger Flugzeugbau) although not invited to participate, pursued as a private venture something far more radical. The proposal of chief designer Dr. Richard Vogt was the uniquely asymmetric BV 141.

Design

The Plexiglas-glazed crew gondola on the starboard side strongly resembled that found on the Fw 189, and housed the

the weight was evenly supported by lift from the wings.

In terms of thrust vs drag asymmetry, the countering of induced yaw was a more complicated matter. At low airspeed, it was calculated to be mostly alleviated because of a phenomenon known as P-factor, while at normal airspeed it proved to be easily controlled with trimming.

The tailplane was symmetrical at first, but in the 141B it became asymmetrical – starboard tailplane virtually removed – to improve the rear gunner's fields of view and fire.

General characteristics

Crew: 3

Length: 13.95 m (45 ft 9 in)

Wingspan: 17.45 m (57 ft 3 in)

Height: 3.6 m (11 ft 10 in)

Wing area: 52.9 m² (569 sq ft)

Empty weight: 4,700 kg (10,362 lb)

Gross weight: 5,700 kg (12,566 lb)

Max takeoff weight: 6,100 kg (13,448 lb)

Powerplant: 1 × BMW 801A 14-cyl. air-cooled radial piston engine, 1,147 kW (1,538 hp) for take-off at sea level

Performance

Maximum speed: 368 km/h (229 mph, 199 kn) at sea level; 438 km/h (272 mph) at 5,000 m (16,404 ft)

Range: 1,900 km (1,200 mi, 1,000 nmi) maximum

Service ceiling: 10,000 m (33,000 ft)

Wing loading: 107.75 kg/m² (22.07 lb/sq ft)

Power/mass: 0.204 kW/kg (0.124 hp/lb)

Armament

Guns: 2 x 7.92mm MG 17 machine guns (fixed forward), 2 x 7.92mm MG 15 machine guns (rear-mounted flexible)

Bombs: 4 x SC50 bombs

The Blohm & Voss BV 141

Was a World War II German tactical reconnaissance aircraft, notable for its uncommon structural asymmetry. Although the Blohm & Voss BV 141 performed well, it was never ordered into full-scale production, for reasons that included the unavailability of the preferred engine and competition from another tactical reconnaissance aircraft, the Focke-Wulf Fw 189.

Development

In 1937, the German Air Ministry – the Reichsluftfahrtministerium (RLM) –



pilot, observer and rear gunner, while the fuselage on the port side led smoothly from the BMW 132N radial engine to a tail unit.

At first glance, the placement of weight would have induced tendency to roll, but

Did You Know Michael Caine is a Korean War Veteran?

Jay Hemmings

www.warhistoryonline.com

On his very first night, he witnessed a Chinese attack on a position to his left.

Michael Caine is one of the most well-known and highly-regarded British actors of the 20th and 21st centuries. He is famous for roles in movies like *Zulu*, *Get Carter*, *The Eagle Has Landed*, *The Italian Job*, *Austin Powers in Goldmember*, *Christopher Nolan's Batman* films, and a host of others spanning an acting career of 70 years.

While he has become a household



Behind the scenes on the location set of the film *Zulu* with stars Michael Caine and Stanley Baker.

Royal Navy and Army personnel are watching guns being towed across the Rhine after completing building of the bridge



name across the globe, a fact that many people don't know about Michael Caine is that he served in the British Army and saw combat in the Korean War. It was a harrowing experience for the actor and one that would scar him for many years.

Caine's birth name was Maurice Joseph Micklewhite, and he was born in 1933 in South London to a working-class family. Caine's father fought in the Second World War. His family, including the young Maurice (Michael), was evacuated from London due to the risk of bombing by the Luftwaffe.

After gaining his School Certificate at the age of sixteen, he worked for a time as a messenger and filing clerk for a film company in order to get a foot into the door of the industry.

He was called up for national service from 1952 to 1954. He served with the British Army's Royal Fusiliers, an infantry regiment.

At first, he was posted to serve with the British Army Of The Rhine (BAOR), the British occupation force that had been stationed in Germany after the end of the Second World War. However, after serving there for a few months, he opted to transfer to Korea where a war was raging.

Going into combat would turn out to be an experience that would change Caine forever.

Caine landed at Kure, in southern Ja-

pan, and underwent two weeks of combat training. After this, he was sent to the South Korean front, near Pusan.

The front was unlike anything Caine had ever experienced. There were hordes of rats and vast swarms of mosquitoes as well as the ever-present stink of human excrement used to fertilize the fields. And, of course, there was the presence of thousands of North Korean and Chinese soldiers hell-bent on killing Caine and every other opposing soldier there.

He spent his first few nights in a trench on a hill around a mile from the Chinese lines. On his very



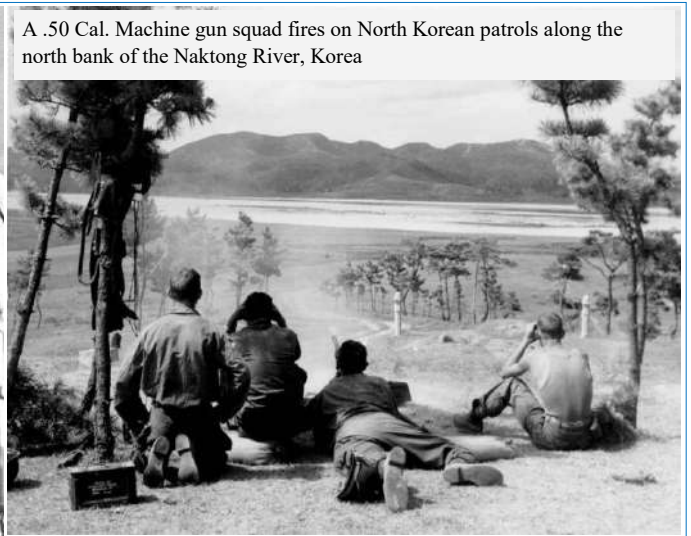
The British Army in North-west Europe 1944-45. Assault on the Rhine and Capture of Wesel. Commandos make their way over a bomb crater.



Troops await North Korean attacks across the Naktong River from positions on the Pusan Perimeter, September 4, 1950

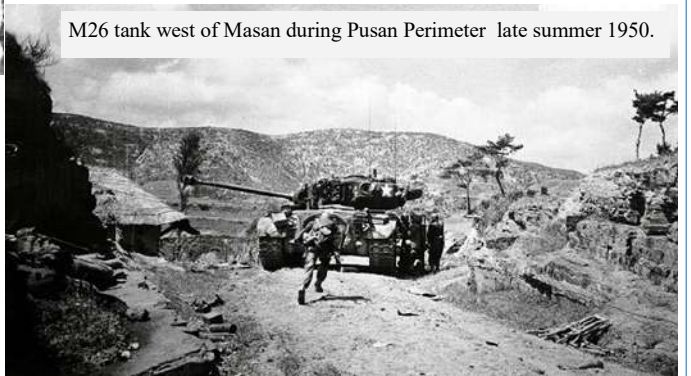


Soldier takes aim with a tripod-mounted M1919A4 in Korea, 1953



A .50 Cal. Machine gun squad fires on North Korean patrols along the north bank of the Nakdong River, Korea

Michael Caine as Lt. Col. J.O.E. Vandeleur in 1977's "A Bridge Too Far."



M26 tank west of Masan during Pusan Perimeter late summer 1950.



Michael Caine in Zulu

first night, he witnessed a Chinese attack on a position to his left. He watched with both awe and horror as the Chinese troops – who were clearly unafraid of death and fanatical in their cause – charged headlong into machine gun fire.

He would end up being on the receiving end of more than one of these charges while manning an American .30 caliber machine gun. Some nights he would go out on patrol, and these were the most terrifying experiences he underwent in Korea.

Sometimes, enemy bombardment of the trenches would continue for up to 24 hours without pause. Caine would simply lie in his camp bed in the bunker, listening to the shells whining and exploding, and wonder how he was going to get out alive.

On one occasion, he came alarmingly close to being killed. Caine and two other men were out on patrol, creeping through the elephant grass at night. They suddenly heard the tell-tale clicking of rifle bolts snapping shut all around them, accompanied by hushed voices speaking excitedly in Chinese.

They were surrounded and heavily outnumbered, and all three men were convinced they were about to die.

In that moment, however, Caine recalls that he felt no fear.



He “decided that whoever was going to take [their] lives was going to pay dearly.” So the three of them charged, roaring maniacally, at the voices.

The Chinese opened up but were firing at the place where Caine and his companions had been a few seconds earlier, not where they were running to. The British mortars spotted the Chinese muzzle-flares in the darkness and opened up on them, scattering the enemy.

Caine and his friends managed to get back to British lines and lived to fight another day.

Caine stated that as the child of a working family who had grown up poor, he had been sympathetic to communism prior to his experience in Korea. But after he had fought the fanatical proponents of communism and saw firsthand

how it dehumanized people, he changed his mind about it and came to greatly oppose the idea.

All in all, he was in Korea for a year. He spent six weeks at a time in the trenches followed by two weeks in Seoul for R&R, during which time many of his fellow soldiers were infected with gonorrhea. Caine, due to his refusal to see prostitutes, never contracted the disease.

He left Korea a profoundly changed man, grateful at having survived the war.

He had been forced to grow up very quickly, and he’d learned a lot about himself and the world.

He used his military experience in a number of roles in which he played military men and, despite his humble background, ended up becoming an icon of British and international film.



HMS Hero (H99) during the interwar period.



HMS Petard (G56), December 1943.

The Sinking of U-559 and the Ultimate Sacrifice Made By Three Royal Navy Sailors

By Rosemary Giles
War history on line

In the midst of World War II, the demise of German U-boat U-559 became a pivotal event in the relentless battle for supremacy beneath the waves. Nestled in the depths of the Mediterranean Sea and armed with deadly torpedoes, the vessel embarked on a mission to disrupt Allied naval operations. However, her sinister voyage was abruptly halted when she fell victim to a relentless pursuit and a daring espionage act that would forever alter the course of the conflict.

U-559

U-559 was a Type VIIC U-boat built by Germany for use during the Second World War. She was launched on January 8, 1941 and commissioned nearly two months later. U-559 was commanded by Kapitänleutnant Hans Heidtmann, who'd intended to use the vessel against Allied ships traveling in and around the Western Approaches, as part of the Battle of the Atlantic.

This isn't what ended up happening. Instead, U-559 was briefly stationed in France, before being moved to the SMS Goeben wolfpack, the first U-boats to enter the fight in the Mediterranean. Between August 19, 1941 and October 12, 1942, she sunk five vessels and caused enough damage to make an additional two ships total losses.

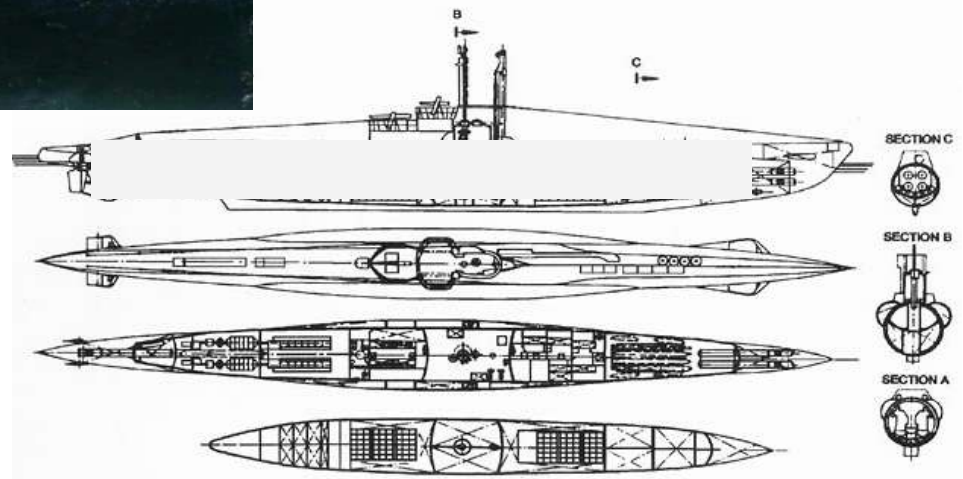
However, it wasn't these victories for which U-559 was made famous, but, rather, her own sinking.

A fateful attack

On October 30, 1942, while transiting the Nile Delta, U-559 was spotted by a Royal Air Force (RAF) crew flying overhead. The Allies immediately moved into action, with the destroyer HMS Hero (H99) ordered to intercept the U-boat's location.

In the meantime, a member of No. 47 Squadron RAF spotted her periscope above the water and went in for the attack with depth charges. Over the following 16 hours, Hero, along with the HMS Petard (G56), Pakenham (G06), Du Iverton (L63) and Hurworth (L28) continued the 16-hour hunt.

U-559 wound up too damaged to stay below the water and was forced to sur-



Type VIIC U-boat

face, doing so in the perfect location for Petard to open fire with her 20 mm cannon. In response, the German crew abandoned ship. Their mistake, however, was they didn't follow proper protocol for scuttling their vessel – instead of opening the water vents into the U-boat, they simply went overboard. This meant that, inside U-559, their top-secret code books were ripe for the taking.

A war-changing discovery about U-559

At this point in the war, the Allies were mostly able to read Enigma messages. Alan Turing and his team at Bletchley Park had figured it out, thanks to coded material seized from the enemy early in the conflict. The only problem was that, in the case of the Kriegsmarine, orders were issued for a fourth rotor to be added to the previous three-rotor machine, making it, once again, impossible for the Allies to read their messages.

This changed after the sinking of U-559, when three Royal Navy sailors took drastic actions to take the coded material that lay within. The captain of the HMS Petard, the closest to the U-boat's position, was Lt. Cmdr. Mark Thornton. He was a rather eccentric man who often made unreasonable demands of his men,

and October 30, 1942 was no different, as he ordered them to board the sinking vessel.

A daring rescue

It's unclear why 1st Lt. Tony Fasson, AB. Colin Grazier and NAAFI canteen assistant Tommy Brown were the ones to respond to the command, but they found themselves in the water. Some accounts say they stripped naked before swimming over, while Mark Thornton said they simply jumped overboard. They were able to access U-559, climbing inside to get the code books.

Brown later recalled, "The water was not very high, but rising gradually. 1st lieutenant was down there with a machine gun which he was using to smash open cabinets in the commanding officer's cabin. He then tried some keys that were hanging behind the door and opened a drawer, taking out some confidential books which he gave me. I placed them at the bottom of the hatch. After finding more books in cabinets and drawers I took another lot up."

Once they'd been able to get the code books back to their comrades in lifeboats, Tommy Brown started hearing shouting on the deck of the HMS Petard. He conveyed the message to Tony Fasson as the water continued to get deeper, but he simply gave him more and more books to take up.

After depositing them, he called out to Fasson and Colin Grazier that they better come back up, but, before they could do so, U-559 started to rapidly sink. It was with great difficulty that Brown was able to reach the surface, as he was dragged with the U-boat as she went down.

He was sure there was "no chance" to save the other two, who gave their lives



Colin Grazier Memorial in Tamworth, Staffordshire, United Kingdom.

Colin Grazier Memorial in Tamworth, Staffordshire, United Kingdom.



to rescue the German code books. Both Fasson and Grazier were posthumously awarded the George Cross, while Brown was presented with the George Medal and promoted to the rank of senior cadet assistant.

Use in breaking German code

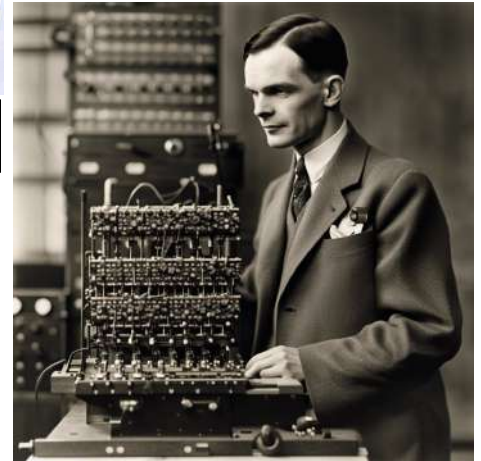
With all the publicity, it was revealed



Box containing rotors used in the German Mk 4 Enigma machine.

that Tommy Brown was only 16 years old and had lied about his age to enlist. He was sent home, but never officially discharged, and was able to return to service aboard the HMS Belfast when he was of age. Tragically, Brown died only three years after the U-559 incident while trying to rescue his sister from their burning family home. He never received his medal, leaving his mother and brother to accept it after his death.

Little did the three sailors know that the codebooks they rescued helped solve the problem of the fourth rotor being added to the Enigma machines. They



Alan Turing with his recreation of the Enigma

also proved to be useful when the Germans made more changes to their code in 1943.

The Colt Walker 1847: The Most Powerful Sidearm Ever Issued By the US Military

Jesse Beckett
War history on line

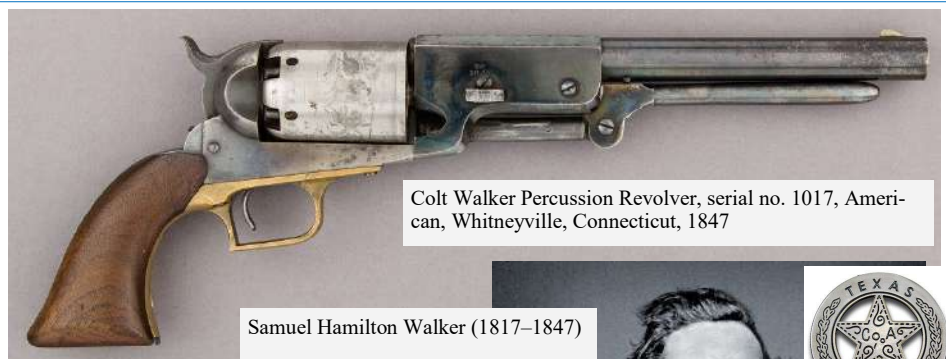
In 1846 the United States Army brought the Colt Walker 1847 into service – a revolver that is the most powerful sidearm ever issued by the US military. The weapon was named after its inventors, gun-making legend Samuel Colt and Texas Ranger Captain Samuel Hamilton Walker. The Colt Walker was extremely powerful at close range, although it had a tendency to explode in the user's hand.

Walker

Walker had so much faith in his design that he carried two Colt Walkers on him in the Mexican–American War. Born in 1815, Walker served as an officer in both the Republic of Texas and the United States when Texas joined the union. As a result, he was involved in many of the American West's conflicts, like the Mexican American War and the Indian Wars.

Walker made a trip to New York to meet with Colt and discuss a weapon design based on the five-shot Colt Paterson revolver. Walker was familiar with this weapon from his Texas Ranger days. At the time Samuel Colt was no longer in business, but this opportunity allowed him to fire his work back up.

Walker's proposal included adding a sixth-round and making it powerful enough to easily stop a man at close



Colt Walker Percussion Revolver, serial no. 1017, American, Whitneyville, Connecticut, 1847

Samuel Hamilton Walker (1817–1847)



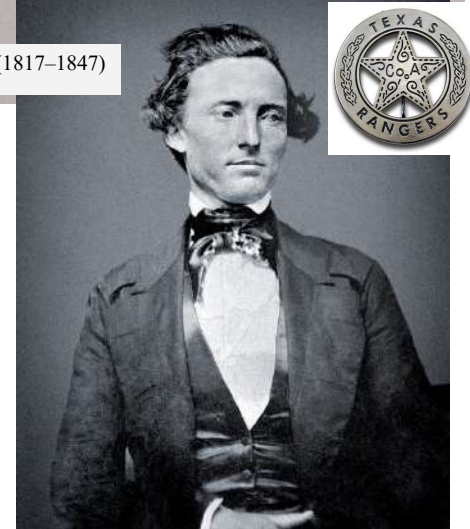
range, and even a horse.



Uberti Percussion revolver including top to bottom, Colt Paterson, Colt Walker, Colt 3rd Variation Revolving Holster Pistol

The Colt Walker 1847

A .44 caliber projectile traveled down a 9-inch barrel with the muzzle energy of a .357 Magnum. The effective range was 100 yards. The revolver weighed 4.5 lb (2.0 kg) and was the most powerful black



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powder handgun ever, and the most powerful pistol ever issued by the US military.

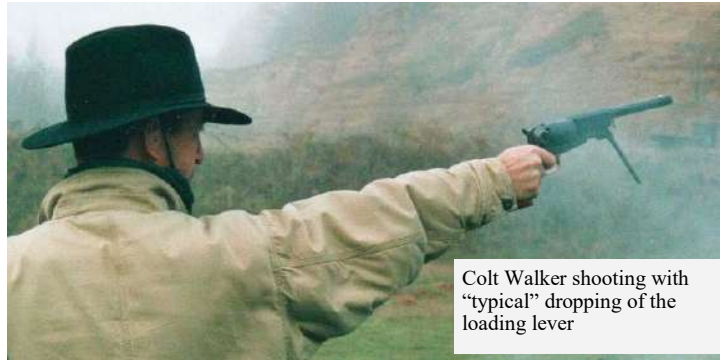
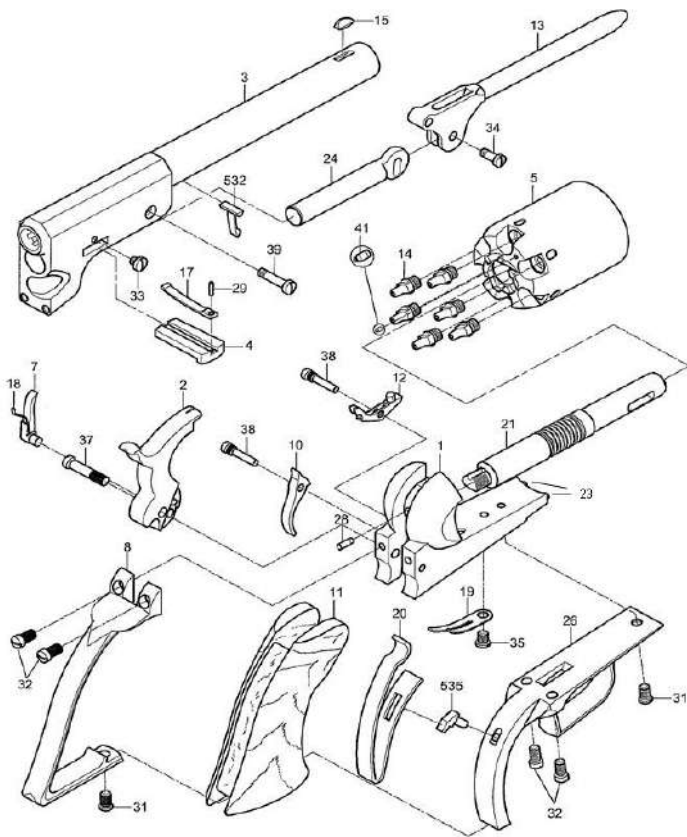
It wasn't until the introduction of the .357 Magnum in 1935 that the Colt Walker was knocked off its spot as the most powerful commercially manufactured repeating handgun.

Unsurprisingly, the effects of a 15.5 inch .44 caliber pistol on the human body were severe. Medical officer John "Rip" Ford had arguably the most experience with these weapons in action, having seen the results of a shot fired at a Mexican soldier at Veracruz. He reported that the pistol had about as much power and range as a .54 caliber Mississippi rifle.

All this power came at a cost though, as the Colt Walker had a worrying tendency to detonate in the user's hand. The handgun used 60 grains of powder per round – more than twice that of conven-



Colt Walker Percussion Revolver, serial no. 1017



Colt Walker shooting with "typical" dropping of the loading lever



tional black powder revolvers at the time – which put a tremendous amount of stress on the firearm. However, it is likely that poor metallurgy at the time was to blame for this, rather than poor design.

To reduce the chances of detonation, Colt recommended dropping the charge to 50 grains of powder.

Another reason for failures was all chambers exploding at once. It is suspected that users allowed the black powder to spill over the chambers, causing all to fire at the same time. Lard was placed on the cylinders on top of each bullet to prevent sparks from traveling.



The competing firearm for the percussion revolver market!!
The .44 cal. Remington New Model Army Revolver made c. 1863 - 1875.

Only 1,100 Colt Walkers were made in total – 100 of which were sold on the civilian market – making them a rare and highly sought-after collector's piece. One of these legendary handguns with its original powder flask was put up for auction in 2008 and sold for \$920,000.

This is actually a wise practice for this type of weapon, one that many still continue to use on black powder revolvers today. Sadly Walker was killed in the Mexican-American War the same year his pistol was created. Although his death was untimely, his design helped pull Colt out of bankruptcy.



Interesting discovery

Texas Rangers Company A Badge – Peso Badge

The Texas Rangers were often called cruel – but they were formed in cruel times and they had to police a cruel frontier. Often incredibly outnumbered – companies of Rangers were victorious against Comanche warriors, Mexican Armies, rustlers, horse thieves, and assorted other bandits — including Bonnie and Clyde.

This early 20th century Ranger badge was actually pressed out of a silver Peso from Mexico. Badge is stamped on both sides – notice the Peso imprint on the back



Hedgehog Vs enemy Subs

From Wikipedia, the free encyclopedia
[https://en.wikipedia.org/wiki/Hedgehog_\(weapon\)](https://en.wikipedia.org/wiki/Hedgehog_(weapon))

The Hedgehog (also known as an Anti-Submarine Projector) was a forward-throwing anti-submarine weapon that was used primarily during the Second World War. The device, which was developed by the Royal Navy, fired up to 24 spigot mortars ahead of a ship when attacking a U-boat. It was deployed on convoy escort warships such as destroyers and corvettes to supplement the depth charges.

As the mortar projectiles employed contact fuzes rather than time or bathymetric (depth) fuzes, detonation occurred directly against a hard surface such as the hull of a submarine making it more deadly than depth charges, which relied on damage caused by hydrostatic shockwaves. During World War II out of 5,174 British depth charge attacks there were 85.5 kills, a ratio of 60.5 to 1. In comparison, the Hedgehog made 268 attacks for 47 kills, a ratio of 5.7 to 1.

Development

The "Hedgehog", so named because the empty rows of its launcher spigots resembled the spines on the back of a hedgehog, was a replacement for the



A Mark-15 Hedgehog launcher on display at the USS Silversides museum in Muskegon, Michigan



USS Sarsfield after firing dual Hedgehogs, 1950



USS Moberly makes a Hedgehog attack against U-853 in 1945



A large white upwelling of water from an underwater explosion just ahead of Moberly's bow following Hedgehog launch

unsuccessful Fairlie Mortar that was secretly tested aboard HMS Whitehall in 1941. The Fairlie was designed to fire depth charges ahead of a ship when attacking a submarine. The principle of



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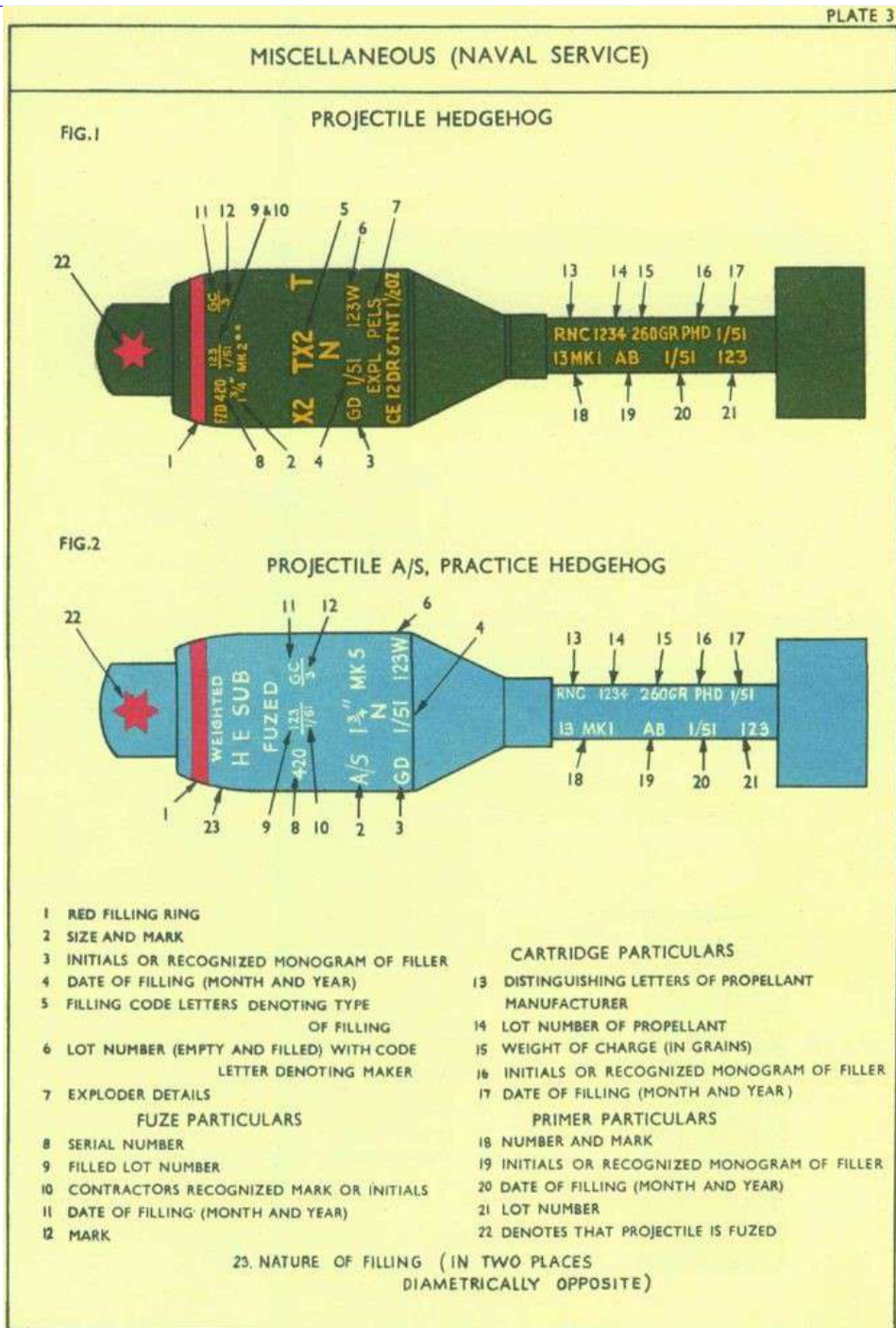
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firing projectiles forwards, instead of dropping depth charges over the stern, was considered viable, despite the failure of the Fairlie. This research by the Directorate of Miscellaneous Weapons Development (DMWD) led to the development of the Hedgehog.

The weapon was a multiple 'spigot mortar' or spigot discharger, a type of weapon developed between the wars by Lieutenant Colonel Stewart Blacker, RA. The spigot mortar was based on early infantry trench mortars. The spigot design allowed a single device to fire warheads of different sizes. The propelling charge was part of the main weapon and worked against a rod (the spigot) set in the baseplate which fitted inside a tubular tail of the 'bomb'. This principle was first used on the Blacker Bombard 29 mm Spigot Mortar and the later PIAT anti-tank weapon.

The adaptation of the bombard for naval use was made in partnership with MIR(c) under Major Millis Jefferis, who had taken Blacker's design and brought it into use with the Army. The weapon fires a salvo of 24 bombs in an arc, aimed to land in a circular or elliptical area about 100 feet (30 m) in diameter at a fixed point about 250 yards (230 m) directly ahead of the attacking ship. The mounting initially was fixed but was later replaced by a gyro-stabilised one to allow for the rolling and pitching of the attacking ship.

The system was developed to solve the problem of the target submarine disappearing from the attacking ship's ASDIC when closer than the sonar's minimum range. The speed of sound in water was such that the time taken for the 'ping' echo to return to the attacking ship from a close-by target submarine became too short to allow the human operator to distinguish the returning audible echo



from the initial sound pulse emitted by the sonar – the so-called "instantaneous echo", where the output sound pulse and returning echo merge, with the submarine still out of depth charge range.

A submarine in this "blind spot" became effectively invisible to the sonar, allowing it to make evasive manoeuvres undetected.

The solution was a weapon mounted on the foredeck that discharged the projectiles up and over the ship's bow while the submarine was still detectable by the sonar, entering the water some distance in front of the ship.

History

The Hedgehog entered service in 1942. Carrying a 16 kg (35 lb) Torpex charge, each mortar projectile had a diameter of 18 cm (7.1 in) and weighed about 29.5 kg (65 lb). The spigots were angled so the projectiles would land in a circular pattern with a diameter of 40 m (130 ft), about 180 m (590 ft) ahead of the ship's position. The projectiles would then sink at about 7 m/s (23 ft/s). They would



Anti-Submarine Weapons: Hedgehog, a 24 barrelled anti-submarine mortar mounted on the forecastle of HMS Westcott.

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reach a submerged U-boat, for example at 200 ft (61 m) in under 9 seconds. Sympathetic detonation of projectiles near those contacting hard surfaces was a possibility, but the number of explosions counted was usually fewer than the number of projectiles launched.

The prototype launcher was tested aboard HMS Westcott in 1941, but there were no submarine kills until November 1942, after it had been installed aboard one hundred ships. Initial success rates, of about 5%, were only slightly better than depth charges. Swells and spray frequently covered the launcher during heavy North Atlantic weather, and subsequent attempts to launch from the soaked launcher were often hindered by firing circuit problems, launching an incomplete pattern. A depth charge total miss would still produce an explosion, leading crews to think that they might have damaged their target or at least demoralised its personnel; a Hedgehog miss was discouragingly quiet. The Royal Navy launched Hedgehog so seldom in early 1943 that a directive was issued ordering captains of ships equipped with Hedgehog to report why they had not used Hedgehog on an underwater contact. The results were blamed on crew inexperience and low confidence in the weapon. However, after an officer from the DMWD was sent to the base at Londonderry, where the escort vessels were based, with better training and shipwide talks on examples of successful Hedgehog attacks, the kill rate improved considerably. By the end of the war, statistics showed that on average, one in every five attacks made by Hedgehog resulted in a kill (compared with less than one in 80 with depth charges).

In response to this new deadly threat to its U-boats, the Kriegsmarine brought forward its programme of acoustic torpedoes in 1943, beginning with the Falke. These new "homing" acoustic torpedoes could be employed effectively without the use of a periscope, providing submarines a better chance to remain undetected and evade counterattack.

In the Pacific Theatre, the USS England sank six Japanese submarines in a two-week period with the Hedgehog in May 1944.

In 1946, the destroyer escort USS Solar was destroyed while unloading ammunition when a crewman accidentally dropped a Hedgehog charge

near one of her main turret ammunition rooms, triggering three devastating explosions that wrecked the superstructure.

Operational usage

The launcher had four "cradles", each with six launcher spigots. The firing sequence was staggered so all the bombs would land at about the same time. This had the added advantage of minimising the stress on the weapon's mounting so that deck reinforcement was not needed, allowing the weapon to be easily retrofitted at any convenient place on a ship. Reloading took about three minutes.

The Hedgehog had four key advantages over the depth charge:

An unsuccessful attack does not hide the submarine from sonar.

When a depth charge explodes, it can take 15 minutes before the disturbance can settle down enough that sonar becomes effective. Many submarines escaped during the time after an unsuccessful depth charge attack. Since Hedgehog charges only explode on contact, sonar tracking of the submarine is less likely to be disrupted by an unsuccessful Hedgehog attack.

Proximity weapons (such as depth charges) need to be set for the target's correct depth to be effective. Contact-fuzed charges do not have that limitation, and an explosion at the time predicted for the contact-fuzed projectile to reach the target depth may indicate a "hit".

However, although knowledge of target depth was less important, the Hedgehog was less successful against deep targets. Doctrine based on combat experience discouraged use on targets deeper than 400 feet (120 m).

There is no "blind period" allowing the submarine to escape undetected.

Until depth-finding sonar became available (the first was the Royal Navy's Q attachment in 1943), there was a "dead period" during the final moments before a depth-charge attack began when contact with the target would be lost. U-boat commanders became adept at sharp course changes and direction speed at these moments to break contact and escape. Hedgehog remained usable while the submarine was detectable by sonar giving it no time to take evasive actions.

A direct hit by a single Hedgehog bomb was usually sufficient to sink a U Boat.

Many depth charges were required to inflict enough cumulative damage to sink a U Boat; even then, many survived hun-

dreds of detonations over a period of many hours. For example, U-427 survived 678 depth charges dropped against it in April 1945. The effectiveness of the depth charge was reduced because they detonated at a set depth at a distance away from the submarine, the explosive shock was rapidly dissipated by a cushion of water between it and the target. In contrast the Hedgehog charge exploded in direct contact with the hull. However, misses with the Hedgehog were silent and did not cause any damage unlike the cumulative damage caused by depth charging; nor did it have the same psychological effect as a depth charge attack.

Derivatives and successors

In late 1943 the Royal Navy introduced Squid. This was a three-tubed mortar that launched depth charges. Initially it was used as a single weapon, but when this failed to be successful, it was upgraded to the "double squid" that consisted of two launchers placed in parallel. In 1955 this system was upgraded to the three-barrelled Limbo that launched 400 lb (180 kg) Minol charges.

The United States produced a rocket version of Hedgehog called Mousetrap, then Weapon Alpha as a replacement for both. Still, Hedgehog remained in service with the United States Navy into the Cold War until both Hedgehog and the less satisfactory Weapon Alpha were replaced by ASROC.

Three "Hedgerow" flotillas of specialized Landing Craft Assault boats carrying the Hedgehog instead of troops were used during the Normandy landings. An addition of impact fuse extensions in the projectile noses enabled detonating the warheads above ground. The bombs were used to clear 100-yard-wide paths through mines and barbed wire obstacles on the beach.

The Australian Army adapted the marine Hedgehog into a land-based seven-shot launcher that could be mounted on the back of Matilda tanks.

In 1949, a copy of Hedgehog was created in the USSR called the MBU-200, which was then developed in 1956 into the MBU-600 with an increased range of 644 metres (2,113 ft).

Weapons derived from the Hedgehog have been largely phased out from Western navies in favour of homing torpedoes, and in Russia and allied states like India by anti-submarine rocket launchers like the RBU-6000.

General characteristics

Ammunition

Weight: 65 lb (29 kg)

Shell diameter : 7.2 in (183 mm)

Shell length: 3 ft 10.5 in (1,181 mm)

Explosive charge: 30 lb (14 kg) TNT or 35 lb (16 kg) Torpex

Range: about 250 yd (230 m)

Sinking speed: 22 to 23.5 ft/s (6.7 to 7.2 m/s)

Fuze: Contact, high explosive

Launcher

Firing order: Ripple in pairs, one every tenth of a second

Reload time: ~3 minutes

Variants

Mark 10: elliptical pattern measuring about 140 by 120 feet (43 m x 37 m) to a range of 200 yards (180 m).

Mark 11: circular pattern measuring 200 feet (61 m) in diameter out to a range of about 188 yards (172 m).

Mark 15: pattern as for the Mark 11 but mounted on a platform adapted from that of a quadruple 40 mm Bofors gun mount. The Mark 15 could be fired remotely from the ship's plotting room.



The Hedgehog anti-submarine weapon on board HMAS Murchison in the Han estuary, Korea 1951

Spigot mortar Granatenwerfer 16 <https://en.wikipedia.org/wiki/>

The kleine Granatenwerfer 16 or Gr.W.16 (Small Grenade Launcher Model 1916) in English, was an infantry mortar used by the Central Powers during the First World War. It was designed by a Hungarian priest named Father Vécér and was first used by the Austro-Hungarian Army in 1915. In Austro-Hungarian service, they received the nickname "Priesterwerfers". In 1916 Germany began producing a modified version under license for the Imperial German Army

Background

the concept of fighting an offensive war of rapid maneuver which before mechanization meant a focus on cavalry and light horse artillery firing shrapnel shells at formations of troops in the open. The problem facing the combatants was that their light field guns were designed for direct

German light mortar M 16 at the Wehrtechnische Studiensammlung, Koblenz, Germany



A high-explosive fragmentation grenade.

A Granatenwerfer 16 in action with German Seebataillon troops in Flanders during 1917



The majority of military planners before the First World War were wedded to

pocked quagmire of no man's land. What

fire and only had limited angles of elevation and were not capable of providing the high-angle indirect fire needed to deal with enemy troops in dug-in positions.

The simple expedient was to elevate the guns by having them fire from pits but the size and weight of the guns were excessive and pack animals could not move the guns in the trenches or across the shell-

the theorists had not foreseen was that land mines, trenches, barbed wire, and machine guns would rob them of mobility and as the Western Front stagnated into trench warfare the light field guns that the combatants went to war with began to show their limitations.

Often defenders would wait out a preparatory artillery bombardment in reinforced dugouts and once the bombardment had lifted they would man their trenches and machine-gun nests in anticipation of an enemy attack across no man's land. Barbed wire was often used to channel attackers away from vulnerable areas of the defender's trenches and funnel attackers into predefined kill zones where overlapping fields of machine-gun fire could be brought to bear or to hold attackers at a safe distance to call in defensive artillery fire. The ma-



An Austrian Granatenwerfer set up for direct fire

a gunner and a loader. The projectile was similar in size and construction to a hand grenade with a hollow center tube with tail fins that slid over the spigot. The Granatenwerfer 16 was light enough to be carried across no man's land while other weapons like the 147 kg (324 lb) 7.58 cm Minenwerfer or the 483

kg (1,065 lb) 17 cm mittlerer Minenwerfer were sometimes too heavy to be transported easily across rough ground. The Granatenwerfer 16 could be broken down into two parts with the launcher weighing 24 kg (53 lb) and the baseplate weighing 16 kg (35 lb).

chine-gun nests could be constructed of sandbags, timber, corrugated metal, and concrete with overhead protection. For infantry advancing across no man's land, all they may see is a small horizontal opening at waist level, with just the top of the gun shield showing. Attacking infantry would have to close on these positions while under fire and destroy them with rifle fire, grenades, and flamethrowers.

Production

The problem for the attacker was they lacked light, portable, simple, and inexpensive firepower that could be brought with them to overcome enemy machine gun nests by low-angle direct fire and partially exposed troops in trenches by high-angle indirect fire. Early on the combatants experimented with crossbows, catapults, and slingshots to propel hand grenades with limited success. Eventually, most combatants settled on hand grenades, rifle grenades, and trench mortars. However, there was still a niche between grenades and trench mortars which the Granatenwerfer 16 filled.

There was an earlier unsuccessful Granatenwerfer 15 that was a copy of the Austro-Hungarian design that went into production in 1915. The grenades were slightly larger in diameter, more round in shape, and had different tail fins than the cylindrical Granatenwerfer 16 grenades. The Granatenwerfer 16 was an inexpensive and easy to produce weapon with few moving parts. Nothing required expensive materials or precise machining which meant it could be produced by companies with simple casting and forging facilities that were accustomed to loose tolerances. Each manufacturer built slightly different weapons with only minor differences but they were still able to fire the same ammunition.

Design

The Granatenwerfer 16 was a type of spigot mortar. Rather than being a muzzle-loaded weapon like a Stokes or Brandt mortar where the projectiles slide down a tube until it hits a firing pin to launch the projectile, the Granatenwerfer had a short metal spigot that was attached to a base that was adjustable for traverse and elevation. The Granatenwerfer 16 had a two-man crew consisting of

Ammunition

The Granatenwerfer 16 could fire a variety of different types of grenades like smoke, high-explosive, illumination, and even a propaganda grenade that could deliver leaflets. But the most common type was high-explosive fragmentation that weighed 1.8 kg (3 lb 15 oz) with 400 g (14 oz) of explosives to a minimum range of 50 m (55 yd) and maximum range of 460 m (500 yd). Compared to 450–680 g (1–1.5 lb) to a maximum range of 160–183 m (175–200 yd) for a rifle grenade. When used as a direct fire weapon the grenade could fill a 5 m (5.5 yd) and 50 m (55 yd) long area with metal fragments and when used for high-angle indirect fire the grenade could fill a 30 m (33 yd) area with fragments. However, the grenades were more accurate when used for indirect fire. The Granatenwerfer 16 tended to be used for anti-personnel work while the heavier trench mortars firing high-explosive shells were tasked with destroying enemy dugouts and barbed wire.

Firing procedure

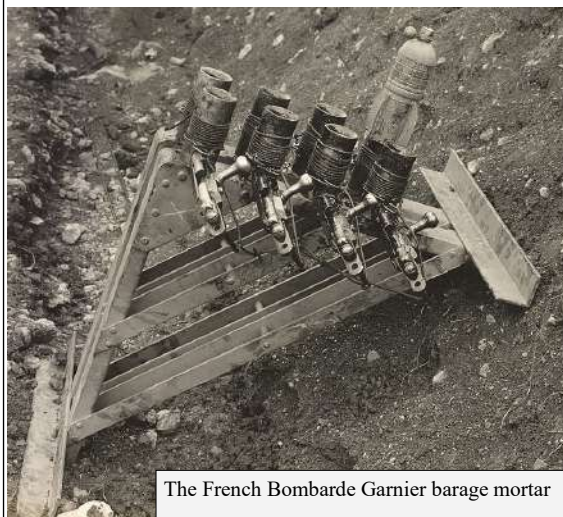
To fire, the gunner would adjust the angle of the spigot for the desired range and direction, cock the firing mechanism, then rotate the safety lever to the "safe" position. The loader would then insert a contact fuse into the nose of the grenade, slide the grenade onto the spigot, remove the fuse safety pin, and the gunner would fire it by pulling on a lanyard that detonated a 7.92 mm blank cartridge in the base of the grenade. Because of the recoil, it was recommended that the Granatenwerfer 16 be operated from the left so that the gunner could see the notches on the traverse and elevating mechanisms. A well-drilled crew could fire 4-5 rounds per minute or up to 250-300 rounds per hour.

An advantage of the Granatenwerfer 16 was that it was quiet compared to other weapons. The French nicknamed the grenades "Pigeons" or "Turtledoves" because they made a whirring sound while flying through the air. Often not being heard until they were directly overhead leaving little time to take cover. The lightweight grenades, low velocity, and sensitive crush fuses also meant that the grenades did not sink too deeply on soft ground, enhancing the effectiveness of their fragments. In 1917 a new bouncing grenade was developed that had a small powder charge in the head, and when the grenade hit, the charge would ignite, propelling the grenade 1 m (3 ft 3 in) into the air and then explode, increasing its blast radius.

The Granatenwerfer 16 was normally placed in either the first or second line of trenches. The most efficient number of Granatenwerfers was four per company section of the front. They were normally dispersed at 18 m (20 yd) intervals so no more than two could be destroyed by a single round of enemy counter-battery fire and because battery commanders had a hard time controlling more than four using voice commands, and hand signals without tipping off the enemy. Granatenwerfers could be used to engage troops that had emerged from their dugouts after preparatory bombardments by heavier weapons. Since the Granatenwerfer 16 had a high rate of fire and good accuracy, enemy trenches could be saturated with fire, forcing the enemy to take cover in their dugouts which allowed attacking infantry to cross no man's land unmolested and arrive at their trenches before the defenders had time to react.

Allied equivalents

The allies lacked a direct equivalent to the Granatenwerfer 16 for most of the war. However, in 1917 the French introduced the Bombarde Garnier which was a barrage mortar with eight spigots. The grenades that the Bombarde Garnier fired were very similar to the Granatenwerfer 16 and they were propelled by a blank cartridge with a firing mechanism taken from the Fusil Gras mle 1874



The French Bombarde Garnier barrage mortar

Puckle Gun: The Early Machine Gun that fired both round and square bullets.

Clare Fitzgerald,
War history on line
Many consider the Maxim to be the world's first machine gun – and they're technically not wrong. Developed in

believed only two were manufactured: the prototype, made from iron, and one full-scale production model, constructed from brass. The ability to fire



tripod-mounted gun was that it was designed to fire both circular and square bullets. The circular rounds were designed to operate under the intended configuration, while the square bullets were targeted against the Ottomans.

1884, it was the first automatic machine gun, but there were rudimentary models developed well over a century prior. One was the Puckle Gun, which not only failed to see use on the battlefield, but also fired both round and square bullets, making it a one of a kind weapon.

At the time, it was (incorrectly) believed the latter would cause more serious injuries, which would, in turn, “convince the Turks of the benefits of Christian civilization.”

The Puckle Gun never saw action on the battlefield

Development of the Puckle Gun
The Puckle Gun came from the mind of James Puckle, a British lawyer, inventor and writer. He was aware that the Royal Navy was struggling to combat Ottoman pirates, and thus began designing a gun that could serve as a rapid-fire anti-boarding weapon.

nine rounds per minute
The Puckle Gun, as it became known as, was a single-barrel flintlock weapon fitted with a manually-operated revolving cylinder.

As the 1717 trials showed, the Puckle Gun had some serious issues it couldn't overcome. The flintlock mechanism was faulty, and the system itself was far too complicated to mass produce. Some pamphlets even joked that it was more likely to hurt the person operating it, rather than the intended target.

In 1717, Puckle submitted a prototype of his gun to the Board of Ordnance for trials, which immediately rejected it over issues with the flintlock mechanism. This didn't stop him, however, from filing a patent the following year.

Consisting of a three-foot-long barrel, its cylinder had the ability to fire nine rounds per minute – an impressive total, given more traditional muskets could only fire three. Depending on the configuration, between six and 11 bullets could be stored in it at any one time.

Given these issues and the lack of faith in the weapon, the Puckle Gun never saw the battlefield. While a shipping manifest related to John Montagu, 2nd Duke of Montagu, Master-General of the Ordnance's unsuccessful invasions of St. Lucia and St. Vincent says two were acquired, there's no evidence to prove they ever saw action.

While he now legally owned his design, Puckle failed to find enough investors to mass produce the gun. While the exact totals are unknown, it's widely

Operators could fire the Puckle Gun much the same way they did a traditional flintlock musket. After each shot, the crank at the rear revolved, allowing the shooter to manually turn the cylinder to the next chamber.

Once sealed, the mechanism was primed for firing.

The interesting thing about the

A.D. 1716. MAY 13. N^o. PUCKLES SPECIFICATION (3rd Edition)

Puckle Gun advertisement, 1718. (Photo Public Domain) (1 SHEET)

A Defence
Defending KING GEORGE your COUNTRY and LAWS
In Defending YOURSELVES and PROTESTANT CAUSE.

Invented by
MR JAMES PUCKLE
For Bridges, Branches, Lines and Passes,
Ships, Boats, Houses and other Places.

Mr. The Invention can be made to
Discharge Grenado's Shells as well as Bullets

1. The Barrel of the Gun
2. The Stock of the Gun
3. The Trigger
4. The Revolving Cylinder
5. The Crank
6. The Lock
7. The Hammer
8. The Flint
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10. The Sight Vane
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Japanese ashigaru firing hinawajū. Night-shooting practice, using ropes to maintain proper firing elevation

Tanegashima (gun)

From Wikipedia, the free encyclopedia

Tanegashima (種子島, most often called in Japanese and sometimes in English hinawajū (火縄銃, "matchlock gun"), was a type of matchlock-configured arquebus firearm introduced to Japan through the Portuguese Empire in 1543. It was used by the samurai class and their ashigaru "foot soldiers", and within a few years its introduction in battle changed the way war was fought in Japan forever. It, however, could not completely replace the yumi (longbow). Although the Japanese developed various techniques to improve the gun's shortcomings, specifically its slow rate of fire and inability to fire in the rain, it remained inferior to the yumi in these respects, and the latter continued to be an important weapon on the battlefield. After Tokugawa Ieyasu destroyed the Toyotomi clan in the siege of Osaka and established the Tokugawa shogunate, the relatively peaceful Edo period arrived, and the use

of tanegashima declined.

History

Origins

The tanegashima seems to have been based on snap matchlocks that were produced in the armory of Goa in Portuguese India, which was captured by the Portuguese in 1510.

The name tanegashima came from the Japanese island (Tanegashima) where a Chinese junk with two Portuguese adventurers on board was driven to anchor by a storm in 1543. The lord of the Japanese island, Tanegashima Tokitaka (1528–1579), purchased two matchlock muskets from the Portuguese and put a swordsmith to work copying the matchlock barrel and firing mechanism. The smith, Yaita Kinbee Kiyosoda, did not have much of a problem with most of the gun but "drilling the barrel helically so that the screw (bisen bolt) could be tightly inserted" was a major problem as this "technique did not apparently exist in Japan until this time." The Portuguese fixed their ship and left the island, and only in the next year, when a Portuguese



Ashigaru using tanegashima from behind wooden pavises.

blacksmith was brought back to Japan, was the problem solved.

Within ten years of its introduction, over 300,000 tanegashima firearms were reported to have been manufactured.

Sengoku period

Much of Japan was involved with internecine wars during the Sengoku period (1467–1603), as feudal lords vied for supremacy. Matchlock guns were introduced midway through the period and saw extensive use in the later years of the



Antique Japanese samurai tanegashima pistol



Various antique tanegashima



Moern tanegashima matchlock reenactors in Japan

At right :Reenactors with tanegashima at Himeji Castle Festival



conflict, playing a decisive role on the battlefield. In 1549, Oda Nobunaga ordered 500 guns to be produced for his armies at a time when the benefits of firearms over traditional weapons were still relatively questionable to other daimyō. However the new firearm had undoubted advantages in range in comparison with traditional bows. In addition, bullets could penetrate almost any armor and shield.

Joseon official Ryu Seongryong quoted:

In the 1592 invasion, everything was swept away. Within a fortnight or a month the cities and fortresses were lost,

cause the Japanese had the use of muskets that could reach beyond several hundred paces, that always pierced what they struck, that came like the wind and the hail, and with which bows and arrows could not compare.

But a significant drawback was the high price of each musket and the long production time. Ryu Seong-ryong:

However, the musket is a very intricate instrument, and very difficult to produce. The Jixiao Xinshu [written by Qi Jiguang in 1560 says one month for boring the barrel is optimal—that is, one musket takes the labor of one person for one month before it is ready for use. The dif-

ference between the Japanese and the Korean was that the Japanese had the use of muskets that could reach beyond several hundred paces, that always pierced what they struck, that came like the wind and the hail, and with which bows and arrows could not compare. Protective boxes in lacquerware were invented to fit over the firing mechanism so it could still fire while it was raining, as were systems to accurately fire weapons at night by keeping fixed angles thanks to measured strings. Another development would be the hayago, a bamboo cartridge used to facilitate faster reloading. A hollow tube open at both ends, the hayago contained gunpowder, wadding, and a bullet. Upon tearing open the tube's paper seal at the bottom, a soldier could quickly use it to pour the necessary powder into his weapon before placing over the barrel and using his rammer to load both wadding



Tan-zutsu



O-zutsu



Gunners from the Matsumoto Castle Gun Corps loading a zama-zutsu.

and everything in the eight directions had crumbled. Although it was [partly] due to there having been a century of peace and the people not being familiar with warfare that this happened, it was really be-

cause the effectiveness of their guns. They developed a staggered firing technique to create a continuous rain of bullets on the enemy. They also developed larger caliber barrels and ammunition to increase

lethality. In recent days, the muskets used by the supervisorate have all been captured Japanese weapons. There are not many and they frequently burst, becoming fewer by the day.

The Japanese soon worked on various techniques to improve the effectiveness of their guns. They developed a staggered firing technique to create a continuous rain of bullets on the enemy. They also developed larger caliber barrels and ammunition to increase

lethality. and bullet into the barrel at the same time. After use, the hayago could be kept for repacking or discarded.

In 1563 the Amago clan of Izumo Province won a victory over the Kikawa clan with 33 of their adversaries wounded by tanegashima. In 1567, Takeda Shingen announced that, "Hereafter, the guns will be the most important arms, therefore decrease the number of spears per unit, and have your most capable men carry guns". Oda Nobunaga used tanegashima in the Battle of Anegawa (1570), and again against the powerful Takeda clan in the Battle of Nagashino (1575), 3,000 gunners helped win the battle, firing by volleys of a thousand at a time. They were concealed

across a river and used breastworks to effectively stop enemy infantry and cavalry charges while being protected. The defeat of the powerful Takeda clan brought about permanent changes in battle tactics. In the Battle of Numajiri (1584), Satake Yoshishige won against Hojo clan, due in part to the use of over 8600 matchlock rifles by their troops.

Japan became so enthusiastic about the new weapons that it possibly overtook every European country in absolute numbers produced. Japan also used the guns in the Japanese invasion of Korea in 1592, in which about a quarter of the invasion force of 160,000 were gunners. They were extremely successful at first and managed to capture Seoul just 18 days after their landing at Busan.

Edo period

The internal war for control of Japan was won by Tokugawa Ieyasu, who defeated his rivals at the Battle of Sekigahara in October 1600. Three years later, he established the Tokugawa shogunate, a powerful entity that would maintain peace, stability, and prosperity in Japan

1854 started a period of rearmament. The tanegashima was an antiquated weapon by the 1800s and various samurai factions acquired advanced firearms including the minié rifle, breech-loading and repeating rifles. The samurai era ended in 1868 with the Meiji period; Japan turned to a national conscription army with modern weapons and uniforms. Some gunsmiths did replace their matchlock-type tanegashima into percussion cap mechanisms while retaining its design as a musket. The last use of samurai armour and traditional weapons in Japan, including tanegashima, was during the Satsuma Rebellion (1877), when the Meiji government's newly established Imperial Japanese Army put an end to the last samurai and their resistance to modernization.

Classifications of different guns

Japanese arquebuses are classified by the location of their native gunsmiths as well as with the weight of the ball by momme.

Ban-zutsu (numbered cylinder)

The most common users of the tanegashima were peasant foot sol-

gun caliber was needed to equip the ashigaru formations that encountered these obstacles; the chu-zutsu was such a solution.

O-zutsu (great cylinder)

Guns of the o-zutsu caliber (20 momme (≈ 75 g (2.6 oz)) and more) were practically portable hand cannons and were used as siege weapons employed to knock down the hinges of gates as well as powerful anti-personnel and anti-cavalry weapons. A gun of this size was typically hard to operate (though varying on the momme), requiring plentiful amounts of gunpowder and proper training. One of the issues of operating such device was the powerful recoil and the difficulty of transporting, where sometimes larger o-zutsu were either rested on rice bales, hung from trees using ropes, or installed on a carriage (similar to European cannons).

Samurai-zutsu (samurai cylinder)

The samurai-zutsu guns were custom-made for use only by the samurai, whose high social standing and wealth meant they could afford well-crafted and intricately designed guns which were longer



Edo-period tanegashima firing mechanism



for the following 250 years. This is known as the Edo period (1603–1868). From the mid-17th century, Japan decided to close itself to interaction with the West except for the Dutch Republic through its policy of sakoku. Contrary to popular belief, this did not lead to Japan "giving up the gun"; if anything, the gun was used less frequently because the Edo period did not have many large-scale conflicts in which a gun would be of use. Often the katana was simply the more practical weapon in the average small-scale conflicts.

Isolation did not eliminate the production of guns in Japan—on the contrary, there is evidence of around 200 gunsmiths in Japan by the end of the Edo period. However, the social life of firearms had changed: as the historian David L. Howell has argued, for many in Japanese society, the gun had become less a weapon than a farm implement for scaring off animals.

With no external enemies for over 200 years, tanegashima were mainly used by samurai for hunting and target practice, the majority were relegated to the arms store houses of the daimyō.

The arrival in Japan of the United States Navy led by Matthew C. Perry in

diers commanded by the samurai, the ashigaru. Where warfare changed during the Sengoku era exponentially with massed pike, archer, and eventually arquebus formations, large quantities of guns were needed and produced to equip the teppogumi (gun units) of the feudal Japanese armies.

As these guns were primarily used by the ashigaru, they were of low quality and were stored in arsenals where they could be used again.

Tan-zutsu (small cylinder)

Tan-zutsu were generally matchlock pistols that due to their inferior range and firepower compared to the ban-zutsu, were not best suited in open field battles and were instead used as status symbols for mounted samurai. They were occasionally used for self-defense by high ranking commanders. Chu-zutsu (middle cylinder)

At the advent of firearms, Japanese armies had to come up with reliable ways of repelling the widespread use of guns; whether it would be the creation of metal and soon bullet-proof armor, standing bamboo bundles tied together or heavy iron pavises. With the caliber of the ban-zutsu being too weak to penetrate these protection methods, a new, yet harder to handle and expensive gun with a larger

and of larger caliber, as opposed to the cruder and inferior quality ban-zutsu used by the ashigaru.

Hazama/Zama-zutsu (loop hole/hole cylinder)

Hazama-zutsu or zama-zutsu guns were generally longer than most guns and had a smaller caliber than even the ban-zutsu. These guns were used on castles and ships primarily as long range defensive weapons.

Bajo-zutsu (horse riding cylinder)

As the tan-zutsu became a status symbol among the kibatai (cavalry), it eventually made its way into becoming a cavalry gun. These guns were similar in structure to the tan-zutsu, but had a longer barrel and were fairly easy to reload on horseback.

Shateki-zutsu (target cylinder)

Shateki-zutsu were made purely for the purpose of target practice.

Modern use

A modern hōjutsu gunner.

Today tanegashima are readily available from sellers of antique firearms and dealers of samurai antiques both in Japan and the West. Modern tanegashima gun troops in Japan re-enact the use of tanegashima in battle, and black powder enthusiasts use tanegashima for target practice.



The Javelin Close Combat Missile System – Medium (CCMS-M) is a man-portable, medium-range tactical missile system that provides the U.S. Army and Marine Corps with precision direct-fire effects to defeat main battle tanks and other armored vehicles.

The Javelin Missile Is Feared And Incredibly Deadly, Here's How It Works

By Jesse Beckett - War history on line

The Javelin missile is part of a long line of systems designed to allow infantry to deal with armored targets. This formidable weapon came into service in the 1990s and is capable of dealing with tanks, buildings and even helicopters. Since its introduction, 5,000 Javelin missiles have been launched, and the system has become a fundamental asset for the infantry.

The battle between man and armor has been ongoing since the dawn of warfare. Whether the means of protection is leather, a shield or a full suit of armor, man has worked to overcome it. This competition has been mostly back and forth, but the advent of explosives, cannons, bombs and guns rendered most forms of protection obsolete. The arrival of the tank on the battlefields of WWI suddenly changed this though. There was little infantry could do stop these steel beasts. K bullets and anti-tank rifles are examples of early attempts to provide infantry with a portable means of dealing with tanks, but these were quickly dealt with by increasing armor thickness.

Infantry versus tanks

When WWII came around tanks carried even more armor and were essentially invulnerable to anything carried by the infantry. They could reliably be stopped by mines, traps, artillery, dedicated anti-guns or aerial attacks, but none of these could easily be carried by one man.

WWII saw a number of man-portable anti-tank weapons enter service, like the Bazooka and Panzerfaust, but these required the operator to be uncomfortably close to the target.

In the years after WWII, there were some leaps in portable anti-tank weapon developments. Weapons like the M47 Dragon and the TOW missile helped the situation considerably, as they offered enormous armor penetration capabilities and much better range. However, neither of these systems was perfect; their wire guidance meant the operator had to stay in one location and they emitted violent backblasts. The M47 Dragon had a range of less than a mile, which puts the user within the range of a tank's heavy machine guns.

These drawbacks meant the operators of these weapons were vulnerable to return fire.

The Javelin missile

The FGM-148 Javelin missile solved these drawbacks. Introduced in 1996, the Javelin quickly replaced the M47 Dragon, with the latter being withdrawn from service in 1990s and early 2000s.

The Javelin does away with wire guidance and instead uses an automatic infrared guidance system. It is a fire-and-forget weapon, so as soon as the missile is fired the user can relocate or take cover. Upon firing, the missile first experiences a "soft launch," which propels the projectile out of the launch tube without the flight motor igniting. After a short delay, the flight motor kicks in and powers the missile to the target. The advantages of a soft launch are twofold: it protects the user by reducing the effect of backblast associated with missile launchers, and reduces the amount of dust kicked up by the rocket motor.

After launch, the missile uses an

onboard infrared imaging and tracking system to accurately make its way to the target without any assistance from the operator. The weapon has a range of over 4,500 meters (2.8 miles), keeping the operator out of harm's way.

The actual high explosive anti-tank (HEAT) warhead itself is a tandem charge, the first of which detonates any explosive reactive armor to clear the way for the main charge. The main charge is able to penetrate 700 mm (27.5-inches) of steel.

One of the more interesting features of the Javelin is its top-attack ability. The missile can ascend to a maximum height of 150 meters and strike a tank from a steep trajectory.

This exposes the top armor to the missile, which is usually very thin. However, the Javelin is just as capable in a direct attack flight path, which is particularly useful against helicopters.

Its HEAT warhead is designed for the anti-armor role, but it can be equally deadly against buildings and unarmored vehicles. A multi-purpose warhead (MPWH) that is even deadlier against personnel was designed for the system. This features a devastating fragmentation warhead.

With the Javelin, infantry soldiers are no longer sitting ducks against tanks.

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Bovington tank museum

The Panzertrappe

Once real tanks were unveiled in WWI, dummy tanks emerged as well but they weren't used as much in WWI as they were in WWII. Both the Axis and the

Allies used dummy tanks during the war, and this right here is a German Decoy Tank or the Panzertrappe. The Germans

mostly used these tanks for training their forces, and they had both wooden and inflatable dummy tanks. The Panzertrappe was used in the campaign in North Africa before the Normandy Beaches'

landings.



Joseph Ambrose, an 86-year-old World War I veteran, attends the dedication day parade for the Vietnam Veterans Memorial in 1982. Wearing a doughboy uniform like the ones used during the war, he is holding an American flag. It covered the casket of his son Clement, who was killed in the Korean



6 June 1944 Paratrooper kit for D-Day



B-17 Flying Fortresses await scrap heap, 1946.



Women at work with high heels sandals and spanner



Monte Cassino