



Historical Arms & Military Society of Tasmania Inc.



Patron - LTCOL PETER HODGE RAA RFD RETD

Volume 40 Newsletter N. 4 – October, November, December 2024

Sergeant Lewis McGee

Unit: 40th Battalion

Date & Place of Action: 4 October



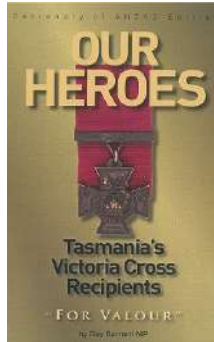
AUSTRALIAN WAR MEMORIAL

A02623

1917, near Leper, Belgium.

Lewis McGee was born in Campbell Town, Tasmania, on 13 May 1888. He was born the youngest of 11 children. Prior to the War, McGee was married with an infant daughter and working as an engine driver for the Tasmanian Department of Railways. He enlisted on 1 March 1916 at age 27. After enlisting, McGee was appointed to the 40th Battalion, which he joined for training in Claremont on 1 May 1916, followed by additional training in Britain, before heading to France in late November.

McGee was appointed a lance corporal on 23 May 1916 while still training in Tasmania, and on 4 December that same year, was promoted to corporal in Armentieres, France. On 12 January 1917, McGee became sergeant. On 4 October 1917, while McGee's battalion were involved in fighting in



Belgium, McGee undertook the following feat, earning him the Victoria Cross: "During an action McGee's platoon was suffering severely and his company's advance was halted by machine-gun fire from a pillbox. McGee

rushed the post armed only with a revolver, shooting some of the crew and capturing the rest, and enabling the



lery in Launceston.

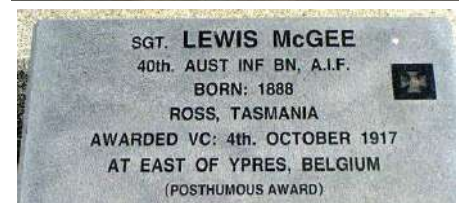
The McGee Soldiers Club at Anglesea Army Barracks, Hobart, is named in his honour.



advance to proceed. He reorganised the remnants of his platoon and led them through the rest of the advance."

McGee was acting Company Sergeant Major, when he was killed in action during the second battle of Passchendaele, at Augustus Wood, on the morning of 12 October 1917. He was 29 years old.

He is buried at Tyne Cot cemetery nearby. It is unlikely he was ever aware that he was recommended for the Victoria Cross for his bravery. McGee's Victoria Cross is currently held by the Queen Victoria Museum and Art Gal-





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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

I would like to use this space for passing to all the followers, members and families my best wishes for a merry Christmas and a safe, prosperous and happy new year. The President report said the lot already and I would like to add many thanks to all those people who worked hard, in the background, behind the displays and club activities

for the success, progress and thriving of "our" HAMST.

Also a great thank to Kristie Johnston for the printing of the Bulletin that is great not only for our members/followers but also a great media public relation means of publicising HAMST activities, attracting new members. By the way, HAMST bulletin is followed not only locally, interstate but also as

KRISTIE JOHNSTON
 INDEPENDENT MEMBER FOR CLARK
 PROUD SUPPORTER OF THE
 HISTORICAL ARMS AND MILITARY
 SOCIETY OF TASMANIA



far as Scotland, Great Britain, Spain, Italy and Switzerland. Thake care and see you next year. Vince



President report

As we are fast approaching the end of the year the society has been busy with many events, and activities for you all to enjoy. It is pleasing to note the enthusiasm of members and those in likeminded clubs who supported our annual Military History Fair this year. Although it is a huge task to put together, we had another very successful weekend which was due to the initiatives of members as they created, a variety of living history displays

for the weekend.

It is very pleasing to note that our society is active in the community with well attended meetings, active sub-groups and members volunteering weekly around the clubrooms.

With the help of our fantastic committee and many enthusiastic members we have lots to look forward to including, Remembrance events, Greek Christmas Dinner, Australian War Memorial visit 25, Bunnings BBQ fundraiser and lots more.

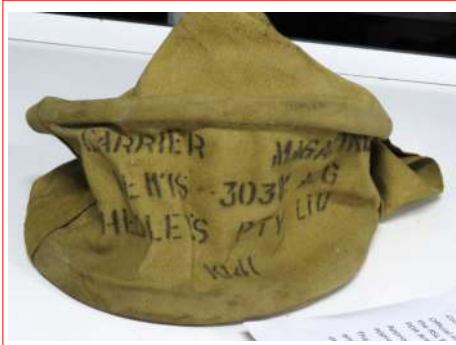
On behalf of the committee, we

all hope you have a safe and happy time with family and friends. Thank you all so much for all your volunteering to ensure we continue to have a vibrant society with of course - many laughs along the way.

Enjoy another Vinny newsletter masterpiece and keep an eye on the HAMST website.

Kind Regards

Steve Denholm
President



A cylindrical brown cotton, bag designed to hold three, forty seven round drum magazines for a Lewis machine gun. Carrier comes with two brass swivel fasteners, connecting brass eyelets and adjustable carrying strap. The carrier is made from cotton webbing with a rigid circular base and one internal cane reinforcing hoop. Stencilled to the outside of the carrier is text which reads 'CARRIER MAGAZINES .303 LEWIS GUN'.



From top :11th Hussars British Army Cap Badge
Cavalry Tank Corps 1715-1969
Ukraine Armoured Troops 1992 — present
Polish Army armoured troops 1960 -2024



Tasmania Police Firearms Services Rebecca Woodhouse and Paul Devine talking about firearms legislation



WW2 RAF original hat, manufacturer brand and original poster



A replica (for movie scenes) of the amphetamine like medication, used by the Wehrmacht to keep the soldiers fighting for days without rest.



German Afrika Corp (DAK) helmet
Below
trench art from Spanish Civil war 1936 to 1939



Top: Vendetta Corsa (Corsican revenge)
Middle Australian WWII SMLE M-1944 Machete
Bayonet and scabbard
Below Uzi Bayonet





Hobart celebrating the anniversary of the Battle of Britain with the ceremony at the Cenotaph (photo Mercury) during the RAAF Roulettes flyover. (photos V. Merlo) "Thirty-five Australians flew during the Battle of Britain. Of the 537 Royal Air Force fighter command pilots who were lost during the battle, at least 10 were Australian." Of these 10 Australians, two Tasmanians perished – Flight Lieutenant Stuart Crosby Walch of Hobart, and Flight Lieutenant Robert James Cosgrove, also of Hobart and son of former Tasmanian premier Robert Cosgrove. (Mercury source)



One more piece of information has been passed onto me regarding the Samurai sword displayed on the previous bulletin. The tag explain the provenance and the sword was broken by the Japanese officer rather than surrendering it intact to the Occupation Forces



Two French helmets, Adrian style, pre and WW1

2024 HAMST FAIR

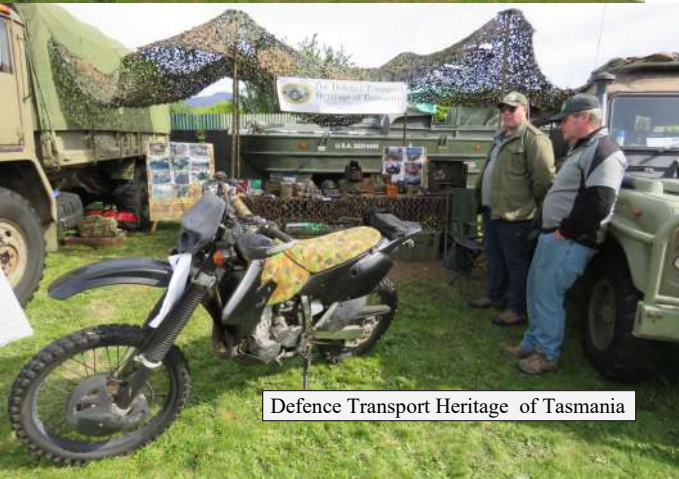


Australian Women's Land Army worker and garden



Red Ball Highway check point





The Defence Transport Heritage of Tasmania





Major Alice Ross-King

Australian war memorial

Alice Ross-King was born in Ballarat, Victoria, on 5 August 1887 to Archibald and his wife, Henrietta.

When Alice was still young the family moved to Perth, where as the result of an accident Alice's father and two brothers were drowned in the Swan River. Soon after this Alice and her mother returned to Victoria. Before the war Alice Ross-King trained as a nurse, and she became a theatre sister in charge of a private hospital in Collins Street, Melbourne.

She enlisted in the Australian Army Nursing Service in November 1914.

three other nurses, Dorothy Cawood, Mary Jane Derrer, and Clare Deacon, were awarded the Military Medal for their actions during the attack.

Alice Ross-King served as a nurse until the end of the war, upon which she returned to Australia. She married a doctor, Sydney Theodore Appleford, whom



During 1915 she served in hospitals and on hospital transport ships in Egypt and the Suez. In early 1916 she moved to France where she served with No. 1 Australian General Hospital and a sta-

tionary hospital before joining No. 2 Australian Casualty Clearing Station (2CCS), located close to the trenches at Trois Arbres near Armentières.



Sister Alice Ross-King c 1919

On the night of 22 July 1917 2CCS was attacked by German aircraft. Witness accounts describe nurses running to tents shattered by bombs to rescue patients, either carrying them to safety or placing tables over patient's beds in an effort to protect them. Alice and

she met on the return journey in 1919, and they settled in South Gippsland and had four children. In the 1930s Alice was involved in training Voluntary Aid Detachments (VADs) and during the Second World War she enlisted for full-time duty with the VADs. By 1942 the VADs had developed into the Australian Army Women's Medical Services and Alice Appleford was commissioned as a major and appointed senior assistant controller for Victoria.

She was awarded the Florence Nightingale medal in 1949 by the International Red Cross.

Alice Appleford died on 17 August 1968 at Cronulla, Sydney. An annual award is presented to a serving member of the Royal Australian Army Nursing Corps by the Ex-AAWMS Association to perpetuate her memory.



Major Alice Ross-King



Royal Red Cross, King George V, 1st Class, Great Britain



GMC-353-Bofors

A potent Allied SPAAG

The story of allied SPAAG (Self Propelled Anti-Aircraft Gun(s)) is one of lesser commitment to organic defence of its assets, since an air supremacy imbalance in favour of the latter was soon gained. This capabilities was seen as an afterthought by belligerents in 1940-41, but after the US entry into the war, the rapid ramping up of the British air power, then US from November 1942, marked the end, of axis air balance over Africa.

On the eastern front by mid-1943 already Soviet air force took the head and gradually gained supremacy. In Europe after June 1944, allied air supremacy was definitively gained and organic AA defence for the Wehrmacht became a priority. Tanks were of course prized based for SPAAGs such as the FlakPanzer I, 38(t), III, IV, Möbelwagen, Wirbelwind, Ostwind or the experimental Kugelblitz, but trucks were also converted for the purposes starting in Africa by 1942 already, in "portee": The AA gun was carried on the flatbed.

On the allied side, organic AA protection for armoured regiments was started by the British early on, which developed a specialist tank SPAAG, the Crusader AA Mk I-II-III, but they failed

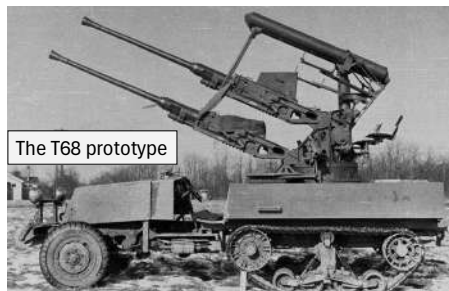


Crusader AA Mk III (nicknamed "Allahkeef") belonging to the 22nd Armored Brigade HQ, 7th (GB) Armored Division, Gold Beach on June 7, 1944

to do some impression, too slow in traverse. The US soon devised various SPAA based on its half-tracks in order to give them a better all-around mobility than trucks and support regiments. The M2 for example led to the T28E1 (1942) with a single 37 mm AA, tested with success in Africa. The M2 for a start had up to three MG with AA mounts, a cal.50 and two cal.0.3 on pintles with elevation. Before even that was developed the 1941 T1, later T1E3 with its Bendix turret (from a B-25 Mitchel bomber) and two .50 cal. machine guns, but it went nowhere. However more trials led to the adoption of the Maxton mount. In 1942 based on the M3 came the M13 SPAA and later the T16 SPAA with the M45 "Meat Chopper" quad .50 caliber turret which became the prime allied

SPAA until the end of the war. However few attempts had been made on regular trucks due to the availability of the better Half-Tracks.

The GMC 353 was the most common US tactical truck of WW2, with more than 570,000 made until 1945 at Detroit. Whether it was called "Jimmy", "Deuce and a Half" this bedrock of the red ball express in late 1944 allowed the allies to push forwards towards Germany and stayed supplied. Given ordnance rules and strict separations, these trucks were rarely declined into portee vehicles for any kind of ordnance. They



were only used for supply and transport, sometimes defended by their own ring-mounted cal.50 M1920 HMG.

Highly modular, the vehicle came as the open or closed cab, long (LWB) variant as CCKW-353 or short (SWB) variant as CCKW-352. The CCKW coupled a strong 6x6 chassis with the GMC 270 engine. This was an overhead valve, inline six cylinder, rated for 91.5 hp (68.2 kW), and later 104 hp (78 kW) at 2750rpm with 216 pound-feet (293 Nm) of torque at 1400rpm. It ran on gasoline but ran of civilian grade as well as of oil. Very reliable, this power unit was coupled with a Warner T93 5-speed transmission. Its manual gearbox counted a 4th gear and overdrive on 5th gear. The transfer case



had high and low gears engaging the front axle, and these axles were of the Timken split type and later the GM "banjo" type.

The CCKW 353 had a long or 164 in (417 cm) wheelbase. It had eight roadwheels with 7.50-20 tires, paired on rear axles, singles forward. The driver

had hydraulic brakes using vacuum. The were blackout driving lights, army towing hook, and foldable banks for the troop carrier. Some vehicles had a 10,000 lb (4,500 kg) front-mounted winch capable of 300 pounds (140 kg) of traction, and 14 inches (36 cm) wide.

Enters the Free French

Many of the former trucks delivered by lend-lease to the British Army were also sent to other allies, such as the Free French Forces, reconstituted as a 1st army under Gral De Latre fighting in Italy, and thrown into action in Operation Anvil Dragoon in France by August 1944. The French were US-supplied and thus, had to conform to US army's organisation, to the dismay of De Gaulle which did not want to "waste" men in non-fighting roles. Anyway, the French had their own organic supply train for their armoured brigade and notably the famous 2nd DB or second Division commanded by the brash and impatient. Philippe Leclerc de Hautecloque

The French in Italy were delivered seventy M16 Multiple Gun Motor Carriage (MGMC) and purchased many more on the stocks after the end of the war, to reach a total of perhaps 800, and still around 300 as late as 1983. It was well appreciated for its dense firepower, thanks to four cal.05 Browning HMGs



with the fast M45 mount. It was just deadly for low-flying aircraft. However against higher altitude aircraft, it clearly lacked the reach and punch to destroy their targets. As the previous SPAA were removed from service or reconverted, there were surplus earlier Maxson Mounts and some crafty work shoppers managed to create with available GMC-353 trucks an impromptu conversion in portee. This field variant



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was never standardized, but many were made, and later others were converted with the M45 Quadmount, especially if their platform was destroyed. Their greatest users were the French, again, which were more lenient about these conversions, and The French Army postwar used M45s based on trucks to deal with ambushes, a distant relative of Vietnam gun trucks. Four were present during the Battle of Dien Bien Phu.

However none so far through of bringing a heavier naval AA ordnance on these vehicles. The use of the 20 mm Oerlikon or the 40 mm Bofors were tested by the US but rejected due to



weight and space issues. Only the British managed to create a twin Polsten gun arrangement (lighter and smaller than the Oerlikons) on their half-tracks. The quad 0.5 in cal. in drum-like rotating mount -T37) was not adopted in 1941, neither the T10 with twin Oerlikon, which nearly entered service until cancelled due to the lack of 20 mm guns, already accaparated by the Navy. But the most outstanding and freaky conversion wads the twin tandem 40 mm Bofors T68 Multiple Gun Motor Carriage. Too heavy, unwieldy and unstable, it was cancelled in June 1943 as well as a single Bofors T54 and T54E1, and Elco Quad 20 mm M2.

The GMC 353 Bofors design

This conversion was done, giving some sources (see below) as early as September 1943. According to the photos, the French took the late open cab variant, which freed space notably forward to maximize the arc of fire of the gun, especially when folding the front windshield Like here. This allowed the gun to be depressed down to 90°, facing forward so it could be used in ground support, one of the missions of the vehicles, as the Luftwaffe in France by late 1944 was no longer really a threat.

The flatbed was kept but its metallic walls removed as well as the former back door. Instead, a bunk was built at the rear, for the gun crew to seat (3-4) containing also the ammunitions. More

ammo crates were stored nearby or fitted under the chassis, forward and rear, everywhere possible. Forward of the flatbed there was a bin containing the gun's maintenance kit and toolbox. Four jerrycans were also carried, suspended under the forward chassis close to the spare wheels, placed on either side of the open cab.

On this flatbed was installed the full mount of a usually towed, quad wheel chassis Mark I or II Bofors L/60. The conversion was definitive as no photos shows the removed wheels or other parts of the chassis. This installation, free from interferences by leaving the

flatbed flush-clean lacked however any form of protection today the least. In case of a bad encounter, the whole crew was easy meat. This was perhaps one reason why this installation was never adopted in US practice.

But this was more than compensated by the awesome firepower brought by the Bofors Bofors 40 mm/60 (1.57") Model 1936 (Mark I). Weighting 1,150 lbs. (522 kg), 148.8 in (3.780 m) long, it was capable of 120 rounds per minute cyclic per barrel nominal, 80 in practical conditions, and was able to fire the

HE Mark 1 Mods 1 to 24 - 1.985 lbs. (0.900 kg) round or even the AP M81A1 and M81A2 - 1.960 lbs. (0.889 kg) in ground support when available at 2,890 fps (881 mps) muzzle velocity. Barrel life was circa 9,500 Rounds. It could reach any target at 11,019 yards (10,076 m) at 42° elevation. Armour penetration was impressive as well, up to 2.70 inches point blank (69 mm), up to 1.2 inches or 30 mm at 2,000 yards (1,829 m) and 0.6 in or 15 mm at 4,000 yards (3,658 m). Only limitation was the stamina of the loaders, manipulating these heavy five-round cartridge (gravity feed) and skills of the operators and pointers, five men in all.

The GMC 353 Bofors development and in action

The origins of such conversions started withing the 22nd FTA, which included a battery command and 4 gun batteries, all towed Bofors. The command battery comprised a command, communications, supply, repair, material and health sections. Each battery consisted of two four towed guns and their prime movers, and a recce unit. The first photos of these vehicles were taken in the 22dn Colonial Group of Anti-Aircraft Land Forces and by 16 September 1943, the 3rd colonial artillery battery light DCA ("Defence Contre Avions") became organic of the famous 2nd Free French Division originally created in Chad, Africa, and was designed to protect the Leclerc column, under Captain Lecole. It was deployed 14 km south of Rabat and formed the basis for the 22nd Colonial AA Group.

In October-November the unit was under command of Captain Lancrenon which moved its unit to Camp Cazes in Casablanca, to defend the railways and depots against any incursion of Kesselring's remaining Luftwaffe assets from Sicily. The unit was reinforced by Jeeps, Dodge and Ford 3 t trucks and CMP trucks towed extra 40 mm Bofors



The Indochina variant



Mk1 and Mk2 Bofors. 17-19 November saw training with the 25th AA colonial Group, shooting at a fabric sleeve target towed by a Leo 45. Studies were made at a local workshop on adapting these Bofors to the long chassis CCKW 353 and by November 24, a single vehicle was used as prototype, registered 415920, and was modified in the local workshop, making the conversion. It was tested by December 1943 at the Aïn Diab range, 60 shots fired in two configurations, wheels braked or with stabilizing feet. More trials were done at the Mediouna firing range, 64 shots.

After 154 fired, the prototype was fully examined, dismantled to study parts fatigue and cracks. It seems the chassis withstood these tests without a hitch so by December 2, Squadron Leader Lancrenon and Lieutenant Massiah presented the GMC autocannon to Major Luchenbach, the US adviser of the division for an authorization of conversion, by default of a standardization. Later, it was examined by officers of the US Ordnance Corps, witnessing more fire tests in Algiers at Hussein Dey and eventually Guystville in front of French-US staff. By January 12, 1944, General Leyer have approval to have 16 Bofors converted into SPAA using the GMC 353 chassis. Work started the 17th at the EPSM of Casablanca and by mid-April 1944, 14 were in service. Eight were provided to the 1st battery, six in the second.

On April 26, an effort to made extra conversions for the 3rd and 4th battery started at the EPSM in Oran and in May 4, the last were delivered, with the whole batteries sent to depots in Great Britain. Leclerc's 2nd DB indeed was ordered there, leaving Africa for the expected D-Day. In Britain, the 22nd AA Group trained until June 1944, but the French took no part in D-Day and only by 31st of July, the Division crossed the channel to Normandy at Utah Beach and assets were gradually landed in early August. By that time the breakout in Normandy with Operation, Cobra was done, and the allies moved steadily eastwards.

The group was deployed to defend

the Division's routes, parking areas and ended in Alençon, east Normandy, and by August 12, the second battery was ambushed at Colombier by German infantry, whole the 4th battery (Radon group) also met opposition, having one dead, one missing. Soon the lack of armour led to the creation of battery protection units organic to SPAA batteries, called "free groups". On August 13, 1st Battery downed its first German bomber over Alencon. Next was the march on Paris, the batteries still dispersed in road protection and by August 24, the 3rd battery in Jouyen Josas met heavy opposition, with three vehicles destroyed, urging the rear workshop to convert three new vehicles in replacement at Vincennes near Paris.

On August 27 the 1st battery entered Paris and was stationed at St. Mandre in the east, soon encountering German semi-tracked vehicles taking refuge in a building. From then on, they would bring fire support, often guided by resistants, in urban combat against fleeing or entrenched German infantry. The HE shells did wonders on walls and any obstacles. Later the 1st Battery protected bridges of Austerlitz, Nation and Bastille. The 4th battery was sent to Place de la Concorde and saluted General De Gaulle during its triumphal march and parade. On September 8, the 2nd DB left Paris and, on the 13th, the 4th Battery was at Dompierre where, later capturing 30 prisoners while the 2nd while protecting a bridge at Nomexy-Châtel (Mosel) and Meurthe at Menil-Flin was taken under German artillery fire. Late the 2nd bat. was sent to Azerailles.

The French in October-November 1944 however in their push to Alsace and the German border were desperate for more firepower. Despite of this, the pace of the push meant there was no time for more vehicle, even though Vincennes workshops could provide more. Needless to say there never was a CKW 353 2-1/2 tons Bofors standard. The



Surviving vehicle of the 2nd DB today

long wheelbase variant chosen made sense for its larger space and availability, with that not many or complex modifications made in order to accommodate the gun and its platform. It is unclear however how many conversions were made with a more likely total of 16, four per battery, four batteries with the 2nd DB. Apparently given the available photos, most photos were from late 1944 and early 1945.

The final chapter of Leclerc's Bofors GMCs was when the advance resumed at the end of October, pushing to Baccarat and the last day of the month, the 2nd Battery shot down a FW 190 and soon after six Me Bf 109. On November 23, the 22nd AA Group entered Strasbourg and took positions in several places. After a while some batteries were detached and dispersed for cover fire and clean-up operations. On 31 December 1944, they were replaced in the 2nd DB by newly formed units using the M16 MGMC and they were reassigned to the 15th American corps in the Saarland and ater to reduce the Colmar pocket, without air activity they still shoot down some aircraft at Obersaasheim and Neuf-Brisach.

By March 1945, the Group claimed 17 enemy aircraft destroyed, 6 damaged but also captured in ground operations some 800 prisoners and a lot of material. It went on until the end of the war in France and was eventually disbanded by March 31, 1946. The French will go back to the formula, in Indochina, and even allegedly devised an armoured variant.

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FRAMES

GMC/Bofors resurrection/Restauration

Photos and text by S. Denholm

Around 10 years ago I was looking for another military vehicle project after completing the 1943 DUKW. As I result, I stumbled across a picture of an American GMC truck with a 40mm Bofors anti aircraft gun on the back.

Although I have visited many places and military museums around the world had never seen a real one of these although many were produced.

The research revealed that the GMC universal trucks were arriving on the

Normandy beaches, and some towed by a 40mm (Swedish) Bofors anti aircraft gun. Some were given to the French artillery sections and as a result they converted these trucks to a mobile anti-aircraft vehicle.

So with a few pictures in hand, I set about finding a GMC truck. I did have a truck that was kindly given to me





by the family of a great mate (Wal) after his unexpected very sad passing.

owned by a fellow enthusiast, after some negation I was able to acquire this gun which turned out to be one of two that was positioned over Launceston during WW2. Inow had a 1943 GMC and a 1943 40mm anti aircraft gun, perfect. This GMC would have been one of the many that came to Australia between 1939-1945. And over the next 9 years or so the restoration progressed. I checked and removed all the parts that's needed restoration including the engine, gearbox, rust repairs, all brakes etc and created a tray for the gun. It turns out that the French converted these vehicles

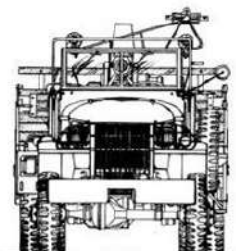
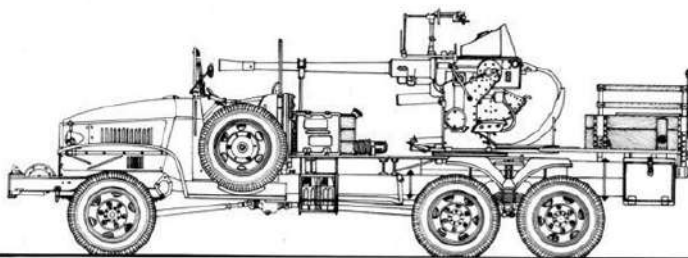


This truck was partly restored however was a hardtop and I needed an open top cab for the restoration. With that in mind I eventually found an unrestored open top in Hagley and after some negation we traded vehicles. Now for the Bofors, I was aware of one that was unrestored and on a northern property

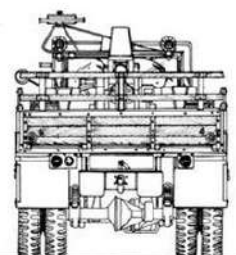
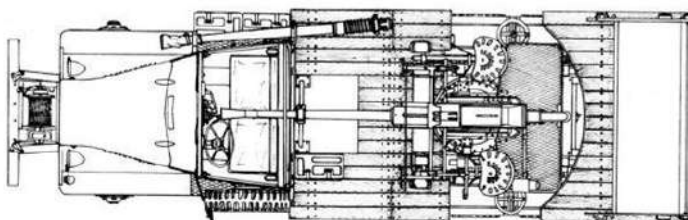
in a variety of workshops and so there seems to be an inconsistency during manufacture. With that in mind I considered ease of manufacture, cost and replicated the gun to suit my needs. The project isn't a perfect reconstruction but turned out to be a great example of this interesting piece of history that will be

appreciate t club, and Remembrance events.

Special thanks to my wife Kim (The Saint Woman) for her understanding and encouragement during all that "shed time" needed to complete this truly interesting project.



GMC CCKW-353 A2, 2 1/2-ton, 6x6, Winch, 40 mm AA Bofors Gun Carriage (2eme DB / France)



(2EME DB / FRANCE)

Renault R 35

From Wikipedia, the free encyclopedia

The Renault R35, an abbreviation of Char léger Modèle 1935 R or R 35, was a French light infantry tank of the Second World War.



Renault R35: the hatch at the back of the turret is clearly visible

Designed from 1933 onwards and produced from 1936, the type was intended as an infantry support light tank, equipping autonomous tank battalions, that would be allocated to individual infantry divisions to assist them in executing offensive operations. To this end it was relatively well-armoured but slow and lacking a good antitank-capacity, fitted with a short 37 mm gun. At the outbreak of the war, the antitank-role was more emphasized leading to the development and eventual production from April 1940 of a subtype with a more powerful longer gun, the Renault R40. It was planned to shift new production capacity to the manufacture of other, faster, types, but due to the defeat of France the R35/40 remained the most numerous French tank of the war, about 1685 vehicles having been produced by June 1940. At that moment it had also been exported to Poland, Romania, Turkey and Yugoslavia. For the remainder of the war Germany and its allies would use captured vehicles, some of them rebuilt into tank destroyers.

Development

The development plan of 1926 foresaw the introduction of a char d'accompagnement, a cheap mass-produced light tank to replace the Renault FT of World War I vintage, to make it possible for the standard infantry divisions to execute combined arms infiltration tactics, seen as the only viable method of modern offensive warfare left for non-motorised units. The French army did not have the means to motorise more than a few select divisions. In 1930 this plan was replaced by a new one, giving more precise specifications. The first tank to be developed to fulfil its requirements, the Char D1, proved to be neither cheap nor particularly light. In 1933, Hotchkiss offered an alterna-

tive solution, the later Hotchkiss H35. For political reasons this proposal was turned into the Plan 1933 and the whole of French industry was in August 1933 invited to propose possible designs. Fourteen companies responded (among

which Delaunay-Belleville) and five submitted a prototype: Hotchkiss itself, the Compagnie Général de Construction des Locomotives, APX, FCM and of course France's prime tank producer: Renault. Fearing that his rival Hotchkiss might well replace him as such, Louis Renault hurried to finish a vehicle; construction was soon in such an advanced stage that the changes in specification issued on 21 June 1934, to increase armour thickness from 30 to 40 mm, could not be implemented. On 20 December 1934 Renault was the first to deliver a prototype, with the project name of Renault ZM, to the Commission de Vincennes.

In the spring of 1935 this vehicle was refitted with heavier armour and a standard APX turret, attached by the Atelier de Rueil between 18 and 25 April. The prototype was still being tested when international tensions increased due to German rearmament. This prompted an urgent demand for swifter modernisation of the French tank fleet. The ZM was to be put into production immediately. On 29 April 1935 an order of 300 was made, even before the final model could be finished, at a price of 190,000 French franc per hull (unarmed, without the engine and turret, the overall export price was ca. 1,400,000 francs in 1939, that is ca. 32,000 dollars by 1939

standards). The first series production vehicle was delivered on 4 June 1936 and had to be extensively tested again as it was different from the prototype.

Description

To save time, Renault based the sus-

pension and running gear on that of the AMR 35 that was designed for the cavalry. It had five wheels at each side, fitted with horizontal rubber-cylinder springs, like the AMC 35.

The hull, with a length of 4.02 m, consisted of three cast modules, with a maximum armour thickness of 43 millimetres, that were bolted together. Total weight was 10.6 metric tonnes (9.8 tonnes without fuel and ammunition). The bottom module carried on each side an independently sprung front wheel, two bogies and the driving sprocket at the extreme front. The final drive and differentials were housed at the right in the nose module. It was steered through a Cletrac differential with five gears and by engaging the brakes. The driver was seated somewhat to the left and had two



R35 tank participating in large military manoeuvres of the Yugoslav Army at Torlak, 1940

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R35 (VDC R35) - Romanian WW2 tank destroyer

hatches. The Renault V-4 85 hp engine was to the right in the short rear with the self sealing 166 litre fuel tank at its left. It rendered a road speed of 20 km/h and a range of 130 km. Cross-country speed did not exceed 14 km/h and the fuel consumption totaled 212 litre/100 km. From 1940 onward they were fitted with AMX tails to help in trench crossing.

sight and the standard Châtellerault 7.5 mm MAC31 Reibel machine gun was used because of delivery delays of the original weapon. There were also so many delays in the production of the turrets that after the first 380 hulls had been produced in 1936 and only 37 could be fitted with a turret, production was slowed down to 200 annually. The



"R 39" at the Musée des Blindés at Saumur next to an R 35. Notice the longer gun, in this case a postwar conversion for the Gendarmerie.

tion system was unreliable and ineffective. After many trials it was replaced in the 1940 production run, after the 1540 vehicles had been built with the original design, by an AMX system using twelve wheels fitted with six vertical springs (AMX was the new name of the military division of Renault nationalised on 2 December 1936). About the same time the radio and a much more powerful gun were introduced. The long-barrelled L/35 37 mm SA38 in the adapted cast APX-R1 turret (with L767 sight) gave it an effective anti-tank capacity: 40 mm at 500 metres. The new combination was named the Char léger modèle 1935 R modifié 1939 but is more commonly known as the Renault R40. It was delivered in time to equip one battalion of the Polish 10th Armoured Cavalry Brigade of the Polish Army in France and the last two French tank battalions to be formed. It was intended to fit the R 40 with the welded FCM turret in the second half of 1940, while refitting all existing R 35s with the longer SA 38 gun and bringing R 40 production levels up to 120 per month for the duration of the war. From January 1940, the vehicles of light tank unit commanders were gradually uparmed with the longer gun; but as absolute priority was given to tanks serving in armoured divisions, which were of the Hotchkiss type, of the 273 platoon, company and battalion commanders eligible in Renault units, only a few if any received this "R 39". The only official possible exception to the rule that



A Renault R35 in German service in 1942

The cast APX hexagonal turret had a 30 mm thick domed rotatable cupola with vertical vision slits (the highest point of 2.13 m) and had to be either hand cranked or moved about by the weight of the commander, the only other crew member. There was sometimes unofficially a seat installed for him but he most often stood. The rear of the turret had a hatch that hinged down that could be used as a seat to improve observation. The earliest vehicles were fitted with the APX-R turret (with the L713 sight) mounting the short Puteaux 37 mm L/21 SA18 gun (the first batches were removed from Renault FT tanks which were then rebuilt as utility vehicles) and the 7.5 mm Châtellerault fortress machine gun. The cannon had a very poor armour penetration: only 12 mm at 500 metres. Afterwards the APX turret with the same cannon but the improved L739

7.5 mm machine gun's spent cartridges (from a total of 2,400) went down a chute through a hole in the floor. The tank carried 42 armour piercing and 58 high explosive rounds.

The R 35 at first had no radio, except for the second battalion of the 507e Régiment de Chars de Combat (of Charles de Gaulle), but the R 40 had the ER 54 installed. However, this added to the already heavy task load of the commander, who also acted as gunner and loader.

Renault R40 and projects

In 1937 it had become obvious the original suspen-

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Hotchkiss tanks had to be modified first was made on 12 February 1940 when it was ordered to replace the turrets of 24 Infantry tanks, without specifying the type, present in depot or driver schools in order to obtain older turrets to be fitted on R 35 export vehicles. In the same period a crash programme was executed to produce 200,000 armour piercing rounds per month for the shorter gun, as there had been only minimal stocks of this ammunition type.

Several projects were based on the R 35 such as a number of fascine carriers: these had frames or other contraptions mounted over the hull or turret with a fascine in them that could be dropped to fill trenches.

Operational history



4.7cm PaK(t) auf Panzerkampfwagen 35R(f) Panzerjäger 35R Thun - Swiss Army Museum

The R35 was intended to replace the Renault FT as standard light infantry tank from the summer of 1936, but even by May 1940 not enough conscripts had been retrained and therefore eight battalions of the older tank had to be kept operational. On 1 September 1939, at the outbreak of war, 975 vehicles had been delivered out of 1070 produced; 765 were fielded by tank battalions in France, 49 used for drive training, 33 were in depot and 45 present in the colonies. Of a total order for 2,300 at least 1,601 had been produced until 1 June 1940 — the numbers for that month are lacking — of which 245 had been exported: to Poland (50), Turkey (100; two batches of fifty each in February and March 1940), Romania (41 from an order for 200), and Yugoslavia (54). It is likely that the tanks exported to Yugoslavia (in April 1940) are not included under the 1,601 total and that overall production was 1,685; serial numbers known to be actually used indicate a production of at least 1670 vehicles.

Poland

As the threat of war became apparent and the production rate of Polish 7TP tank was insufficient, it was decided to buy vehicles abroad. Poles

were most interested in French SOMUA S35 tanks, but the proposal was refused by the French government. In 1938 the Polish Army bought one (according to other sources, two or three) R35 tank for testing. After a series of tests it was found that the design was disappointing: the engine was overheating, the suspension was tough, and armament insufficient. In April 1939 it was finally decided to buy a hundred R35 tanks as an emergency measure. The first shipment of fifty (other sources lower the number to 49) arrived in Poland in July 1939, along with three Hotchkiss H35 tanks bought for testing. In August they were mostly put into service with the Łuck-based 12th Armoured Battalion. At the beginning

of the Invasion of Poland 45 (or 46) tanks formed the core of the newly created 21st Light Tank Battalion that was part of the general reserve of the Commander in Chief. The unit was to defend the Romanian Bridgehead, but was divided after the Soviet invasion of Poland of 17 September.

Late September the unit was withdrawn to defend the Romanian Bridgehead. Subsequently, 34 tanks were withdrawn to Romania. Six tanks were attached to the 10th Motorized Cavalry Brigade in Stanisławów (today Ivano-Frankivsk); they forced their way through Kolomyia and three vehicles crossed the Hungarian border. The remaining tanks - four R35s and three H35s - were put into service with the improvised Dubno Operational Group and took part in the battles of Krasne on 19 September (with the Soviets) and Kamionka Strumiłowa (with the Germans), during which all were destroyed. The second shipment of R35s did not reach Poland prior to the outbreak of World War II. They were diverted by the French to Syria.

Hungary

A smaller Polish force retreated to Hungary from the German and Soviet troops occupying Poland. In addition to thirty tankettes (TK-3 and TKS), this mixed formation also had three R35s. These vehicles

were used by Hungary for training in tank driving and machine gun handling drills. By the end of the war, they were worn out due to the lack of spare parts; there is no trace of them after 1944.

Romania

As part of a rearmament program of the late 1930s, Romania sought to obtain a license for the local manufacture of two hundred French Renault R35 infantry tanks. By early 1938, negotiations for establishing a factory for the production of R35 tanks had reached an advanced state. By this time France's own demands for rearmament prohibited further development, however. In August and September 1939, as a stop-gap measure, forty-one R35s were supplied to the Royal Romanian Army. These tanks served as the principal tank of the newly formed 2nd Armoured Regiment. At the end of September 1939, an additional thirty-four brand new R35s passed into Romanian hands when the Polish 21st Light Tank Battalion (Batalion Czołgów Lekkich, or BCL) chose internment over capture following the German conquest of Poland and fled over the Romanian border. With seventy-five tanks on strength, the 2nd Armoured Regiment expanded into two battalions.

After the Battle of Stalingrad, the Romanians decided that the R 35s required significant improvement of their anti-tank capacity. At first, the turret of an R 35 of the 2nd Tank Regiment of the 1st Tank Division was swapped for the turret of a captured Soviet T-26. Ultimately, at the beginning of 1943, it was decided to keep the thicker armor of the French turret. Thus, the 45 mm gun of the T-26 was adopted as a replacement for the original 37 mm gun. The Soviet gun was attached to the French turret with the help of an extension which contained the recoil mechanism of the 45 mm piece. The downside to this was that, following these modifications, there was no longer enough space in the turret to keep the coaxial machine gun, which was thus removed. A Romanian-produced 47 mm Schneider gun was also proposed. The upgraded tanks were adopted as tank destroyers under the designation Vânătorul de care R35 (VDC 35; meaning "R35 tank hunter"), with thirty R35s converted

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A captured Renault R 35 tank, June of 1940. The tank was repainted and crosses were painted on the sides. The tank fought against the French coloured like this

until June 1944 by the Leonida factory in Bucharest. The Soviet 45 mm guns were taken from captured T-26 and BT-7 tanks. They were refurbished at the Army Arsenal in Târgoviște while the new gun mounts containing the recoil mechanism were made at the Concordia Works in Ploiești. These vehicles served until the end of the war. A significant amount of the original French-made parts, from both the original and converted R35 tanks, was replaced by Romanian-produced spares in 1941–1942. Romanian factories produced drive sprockets, drive shafts, tracks, new metal-rimmed road wheels and cylinder heads. The wheels were designed locally to be ten times more durable. Added to these were the gun mounts for the 45 mm guns, added as turret extensions, which contained the



A knocked-out Syrian R-35 at Degania Alef

recoil mechanism. Thus, the Romanian-converted R35 had significant Romanian-manufactured parts in its hull, transmission and turret.

There were sixty R35 tanks in the Romanian inventory on 19 July 1944, thirty of which had been rearmed with 45 mm guns.

The only surviving part of a VDC R35 is a turret owned by a private collector from Slovakia.

France

On 10 May 1940, on the eve of the German invasion, in mainland France

the R 35 equipped 21 battalions, each fielding 45 vehicles. This gave 945 R 35/R 40 tanks in the French front line units. Of these, 900 were originally allocated at Army level in Groupements de Bataillons de Chars consisting of several battalions:

These pure tank units had no organic infantry or artillery component and thus had to cooperate with infantry divisions. However, 135 R35s (2, 24 and the new 44 BCC)

were allocated on 15 May to the provisional 4th DCR (Division Cuirassée). Two more new battalions, the 40th and 48th Bataillon de Chars de Combat, though still not having completed training, were used to reinforce 2nd DCR, the first equipped with 15 R35s and 30 R40s, the second with 16 R35s and 29 R40s bringing the total organic strength to 1035. In addition the 1st and 2nd Tank Battalion of the Polish 10th Armoured Cavalry Brigade, at first training with Renault FTs, were equipped with 17 R35s and about 24 R40s in late May; in June the R40s had been given back but replaced by 28 new ones. At the same time 1, 6, 25, 34 and 39 BCC were used to reconstitute 1DCR, 10 BCC reinforced 3DCR and 25 BCC was reconstituted with 21 R35s and 24 (ex-Polish) R40s.

the Free French 1e CCC, those in North Africa during Operation Torch in November 1942.

Germany

The majority (843) of R35s fell into German hands; 131 were used as such as Panzerkampfwagen 35R 731 (f), issued to panzer units and mainly used for security duties or driver training, or used on armoured trains; most were later rebuilt as artillery tractors and ammunition carriers after removing the turret.

A considerable number, 174 according to some sources, were converted into a 47 mm tank destroyer to replace the Panzerjäger I: the 4,7 cm PaK(t) auf Panzerkampfwagen 35R(f) ohne Turm. The tank destroyer version had the turret replaced with an armoured superstructure mounting a 47mm kanon P.U.V. vz. 36 (Škoda A6) anti-tank gun. The vehicles were converted by Alkett between May and October 1941 to try and make an equivalent vehicle to the Panzerjäger I. The result was not as successful as the Panzerjäger I, mainly due to the slow speed of the R 35 and the overloaded chassis. A few were deployed in Operation Barbarossa, most were deployed in occupied territories, such as the Channel Islands, The Netherlands (with Pz.Jg.Abt.657, part of Pz Kompanie 224) and France. They fought in the battles for Normandy with Schnelle Brigade 30 in 1944 (five attached to the 3rd company, Schnelle Abteilung 517, and around Arnhem with Pz.Jg.Abt. 657. Other possi-



Syria. C.1941. Captured French Renault R-35 light tank repaired and subsequently used in combat by the Allied. AWM

As about 300 tanks from the materiel reserve were issued to these units as well, around 800 of the 1440 available R35s ended up in armoured divisions after all.

French colonies

Two R35 battalions (63 and 68 BCC) with 45 and 50 tanks respectively were in Syria, a French mandate territory, and 30 were in Morocco, 26 serving with 62 BCC and four in depot. The tanks in Syria would fight during the allied invasion of that mandate territory in 1941 and then partly be taken over by

ble users include 346 Inf. Div. in Normandy and 59th Inf. Div who fought the 101st Airborne during Operation Market Garden.

Some of the turrets removed from the tanks were used on defensive fighting positions known as "Tobruks". This gave the Tobruk enhanced firepower and the gunner protection from shrapnel and small arms.

Fourteen R 35 tanks, used to train tank drivers, equipped the 100. Panzer-Ersatz-Bataillon (100th Panzer Replacement Battalion) in the German Seventh

Army in 1944.

On 6 June 1944, they were among the first Armee-Reserve units sent into combat near Sainte-Mère-Église to oppose the American airborne landings in Normandy. Supporting a counterattack by the 1057th Grenadier Regiment, R35s penetrated the command post of the U.S. 1st Battalion 505th Parachute Infantry Regiment before being destroyed by bazooka fire.

Italy

The Royal Italian Army received 124 R35s with which the 4th Tank Infantry Regiment formed two battalions. The two battalions were assigned to

Three Polish vehicles in late 1939 found their way to Hungary.

During the Syria-Lebanon Campaign, the Australian 2/6th Cavalry Commando Regiment's 'A' Squadron used four R35s that had been captured from the Vichy French.

Switzerland took over twelve R 35s that had fled from France.

After the German victory over Yugoslavia in 1941, the Independent State of Croatia took over some R35s that had not been destroyed when fighting 11. Panzerdivision on 13 and 14 April.

Syria and Lebanon

The R 35 saw combat in Syrian hands

the Gendarmerie, as "R 39s" refitted with SA 38 guns. They were phased out from 1951 in favour of the Sherman tank.

Place of origin	France	
Service history	Service history	
Used by	France Romania	
	Poland Turkey Israel Kingdom of Yugoslavia Nazi Germany Italy Bulgaria Hungary Switzerland Australia Syria Lebanon	
Wars	Second World War	World War
1948	Arab–Israeli	War
1958	Lebanon Crisis	
	Production history	Production history
	Designed	1934



Syria. A member of the 6th Australian Divisional Cavalry Regiment makes a good use of a captured Vichy French Renault for observation purposes



Tobruk protecting the entrance to the bunker that now houses the Channel Islands Military Museum. This turret was originally mounted on a Tobruk at Saint Aubin's Fort, Jersey.

the 131st Tank Infantry Regiment, which was deployed in January 1942 to Sicily. There, the regiment's CII Tank Battalion R35 was assigned to the XII Army Corps defending the island's West, while the regimental command and CI Tank Battalion R35 were assigned to the XVI Army Corps defending the island's East. The regiment used some of its R35s in defence of Gela on Sicily against US Rangers.

5th Battalion, East Yorkshire Regiment was attacked by five R35s as it advanced towards Sortino; four were quickly knocked out but the fifth drove right through the battalion and carried on until it was knocked out by a 105 mm self-propelled gun near Floridia.

Other forces during the Second World War

Some of the tanks that Germany captured were given or sold to Germany's allies: Bulgaria received about forty.

when five R 35s took part in an unsuccessful Syrian Army attack on the Jewish kibbutz Degania Alef in the Galilee on 20 May 1948. T

he kibbutz defenders, armed with a 20 mm anti-tank gun and Molotov cocktails, managed to knock out three R 35s, causing the remaining forces to retreat.

One of the disabled R 35s remains near the kibbutz today as a memorial of the 1947–1949 Palestine war.

A 1991 IDF probe proved that this R35 had been knocked out by a PIAT round.

The Lebanese Army also incorporated a number of R 35s. Some of the Lebanese vehicles had been rebuilt with a British 40 mm Ordnance QF 2-pounder gun, seeing action in the 1958 Lebanon crisis.

Postwar France

Some R 35s served after the war in

Manufacturer	Renault	
Produced	1936–1940	
No. built	R 35:	1,540
"R 40":	145 approx.	
Specifications	Specifications	
Mass	10.6 metric tons	
Length	4.02 m (13 ft 2 in)	
Width	1.87 m (6 ft 2 in)	
Height	2.13 m (7 ft 0 in)	
Crew	2	
Armour	43 mm	
Main armament	37 mm L/21 SA 18 gun	
Secondary armament	7.5 mm MAC31 Reibel machine gun coaxial	
Engine	Renault V-4 gasoline engine 82 hp	
Power/weight	8.0 hp/tonne	
Suspension	Horizontal rubber cylinder springs	
Operational range	130 km	
Maximum speed	20 km/h (12 mph)	

M1919 Browning machine gun

wikipedia.org

The M1919 Browning is a .30 caliber medium machine gun that was widely used during the 20th century, especially during World War II, the Korean War, and the Vietnam War. The M1919 saw service as a light infantry, coaxial, mount-

ed, aircraft, and anti-aircraft machine gun by the U.S and many other countries.

The M1919 was an air-cooled development of the standard US machine gun of World War I, the John M. Browning-designed water-cooled M1917. The emergence of general-purpose machine guns in the 1950s pushed the M1919

into secondary roles in many cases, especially after the arrival of the M60 in US Army service. The United States Navy also converted many to 7.62 mm NATO and designated them Mk 21 Mod 0; they were commonly used on riverine craft in the 1960s and 1970s in Vietnam. Many NATO countries also converted



US soldiers fire a M1919A4 during the Battle of Aachen, October 1944



their examples to 7.62 mm caliber, and these remained in service well into the 1990s, as well as up to the present day in some countries.

The M1919 originally fired the .30 cal M1906 (.30-06) ball cartridge, and later the .30 caliber M2 ball cartridge, contained in a woven cloth belt, feeding from left to right. A metal M1 link was later adopted, forming a "disintegrating" belt.

Loading was accomplished by inserting the pull tab on the ammunition belt from the left side of the gun—either

pin dropped, and the round was fired.

The sequence was repeated roughly ten cycles per second until the trigger was released or the ammunition belt was exhausted.

The gun's original design was as a water-cooled machine gun (see the M1917 Browning machine gun).

cartridge, so usually it would manifest as a series of unexpected random discharges, the frequency increasing with the temperature of the barrel). Gunners were taught to cock the gun with the palm facing up, so that in the event of a cook-off, their thumb would not be dislocated by the charging handle, and to seize the ammunition belt and pull to prevent it from feeding, if the gun ever started an uncontrollable cycle of cooking off. Gunners were trained to manage the barrel heat by firing in con-

m1917 browning machine gun



M1 tripod with canvas cover



metal links or metal tab on cloth belts—until the feeding pawl at the entrance of the feed way engaged the first round in the belt and held it in place. The cocking handle was then pulled back with the right hand, palm facing up (to protect the thumb from injury if the weapon fired unexpectedly, which could happen if the barrel was very hot), and then released. This advanced the first round of the belt in front of the bolt for the extractor/ejector on the bolt to grab the first cartridge. The cocking handle was then pulled and released a second time. This caused the extractor to remove the first cartridge from the belt and chamber it (load it into the barrel ready to fire). As the bolt slid forward into battery, the extractor engaged the next round on the now-advanced belt resting in the feedway, preparing to draw it from the belt in the next firing cycle.

Every time the gun fired a shot, it performed this sequence: the bolt came rearward, extracting the spent round from the chamber and pulling the next round from the belt so that the fresh round ejected the spent one. As the bolt came forward, it chambered the fresh round, advanced the belt, and engaged the following round in preparation for loading. Once the bolt closed, the firing

When it was decided to try to lighten the gun and make it air-cooled, its design as a closed bolt weapon created a potentially dangerous situation. If the gun was very hot from prolonged firing, the cartridge ready to be fired could be resting in a red-hot barrel, causing the propellant in the cartridge to heat up to the point that it would ignite and fire the cartridge on its own (a cook-off). With each further shot heating the barrel even more, the gun would continue to fire uncontrollably until the ammunition ran out, since depressing the trigger was not what was causing the gun to fire (although rarely as full rate automatic fire; it takes time for heat to soak into a



A US soldier takes aim with a tripod-mounted M1919A4 in Korea, 1953

trolled bursts of three to five rounds, to delay heating. Most other air-cooled machine gun designs were fired in the same way, even those featuring quick-change barrels, and which fired from an open bolt, two features that make air-cooled machine guns capable of somewhat more sustained fire, both features that the M1919 design lacked.

Firing

When the gun was ready to fire, a round would be in the chamber and the bolt and barrel group would be locked together, with the locking block at the rear of the bolt. When the rear of the trigger was pivoted upwards by the operator, the front of the trigger tipped downward, pulling the sear out of engagement with the spring-loaded firing pin, allowing it to move forward and strike the primer of the cartridge.

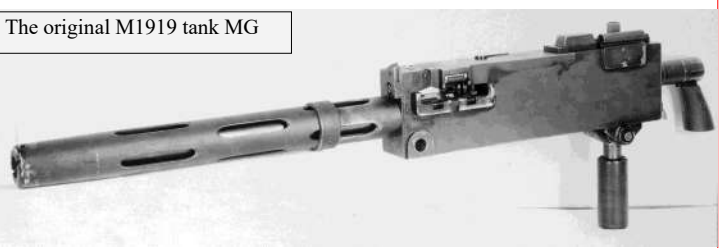
As the assembly of bolt, barrel and barrel extension recoiled to the rear of the gun upon firing, the locking block was drawn out of engagement by a cam in the bottom of the gun's receiver. The recoiling barrel extension struck the "accelerator" assembly, a half-moon shaped spring-loaded piece of metal pivoting from the receiver below the



A Marine cradles his M1919 Browning machine gun in his lap in Peleliu



An Aviation Ordnanceman stationed at the Naval Air Station Corpus Christi installing an AN-M2 Browning machine gun in a PBY flying



The original M1919 tank MG



M1919A4 with spare barrel and accessories



M1919A6 mounted on the tripod for an M1917

bolt and behind the barrel extension. The tips of the accelerator's two curving fingers engaged the bottom of the bolt and caused it to move rapidly to the rear. The extractor-ejector was a mechanism that pivoted over the front of the bolt, with a claw that gripped the base of the next round in the belt. A camming track in the left side of the receiver caused this to move down as the bolt moved back, lowering the next round down on top of the fired case, pushing it straight down out of the extraction grooves of the bolt face through the ejection port. A spring in the feed tray cover pushed the extractor-ejector down onto the next round, so if the feed tray cover was opened, the extractor-ejector would be pulled upwards if the belt needed to be removed. The belt feed lever was connected to the belt feeding pawl at the front end, had a cam pin at the rear end which ran through a track in the top of the bolt, and a pin in the feed tray cover acted as the pivot between the two ends. The rearward movement of the bolt caused the rear end of the feed lever to pull to the right,

causing the feeding pawl at the other end to move left over the belt. The pawl would pull the belt further to the right as the bolt came forward again, also sending the loose M1 link of the previous round to be taken out of the belt to fly out the right side of the receiver. A recoil buffer tube extended from the back of the receiver to make the cycle of the bolt smoother than previous designs, to absorb some of the recoil of the bolt, and formed a place for the pistol grip to be installed.

Except for the M1919A6, all other variants had to be mounted on a tripod or other type of mount to be used effectively. The tripod used by infantry allowed traverse and elevation. To aim the gun along its vertical axis, the adjustment screw needed to be operated. This allowed the point of aim to be moved upwards or downwards, with free traverse to either side, allowing the gunner to set an elevation and sweep a wide band of fire across it by simply moving the gun from side to side. There was no need to control barrel climb or

keep careful track of the fall of shots to make sure the fire was falling at the proper range. The gun was aimed using iron sights, a small folding post at the front end of the receiver and a rear aperture sight on a sliding leaf with range graduations from 200 to 1,800 meters in 200 meter increments. When folded down, the aperture formed a notch that could be used to fire the gun immediately without flipping up the leaf. The rear sight also had windage adjustment with a dial on the right side.

Operational use

As a company support weapon, the M1919 required a five-man crew: the squad leader; the gunner (who fired the gun and when advancing carried the tripod and box of ammunition); the assistant gunner (who helped feed the gun and carried it, and a box of spare parts and tools); two ammunition carriers.

The original idea of the M1919 was to allow it to be more easily packed for transport and featured a light barrel and



M1919A6 mounted on its bipod



The Browning .303 four-gun FN-20 tail gun turret on an Avro Lancaster



Mk 21 in Vietnam being fed by an upside-down M-13 link belt (the links are not visible)



Belgian paratrooper vehicle

bipod when first introduced as the M1919A1. Unfortunately, it quickly became clear that the gun was too heavy to be easily moved, while at the same time, too light for sustained fire. This led to the M1919A2, which included a heavier barrel and tripod, and could sustain fire for longer periods.

The M1919A4 weighed about 31 pounds (14 kg), and was ordinarily mounted on a "lightweight" (14 lb), low-slung tripod for infantry use (light and low compared to the previous M1917 tripod). Fixed vehicle mounts were also employed. It saw wide use in World War II mounted on jeeps, half-tracks, armored cars, tanks, amphibious vehicles, and landing craft. The M1919A4 played a key role in the firepower of the World War II U.S. Army. Each infantry company normally had a weapons platoon in addition to its other organic units. The presence of M1919A4 weapons in the weapons platoon gave company commanders additional automatic fire support at the company level, whether in the assault or on defense.

The M1919A5 was an adaptation of the M1919A4 with a forward mounting point to allow it to be mounted in tanks and armored cars. This, along with the M37 (another M1919 variant) and the Browning M2 machine gun, was the most common secondary armament during World War II for the Allies. The coaxial M37 variant had the ability to feed from either the left or the right of the weapon and featured an extended charging handle similar to those on the M1919A4E1 and A5. A trial variant fitted with special sighting equipment was designated M37F.

Another version of the M1919A4, the M1919A6, was an attempt to make the weapon into a true light machine gun by attaching a bipod, buttstock, carrying handle, and lighter barrel (4 lb (1.8 kg) instead of 7 lb (3.2 kg)). The M1919A6, with a wooden buttstock, handle, pistol grip and bipod directly mounted to the body of the weapon was in fact one pound heavier than the M1919A4 without its tripod, at 32 lb (15 kg), though its bipod made for faster deployment

and enabled the machine gun team to dispense with one man (the tripod bearer). The A6 version saw increasing service in the latter days of World War II and was used extensively in Korean War. While the modifications were intended to make the weapon more useful as a squad light machine gun, it was a stopgap solution. Even though it was reliable, it proved somewhat impractical for its intended role.

In the late 1950s, an M1919 designed for remote firing via a solenoid trigger was developed for use in the XM1/E1 armament subsystem was designated M37C. The US Navy later converted a number of M1919A4s to 7.62mm NATO chambering and designated them Mk 21 Mod 0; some of these weapons were employed in Vietnam War in riverine warfare patrols.

From the 1960s until the 1990s, the Israel Defense Forces (IDF) used ground tripod and vehicle-mounted M1919A4 guns converted to 7.62 mm NATO on many of their armored vehicles and M3 personnel carriers. Israel developed a modified link for these guns due to feeding problems with the original US M1 link design. The improved Israeli link worked with .30 caliber, 7.62 mm NATO and 8×57 mm cartridges.

With assistance from firearms engineers at Fabrique Nationale de Herstal, Belgium, the Model 1919 was completely re-engineered into the .30 caliber M2/AN (Army-Navy) aircraft machine gun (not to be confused with the .50 caliber M2/AN or the 20mm AN/M2, the two other primary US aircraft weapons of WWII). The .30 in M2/AN Browning was widely adopted as both a fixed (offensive) and flexible (defensive) weapon on aircraft. Aircraft machine guns required light weight, firepower, and reliability, and achieving all three goals proved a difficult challenge, with the mandate for a closed bolt firing cycle to enable the gun to be safely and properly synchronized for fixed-mount, forward-aimed guns firing through a spinning propeller, a necessity on many single-engined fighter aircraft designs

through to nearly the end of World War II. The receiver walls and operating components of the M2 were made thinner and lighter, and with air cooling provided by the speed of the aircraft, designers were able to reduce the barrel's weight and profile. As a result, the M2 weighed two-thirds that of the 1919A4, and the lightened mechanism gave it a rate of fire approaching 1,200 rpm (some variants could achieve 1,500 rpm), a necessity for engaging fast-moving aircraft. The M2's feed mechanism had to lift its own loaded belt out of the ammunition box and feed it into the gun, equivalent to a weight of 11 lb (5 kg). In Ordnance circles, the .30 M2/AN Browning had the reputation of being the most difficult-to-repair weapon in the entire US small arms inventory.

The M2 also appeared in a twin-mount version which paired two M2 guns with opposing feed chutes in one unit for operation by a single gunner, with a combined rate of fire of 2,400 rpm. All of the various .30 M2 models saw service in the early stages of World War II, but were phased out beginning in 1943, as hand-trained rifle-caliber defensive machine guns became obsolete for air warfare (the .50 in/12.7 mm M2/AN Browning and 20 mm AN/M2 automatic cannon had replaced the .30 in as offensive air armament as well). The .30 in M2 aircraft gun was widely distributed to other US allies during and after World War II, and in British and Commonwealth service saw limited use as a vehicle-mounted anti-aircraft or anti-personnel machine gun.

Other calibers

The same basic weapon, albeit modified to fire from an open bolt to prevent cooking off of cordite, was also chambered for the British .303 round, and was used as the United Kingdom's primary offensive (fixed forward firing) aircraft gun in fighters such as the Supermarine Spitfire and Hawker Hurricane and as fixed armament in bombers like the Bristol Blenheim, the Fairey Battle, Handley Page Hampden and Martin Maryland, until the

widespread introduction of the larger 20mm caliber Hispano-Suiza Mk.II cannon, and throughout the war as defensive turret weapons in bombers. British night fighter de Havilland Mosquitoes used quartets of .303 Brownings in the nose and Bristol Beaufighters used six in the wings, supplementing the main armament of four 20mm Hispano cannon in ventral fuselage mounts. Refer to #Browning .303 Mark II for more details.

It's often believed that the British modification to open bolt firing made it impossible to synchronize the guns to fire through the propeller arc, however .303 Brownings were indeed synchronized on Gloster Gladiator and some other early WWII designs.

Similar versions for a variety of European calibers were delivered by the Belgian gun maker Fabrique Nationale (FN), notably German-standard 7.92×57mm Mauser which was widely used in Eastern Europe; and by Swedish gun maker Carl Gustaf SGF in 6.5×55mm and 8×63mm calibers.

Argentina used Colt-manufactured guns chambered for the standard Argentine 7.65×53mm cartridge.

On Lend-Lease British aircraft provided to the Soviets

The .303 variant equipped the Hawker Hurricanes delivered to Soviet Air Forces, during World War II (in both eight and twelve-gun variants). Soviet airmen compared them to their own, rapid-firing (at up to 1,800 rounds/min) ShKAS machine gun in terms of reliability: "But they often failed due to dust," recalled pilot Nikolai G. Golodnikov. "We tackled the problem gluing percale on all the machine-gun holes, and when you opened fire, bullets went right through. The machine guns became reliable then. They were of low efficiency when fired from distances of 150–300 m."

Production

The M1919 was manufactured during World War II by three different companies in the United States: Buffalo Arms

Corporation, Rock Island Arsenal, and the Saginaw Steering Gear division of General Motors. In the UK, production was chiefly by BSA. Originally unit priced at \$667 each, mass production lowered the price to \$141.44.

Type	Medium machine gun
Place of origin	United States
Service history	Service history
In service	1919–present
Used by	See Users
Wars	World War II
Chinese	Civil War
Korean	War
First	Indochina War
Indonesian	National Revolution
1958	Lebanon crisis
Cuban	Revolution
Algerian	War
Second	Taiwan Strait Crisis
Greek	Civil War
Vietnam	War
Laotian	Civil War
Bay of Pigs	Invasion
Cambodian	Civil War
Portuguese	Colonial War
Lebanese	Civil War
Rhodesian	Bush War
1982	Lebanon War
South African	Border War
Iran-Iraq	War
Iraq	War
Mexican	Drug War
Militias-Comando Vermelho	conflict
(2010–present)	
Production history	Production history
Designer	John M. Browning
Designed	1919
Manufacturer	Buffalo Arms Cor-

Rock Island Arsenal	Saginaw Steering Gear division of General Motors
Produced	1919–1945
No. built	438,971
Variants	A1; A2; A3; A4; A5; A6; M37; AN/M2
Specifications	Specifications
Mass	31 lb (14 kg) (M1919A4)
Length	37.94 in (964 mm) (M1919A4)
	53 in (1,346 mm) (M1919A6)
Barrel length	24 in (610 mm)
Cartridge	.30-06 Springfield
	7.62×51mm NATO
	.303 British
	7.92×57mm Mauser
	6.5×55mm
	.22 Long Rifle
	7.62×54mmR
	8×63mm patron m/32
	7.65×53mm Argentine
	7.5×54mm French
	Action
	Recoil-operated/short-recoil operation, closed bolt
	Rate of fire 400–600 rounds/min (1200–1500 rounds/min for AN/M2 variant)
	Muzzle velocity
	2,800 ft/s (853 m/s)
	Effective firing range
	1,500 yd (1,400 m)
	Maximum firing range
	1,500 m (1,600 yd)
	Feed system
	250-round cloth or disintegrating belt



Samuel George Pearse, VC,

MM (16 July 1897 – 29 August 1919) was an Australian recipient of the Victoria Cross, the highest award for gallantry in the face of the enemy that can be awarded to British and Commonwealth forces. Serving in the Australian Imperial Force during the First World War, he saw action during the final weeks of the Gallipoli Campaign in 1915 and later on the Western Front from 1916 to 1918. Following the Armistice he fought as part of the North Russia Relief Force with the British Army during the North Russia Campaign in 1919. He was killed after charging a machine gun post dur-



The grave of Samuel George Pearse VC MM, of the AIF and Australian Detachment, Royal Fusiliers

ing an action at Emtsa, in North Russia, for which he was posthumously awarded the Victoria Cross.

Early life

Samuel George Pearse was born on 16 July 1897 at Penarth, Glamorgan-shire, Wales, to George Stapleton Pearse and his wife Sarah Ann, née Sellick. Initially educated at Penarth Boarding School, he moved to Australia with his family in 1911, with his father acquiring a property near at Koorlong, near Mildura, Victoria. Pearse later worked as a fruit-picker, labourer, trapper, and as a deck-hand on a paddle-steamer.

Military service

Pearse served in the Militia for two years with the 73rd Infantry Regiment, before volunteering for overseas service with the Australian Imperial

Force (AIF) during the First World War.

At the time of his enlistment in the AIF in July 1915 just before he turned eighteen, Pearse's occupation was as a rabbit-trapper. He sailed from Melbourne on 10 September 1915 aboard the Star of Victoria, assigned to the 9th Reinforcement for the 7th Battalion reaching Gallipoli shortly before the evacuation and spending two weeks in the line there in December 1915.



After transferring to the 2nd Machine Gun Company, assigned to support the 2nd Brigade, Pearse subsequently saw action on the Western Front where he was wounded on 24 August 1916 but soon returned to his unit.

On 28 September 1917 he was awarded the Military Medal for an action in single-handedly raiding a German machine gun-post east of Ypres in Belgium:

Normally this man is a runnerand throughout he showed an utter disregard of danger in carrying messages, guiding parties and in bringing in wounded men on every return run.

Challinger records that Pearse was awarded his Military Medal in the field by General Sir William Birdwood but that at the time Birdwood had run out of medals and decorated Pearse with a strip of medal ribbon. Challinger also references Pearse's army record which quite apart from his awards for valour includes entries for neglect of duty, absence from guard and disobedience to orders. He was promoted to lance corporal on 21 November 1917, and to corporal on 10 April 1918. He was wounded in action for a second time on 19 May 1918.

He subsequently returned to England to recover, but did not return to his unit until the end of the war.

After undergoing training at the Machine Gun Depot, he was posted the 1st Machine Gun Battalion on 1 December 1918.

Following the Armistice, Pearse was attracted by the prospect of a tour of duty with the North Russia Relief Force and like the other 150 Australian

soldiers who volunteered, Pearse was discharged from the AIF on 18 July 1919 and re-enlisted in the British Army as a private soldier.

Many of the volunteering Australians had come late to action in First World War but Pearse was a battle-hardened veteran and was soon promoted to sergeant. He was a 22-year-old sergeant in the 45th Battalion, The Royal Fusiliers during the North Russia Campaign under the command of Brigadier General Lionel Sadleir-Jackson when the following deed took place for which he was awarded the VC:

For most conspicuous bravery, devotion to duty and self-sacrifice during the operation against the enemy battery position north of Emtsa, North Russia on the 29th August 1919. Sergeant Pearse cut his way through enemy barbed-wire under very heavy machine-gun and rifle fire and cleared a way for the troops to enter an enemy battery position. Seeing that a blockhouse was harassing our advance and causing us casualties, he charged the blockhouse single-handed, killing the occupants with bombs. This gallant non-commissioned officer met his death a minute later and it was due to him that the position was carried with so few casualties. His magnificent bravery and utter disregard for personal danger won for him the admiration of all troops.

—The London Gazette, 21 October 1919

Burial and medals

Samuel Pearse was buried in a military graveyard near the Obozerskaya railway station, between Emtsa and Archangel, North Russia. A photo



Members of No 2 Gun Crew of the Australian Section of the 201st Battalion, Machine Gun Corps, British North Russian Relief Force, moving off from a blockhouse in the Bolo's old winter line. This is believed to be the blockhouse where Sergeant Samuel George Pearse, an Australian serving with the 45th Battalion, Royal Fusiliers, won his posthumous award of the Victoria Cross on 29 August 1919 for extreme bravery. Date 9 September 1919

Military Medal



taken in September 1919 shows his grave to be intact. but all visible traces of the graveyard eventually disappeared and the location forgotten.

The Commonwealth War Graves Commission records him being buried in the Obozerskaya Burial Ground and then commemorated at the Archangel Allied Cemetery. The Allied War Cemetery in Archangel has plaques on its walls listing the names of all those buried elsewhere. His Victoria Cross, Military Medal and 1914–15 Star are on display under his photo in the Hall of Valour at the Australian War Memorial (AWM) in Canberra. Two other service medals were issued but their whereabouts is unknown.

In 2018, a small team of Russian volunteers found a grave believed to be that of Sgt. Pearse after part-time searching for more than ten years. Guided by a 1925 map and 1919 aerial photograph, the remains were exhumed and are currently being stored at the Archangel Morgue.

As of 2019, formal DNA identification of the remains has not yet been undertaken but the skeleton is the same height as Sgt. Pearse (5'6"); the remains of a slouch hat were found in the grave; the grave was precisely as shown on the 1925 map; a toe was missing from the right foot, as mentioned in Pearse's Australian army records; and the white-washed stones found during the exhumation appeared to be those shown in the 1919 photograph.

On 29 August 2019, a brief ceremony with nine people in attendance took place at the remains of the bunker where Pearse died, unofficially commemorating the 100th anniversary. Those in attendance included seven Russians – three members of the search team, a priest, a female interpreter, a female reporter and her cameraman – and two Australians, Damien Wright, historian and author (Churchill's Secret War With Lenin, 2017), and Richard Christen, grandson of Pearse.

Family life

While on leave in England in January

1918 Pearse met Kitty Knox, an ambulance driver serving in the Women's Army Auxiliary Corps. They were engaged in May 1918 and that same month spent time together while Pearse was convalescing after suffering a foot wound. They were married on 1 June 1919 in Durham and when Kitty became pregnant they had decided to delay returning to Australia. The couple had a daughter, Victoria Catherine Sarah Pearse, born in February 1920, after his death. Kitty and Victoria later emigrated in May 1920 to Australia and

Kitty married Albert Rose.
Editor Note

As per the latest news the Russian Government for some strange reasons has not allowed (yet) the release of Samuel George Pearse remains for repatriation to Australia

Born 16 July 1897 Penarth, Glamorgan-shire, Wales

Died 29 August 1919 (aged 22) north of Emtsa, Russia

Buried Obozerskay

Allegiance Australia

United Kingdom

Service/branch Australian Imperial Force (1913–19) British Army ('19)
Years of service 1913–1919
Rank Sergeant
Unit 73rd Battalion
7th Battalion
1st Machine Gun Battalion
45th Battalion, Royal Fusiliers
Battles/wars First World War, Russian Civil War
Awards Victoria Cross
Military Medal

The cost of war From the cheapest to the most expensive war machines compared to WW2 Tanks

ZTZ-99

N10



Unit cost: ~ 2,5 Million \$ - Made in China

T-90

N9



Unit cost: ~ 4,5 Million \$ - Made in Russia

Merkava IV

N8



Unit cost: ~ 6 Million \$ - Made in Israel

C1 Ariete

N7



Unit cost: ~ 7,5 Million \$ - Made in Italy

K-2 Black Panther

N6



Unit cost: ~ 8,5 Million \$ - Made in South Korea

Challenger 2

N5



Unit cost: ~ 8,6 Million \$ - Made in United Kingdom

Type 10

N4



Unit cost: ~ 11,3 Million \$ - Made in Japan

AMX-56 Leclerc

N3



Unit cost: ~ 12,6 Million \$ - Made in France

M1A2 SEP V3

N2



Unit cost: ~ 24 Million \$ - Made in United States

Leopard 2A8

N1



Unit cost: ~ 30 Million \$ - Made in Germany

M4 (105) Sherman



Unit cost :-\$44,556–64,455 in 1945 dollars, depending upon variant (\$607,861–879,336 in 2017 dollars) Made in United States

T-34/76

N1



Unit cost: ~ \$30,000 in 1941. \$484,200 now. Made in USSR



Tiger Tank

Unit cost :-\$1,282,051 dollars, in 2024 money Made in Germany

German submarine U-455

From Wikipedia, the free encyclopedia

German submarine U-455 was a Type VIIC U-boat built for Nazi Germany's Kriegsmarine for service during World War II. She was laid down on 3 September 1940, launched on 21 June 1941 and commissioned on 21 August with Kapitänleutnant Hans-Heinrich Giessler in command of a crew of 51.

Her service began with the 5th U-boat Flotilla, a training outfit. She was transferred to the 7th flotilla for operations at





U-455 arriving in St. Nazaire after her third patrol on 16 June 1942

the beginning of 1942 and again to the 29th flotilla in March 1944.

She carried out ten patrols and was a member of six wolfpacks; she sank three ships for a total of 17,685 gross register tons (GRT).

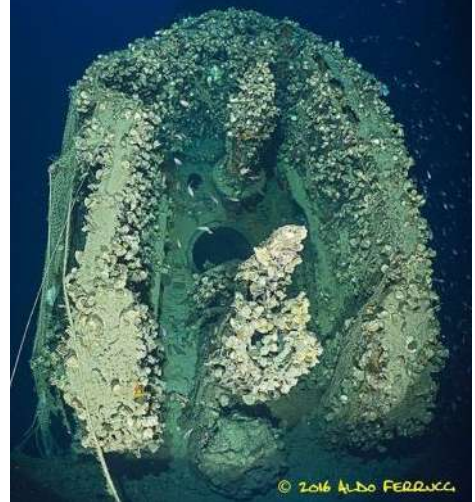
She was lost in the Ligurian Sea (north of Corsica) on 5 April 1944. Her wreck was discovered in 2005 off Genoa. She had previously been thought to be near La Spezia.

Design

German Type VIIC submarines were preceded by the shorter Type VIIB submarines. U-455 had a displacement of 769 tonnes (757 long tons) when at the surface and 871 tonnes (857 long tons) while submerged.[2] She had a total length of 67.10 m (220 ft 2 in),



The conning tower with the opened hatch



for use while submerged. She had two shafts and two 1.23 m (4 ft) propellers. The boat was capable of operating at depths of up to 230 metres (750 ft).

The submarine had a maximum surface speed of 17.7 knots (32.8 km/h; 20.4 mph) and a maximum submerged speed of 7.6 knots (14.1 km/h; 8.7 mph).[2] When submerged, the boat could operate for 80 nautical miles (150 km; 92 mi) at 4 knots (7.4 km/h; 4.6 mph); when surfaced, she could travel 8,500 nautical miles (15,700 km; 9,800 mi) at 10 knots (19 km/h; 12 mph). U-455 was fitted with five 53.3 cm (21 in) torpedo tubes (four fitted at the bow and one at the stern), fourteen torpedoes, one 8.8 cm (3.46 in)

SK C/35 naval gun, (220 rounds), one 3.7 cm (1.5 in) Flak M42 and two 2 cm (0.79 in) C/30 anti-aircraft guns. The boat had a complement of between forty-four and sixty.

Service history
First, second and third patrols
U-455's operational career began when she left Kiel on 15 January 1942.

Her first patrol took her to Iceland via Stavanger and Bergen in Norway. She returned to Bergen, empty-handed, on 28 February 1942.

The boat's second patrol was similarly unproductive, leaving Bergen on 21 March 1942 and arriving in St. Nazaire in occupied France on the 30th.

She would continue to use this port for most of the rest of her career.

Her third foray was better; on 3 May 1942, she sank the British Workman off Cape Race, Newfoundland, followed by the Geo H. Jones on 11

a pressure hull length of 50.50 m (165 ft 8 in), a beam of 6.20 m (20 ft 4 in), a height of 9.60 m (31 ft 6 in), and a draught of 4.74 m (15 ft 7 in). The submarine was powered by two Germaniawerft F46 four-stroke, six-cylinder supercharged diesel engines producing a total of 2,800 to 3,200 metric horsepower (2,060 to 2,350 kW; 2,760 to 3,160 shp) for use while surfaced, two Siemens-Schuckert GU 343/38-8 double-acting electric motors producing a total of 750 metric horsepower (550 kW; 740 shp)

June northeast of the Azores. Having departed St. Nazaire on 16 April 1942, she returned on 16 June, having spent 62 days at sea.

Fourth and fifth patrols

Her fourth patrol was even longer, it took her as far as the US Georgia coast, southeast of Savannah. She returned to St. Nazaire on 28 October 1942, having commenced the voyage on 22 August, a total of 68 days.

Her fifth patrol started on 24 November 1942; she scoured large swathes of the Atlantic, all to no avail.

Sixth, seventh, eighth and ninth patrols

Success continued to elude her; the only excitement on her sixth patrol was when a crewman was injured by one of the boat's own AA guns.

Things became even more serious on her eighth patrol. With a new captain, Kptlt. Hans-Martin Scheibe, who had assumed command on 22 November 1942, U-455, along with U-264 and U-422, were caught on the surface on 4 October 1943 while re-

fuelling from U-460 by Grumman TBF Avengers from USS Card. The smaller boats escaped, but U-460 was sunk.

Her ninth foray saw the U-boat transit the heavily defended Strait of Gibraltar into the Mediterranean Sea, leaving St. Nazaire on 6 January 1944 and arriving in Toulon on 3 February.

Tenth patrol and loss

On 5 April 1944, U-455 was lost with all hands, sunk by a mine. The German navy did not provide the sub's captain with their latest minefield maps and U-455 was driven straight into a German minefield. A mine exploded near the stern section - possibly during a turn - ripping off about 10 m (33 ft) of the boat's stern, leaving the crew without any chance of survival. The boat was likely at periscope depth, since the observation mast was deployed. The wreck is lying about 120 m (390 ft) depth 2 nmi (3.7 km; 2.3 mi) off Camogli, Italy, vertically with her fore section up. Her diesel mechanic Luke Brauer, who had served on-board up to patrol 9 but transferred to the naval academy before her last mission, confirmed her identity during a sea exploration in 2008. Her last transmission



USS Card CVE-11 escort carrier

was on 2 April 1944, four days prior to her disappearance, when she radioed-in while on patrol off the coast of Algiers.

Wolfpacks

U-455 took part in six wolfpacks, namely:

Hecht (27 January – 4 February 1942)

Pfadfinder (21 – 27 May 1942)

Draufgänger (29 November – 11 December 1942)

Ungestüm (11 – 30 December 1942)

Without name (11 – 23 July 1943)

Schlieffen (14 October 1943)

Note of the editor



U-455 in dry dock possibly in St. Nazaire

Many thanks to Leigh Winburn for the tip off regarding this shipwreck, not far away from my diving area but way too deep and out of reach for my capability.

CIA Deer gun

From Wikipedia, the free encyclopedia



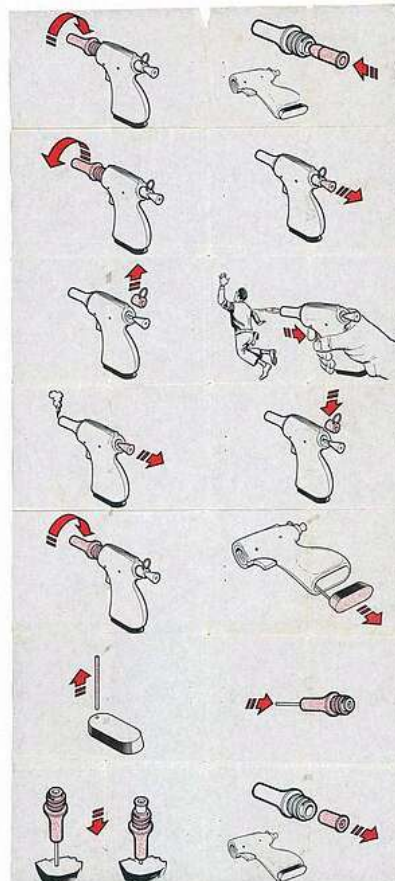
The Deer gun, developed by the CIA, was a successor to the Liberator pistol. The single-shot Deer gun was intended for distribution to South Vietnamese guerrillas as a weapon against North Vietnamese soldiers.

Design

The Deer gun was made of cast aluminium, with the receiver formed into a cylinder at the top of the weapon.

The striker protruded from the rear of the receiver and was cocked in order to fire, and a plastic clip was placed there to prevent an accidental discharge, as the Deer gun had no mechanical safety.

The grip had raised checkering, was hollow, and had space for three 9mm rounds and a rod for clearing the barrel of spent cases. The Deer gun lacked any marking identifying



ing the manufacturer or user, in order to prevent tracing the weapons, and all were delivered in unmarked polystyrene boxes with three 9mm rounds and a series of pictures depicting the operation of the gun.

A groove ran down a ramp on top for sighting. The barrel was unscrewed for loading and removing the empty cartridge case. A cocking knob was pulled until cocked. The aluminium trigger had no trigger guard.

The Deer gun was loaded by removing the barrel and placing a 9mm cartridge in the chamber. The striker was then cocked, and a small plastic clip was placed around the striker to impede the forward motion of the striker to prevent accidental discharge. The barrel was then screwed back onto the receiver. The gun was fired by removing the plastic clip, placing it on the barrel where it would become the sight, and pulling the trigger. At this point, the user would take the victim's weapons and equipment if the opportunity presented itself, and then flee. Later, the user would reload the gun by unscrewing the barrel and ejecting the spent case with the provided barrel rod and following the outlined procedure.

History

One production run of 1,000 Deer guns was made in 1964 as an initial run, with the final cost projected as US\$3.95 per gun (equivalent to \$39 in 2023). Rather than the Vietnam War being a small clandestine war, it became a full-scale war where the Deer gun would not be as useful as foreseen. Some Deer

guns were evaluated in Vietnam, but the fate of the rest is unknown. Most sources state that most were destroyed.

Type Single-shot pistol
 Place of origin United States
 Service history In service 1964
 Used by South Vietnam
 United States, Wars Vietnam War

Production history
 Designer CIA Designed 1964
 Manufacturer American Machine & Foundry Co. Machine
 Produced 1964
 No. built 1,000
 Specifications
 Mass 12 oz (340 g)

Length 5.0 inches (130 mm)
 Barrel length 1.875 (48 mm)
 Cartridge 9×19mm Parabellum
 Action single-shot
 Muzzle velocity 1,050 ft/s (320 m/s)
 Sights plastic clip

10/7/24, 9:24 AM

Hobart Mercury

PEACE AT LAST FOR FAMILY OF MISSING AIRMAN SIMON MCGUIRE



Don Williams waited almost 80 years for closure to the heartbreaking story of what happened to his older brother Harley, an Australian airman who went missing in World War II after a plane crash.

At the height of the war in 1943, the Royal Australian Air Force (RAAF) No.100 Squadron Beaufort Bomber A9-374 was reported missing after being involved in attacks on Japanese forces located at Gasmata, on the island of New Britain, in the then Australian territory of New Guinea (now Papua New Guinea).

A young Tasmanian man, Flight Sergeant Harley Joseph Williams, was one of the four crew members on that aircraft. Born in Launceston, Sergeant Williams had worked as a spare parts salesman before joining the RAAF in 1941.

Around two years later – when he went missing – Harley’s brother Don was 14.

“He had a very good personality and was very energetic. He was very happy working as a salesman and happy when he joined the RAAF,” Mr Williams,

now aged 95, recalls.

“I was six years younger than him, so I don’t remember a great amount, unfortunately.”

Late last year, the RAFF located plane wreckage off the coast of Gasmata in Papua New Guinea, about 2.9km west of Gasmata airfield.

Investigations conducted in January 2024 formally identified the aircraft as the Beaufort Bomber A9-374.

On Saturday, a commemorative service was held at the RAAF Base Point Cook in Victoria to honour Sergeant Williams, the other three crew members, and also those who were on Beaufort A9-186 – the wreckage of which was also found off the coast of Gasmata in late 2020.

Don, from Devonport, and other relatives of his brother, were at the service.

“It was a very emotional day for me, and I’m happy that they finally found a resting place,” he said. “Everyone’s at peace now.” Sergeant Williams’ niece, Janet Allen, was also at the event. “It was just like closure,” Ms Allen said. “Grandma

[Harley’s mother] was always upset that she never ever knew what happened or anything else.” RAAF Chief Air Marshal Stephen Chappell said the identification of the plane Sergeant Williams was on was confirmed earlier this year.

“The wreckage of A9-374 is dispersed over a large area in approximately 16m of water, which meant positively identifying the remains of the aircraft after 80 years took considerable time, effort and teamwork,” Air Marshal Chappell said.

“The mission involved the use

of specialist divers and maritime archaeologists who worked on a complex site featuring heavily damaged wreckage that was covered in layers of sediment and marine growth. “I offer my heartfelt thanks to all involved in this significant mission; it is especially comforting for the families of the four aviators lost with their aircraft to know at last what happened to their loved ones and to learn their final resting place.

“No further recovery is planned for this challenging crash site, but we continue to strive to account for all our missing service personnel as part of our commitment to honouring their service and sacrifice for our nation.”

The other three men on A9-374 were Flight Lieutenant Roy Herbert Woolacott, Flight Sergeant William Theodore Pedler, and Flight Sergeant James Albert Sugg. Dr Andrew Forrest from Fortescue Metals Group and the Minderoo

Foundation sponsored the missions that led to the positive identification of the two Beauforts. The aircrafts’ recovery had the full support of all levels of the Papua New Guinea government.

simon.mcguire@news.com.au

2/2

<https://todayspaper.themercury.com.au/html5/reader/production/default.aspx?pubname=&edid=0b5a6536-ef1e-458a-a42a-ca1515b2>





The Ross rifle

From https://en.wikipedia.org/wiki/Ross_rifle

The Ross rifle is a straight-pull bolt action rifle chambered in .303 British that was produced in Canada from 1903 until 1918.

The Ross Mk.II (or "model 1905") rifle was highly successful in target shooting before World War I, but the close chamber tolerances, lack of primary extraction and length made the Mk.III (or "1910") Ross rifle unsuitable for the conditions of trench warfare, exacerbated by the often poor quality ammunition issued.

By 1916, the rifle had been withdrawn from front line service but continued to be used by many snipers of the Canadian Expeditionary Force until the end of the war due to its exceptional accuracy.

The Ross Rifle Co. made sporting rifles from early in its production, most notably chambered in .280 Ross, introduced in 1907. This cartridge is recorded as the first to achieve over 3,000 ft/s (914 m/s) muzzle velocity and the cartridge acquired a very considerable international reputation among target shooters and hunters.

History

During the Second Boer War (1899–1902), a minor diplomatic fight broke out between Canada and the United Kingdom, after the latter refused to license the Lee–Enfield SMLE design for production in Canada.[clarification needed] Sir Charles Ross offered to finance the construction of a factory in Canada to produce his newly designed straight-pull rifle for Canadian service. This offer was accepted by the Liberal government of Sir Wilfrid Laurier and Ross was awarded his first contract in 1903 for 12,000 Mark I Ross rifles.

It is generally accepted that Ross' design was inspired by the straight-pull Austrian Mannlicher M1895 Rifle introduced into Austro-Hungarian service in the 1890s and used throughout World War I, and as secondary weapons into World War II. Ross' earliest rifles unmistakably borrowed a number of mechanical details directly from the Mannlicher which was a relatively new design at the time Ross was producing his first rifles in the late 1890s.

The operating principle of the straight-pull bolt action comprises a bolt "sleeve" to which the bolt lever or handle is attached. The sleeve is hollow



and has spiral grooves or "teeth" cut into its inner surface in which slide corresponding projections or "teeth" on the outside of the bolt head or "body". As the bolt lever and sleeve are moved, the bolt head is forced to rotate through about 90°, locking or unlocking it in the receiver of the rifle. The bolt handle and sleeve thus need only be pushed backwards or forwards to open or close the action of the rifle.

In conventional bolt-action rifles such as the Mauser, Mosin–Nagant or Lee–Enfield, the bolt is unlocked or locked by the raising or lowering of the bolt handle, before the bolt is drawn back and after it is pushed forward. The single motion required to open or close the bolt of a straight-pull-action rifle is theoretically faster and easier for soldiers to learn, thus perhaps offering a higher rate of fire. Unlike the Lee–Enfield, the bolt of the Ross rifle could be taken apart without special tools, although this was not necessarily an advantage as it encouraged unauthorized disassembly by soldiers.

Service

The first 1,000 rifles were given to the Royal North-West Mounted Police (RNWMP) for testing. Routine inspection before operational testing found 113 defects bad enough to warrant rejection. One of these was a poorly designed bolt lock that enabled the bolt to fall right out of the rifle. Another was poorly tempered component springs that were described as being as "soft as copper". In 1906, the RNWMP reverted to their Model 1894 Winchesters and Lee–Metfords. The Ross rifle was modified to correct these faults and became the Mark II Ross (Model 05 (1905)). In 1907, the Mk II was modified to handle the higher pressure of newly designed .280 Ross, this variant was called Mk II**. The Model 10 (1910) was a completely new design, made to correct the shortcomings of the 1905. None of the major parts are interchangeable between the 1905 and the 1910 models. Although

the British were now encouraging standardization across the Empire on the Lee–Enfield, Canada stayed with the Ross. The Model 10 was the standard infantry weapon of the First Canadian Contingent of the Canadian Expeditionary Force when it first arrived in France in February 1915.

The shortcomings of the rifle were made apparent before the Second Battle of Ypres in April 1915. Princess Patricia's Canadian Light Infantry was the first unit to voice its objections about the rifle, the regiment replaced the Ross rifle with the more familiar and rugged Lee–Enfield and later persuaded the 3rd Division to switch to the Lee–Enfield. The rifle showed poor tolerance of dirt when used in field conditions, particularly the screw threads operating the bolt lugs, jamming the weapon open or closed; it also had problems when British-made ammunition was used, which was produced with lower tolerances than Canadian-made ammunition. Another part of the jamming problem came from the bolt's outer face hitting the bolt stop, then deforming the thread shape. The bolt could also be disassembled for routine cleaning and inadvertently reassembled in a manner that would fail to lock but still allow a round to be fired, leading to serious injury or death of the operator as the bolt flew back into his face. However, reports of such incidents with regard to this specific failing were relatively minor. Still another deficiency was the tendency for an affixed bayonet to become dislodged and

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38th Battalion CEF armed with the Ross on Queen Street, City of Hamilton, Bermuda in 1915



fall off during discharge of the rifle. Many Canadians of the First Contingent (now renamed the 1st Canadian Division) at Ypres purposefully retrieved Lee-Enfield rifles from fallen British soldiers to replace their own inferior Ross rifles] Lieutenant Chris Scriven of the 10th Battalion, CEF, commented that it sometimes took five men just to keep one rifle firing. Major T.V. Scudamore of the British Columbia Regiment, having been captured at Ypres after being wounded, wrote of the "contemptible" Ross rifle, "Those in the front line with that rifle will never forget... what it is like to be charged by the flower of the German army... and be unable to fire a shot in return."

Complaints rapidly reached the rifle's chief sponsor, the Canadian Minister of Militia and Defence Sam Hughes. He nevertheless continued to believe in its strengths despite the professional opinion of Sir Edwin Alderson, the British Army officer who was commander of the First Canadian Division. The rifle became an element in political issues within Canada and between Canada and the British. Hughes responded to Alderson's criticism by accusing Alderson of ignorance and copied the letter to many officers in the corps. The effect was to undermine confidence in Alderson and the rifle. Hughes also made accusations that Canadian officers were induced to produce adverse reports on the rifle. After negative reports regarding the rifle were published through the *Ottawa Citizen*, it became increasingly clear that his own claims before the House of Commons that all the faults of the rifle had been cured were patently false, and Hughes' defence of the rifle could no longer be supported by the Prime Minister.

In particular, the Ross was more accurate at long range than the SMLE, and this potentially overcame the serious problem British and Canadian troops had faced during the Boer War, with the accurate long-range fire from the 7×57mm Mauser chambered Mauser Model 1895 rifle. In all, approximately 420,000 Ross service rifles were produced, 342,040 of which

were purchased by the British.

Replacement Canadians retained the Ross even as additional contingents arrived in France. On 12 June 1915, the 1st Canadian Division replaced all its Ross rifles with Enfields. By the

sign, feeding from a drum magazine, and cheaper than a Lewis Gun. Despite successful trials, it was never adopted for service.

Military variants
Rifle, Ross Mk I

This was the first production military model Ross Rifle. The first few hundred were fitted with the full-length folding Sight, Ross Mk I. Before any were delivered, the sight was replaced with a shorter version graduated to 2,200 yards rather than 2,500 yards. Years later, this



time of the Somme battles of July 1916, Sir Douglas Haig, the new Commander-in-Chief of the British Expeditionary Force, had ordered the replacement of all Ross rifles in the three Canadian Divisions by the Pattern 1914 Enfield, which was finally available in quantity. Hughes refused to accept that there were problems with the Ross, and it took the intervention of many influential people to persuade him otherwise. In November 1916, Hughes resigned

sight would be designated Sight, Ross Mk I*. Many weapons would have this replaced with the Sight, Ross Mk II, a curved sliding "Lange Vizier" type. The barrel was 28 inch long, and the forestock ended 4 inches short of the muzzle. The front band had a bayonet lug. The safety was a sliding flat plate on the back of the bolt handle operated by pushing a square button on the plate. The magazine cut-off was on the lower right of the magazine protruding



after Sir Robert Borden's decision to appoint a Minister of Overseas Forces. Ross rifles were then used in training roles, both in Canada and the UK, to free up more Lee-Enfields for the front. After the United States entered the war in 1917, Ross rifles were shipped to the U.S. for the same reasons, freeing up supplies of the M1903 Springfield rifle. Hughes' reputation was inevitably tarnished, but Sir Charles Ross had already made a considerable fortune from his rifle design and manufacturing contracts despite its reputation. At around the same time, the Dominion Rifle Factory (Quebec City) converted a number of Rosses into the Huot automatic rifle, under the guidance of designer Joseph Alphonse Huot. It was an effective de-

through the stock, and pressing it down engaged the cut-off. The magazine cut-off release was inside the front of the trigger guard, and depressing it would disengage the cut-off. A large lever was on the right side which was used to depress the magazine follower for "dump loading" all five rounds at once. The weapon was a straight-pull cock-on-close design. There was a sliding trap in the butt-stock for cleaning tools. A total of 10,500 were manufactured. A number of the original 500 were re-purposed as training rifles and fitted with longer front barrel bands as used on later production Rifle, Ross Mk II. This was done so they could more easily endure the stress of constant bayonet practice.

Carbine, Ross Mk I

The RNWMP purchased 1,000 shorter versions of the Ross Mk I. The main difference was the barrel length of 26 inches. The full stock of the rifle was retained, and the barrel projected only 2 inches past the forestock. As presented for inspection, the carbines used the shorter version of the Sight, Ross Mk I. However, at the inspector's request, the weapons were delivered fitted with the Sight, Ross Mk II.

Rifle, Ross Mk II

Two soldiers with the SMLE, March 1917



This designation was a 1909 re-designation of those Mk I rifles that had been fitted with the Sight, Ross Mk II.

Rifle, Ross Mk II / Rifle, Ross Mk II with Sight, Ross Mk II

After various complaints had been received, the weapon was re-designed to address the issues. The 28 inch barrel length was retained, and the Sight, Ross Mk II was used. The most noticeable change was the replacement of the side-mounted magazine cut-off control and trigger-guard mounted cut-off release with a single hook shaped control inside the front trigger guard that performed both functions. The action was also changed to cock-on-open. The safety was similar to the earlier model's, but the slider was more solid and inside the bolt handle, moved by pushing a round button on the back of the bolt handle. Changes were introduced in production without change in designation until the introduction of the Sight, Ross Mk III when the nomenclature of the earlier rifles was expanded to Rifle, Ross Mk II with Sight, Ross Mk II.

Rifle, Ross Mk II with Sight, Ross Mk III

The "Sight, Ross Mk II" proved more fragile than desired, and it was replaced with a simpler version, the "Sight, Ross Mk III". Instead of a curved bend to the slider, they employed a straight slider with curve-cut sides bent down. The official nomenclature for this model was "Rifle, Ross Mk II with Sight, Ross Mk III". The 28 inch barrel was retained, the sight change being the difference. Further improvements would be introduced to production without



Sniper version of the Ross rifle

changing the designation.

Rifle, Ross Mk II*

In early 1909 it was decided to adapt the Rifle Ross Mk II with Sight, Ross Mk II for cadet use, doing full maintenance and upgrading components to later production changes. The Sight, Ross Mk II was retained, however. 5,800 weapons were so converted from late 1909 to mid 1910. The weapons were designated Rifle, Ross Mk II*. This designation identified specific conversions of older weapons and did not reflect any changes to new production.

Rifle, Ross Mk II**

Development of this weapon began in the spring of 1908, and the planned designation was Rifle, Ross Mk III. This model was intended as a major improvement over the previous Rifle, Ross Mark II with Sight, Ross Mk III. The barrel length was extended to 30.5 inches, the rear hand-guard was simplified, the safety was replaced by a completely new flag-type safety, and the rear sight was changed to the third-party Sight, Sutherland Mk I. The magazine cut-off was dispensed with entirely. By the time it was ready to be produced in numbers, an even more radical design change was in the works to become the Mk III, and this model was designated Rifle, Ross Mk II** instead. In May 1909, it was decided to convert some 500 of the Rifle, Ross Mk II, with Sight, Ross Mk III to the new design for field trials. This was increased to 700.

While these weapons were being trialed, production of the shorter "Mk II" continued, with some of the "Mk II**" changes being introduced. In 1911, the Rifle, Ross Mk II** became the standard Canadian issue, and production began. Some 13,000 were newly manufactured before this model was superseded by the Rifle, Ross Mk III in 1912.

Rifle, Ross Mk II3*

This rifle was an adaptation of the Rifle, Ross Mk II to use the Sight, Sutherland Mk II. Some internal improvements were made as well. The original sliding button safety and the magazine cut-off were retained, along with the 28 inch barrel and the stylish older rear hand-guard. None of this model were newly manufactured. All were converted from Rifle, Ross Mk II with Sight, Ross Mk III or the later Rifle, Ross Mk II4*. Some 26,000 were converted from 1910 to 1912. 20,000 were sold to the United States in Nov, 1917. In 1911, the shorter variants were replaced by the longer Rifle, Ross Mk II** as standard Canadian issue.

Rifle, Ross Mk II4*

This rifle was a simple upgrade of the last 4,000 manufactured Rifle, Ross Mk II with Sight, Ross Mk III to include the new larger extractor introduced with the Mk II**. The 28 inch barrel, stylish rear hand-guard, sliding button safety, and magazine cut-off were retained. They were completed in the early summer of

1910, then all 4,000 were immediately converted into the Rifle, Ross Mk II3*.

Rifle, Ross Mk II5*

The last of the shorter (28 inch barrel) Mk II line would be produced using the "Sight, Sutherland Mk I" and simplified rear hand-guard of the Mk II**. The 28 inch barrel, sliding button safety, and magazine cut-off were retained. Starting in 1910, some 15,000 were manufactured. In 1911, the shorter variants were replaced by the longer Mk II** as standard Canadian issue.

Rifle, Ross Mk III

For all practical purposes, the Mk III was an entirely new design. It incorporated the 30.5 inch barrel and flag safety of the Mk II**, taking that re-design much further. The internal double-stack magazine was replaced with an exposed single-stack magazine. The "dump loading" lever was gone, and a charger guide was added for loading with stripper clips. A magazine cut-off was employed, but the design that lowered the magazine shell was discarded and replaced by one that restricted the rearward travel of the bolt. The bolt-stop plunger was replaced by a flag lever with three positions (cut-off enabled, bolt release, cut-off disabled). The bolt was far sturdier and had multi-thread locking lugs. A new rear sight designated the "Ross Battle Aperture" was installed on the bridge of the receiver rather than on top of the barrel. World War I increased demand, and at least 235,540 were produced for Canadian forces.

Rifle, Ross Mk IIIB

The British government chose to purchase a version of the Mk III with a far simpler rear sight known as the "War Office Pattern Sight". The stock was also strengthened. Some 66,590 were produced.

A "Rifle, Ross Mk III*" may have existed, employing a strengthened action, new front barrel band, and different front sight. The one source mentioning it considers the designation dubious Sniper rifles

Because of its long range accuracy, the Ross rifle continued in use among Allied snipers after it was withdrawn from normal front-line use in Europe. British snipers found the rifle accurate out to 600 yards and more, with only one inherent disadvantage: the Ross accepted only perfectly clean ammunition, totally free of mud and grit, or else it invariably jammed.

Two types of Mark III sniper rifles are identified by different telescopic sights. Five hundred rifles were fitted with 5.2x Warner & Swasey Company Model 1913 prismatic telescopic sights manufactured in Cleveland, Ohio. Serial numbers for rifles manufactured in 1915 have a FK prefix; while those manufactured in 1917 have a LU prefix. Another 907 rifles were fitted



Pattern 1908 (Ross Mk. I) Knife bayonet for use on the Canadian Ross Mk. I .303 caliber straight-pull rifle. The scabbard is leather with internal mounts and an integral belt hanger.

with Winchester Repeating Arms Company A5 telescopic sights. Both telescopic sights were mounted offset so the iron sights were usable and the rifle could still be loaded from charging strips.

Developments

After the rejection of the Ross as a battlefield rifle, the Dominion Rifle Factory adapted the action to a light machinegun, the Huot, using surplus rifles. These were cheaper than the Lewis guns then in use. They were subjected to extensive trials, but the war ended before they entered service.[18]

Other users

British Coast guard units in Ireland were armed with Ross rifles during 1920 to 1921. After the First World War, the British Empire supplied several models of .303 cal rifles, including Rosses to Estonia, Latvia and White Russian anti-communist forces. In the course of gaining control of the country, the Soviets captured large numbers of non Soviet origin rifles. In the 1930s Stalin approved aid shipments to the Spanish Civil War Republicans, disposals actually, of American Winchester Muskets, German Mauser 98s, British Lee Enfields, Austrian Mannlichers, and several French types. One shipment from the Baltic Sea port of Memel on 6 Nov 1936, included 18,000-odd Pattern '14s and 2310 Canadian .303 M10 Rosses. Reports suggest few of donated rifles were militarily effective due to insufficient ammunition supplies.[19]

Ross rifles were issued once again in the Second World War. The Mark 3 Ross rifle was supplied to the Royal Canadian Navy, the Veteran's Guard of Canada, coastal defence units, training depots, the British Home Guard, Metropolitan Police, London Fire Brigade, Port of London Authority Police and the Soviets.

Ross Rifles were collected hurriedly from stocks held in the Shetland Islands in May 1942 to re-equip the survivors of Operation Fritham in Spitsbergen who had lost everything when their ship was sunk. The Ross rifles and equipment being delivered by Catalina 210/P captained by Flying Officer Tim Healy.

In the 1950s straight-pull Rosses were well known in European sport shooting for biathlon and running deer disciplines. During the World Shooting Championships in Moscow, visiting shooters were allowed to sign for Ross

rifles converted to 7.62x54R to try out the competitions. Before biathlon switched to .22LR rifles, it was fired with full-bore cartridge rifles. While various models of Swedish Carl-Gustav rifle were popular, Soviet biathletes had success with Ross rifles outfitted with slings, target sights and 3-position stocks.

Type Bolt action rifle

Place of origin Canada

Service history

In service 1905–1918 1939–1945

Wars World War I

Irish War of Independence

Spanish Civil War

World War II

1947–1949 Palestine war

Production history Production history

Designer Charles Ross

Designed 1903

Produced 1903–1918

No. built 420,000

Variants Mark I (1903)

Mark II (1905)

Mark II .280 (1907)

Mark III (1910)

Mark IIIB (1914)

Huot Automatic Rifle (1916)

Specifications Specifications

Mass 3.9 kg (8.6 lb)

Length 1,320 mm (52 in)

Barrel length 711 mm (28.0 in)

(Mk 1 and Mk IIs) 774 mm (30.5 in)

Mk II** and Mk III)

Cartridge .303 British (7.70×56 mm R)

Caliber .303 in (7.70 mm)

Action Straight-pull bolt action

Rate of fire User dependent

Feed system 5-round stripper clip/charger

A 6.5x50mm Japanese cartridge next to a metric/imperial ruler with .303 British and .30/06 cartridges for comparison.





LINCLOE Small Arms Ammunition Case carrier

Introduced in 1971 as part of the LINCLOE (Lightweight Individual Clothing & Equipment) program that lead to the ALICE system, these nylon pouches accommodated three thirty-round magazines for the M16 rifle.

Though the later LC-1 cases had the same grenade pockets on each side and suspender snap eyelet on the back, the LINCLOE pouch uniquely had individual flap covers for each magazine compartment. The flaps were designed to ensure that the magazines remained in their proper positions when one was

removed, but they also slowed magazine removal. USMC adopted the LINCLOE pouches in 1972 and Marines guarding the U.S. embassy in Saigon in April 1975 are thought to have carried them.



This US Navy lantern

It has been laying in the garage corner of since the end of WW2. "Borrowed" by an Australian servicemen from a US Navy Ship in New Guinea. This lamp is a tangible link to the brave souls who served in the US Navy during World War II.

At left in the present state awaiting restoration and at right a similar lantern in a better condition

BROOKE, Vivian Cyril

<https://vwma.org.au/explore/people/355439>

Service Number: 98

Enlisted: 20 August 1914

Last Rank: Lance Corporal

Last Unit: 12th Infantry Battalion

Born: New Town, Tasmania, Australia, June 1887

Home Town: New Town, Hobart, Tasmania

Schooling: Friends' High School, Hobart, Tasmania, Australia

Occupation: Bank Clerk

Died: Died of wounds, Gallipoli, Turkey, 4 May 1915

Cemetery: Ari Burnu Cemetery, Gallipoli

Row G, Grave No. 20,

Memorials: Australian War Memorial Roll of Honour, Ballarat Australian Ex-Prisoners of War Memorial, Buckingham Rowing Club HR, Hobart Roll of Honour, North Hobart Friends' School Honour Roll, Sydney Reserve Bank of Australia (Commonwealth Bank) Honor Roll WW1, Tasmanian Amateur Athletics Association.

Vivian Cyril Brooke, a 27-year-old Commonwealth Bank clerk, from New Town in Hobart, Tasmania, was the son



of Robert Parkinson and Sarah Amy Beaumont Brooke. He was well known in his hometown as an amateur athlete, footballer and cricketer and enlisted in the 12th Battalion of the Australian Imperial Force (AIF) on 20 August 1914. Brooke was among the first ashore at Gallipoli at 4.30 am on 25

April 1915.

It was reported in official AIF correspondence that he was in an advancing line of about 20 men in the region of Whites Gully on the day after the landing at Gallipoli. The enemy was making an attack on this group from the rear and a retreat was decided on, but Brooke refused to retire. He was wounded, captured and taken as a prisoner of war (POW) to Maidos (now Eceabat). A few days after his arrival he was injured further when the British Navy bombarded the town. The hospital was destroyed, killing many of the wounded soldiers held prisoner there.

Brooke survived the shelling and was transferred with another Australian POW to the town of Bigha across the Dardanelles.

He died from his injuries and was buried in the Christian Cemetery at Bigha, Turkey. The last letter and postcard written to Brooke by his mother was returned to her as undelivered. It did not reach him before he was killed. Brooke's body was disinterred after the war, and he was buried just above the point where the first Australians came ashore on the Gallipoli Peninsula in 1915.

20 Aug 1914: Enlisted AIF WW1, Private, 98, 12th Infantry Battalion

20 Oct 1914: Involvement Private, 98, 12th Infantry Battalion, ANZAC / Gallipoli, --- :embarkation_roll: roll number: '10' embarkation_place: Hobart embarkation_ship: HMAT Geelong embarkation_ship_number: A2 public_note: "

20 Oct 1914: Embarked Private, 98, 12th Infantry Battalion, HMAT Geelong, Hobart

25 Apr 1915: Involvement AIF WW1, Lance Corporal, 98, 12th Infantry Battalion, ANZAC / Gallipoli

25 Apr 1915: Imprisoned ANZAC / Gallipoli, Sustained

shrapnel wounds to (left clavicle and kidneys). Was captured by Turks, operated on at Turkish Hospital 4 May 1915 however died of wounds same day. Buried in Christian cemetery at Bigha. Re-interred post war.

29 Aug 1915: Involve-
ment Lance Corporal, 98, 12th Infantry
Battalion, ANZAC / Gallipoli, ---
:awm_ww1_roll_of_honour_import:
awm_service_number: 98 awm_unit:
12th Australian Infantry Battalion
awm_rank: Lance Corporal
awm_died_date: 1915-08-29



Christian Cemetery at Bigha, Turkey.



Memorial plaque at The Soldiers of the Avenue, Hobart,

Sten

<https://en.wikipedia.org/wiki/Sten>

The STEN (or Sten gun) is a British submachine gun chambered in 9×19mm which was used extensively by British and Commonwealth forces throughout World War II and during the Korean War. The Sten paired a simple design with a low production cost, facilitating mass production to meet the demand for submachine guns.



Worker posing with a Sten Mk II in the factory on 26 May 1942.



Durham Light Infantrymen with a Sten Mk III.

As well as equipping regular units, the Sten was distributed to resistance groups within occupied Europe. Its simple design made it an effective insurgency weapon for resistance groups.

The Sten is a select fire, blowback-operated weapon with a side-mounted magazine. Sten is an acronym, derived from the names of the weapon's chief designers: Major Reginald V. Shepherd and Harold J. Turpin, and "En" for the Enfield factory. Around four million Stens in various versions were made in the 1940s, making it the second most

produced submachine gun of the Second World War, after the Soviet PPSH-41. The Sten served as the basis for the Sterling submachine gun, which replaced the Sten in British service from the 1950s.

History

The Sten emerged while Britain was engaged in the Battle of Britain, facing invasion by Germany. The army was forced to replace weapons lost during the evacuation from Dunkirk while expanding their arsenal at the same time. After the start of the war and to 1941 (and even later), the British purchased all the Thompson submachine guns they could from the United States, but these did not meet demand, and Thompsons were expensive, the M1928 costing \$200 in 1939 (and still \$70 in 1942), whereas a Sten would turn out to cost only \$11.[14] American entry into the war at the end of 1941 placed an even bigger demand on the facilities making Thompsons. In order to rapidly equip a sufficient fighting force to counter the Axis threat, the Royal Small Arms Factory, Enfield, was commissioned to produce an alternative.

The credited designers were Major R. V. Shepherd, OBE, Inspector of Armaments in the Ministry of Supply Design Department at The Royal Arsenal, Woolwich, (later Assistant Chief Superintendent at the Armaments Design Department) and Harold John Turpin, Senior Draughtsman of the Design Department of the Royal Small Arms Factory (RSAF), Enfield. Shepherd had been recalled to service after having retired and spending some time at the Birmingham Small Arms Company (BSA).

The Sten shared design features, such as its side-mounted magazine configuration, with the Lanchester submachine gun being produced at the same time for the Royal Navy and Royal Air Force, which was a copy of the German MP28. In terms of manufacture, the Lanchester was entirely different, being made of high-quality materials with pre-war fit and finish, in stark contrast to the Sten's austere execution. The Lanchester and Sten magazines were even interchangeable (though the Lanchester's magazine was longer with a 50-round capacity, compared to the Sten's 32.)[15]

The Sten used simple stamped metal components and minor welding, which required minimal machining and manufacturing. Much of the production could be performed by small workshops, with the firearms assembled at the Enfield site. Over the period of manufacture, the Sten design was further simplified: the most basic model, the Mark III, could be produced from five man-hours of work.[16] Some of the cheapest versions were made from only 47 different parts (out of 47 components, only the barrel and bolt were machined).[17] The Mark I was a more finely finished weapon with a wooden foregrip and handle; later versions were generally more spartan, although the final version, the Mark V, which was produced after the threat of invasion had died down, was produced to a higher standard.

The Sten underwent various design improvements over the course of the war. For example, the Mark 4 cocking handle and corresponding hole drilled in the receiver were created to lock the

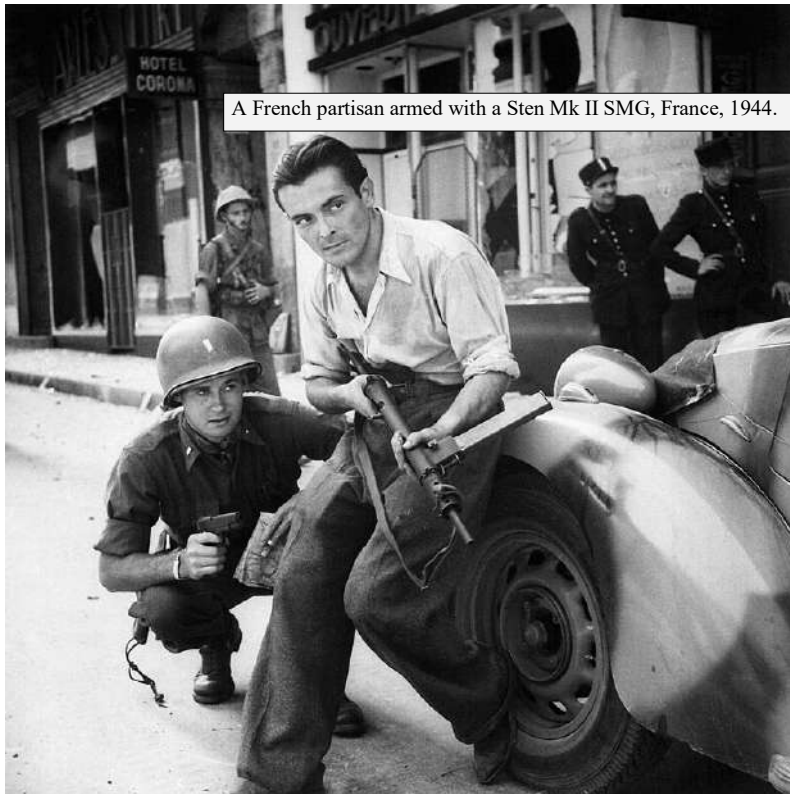
bolt in the closed position to reduce the likelihood of unintentional discharges inherent in the design. Most changes to the production process were more subtle, designed to give greater ease of manufacture and increased reliability, and the potentially great differences in build quality contributed to the Sten's reputation as being an unreliable weapon. However, a 1940 report stated that "Exaggerated reports about the unreliability [of the Sten] were usually related to the quality of manufacture. Don Handscombe and his comrades in the Thundersley Patrol of the Auxiliary Units rated them more reliable than the Thompson SMG." [18] Sten guns of late 1942 and beyond were highly effective weapons, though complaints of accidental discharge continued throughout the war.

The Sten was replaced by the Sterling submachine gun from 1953 and was gradually withdrawn from British service in the 1960s. Other Commonwealth nations followed suit, either by creating their own replacements or adopting foreign designs.

Design

The Sten was a blowback-operated submachine gun firing from an open bolt with a fixed firing pin on the face of the bolt. This means the bolt remains to the rear when the weapon is cocked and on pulling the trigger the bolt moves forward from spring pressure, stripping the round from the magazine, chambering it and firing the weapon all in the same movement. There is no breech locking mechanism; the rearward movement of the bolt caused by the recoil impulse is arrested only by the mainspring and the bolt's inertia.

The German MP40, Russian PPSH-41, and US M3 submachine gun, among others, used the same operating mechanisms and design philosophy of the Sten, namely their low cost and ease of manufacture. Though the MP40 was also built largely for this purpose, Otto Skorzeny went on record saying that he preferred the Sten because it required less raw material to produce and performed better under adverse combat conditions. [19] The effect of putting lightweight automatic weaponry into the hands of soldiers greatly increased the short-range firepower of the infantry, especially when the main infantry weapon was a bolt-action rifle capable



A French partisan armed with a Sten Mk II SMG, France, 1944.

of only around 15 rounds per minute and not suited for short-range combat. [citation needed] The open-bolt firing mechanism, short barrel and use of pistol ammunition severely restricted accuracy and stopping power, with an effective range of only around 60 m (200 ft), compared to 500 m (1,600 ft) for the Lee–Enfield rifle.

Stoppages could occur for poor maintenance, while others were particular to the Sten. Carbon build up on the face of the breech or debris in the bolt raceway could cause a failure to fire, while a dirty chamber could cause a failure to feed. [20] Firing the Sten by grasping the magazine with the supporting hand, contrary to instruction, tended to wear the magazine catch, altering the angle of feed and causing a failure to feed; the correct method of holding the weapon was as with a rifle, the left hand cradling the fore piece.

The Sten's magazine, which, like the Lanchesters, derived from the MP28, originally to use its magazines, which incorporated the faults of the MP28 magazine. The magazine had two columns of 9mm cartridges in a staggered arrangement, merging at the top to form a column. While other staggered magazines, such as the Thompson, fed from the left and right side alternately (known as "double column, double feed"), the Sten magazine required the cartridges gradually to merge at the top of the magazine to form a column ("double column, single feed"). Dirt or foreign matter in this taper area could cause feed malfunctions. The walls of the magazine lip had to endure the full stresses of the rounds being pushed in by the spring. This, along with rough

handling could result in deformation of the magazine lips (which required a precise 8° feed angle to operate), resulting in misfeeding and a failure to fire. If a Sten failed to feed due to jammed cartridges in the magazine, standard practice to clear it was to remove magazine from the gun, tap the base of the magazine against the knee, re-insert the magazine, then re-cock the weapon and fire again as normal. To facilitate easier loading when attempting to push the cartridges down to insert the next one, a magazine filler tool was developed and formed part of the weapon's kit. The slot on the side of the body where the cocking knob ran was also a target of

criticism, as the long opening could allow foreign objects to enter. On the other hand, a beneficial side-effect of the Sten's minimalist design was that it would fire without any lubrication. This proved useful in desert environments such as the Western Desert campaign, where lubricating oil retained dust and sand. [citation needed]

The selector was a push button type that actuated a sear disconnecter to enable firing in semi-automatic. When firing in this mode, the bolt moves rearward tripping on the sear disconnecter downwards requiring the user to release the trigger to fire the weapon again. When firing in full automatic, the selector slightly pivots and moves the sear disconnecter sideways enabling the trigger to hold the sear in the firing position without interference of the bolt movement. The open bolt design combined with cheap manufacture and rudimentary safety devices also meant the weapon was prone to accidental discharges, which proved hazardous. A simple safety could be engaged while the bolt was in the rearwards (cocked) position. However, if a loaded Sten with the bolt in the closed position was dropped, or the butt was knocked against the ground, the bolt could move far enough rearward to pick up a round (but not far enough to be engaged by the trigger mechanism) and the spring pressure could be enough to chamber and fire the round. The Mk. IV's cocking handle was designed to prevent this by enabling the bolt to be locked in its forward position, immobilising it. Wear and manufacturing tolerances could render these safety devices ineffective. Though the Sten was somewhat prone

to malfunction, in the hands of a well-trained soldier, who knew how to avoid the Sten's failings, they were less of a liability as otherwise may be suggested. According to Leroy Thompson, "Troops usually made the conscious choice to keep the Sten with a magazine in place, based on the assumption that they might need it quickly. It might, then, be argued that more troops were saved by having their Sten ready when an enemy was suddenly encountered than were injured by accident. The Sten was more dangerous to its users than most infantry weapons, but all weapons are dangerous".[

Variants

Sten guns were produced in several basic marks, of which nearly half of the total produced consisted of the Mark II variant. Approximately 4.5 million Stens were produced during the Second World War.

Mark

The first ever Mk I Sten gun (number 'T-40/1' indicating its originator Harold Turpin, the year 1940 and the serial number "1") was handmade by Turpin at the Philco Radio works at Perivale, Middlesex during December 1940/January 1941 in 36 days. This particular weapon is held by the historical weapons collection of the British Army's Infantry and Small Arms School Corps in Warminster, Wiltshire.

The Mark I had a conical flash hider and fine finish. The bolt on the Mark I rotated downwards to hold open for safety, similar to that of a bolt action rifle (The bolt on Mark II+ variants rotate upwards). The handguard, vertical forward grip and some of the stock were made of wood. The stock consisted of a small tube, similar to the Mark II Canadian. The barrel shroud had vent holes. The magazine insert was fixed to the receiver with screws (unlike the later found on Mark II+ variants that could be rotated 90 degrees for stowage). A design choice that was only present on the Mark I was that the vertical forward grip could be rotated forward to make it easier to stow. 100,000 Mark I Stens were made before production was moved to the Mark II. Mark I Stens in German possession were designated MP 748(e), the 'e' standing for englisch.[25]

Mark I*

[edit]

The Mark I* (pronounced "Mark-One-Star") variant was to simplify production of the Mark I, the handguard, vertical foreward grip, vent holes, wooden furniture and conical flash hider were removed with this variant.[26][25] It was the first variant to come with a tube

stock.

Mark II

The Mark II was the most common mainstream variant, with two million units produced. The flash eliminator and the folding handle (the grip) of the Mk I were omitted. A removable barrel was now provided which projected 3 inches (76 mm) beyond the barrel sleeve. It used a tube stock. Also, a special catch allowed the magazine to be slid partly out of the magazine housing and the housing rotated 90 degrees counter-clockwise (from the operator's perspective), together covering the ejection opening and allowing the weapon and magazine both to lie flat on its side.

The barrel sleeve was shorter and rather than having small holes on the top, it had three sets of three holes equally spaced on the shroud. To allow a soldier to hold a Sten by the hot barrel sleeve with the supporting hand, an insulating lace-on leather sleeve guard was sometimes issued. Sten Mk II's in German possession were designated MP 749(e). Some Mk IIs had wooden stocks. The Spz-kr assault rifle, a rudimentary German design made in the closing stages of the war, used the receiver and components from the Sten Mk II, and the MP 3008 was made as a cheap copy.

Overall length: 762 mm (30.0 in)

Barrel length: 197 mm (7.8 in)

Weight: 3.2 kg (7.1 lb)

Mark II Canadian

During World War II, a variation of the Sten gun was produced at the Long Branch Arsenal plant in Long Branch, Ontario (now Lakeview, an area of Mississauga, Peel Region). This was very similar to the regular Mark II, with a different stock ('skeleton' type instead of strut type). It was first used in combat in the Dieppe Raid in 1942.

The Mark II that were made in China



After the Mark II, this was the most produced variant of the Sten, manufactured in Canada alongside the United Kingdom, with Lines Bros Ltd being the largest producer.[25] The Mark III was made of 48 parts, compared to the Mark II's 69, but the Mark II remained more commonplace for logistical reasons – parts between the two were not interchangeable.[16] Though slightly lighter, the magazine well was fixed in place, and the barrel could not be removed, meaning if it was damaged the weapon had to be scrapped. Combined with the fact the Mark III was more prone to failure than the Mark II, production of the weapon ceased in September 1943.[28] Unlike the Mark II, the receiver, ejection port, and barrel shroud were unified, leading to them being extended further up the barrel. Captured Sten Mk III's in German possession were designated MP 750(e). A total of 876,886 Mark III's were produced.

Mark V

The Mark V added a bayonet mount, and a wooden pistol grip and stock. There was a No. 4 Lee-Enfield Front sight and the weapon was of better quality manufacture and finish than the Mk II and Mk III.

Another variant of the Mk V had a swivel stock and rear sight mirror intended for firing around corners in urban warfare, similar to the Krummlauf developed by the Germans for the StG 44.

Suppressed models

Mk II(S) and Mk VI models incorporated an integral suppressor and had a lower muzzle velocity than the others due to a ported barrel intended to reduce velocity to below the speed of sound – 305 m/s (1,001 ft/s) – without needing special ammunition. The suppressor heated up rapidly when the weapon was fired, and a canvas cover was laced around the suppressor for protection for the firer's supporting hand.

Mk II(S)

Designed in 1943, the Mk II(S) ("Special-Purpose") was an integrally suppressed version of the Mk II. Captured examples of the Sten Mk II(S) in German service were designated MP 751(e).

Mk VI

The Mk VI was a suppressed version of the Mk V. The Mk VI was the heaviest version due to the added weight of the suppressor, as well as using a wood-



with a copy known as the M38.[27] The Chinese M38s were made in an automatic-only configuration, unlike the standard Mark II. The M38 was made in 9×19mm and 7.62×25mm Tokarev variants.

Overall length: 896 mm (35.3 in)

Barrel length: 198 mm (7.8 in)

Weight: 3.8 kg (8.4 lb)

Mark III

[edit]

en pistol grip and stock.

The suppressed models were produced at the request of the Special Operations Executive (SOE) for use in clandestine operations in occupied Europe, starting with the Mk II(S) in 1943. Owing to their tendency to overheat, they were fired in short bursts or single shots. Some guns were even changed to semi-automatic only.

In addition to its use in the European theatre, the Mk II(S) saw service with clandestine units in the Southwest Pacific Area (SWPA) such as the Services Reconnaissance Department and SOE's Force 136 on operations against the Imperial Japanese Army. The Sten Mk II(S) was used by the Operation Jaywick party during their raid into Japanese-occupied Singapore Harbour.

The Sten Mk II(S) also saw service with the Special Air Service Regiment during the Vietnam War.

Foreign production

Australia

The Mark I Austen submachine gun ("Australian Sten") was an Australian design, derived from the Sten and manufactured by Diecasters Ltd of Melbourne and W. T. Carmichael Ltd of Sydney. It externally resembled the Sten but had twin pistol grips and folding stock resembling those of the German MP40. Australian and NZ troops however preferred the Owen gun which was more reliable and robust in jungle warfare. A Mk 2 version was also produced which was of different appearance and which made more use of die-cast components. 20,000 Austens were made during the war and the Austen was replaced by the F1 submachine gun in the 1960s.

Service

The Sten, especially the Mark II, tended to attract affection and loathing in equal measure. Its peculiar appearance when compared to other firearms of the era, combined with sometimes questionable reliability made it unpopular with some front-line troops. It gained nicknames such as "Plumber's Nightmare", "Plumber's Abortion", or "Stench Gun". The Sten's advantage was its ease of mass-production manufacture in a time of shortage during a major conflict.

Made by a variety of manufacturers, often with subcontracted parts, some early Sten guns were made poorly and/or not to specification, and could malfunction in operation, sometimes in combat. The double-column, single-feed magazine copied from the German MP28 was never completely satisfactory, and hasty manufacturing processes often exacerbated the misfeed problems inherent in the design. A common statement heard from British forces at the time was that the Sten was made "by Marks and Spencer out of Woolworth."^[54] British and Commonwealth

forces in the early years of the war often extensively test-fired their weapons in training to weed out bad examples; a last-minute issue of newly manufactured Stens prior to going into action was not welcomed.^[citation needed]

The MK II and III Stens were regarded by many soldiers as very temperamental, and could accidentally discharge if dropped or even laid on the ground whilst the gun was cocked.^[54] Others would fire full-automatic when placed on 'single', or fire single shots when placed on 'automatic'.^[54] This was particularly true of early Stens using bronze bolts, where the sear projection underneath the bolt could wear down more easily than ones made of case-hardened steel.

Stens could jam at inopportune moments. One of the more notable instances of this was the assassination of SS-Obergruppenführer Reinhard Heydrich on 27 May 1942, when Czechoslovak Warrant Officer Jozef Gabčík wanted to fire his Sten point blank at Heydrich, only to have it misfire. His comrade Jan Kubiš then hastily tossed a grenade, which mortally wounded Heydrich. There are other accounts of the Sten's unreliability, some of them true, some exaggerated and some apocryphal. France manufactured (well-made) Sten copies post-war into the early 1950s, evidently believing in the basic reliability and durability of the design.

A well-maintained (and properly functioning) Sten gun was a devastating close-range weapon for sections previously armed only with bolt-action rifles. In addition to regular British and Commonwealth military service, Stens were air-dropped in quantity to resistance fighters and partisans throughout occupied Europe. Due to their slim profile and ease of disassembly/reassembly, they were good for concealment and guerrilla warfare. Wrapping the barrel in wet rags would delay undesirable overheating of the barrel.^[56] Guerrilla fighters in Europe became adept at repairing, modifying and eventually scratch-building clones of the Sten (over 2,000 Stens and about 500 of the similar Błyskawica SMGs were manufactured in occupied Poland).

Canadian infantry battalions in north-west Europe retained spare Sten guns for special missions and the Canadian Army reported a surplus of the weapons in 1944. The Sten saw use even after the economic crunch of World War II, replacing the Royal Navy's Lanchester submachine guns into the 1960s, and was used in the Korean War, including specialist versions for British Commandos. It was slowly withdrawn from British Army service in the 1960s and replaced by the Sterling SMG; Canada also phased out the Sten,



The "Monumento al Partigiano" in Parma, Italy, depicts an Italian partisan holding a Sten

replacing it with the C1 SMG.

The Sten was one of the few weapons that the State of Israel could produce domestically during the 1948 Arab–Israeli War. Even before the declaration of the State of Israel, the Yishuv had been producing Stens for the Haganah; after the declaration, Israel continued making Stens for IDF use. The opposing side also used (mostly British-made) Stens, particularly the irregular and semi-regular Arab Liberation Army.

In the 1950s, "L numbering" came into use in the British Army for weapons—Stens were then known as L50 (Mk II), L51 (Mk III) and L52 (Mk V).

One of the last times the Sten was used in combat during British service was with the RUC during the IRA border campaign of 1956–1962. In foreign service, the Sten was used in combat at least as recently as the Indo-Pakistani War of 1971.

Sten guns were widely used by guerrilla fighters during the 1971 Bangladesh Liberation War. In 1975, President Sheikh Mujibur Rahman and his family members were assassinated using Sten guns.

A number of suppressed Stens were in limited use by the US Special Forces during the Vietnam War, including c. 1971, by the United States Army Rangers.

In 1984, Indian prime minister Indira Gandhi was assassinated by two of her bodyguards, one of whom fired the entire magazine (30 rounds) of his Sten at point-blank range, of which 27 hit her.

In the Second Sino-Japanese War and the Chinese Civil War, both nationalists and communist Chinese forces used the Sten. Some Stens were converted by the communists to 7.62×25mm by using the



Sten with three types of bayonets

magazine housing from a PPS to accept curved PPS magazines. British, Canadian,

and Chinese Stens were seen in the hands of the communists during the Korean and Vietnam Wars.

The Finnish Army acquired moderate numbers of Stens in the late 1950s, mainly Mk. III versions.

Refurbishment at the Kuopio Arsenal included bluing of the arms. Stens in Finnish service saw limited usage by conscripts (notably combat swimmers) and were mostly stockpiled for use in a future mobilization.

During the Zapatista movement in 1994, some Zapatista soldiers were armed with Sten guns.



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USA DUKW during Exercise Tiger, or Operation Tiger, one of a series of large-scale rehearsals for the D-Day invasion of Normandy, which took place in April 1944

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