VIETNAM GLOSSARY AND SOME HISTORY

by Dwight F. Davis

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VIETNAM GLOSSARY AND SOME HISTORY
by Dwight F. Davis

U.S. INFANTRY PERSONAL EQUIPMENT AND RATIONS

Boonie Cap

A Boonie Cap is a cloth cap with wide brim all around. It was preferred by many soldiers to the “steel pot” helmet and helmet liner because it was much more comfortable and less hot and it helped keep the sun off your face.

Boonie Cap

C-4

C4 or Composition C4 is a common variety of the plastic explosive known as Composition C. It is 1.34 times as powerful as trinitrotoluene (TNT). C4 is made up of explosives, plastic binder, plasticizer and, usually, marker or odorizing taggart chemicals such as 2,3-dimethyl-2,3-dinitrobutane (DMDNB) to help detect the explosive and identify its source. As with many plastic explosives, the explosive in C4 is RDX (cyclonite or cyclotrimethylene trinitramine), which makes up around 91% of C4 by weight. The plasticizer is diethylhexyl or dioctyl sebacate (5.3%) and the binder is usually polyisobutylene (2.1%). Another plasticizer used is dioctyl adipate (DOA). A small amount of SAE 10 non-detergent motor oil (1.6%) is also added. C4 is manufactured by combining the noted ingredients with binder dissolved in a solvent. The solvent is then evaporated and the mixture dried and filtered. The final material is an off-white solid with a feel similar to modelling clay. It has a faint bituminous odor and an astringent taste. C-4 was used to clear landing zones and also provided the firepower for Claymore mines. C-4 will explode only with a blasting cap and will not explode when burned. In Vietnam, because it burned very hot it was preferred over the heat tabs issued to heat C-rations and make coffee.

Source: http://en.wikipedia.org/wiki/C-4_(explosive)

Canteen

One of the most common items of individual equipment for ground troops is the military canteen. With the high level of physical activity that is normal in military operations, every person needs a significant ration of water on a regular basis. This need is accelerated in warm climates, but does not disappear even in quite cold environments. The canteen and its accessories provide the vital link between the unit's water supply and the individual soldier on the move.
In the U.S. military, the modern era of individual water canteens began with the decision by the Infantry Equipment Board to adopt the aluminum one quart canteen, along with a matching cup and canvas carrier. The M1910 design evolved through WW I and WW II, including a change to stainless steel, different caps and variations in the cup and carrier, but the basic design elements were constant:

- Canteen body, one quart capacity, with a curved "kidney shape" cross-section
- Screw-on Cap attached to the canteen body by chain, lanyard or strap
- Insulated cover that attaches to belt or pack
- Metal cup with folding handle that nests with the canteen body, used to prepare coffee, drink mix, soup or other rations

The second wave of design evolution led to the 1962 adoption of the M1961 olive drab polyethylene plastic canteen. Although the plastic canteen was almost identical in size to the metal ones, a new nylon carrier was issued to be compatible with the ALICE load carrying system then coming into use. With minor variations, and a new MOLLE canteen carrier, the one quart plastic military canteen remained in use into the 21st century.

A soldier drinks from his canteen.  
Canteen Cup  
Used for making coffee and soup

Source:  http://www.olive-drab.com/od_soldiers_gear_canteen.php

Claymore

A **claymore mine** is used for perimeter security. See a description of claymore mine under “Weapons” below. Each grunt carried one claymore.

Compass

A **compass** is a navigational instrument for determining direction relative to the Earth's magnetic poles. It consists of a magnetized pointer (usually marked on the North end) free to align itself with Earth's magnetic field.
The military forces of a few nations, notably the United States Army, continue to utilize lensatic field compasses with magnetized compass dials or cards instead of needles. A lensatic-card compass permits reading the bearing off the compass card with only a slight downward glance from the sights (see photo), but may require a separate protractor for use with a map. The official U.S. military lensatic compass does not use fluid to damp needle swing, but rather electromagnetic induction to damp the needle. A "deep-well" design is used to allow the compass to be used globally with little or no effect in accuracy caused by a tilting compass dial. As induction forces provide less damping than fluid-filled designs, a needle lock is fitted to the compass to reduce wear, operated by the folding action of the rear sight/lens holder. The use of air-filled induction compasses has declined over the years, as they may become inoperative or inaccurate in freezing temperatures or humid environments.

Not everyone in an infantry platoon was issued a compass; however, all platoon leaders, platoon sergeants, and squad leaders had one and point men had to use one. A compass was critical to finding your way in the boonies.

![Military Compass and Pouch](http://en.wikipedia.org/wiki/Compass)

**Source:** http://en.wikipedia.org/wiki/Compass

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C-Rats

**This is the official Quartermaster's description of C-Rations (C-Rats) used in Vietnam**

"The Meal, Combat, Individual, is designed for issue as the tactical situation dictates, either in individual units as a meal or in multiples of three as a complete ration. Its characteristics emphasize utility, flexibility of use, and more variety of food components than were included in the Ration, Combat, Individual (C Ration) which it replaces. Twelve different menus are included in the specification."
Each menu contains: one canned meat item; one canned fruit, bread or dessert item; one B unit; an accessory packet containing cigarettes, matches, chewing gum, toilet paper, coffee, cream, sugar, and salt; and a spoon. Four can openers are provided in each case of 12 meals. Although the meat item can be eaten cold, it is more palatable when heated.

Each complete meal contains approximately 1,200 calories. The daily ration of 3 meals provides approximately 3,600 calories.

There were 4 choices of meat in each B group. Because there were several "vintages" of C’s issued to the Marines in Vietnam, more than 4 items may be listed in the B groups as well as the brands of cigarettes included in the accessory pack.

<table>
<thead>
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<th>B-1 Units</th>
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<td>Cream</td>
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<tr>
<td>Coconut</td>
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*Accessory Pack*

Spoon, Plastic
Salt
Pepper
Coffee, Instant
Sugar
Creamer, Non-dairy
Gum, 2 Chicklets
Cigarettes, 4 smokes/pack
  Winston
Marlboro
Salem
Pall Mall
Camel
Chesterfield
Kent
Lucky Strike
Kool
Matches, Moisture Resistant
Toilet Paper

C-Rat Can and P-38 Can Opener

C-Rat Accessory Pack

Source:  http://gruntfixer.homestead.com/files/crats.html

Entrenching Tool

The modern entrenching tool evolved from the early folding and short spades of World War I and World War II, and these may have evolved from short spades used in the American Civil War. Besides being used for digging defensive fighting positions, entrenching tools were used for latrines, graves and as weapons, especially in close quarters combat between German and Soviet forces during WWII.

Entrenching tools have been made with straight handles, T-handles, D-handles, and many folding designs, sometimes encompassing a pick into the design. The British 1937 Pattern web equipment added a bayonet lug to their entrenching tool, allowing the spike bayonet to be mounted on the end and converting the e-tool helve into a mine prodder. Some entrenching tools can also be sharpened to be used as a bladed melee weapon. In fact, when used as such, the E-tool's sharp, thick edges are enough to cut through flesh and bone, thus making for a brutal, but still strong close encounter weapon, if need be.
Due to its efficiency and the psychological effect on the enemy, Soviet Spetsnaz units are well trained in combat use of shovels, despite only using them to a limited extent for their direct purpose; they are never digging trenches due to the nature of their work.

The United States Army folding spade, or entrenching tool, has evolved from a single fold spade (inaccurately referred to as a "shovel" by military quartermasters) with a straight handle, to a tri-fold design with a modified “D” handle design with all steel construction, to a similar light weight plastic and steel tri-fold design adopted by NATO as the standard issue entrenching tool. Other folding variants have also been issued. The latest light weight plastic tri-fold design dropped the weight of the spade thirty percent from its peak weight of 2.25 pounds (1.02 kg) with the all steel tri-fold, down to 1.5 pounds (0.68 kg). This provided a tactical advantage in reducing the weight a soldier must carry in the field.

![M-1943 U.S. Army Entrenching Tool with Carrying Cover](http://en.wikipedia.org/wiki/Entrenching_tool)

**Field Dressing**  
A **field dressing** or **battle dressing** is a kind of bandage intended to be carried by soldiers for immediate use in case of (typically gunshot) wounds. It consists of a large pad of absorbent cloth, attached to the middle of a strip of thin fabric used to bind the pad in place. Field dressings are issued in sealed waterproof pouches to keep them clean and dry; the pouch can be torn open when required.

In combat, each soldier carries one field dressing ready for immediate use. Standard doctrine is that a casualty's dressing should be used rather than the rescuer's - the rescuer may need to help another casualty, or be helped himself, whereas the original casualty is not going to make any other use of his own dressing. Because of this, it is important that soldiers know where to find their comrades' field dressings, and infantry units typically have their own SOP stating where they should be carried. British Army uniforms issued in the past included dedicated field dressing pockets, but the current clothing does not. Instead, a common location for field dressings is the left shoulder-strap of the
webbing, either held in place with gaffer tape or contained in a small pouch that is not issued but can be purchased from several civilian suppliers.

Some combat medical technicians make use of field dressing wrappers in the management of "sucking" chest wounds. In such wounds, the working of the chest sucks air through the wound into the space around the lung, rather than sucking air down the throat and into the lung. The hole must be sealed to enable the casualty to breathe properly. As a battlefield interim measure, the waterproof wrapper of a field dressing can be placed over the hole, with the clean inside against the wound, and taped in place. Tape is applied to the sides and top of the wrapper, leaving the bottom edge free. The wrapper then acts as a simple flapper valve, preventing air being sucked in but allowing any that has already entered to be forced out as the casualty exhales.

Field Dressing in Pouch

Field Dressing

Source: "http://en.wikipedia.org/wiki/Field_dressing_(bandage)"

In addition to canteens, field soldiers were often issued a five quart canteen which was essentially a water proof bag. Because water was so precious soldiers had to carry as much as they could despite the weight.

Five Quart Military Canteen
Flack Jacket

A **flak jacket** or **flak vest** is a form of protective clothing designed to provide protection from shrapnel and other indirect low velocity projectiles. Today it frequently refers to ballistic vests, particularly Type III and above, which have added steel, titanium, ceramic or polyethylene plates which can withstand high-powered rounds such as those from rifles. In Vietnam; grunts generally wore flak jackets only when they were on convoy in vehicles. In the boonies a flak jacket was too heavy and too hot.

![A Soldier in Vietnam Wearing a Flack Jacket](http://en.wikipedia.org/wiki/Flak_jacket)

**Source:** http://en.wikipedia.org/wiki/Flak_jacket

Hand Grenades

Each infantry soldier was generally issued four hand grenades which could be real handy in some situations. See a description of M26 and M61 hand grenades under “**Weapons**” below.

Hand Held Flare

The **hand held flare** was an aluminum tube about a foot long and about the diameter of a golf ball. It had a cap on one end that you would take off and put on the other end. Inside the cap was a sharp pin hanging down about 1/2 inch. The reason you put the cap on the other end is that is where the firing cap was, set in the middle of the tube like a large shotgun shell. You would then point the thing up and strike it on something, the pin would hit the cap and off the flare would go. The flare had a picture of a guy hitting it on his knee; however, you wouldn't want to hit the flare on your knee to make it fire. First your head is higher than the end of the tube, not good, second you get illuminated in a kneeling position, not good, and third, when the flare goes by your head you get blinded by the light, not good.

You want to be down in a concealed position, you want to be ready to pull the trigger, you want your eyes closed until it POPs, don't move, when the light goes out move from where you shot it from, there will be a smoke trail from the flare to YOU. Make sure everyone knows the flare is going to go off so they too can be concealed. The flare only lasted for about 10 seconds and would light up about 2-3 hundred feet in the open.

**Source:** http://www.patriotfiles.com/forum/showthread.php?t=43038
**Jungle Boots**

Jungle boots are a type of combat boot designed for use in jungle warfare or in hot, wet and humid environments, where a standard leather combat boot would be uncomfortable or unsuitable to wear. Jungle boots have vent holes in the instep and sometimes a canvas upper to aid in ventilation and drainage of moisture.

**Development and Use**

The use of Jungle boots predates World War II, when small units of U.S. soldiers in Panama were issued rubber-soled, canvas-upper boots for testing. Developed in conjunction with the U.S. Rubber Company, a pair of Jungle boots weighed approximately three pounds.

**World War II**

Field reports from the Panama Experimental Platoon on the new lightweight boots were positive, and Jungle boots were later issued to a number of U.S. Army and Marine forces for use in tropical or jungle environments, including U.S. Army forces in New Guinea and the Philippines, and in Burma with Merrill's Marauders, and the Mars Task Force (5332nd Brigade, Provisional). As jungle boots wore out more quickly than the standard Army Type II field shoes, they were often carried by infantrymen attached to the field pack as a secondary pair of footwear, to be used when encountering heavy, soft mud. In 1944, the Panama sole was first developed by U.S. Army Sergeant Raymond Dobie, which used a series of angled rubber lugs in the soles to push soft mud from the soles, clearing them and providing much better grip in greasy clay or mud. However, the Panama sole was developed too late to see service in World War II. With the end of the war, all official interest in jungle equipment came to a halt; an improved Jungle boot with the new Panama sole was not produced until 1966.

**Vietnam War**

In the early 1960s, a jungle boot incorporating most of the improvements developed since the end of World War II was issued to U.S. forces personnel during the Vietnam War. In the improved boot, the upper was made of cotton canvas duck, with leather for the toe and heel, and nylon reinforcements for the neck of the boot. The new Jungle boot originally used a Vibram-type lugged composition rubber sole strongly vulcanized to the leather toe and heel. Water drains (screened eyelets) were added to the canvas top near the sole to quickly drain water from the inside of the boot. Removable ventilating insoles made of fused layers of Saran plastic screen, first invented in 1942, were later adopted for the issue Jungle boot. The insoles trapped air which was circulated throughout the interior of the boot during the act of walking; moist interior air
was exchanged for outside air using the water drain eyelets. In 1968, after two additional years of testing with troops in the Panamanian jungles, the Panama sole was finally adopted by the U.S. Army for its issue Jungle boot.

After numerous widely-reported incidents of foot injuries to U.S. forces caused by punji stake traps, issue Jungle boots were fitted with a stainless steel plate inside the boot's sole to protect the wearer from punji stake traps. Later Jungle boots were given nylon canvas tops in place of cotton duck.

The US military jungle boot's popularity extended beyond the US Armed Forces with Australian Army and New Zealand Army soldiers going to great lengths to get a pair of jungle boots from American troops to use alongside their standard-issue black leather General Purpose Boots (GP Boots). When the 1st Battalion of the Royal Australian Regiment (1 RAR) was deployed to South Vietnam and served alongside the US Army's 173rd Airborne Brigade in 1965, many Australian troops were willing to trade their Australian Army-issue "slouch hats" for a pair of jungle boots from the Americans since the boots Australian troops were issued were World War II vintage tropical studded Ankle Boots and the boots were not suited to the conditions of Vietnam. Australian and New Zealand Special Air Service troops also made extensive use of American jungle boots during the course of the Vietnam War and they were very popular with SAS troopers.

![Jungle Boot](http://en.wikipedia.org/wiki/Jungle_boot)

**Source:** http://en.wikipedia.org/wiki/Jungle_boot

| Jungle Fatigues | Vietnam Jungle Fatigues were lightweight poplin uniforms issued to troops during the Vietnam War. Some soldiers in elite units were issued tiger stripe but the majority of soldiers were issued the olive drab versions. |
Knives

Most infantry soldiers carried knives of various types from small pocket knives to large hunting knives.

LRP Ration

The Food Packet, **Long Range Patrol or "LRP ration"** (pronounced "Lurp") was a U.S. Army special field ration. It was developed in 1964 during the Vietnam War (1959-75) for use by Special Operations troops on long patrols deep in enemy territory, where the bulky canned MCI ration (formerly known as the C ration) proved too heavy for extended missions while afoot.

Before the outbreak of World War II, Army planners and commanders had recognized the inadequacy of heavy canned wet rations when employed for infantry marching on long patrols, especially in extreme environments such as mountain or jungle terrain. To this end, the Jungle ration was developed and briefly issued during the first part of World War II. The Jungle Ration was a dry, lightweight multi-component daily meal that could be stored in light waterproof bags, easily carried by a foot soldier, and which would not spoil when exposed to heat and humidity for an extended period of time. Importantly, the Jungle ration was specifically designed to provide an increased amount of calories despite its lighter weight, ideal for a soldier operating in difficult jungle terrain on foot while carrying all of his equipment on his back. By all accounts the Jungle Ration was successful, however, cost concerns led to its replacement, first by substitution of increasingly heavier and less expensive canned components, followed by complete discontinuance in 1943.

After the war, U.S. army logisticians again re-standardized field rations, eliminating all lightweight rations in favor of heavy canned wet rations such as the C ration and the Meal, Combat, Individual ration. The overuse of heavy canned wet rations reached a ludicrous extreme during the early years of U.S. involvement in the Vietnam war, when American soldiers on extended infantry
patrol were forced to stack their canned rations in socks to minimize weight and noise.

In response, the Food Packet, Individual, Combat (FPIC), it was developed in the early 1960s, though not issued in the field until 1966. The FPIC was designed to be nutritious, lightweight, and easily portable, the descendant of the dehydrated rations used by NASA's astronauts. The ration was originally a response to complaints about the weight of the canned ration. Carrying a multi-day supply of heavy wet canned MCI or C-rations, "a special operations team could become virtually immobile due to the weight of needed supplies. Mobility and stealth are decreased when loads become too heavy, and the soldier is too often worn down by midday. Fatigue affects alertness, making him more vulnerable to detection and error." The ration's final 11 oz. (313 g) weight was a compromise between the original packet's target weight of 5 oz. (142 g) and the base 1 lb. (454 g) target weight of the larger experimental Meal, Ready-to-Eat, Individual (MRE-I), a forerunner of the later MRE.

The ration differed from the standard wet-pack Meal, Combat, Individual (MCI) in that it was a freeze-dried, vacuum-packed individual ration meal weighing 11 oz. (313 g) packed in a waterproof grey-green canvas envelope lined with aluminum foil. Due to its discovered tendency to spoil in a wet or humid environment (i.e., all of South-east Asia), later ration packs came enclosed in an outer zip-lock clear-plastic bag to keep out the moisture. This drawback made it less than desirable as a standard ration.

Contents

Like the regular-issue U.S. canned Meal, Combat, Individual ration (MCI) or C ration, the LRP ration came with a plastic spoon and a brown-foil accessory packet containing coffee, cream substitute, sugar, salt, Candy-Coated Gum (2 pieces), toilet paper, book of matches, and a pack of 4 commercial-grade cigarettes. However, the LRP daily ration was 'energy depleted': it supplied 1,200 fewer calories (5.0 kJ) per day than the MCI.

Menus consisted of a main entree and a dessert item.

Entrees included: Menu #1: Beef Hash, Menu #2: Chili con Carne, Menu #3: Spaghetti with Meat Sauce, Menu #4: Beef with Rice, Menu #5: Chicken Stew, Menu #6: Pork with Scalloped Potatoes, Menu #7: Beef Stew, and Menu #8: Chicken with Rice.

The dessert unit included one of the following: a Cereal Bar, a Fruitcake Bar, chocolate discs (2), a packet of individually-wrapped pieces of candy (Brachs caramels or Charms hard candies), or even freeze-dried fruit (pears, peaches, or apricots) in the late-war issue rations.
Criticisms

As it was a freeze-dried (dehydrated) ration, it required 1.5 pints (700 ml) of water to cook and reconstitute it. This was normally not a problem in environments where water supplies were generally plentiful. However, the water sources in Vietnam were usually teeming with parasites (e.g., blood flukes and tapeworms) and viruses, so fresh water had to usually be transported in or by vehicle when on large-scale operations or collected from rainwater when in the field on patrols. In an emergency, the ration could be consumed 'dry', but the soldier doing so had to consume extra water to prevent dehydration. Soldiers usually mixed its contents with canned C-Rations to reduce monotony and to supply extra calories, as the ration was insufficient for an active soldier. However, this defeated the purpose of deploying the LRP ration in the first place.

Due to these drawbacks, the original concept of its wide adoption was shelved in favor of its limited use by Special Operations units like the Long Range Patrols, Special Forces, and Navy SEALs. It then acquired the new designation of Food Packet, Long Range Patrol (LRP), also known as "Lurp meals" or "long rats". Production was limited to 5 million units in 1967, rising to just 9 million in 1968. It was considered a novelty by line soldiers, who usually "acquired" as many as they could before going on field operations.

Source: http://en.wikipedia.org/wiki/LRP_ration

M-7 Bayonet

A bayonet (from French baïonnette) is a knife-, dagger-, sword-, or spike-shaped weapon designed to fit on, over or underneath the muzzle of a rifle barrel or similar weapon, effectively turning the gun into a spear. It is a close quarter battle combat or last-resort weapon.

The M7 Bayonet is a bayonet that was used by the U.S. military for the M16 rifle, it can also be used for the AR-15 rifle. It was introduced in 1964, when the M16 entered service during the Vietnam War.

The M7 is based on the older M6 bayonet for the M14 rifle. The most notable differences between the two are the diameter of the muzzle rings, and the locking mechanism. The M7's release mechanism is on the pommel, while the M6 has a spring-loaded lever near the guard that when depressed releases the bayonet. Both models are approximately the same length, have the same black finish, and use the M8A1, or later M10 sheath.

The NSN for the M7 bayonet is 1095-00-073-9238.

The M7 was replaced by the M9 bayonet and, later in the Marine Corps, by the OKC-3S bayonet.
The M7 was manufactured in the United States, West Germany, the Philippines, Singapore, and South Korea.

![M7 Bayonet and M8A1 Sheath](http://en.wikipedia.org/wiki/M7_bayonet)

M7 Bayonet and M8A1 Sheath

Source: http://en.wikipedia.org/wiki/M7_bayonet

M-16

The **M-16** was the basic weapon for U.S. infantry soldiers. Except for the machine gunners and M-79 grenade launcher guys, each grunt carried an M-16 and 12 magazines in bandoliers strapped across their chest with extra ammo in their rucksacks. See a description of the M-16 under “**Weapons**” below.

M17 Gas Mask

The **M17 gas mask** is a series of gas masks that were designed and produced in the 1960s and 70s to provide protection from all types of known chemical and biological agents present. The mask has different components like a filter, a face piece and outserts. Filter elements in the face piece prevent harmful agents from entering the mask. The M17 series includes three types of masks, the M17, M17A1 and M17A2.

These gas masks have inbuilt systems that facilitate communication, a tube for drinking water (A1 & A2), and a pair of outserts to protect eye lenses and prevent fogging. The mask is packed in a carrier that also contains other items like a nerve agent antidote kit (NAAK) and a convulsant antidote for nerve agents (CANA). It also contains a waterproof bag to protect filter elements from water damage. Other components attached are mask hoods to protect the head and neck area, a winterization kit to prevent frost accumulation during cold weather conditions and optical inserts for soldiers with vision defects. The A1 had a mask to mask resuscitation feature that was found to expose both personnel to chemical agents. This forced the services to withdraw it from issue and replace it with the A2 without the feature.

The mask offers protection from harmful agents, but does not function properly in places where oxygen content is low. The mask is not meant to be used for firefighting and does not provide protection from radiation. It is
recommended that users continue wearing it until the biological or chemical agent is identified. The major threat that gas masks were used for in Vietnam was CS gas which could be delivered by a mortar.

![M17 Gas Mask](http://en.wikipedia.org/wiki/M17_gas_mask)

### M-60 Ammunition

The M-60 machine gun is a family of American general purpose machine guns firing 7.62x51mm NATO cartridges from a disintegrating belt of M13 links. **M60 ammunition** comes in a cloth bandolier containing a cardboard box of 100 pre-linked rounds. The M60 changed from M1 link to the different M13 link, a change from the older link system with which it was not compatible. The cloth bandoleer is reinforced to allow it to be hung from the current version of the feed tray. Historically, units in Vietnam used B3A cans from C-rations packs locked into the ammunition box attachment system to roll the ammunition belts over for a straighter and smoother feed to the loading port to enhance reliability of feed. The later models changed the ammunition box attachment point and made this adaptation unnecessary.

The M60 is a belt-fed machine gun that fires the 7.62 mm NATO cartridge commonly used in larger rifles. It is generally used as a crew-served weapon and operated by a team of two or three men. The team consists of the gunner, the assistant gunner (AG in military slang), and the ammunition bearer. The gun's weight (23 pounds) and the amount of ammunition it consumes when fired make it difficult for a single soldier to carry and operate. The gunner carries the weapon and, depending on his strength and stamina, anywhere from 200 to 1,000 rounds of ammunition. The assistant carries a spare barrel and extra ammunition, and reloads and spots targets for the gunner. The ammunition bearer carries additional ammunition and the tripod with associated traversing and elevation mechanism, if issued, and fetches more ammunition as needed during firing.

The basic ammunition load carried by the crew is 600 to 900 rounds and theoretically allows approximately two minutes of continuous firing at the maximum rate of fire. All crews carry more than the basic load, sometimes three or more times the basic amount.
In addition, most members of each rifle squad carried additional rounds of M-60 ammunition to assist the gun crew. See a description of the M-60 machine gun under “Weapons” below.

\[
\text{M-60 Ammo \hspace{2cm} Loose M-60 Ammo Belt}
\]

Source: http://en.wikipedia.org/wiki/M60_machine_gun

The **M-1956 Load-Carrying Equipment** \([LCE]\), also known as the *Individual Load-Carrying Equipment* \([ILCE]\), replaced the M-1910 olive drab cotton canvas and web individual equipment which had remained in service, with various modifications since that year. The *M-1956 LCE* came at a period when the United States Army was in the process of adopting a new service rifle, and thus the system is very general-purpose in nature, designed to accommodate ammunition and cartridge magazines for a number of standard issue small arms. The *M-1956 LCE* remained in service from the late 1950s through the 1980s and set the standard for future United States military load-carrying equipment.

**Individual Equipment Belt &**

**Individual Equipment Belt Suspenders**

The *M-1956 LCE* continued the traditional fighting load concept of an individual equipment belt supported by individual equipment belt suspenders. It differed from previous United States military designs, however, by relying on a single individual equipment belt for soldiers armed with all small arms as opposed to three separate individual equipment belts: the *M-1936* individual equipment belt, the *M-1923* cartridge belt for the *Rifle, Caliber .30, M1*, and the *M-1937* cartridge belt for the *Rifle, Caliber .30, Automatic, M1918*. The olive drab U.S. Army Shade 7 cotton canvas Belt, *Individual Equipment* is manufactured to United States military specification MIL-B-40158 and is produced in two sizes: Medium, for waists under 30-inches \([FSN 8465-577-4925]\), and Large, for waists over 30-inches \([FSN 8465-577-4924]\). Earlier production individual equipment belts feature a horizontal canvas weave while later patterns feature a vertical weave. It is secured by means of a brass hook and loop buckle and has two rows of eyelets along the top and bottom for
attaching individual equipment utilizing the *M-1910* wire hanger. There is a center row of smaller eyelets utilized for adjusting the size of the individual equipment belt.

The olive drab U.S. Army Shade 7 cotton canvas *Suspenders, Individual Equipment Belt* [also designated *Suspenders, Field Pack, Combat, M-1956*] were manufactured in Regular [FSN 8465-577-4922], Long [FSN 8465-577-4923], and X-Long [FSN 8465-823-7231] lengths to United States military specification *MIL-S-40160*. They are additionally adjustable in length by means of sliding metal friction fasteners. Early production individual equipment belt suspenders attach to the individual equipment belt by means of open bent-wire hooks which are attached to the individual equipment belt's upper set of eyelets. Later production individual equipment belt suspenders utilize closing hooks in the rear and open cast hooks in the front. The individual equipment belt suspenders feature a row of web straps over the shoulders for attaching equipment and each side featured a metal rectangular ring where the frontal web straps and the padded shoulder portion joined for additional equipment attachment. The underside of the padded portion of the suspenders is a thinner canvas in earlier-production suspenders and nylon in some of the latest examples.

**Slide Keepers**

Slide keepers, (contemporarily known as ALICE clips because they feature in that more modern system as well), were steel right-angled "U" shapes with a sliding flat steel piece which when closed formed a rectangle with length similar to the breadth of the pistol belt which could tightly hold things against it. These were used to attach the various pouches of the M1956 equipment to the pistol belt. Holding equipment close to the belt reduced the bouncing effect of the M1910 wire-hanger attached equipment and allowed pouches to be mounted in places where there were no eyelets (such as the suspenders). Certain older items using wire hangers were compatible with the M1956 pistol belt, but all M1956 equipment and that of the subsequent M1967 MLCE and ALICE systems incorporated slide keepers.

**Small Arms Ammunition Case**

In 1956 the US Army employed several types of cartridge belts for soldiers armed with the M1 Garand, BAR belts for those armed with the M1918 Browning Automatic Rifle, 3- and 5-cell pockets for those armed with sub-machine guns, a pocket for 15 round M1 Carbine and M2 magazines, and two different pockets for the 30 round magazines, in addition to 2- and 3-cell grenade pouches. The M1956 Small Arms Ammunition case sought to replace all of these with a pair of simple pouches capable of holding a bandoleer of M1 Garand clips (5 total) or 8 clips, 2 BAR magazines, 4 30-round carbine magazines, in addition to two grenades each. The equipment came at a time
when the M14 Rifle was being tested, and the ammunition pouch was thus also designed to hold 3 20-round M14 magazines. It was also later found to be capable of only holding 3 M16 magazines despite the significant size difference between the magazines. A pouch with dimensions better suited to the 20-round M16 magazines was later produced (See Revisions paragraph below). The cases were issued in pairs and worn at the front of the belt on either side of the buckle. Like all other M1956 equipment they were constructed of heavy canvas. The top flap was closed by means of a metal eyelet and cloth tab closure. Early models featured a steel plate at the front both to maintain rigidity and to protect the ammunition. Two hand grenades of any type in the US arsenal could be attached on either side of each pouch, with the spoon hooked through a web strap and another web strap with snap-closure wrapped around the top. Like other pouches in the system, the ammunition pouches each attached to the web belt with a pair of slide keepers and, uniquely, an adjustable length strap with a closable hook which connected to the rectangular hook on the suspenders, intended to keep the case upright and transfer some of the weight directly to the shoulders.

**Canteen Cover**

With the adoption of the M1956 equipment, the older M1910 1-quart aluminum canteen and WWII-production steel canteens remained in service well into the 1960s, later replaced by a plastic variant introduced in 1962. Both were of similar dimensions and slightly curved to sit comfortably on the hip. As a result the M1956 canteen cover was not fundamentally different from the earlier models with the exception of the use of two slide keepers in lieu of a wire hanger and metal snaps for closure instead of lift-the-dot fasteners. Constructed of heavy canvas with cloth-taped edges the M1956 canteen cover had a synthetic wool felt lining for insulation, and was slightly oversized to accommodate both a canteen and the metal canteen cup in which it nested. Covers produced after 1967 have nylon-taped edges. Typically canteen covers also demonstrate the most visible signs of age, fading easily due to continuous wetting and drying. Originally a single canteen and cover was issued and worn either on the belt between the Small Arms Ammunition Case at the front and the Field Pack (see below) at the rear, or mounted on the side of the Field Pack. Troops in Vietnam generally wore two or more canteens, and this practice largely continued after the war, as, with the adoption of larger complementary rucksacks (see Complementary Equipment below), Entrenching Tools (see below) often migrated to attachment points on the rucksack, freeing space on the pistol belt for another canteen.

**Dressing/Compass Case**

With the adoption of the M1956 equipment, a single simple Dressing or Compass Case replaced both the M1938 Compass Case and the M1910 and M1942(Carlisle) Dressing Pouches. This case could accommodate one each of
either the standard lensatic compass or one of several individual field dressings in the inventory. A top flap closed by means of a blackened brass snap and the canvas case could be attached to the webbing by means of a single slide keeper. Later production models incorporated a metal-rimmed drainage eyelet at the bottom of the pouch. Each soldier was issued one case for carrying a field dressing, and those whose duties required them to carry the standard unmounted lensatic compass carried another for that piece of equipment. Placement varied with unit standards, but this case was often mounted in one of three places. Either on the horizontal straps on the suspenders (either shoulder and either right-side up or upside down for quick access), on the pistol belt between the buckle and ammunition case, or on the piece of webbing on the side of the ammunition case intended for the attachment of grenades.

**Entrenching Tool and Cover**

The M1951 combination tool (essentially the same as the M-1943 but with the addition of a folding pick) remained in the inventory with the M1956 equipment, but a new cover came into use. The new cover was similar in shape to the earlier M1943 cover, reflecting the shape of the head of the folding shovel and incorporating an opening at the bottom for the straight wooden handle. The rounded triangular flap at the top of the cover closed by means of a blackened metal snap in place of a lift-the-dot fastener, and was attached to the pistol belt or attachments on the side of the Field Pack with two slide keepers in place of a wire hanger. Another distinct feature was the addition of a means of attaching a bayonet directly to the Entrenching Tool Cover, saving space on the pistol belt. All bayonets in the inventory at the time, as well as the later models for the M14 and M16, which utilized the same scabbard, used wire hanger attachments, and the E-Tool cover featured a leather-reinforced tab with metal eyelets from which to hang the bayonet, as well as a web strab with metal snap to hold the scabbard against the cover, and keep it from bouncing. The E-Tool Cover also featured leather reinforcement along the top opening to prevent the continual removal and replacement of the E-Tool blade from degrading the canvas. Placement of the E-Tool and cover was generally the same as for the canteen, taking its place on the pistol belt on the other side of the Field Pack or on the Field Pack's side attachment points. With the introduction of larger rucksacks (see Complementary Equipment) in lieu of and supplementing the Field Pack, the E-Tool and cover was often moved to attachment points on these items, preventing the awkward bounce of the handle against the leg, and freeing space on the pistol belt.

**Field Pack**

The Field Pack was a square canvas pouch, just larger than a foot square, designed to hold a single day's Meal, Combat, Individual (C-Ration) as well as sparse personal implements like a shaving kit and extra socks. The bed roll
was attached externally (see Sleeping Bag Straps). The Field Pack's placement at the rear of the pistol-belt led to it being referred to colloquially as the "butt pack." The first pattern featured a square top flap which closed with a pair of web straps and friction buckles. This design was modified slightly in the 1961-pattern Field Pack (See Modifications below). Common features of both including canvas construction, attachment to the pistol belt with two slide keepers and a pair of eyelets at the top of the pack for attaching the individual suspenders directly to the pack in order to keep it upright and help distribute weight to the shoulders. Both also included a web handle at the top for hand-carriage, web strap along the side with eyelets for the attachment of equipment with either slide keepers or wire hangers, and a pair of web straps at the bottom of the pack for attaching items like the poncho and poncho liner. Both also featured a clear plastic window on the inner side of the pack for inserting a card with name and service number, as well as cloth-taped edges.

**Sleeping Bag Straps**

An H-shaped arrangement of web straps just short of an inch in width was issued to secure the bed roll on the back above the Field Pack. At the "H" intersection were a pair of friction buckles, and the straps would go around the roll and be attached at these buckles. The Other end of the straps were designed to be looped under the web strap on the padded portion of the suspenders, through the metal ring at the front of the suspenders and fastened back onto themselves by lift-the-dot fasteners on the straps. This arrangement effectively made use of the empty upper back area to carry the sleeping bag, but the weight of the bed roll and field pack had a tendency to pull the pistol belt up to the soldier's chest at the front. The sleeping bag straps fell out of use with the adoption of larger rucksacks (see Complementary Equipment below) and were not widely used in Vietnam given the lack of need for a sleeping bag in the tropical climate there.

**Modifications**

New weapons and field experience led to a few minor changes in the basic M1956 equipment during the 1960s. In 1961 an experimental quick release pistol belt (known also as the Davis belt) identical to the previous but with a stamped metal buckle in which a bent tab fit through a slot, and remained closed through fiction, was brought into limited service, but never replaced the previous belt by any means. In 1961 some minor changes were made to the Field Pack to make it more practical for field use. The resulting M1961 Field Pack was essentially similar to the M1956 model, but made use of a skirted flap instead of a square one, and incorporated eyelets along the skirt for equipment attachment. It also added a long internal rubber-coated collar to the pack's opening in an attempt to better keep the contents dry. In 1965, slightly modified Small Arms Ammunition Cases came into service to coincide with the adoption of M16 rifle. Four of the 20-round 5.56 mm magazines fit snugly
into the M1956-pattern cases, but their shorter size meant a void space at the top of the case which was too small to be useful for anything else. As a result, cases were produced in 1965 and 66, identical to the M1956 patterns but slightly shorter. By this point the M16 had been accepted for general issue, replacing the M14s as well as M1 Garands, M1/2 Carbines, M1918 BARs, and SMGs still in service, so the general purpose nature of these cases was no longer essential. These cases did not necessarily fully replace the M1956 pattern but were issued alongside them.

**Complementary Equipment**

Other elements of individual equipment, while not part of the M1956 system, were often used in conjunction. These include:

- **Bayonet** - M1942, M4, M5 M6, or M7
- **Packboard** - A molded plywood frame with canvas back pad, shoulder straps and lashing cord.
- **M1951 Mountain Rucksack** - A cotton duck and leather pack with aluminum frame for extended loads.
- **Lightweight Rucksack** - A nylon pack with frame replacing the M1951 Mountain Rucksack in 1963.
- **Tropical Rucksack** - A similar but larger pack, augmenting and replacing some Lightweight Rucksacks in 1967.
- **ARVN Rucksack** - A canvas pack used by the Army of the Republic of Vietnam and some US troops during the Vietnam War.
- **PRC-25 Radio Carrier** - A canvas back-mounted carrier with integral metal frame and straps for carrying manpack radios.
- **Radio Accessory Case** - A roughly rectangular canvas bag with slide keepers, for spare antenna and handset.
- **XM3 Bipod Carrying Case** - A rectangular canvas pouch with slide keepers about one and a half feet long with top closure.
- **Small Arms Accessory Case** - Rubberized nylon pouch about 6 by 3 inches, for cleaning accessories.
- **M1916 Holster** - A black (at this time) leather holster with wire hanger, for the M1911A1 .45 caliber pistol.
- **M1912/M1918/M1923 Pistol Magazine Pocket** - Two-cell pocket for 7-round .45 pistol magazine, attached by web belt loop. Produced in drab, light Olive Drab shade 3, and Olive Drab shade 7.
- **P1956 Pistol Magazine Pocket** - Neary identical to the M1923 in Olive Drab shade 7, but with two metal slide keepers on the reverse for attachment to a belt.

**United States Military Use**

The M1956 Load-Bearing Equipment was originally adopted for use exclusively by the United States Army while the other services retained
various combination of M1910-M1945 style equipment, and the Marine Corps developed its own 1961 pattern. During the Vietnam War however the Army's M1956 and M1961 improvements came into use across the services and remained in widespread service with various independent components of the M1967 MLCE until being replaced by the All-purpose Lightweight Individual Carrying Equipment (ALICE), of a more practical nylon construction, officially beginning in 1974. Elements of M1956 gear could still be found used in conjunction with ALICE gear as late as the early 1990s, especially the Field Pack, for which ALICE offered no replacement, and the suspenders which some regard as more comfortable than those of the ALICE system.

**Modernized Load-Carrying Equipment**, also known as **M-1967 Modernized Load-Carrying Equipment** or **MLCE**, was introduced into United States Army service in 1968 during the Vietnam War. The **M-1967 MLCE** was not specifically designed to replace the canvas and cotton duck M-1956 Load-Carrying Equipment [LCE] (which was the current United States Army load-carrying system at the time), but instead it was designed for use in tropical environments.

![Components of Load Carrying Equipment](http://en.wikipedia.org/wiki/M-1956_Load-Carrying_Equipment)

M-1956 Load Carrying Equipment


**Machete**

Every platoon had two or three **machetes** which were shared among the platoon members. Sometimes the point man had to cut undergrowth so the file could walk through the forest. Sometimes a machete was necessary in order to prepare the platoon’s night perimeter position due to heavy undergrowth. In both circumstances this was somewhat dangerous because it made noise which was not good in the boonies where the enemy could hear you.
TECHNICAL SPECIFICATIONS
1-18 Machete, Military Specifications

- NSN: 5110-00-813-1286
- 18" Blade
- 23 1/4" Overall
- Blade - .125" Thick
- 1095 Carbon Steel Blade
- Black Oxide Finish
- High Impact Shatterproof Polymer Handles
- Steel Compression Rivets

U.S. Military Machete

Poncho

A poncho is an outer garment designed to keep the body warm, or if made from a watertight material, to keep dry during rain. It was created by the ancient peoples of the Andes and is now known in over 150 countries over the world.

The poncho is essentially a single large sheet of fabric with an opening in the center for the head. Rainproof ponchos normally are fitted with fasteners to close the sides once the poncho is draped over the body, with openings provided for the arms; many have hoods attached to ward off wind and rain.

The poncho was first used on a regular basis in the 1850s by Aaron Fletcher in the Great Plains. These early military ponchos were made of gutta percha muslin, a latex-coated, waterproof cloth. Ponchos made of gutta-percha or India rubber coated cloth were officially adopted during the American Civil War, both as rain clothing and as a ground sheet for sleeping. While originally intended for cavalry forces, they were widely used by infantry as well; General Sherman's Union troops, lightly equipped and living off procurement demand from the local populace, wore ponchos during wet weather encountered during the march through Confederate Georgia to the sea.
Discontinued after the Civil War, the U.S. Army again issued ponchos of waterproof rubberized canvas to its forces during the Spanish-American War of 1898. Two years later, both the Army and the Marines were forced to issue waterproof rubberized cloth ponchos with high neck collars during the Philippine-American War in 1900. With the entry of the United States into World War I, both doughboys and marines in France wore the poncho; it was preferred over the raincoat for its ability to keep both the wearer and his pack dry, as well as serving as a roof for a makeshift shelter.

Just prior to World War II, ponchos were significantly improved during testing with the U.S. Army Jungle Experimental Platoon in the jungles of Panama, incorporating new, lighter materials and a drawcord hood that could be closed off to form a rain fly or ground sheet. Ponchos were widely used by United States armed forces during World War II; even lightly-equipped foot-mounted forces such as Merrill's Marauders, forced to discard tentage and all other unnecessary equipment, retained their blanket and poncho. During the 1950s, new lightweight coated nylon and other synthetic materials were developed for military ponchos. The poncho has remained in service ever since as a standard piece of U.S. military field equipment. Today, the United States armed forces issue ponchos that may be used as a field expedient shelter. These garments are also used by hunters, campers, and rescue workers.

During the World War II, the German Army (Wehrmacht) issued the *Zeltbahn* (see Shelter half), a poncho that could be combined to form tents. A typical four-man tent used four *Zeltbahnen*.

In the infantry of Australia and the United Kingdom, a *poncho* is termed a shelter half, which may serve as a raincoat or as an individual shelter. In operations in which ponchos are used, one shelter half is carried by each person as rain gear; when two are combined, they form a two-person tent.

![Military Poncho](source: http://en.wikipedia.org/wiki/Poncho)

A *poncho liner* is a piece of field gear originating in the United States military intended to provide warmth in mild temperatures used as an expedient sleeping
When attached to the standard issue poncho by means of integral lengths of material which are looped through the poncho’s eyelets.

**Construction**

The poncho liner consists of two layers of quilted nylon encasing a polyester loft filling. Most examples are a variation of Olive Green on one side and camouflage on the other, either ERDL pattern in earlier examples or the later Woodland pattern, as well as the Universal Camouflage Pattern most recently. Commercial copies include features like thinsulate batting, a zippered edge and come in a greater range of colors.

**Opinions amongst the troops**

Troops generally hold the poncho liner in high regard, as a very useful piece of equipment, light and packable yet reasonably warm. Some military personnel refer to the poncho liner as a "woobie" showing the same attachment an infant has for its blanket. The poncho liner found wide acceptance amongst US troops in Vietnam, providing just enough warmth for cool tropical nights but light and small. It is especially popular today in the age of 100-pound rucks and bulky modular sleeping bags.

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**PRC-25 Radio Telephone**

The **PRC-25** or “Prick 25” was a field radio used by infantry units in Vietnam. It was carried by RTOs or Radio Telephone Operators. Each platoon had one for the platoon leader and one for the platoon sergeant. One was also issued to any squad that went on a recon outside the platoon perimeter and was also given to the Ops (Observation Posts) and LP’s (Listening Posts) who provided early warning of enemy movements toward the platoon perimeter.

Prototypes of the AN/PRC-25 were initially tested in 1959 and it was ready for issue to Army units during 1962. In July 1965, responding to General Westmoreland’s complaints about the AN/PRC-10, the new, transistorized FM radios of the AN/VRC-12 and AN/PRC-25 families were diverted from Europe and were shipped to Vietnam.
The first AN/PRC-25's in Southeast Asia (mid-1965) were intended for advisers. With their initial distribution came the first NET Team (new equipment training) from the Electronics Command to begin instruction on the operation and maintenance of the VRC-12 and the PRC-25. Those radios soon became the mainstay of tactical communications in Southeast Asia. In three and a half years, 20,000 VRC-12 and 33,000 PRC-25 radios were delivered to Southeast Asia. The PRC-25 was, according to General Creighton Abrams, "the single most important tactical item in Vietnam."

The PRC-25 was the radio that made military tactical communication reliable and the basis of tactical command. The PRC-25 and its immediate successor (the PRC-77) were widely used across the globe for almost 30 years with about 130,000 sets produced in total. Over 40 countries adopted the radios and the design of the radio and spares was licensed to numerous manufacturers in the US and among allied nations. It remains in widespread use today even after it has been superceded by more up to date equipment.

RTO carrying a PRC-25


Rucksack

Development of the Tropical Rucksack (a.k.a. Jungle Rucksack) began in 1965 when MACV (Military Assistance Command Vietnam) requested a nylon version of the ARVN (Army of the Republic of Vietnam) pack from Natick Labs for evaluation purposes. However, after initial testing the rucksack had to be significantly redesigned in order to strengthen the pack and round off the corners of the frame. The redesigned rucksack was assessed against three Cresson H. Kearny modified Gurkha-Australian packs, before being finally approved for procurement in early 1968. The standardized Tropical Rucksack featured an OG-106 nylon pack with three outside pockets mounted on a spring steel X-frame. The outside pockets and the main compartment were provided with removable waterproof treated nylon liners, though these were often poorly coated and prone
to leak. The map pocket inside the top flap did not have a liner but the underside was waterproofed. The outside pockets had strap and buckle adjustable closures and snap fasteners for quick access, whilst Velcro sealed the map pocket. Webbing equipment hangers were located around the top of the bag and tie straps were positioned on each side of the pack. In addition, two loops were provided on the bottom of the rucksack and two on each side for attaching extra items.

The Jungle Rucksack was slightly heavier and more expensive to produce than the Lightweight Rucksack, but offered quick-release buckles on both shoulder straps, greater carrying capacity and fewer projections to get snagged on the undergrowth. In addition to replacing the Lightweight Rucksack, in January 1968 ACTIV recommended that combat / combat support units in Vietnam be issued the Tropical Rucksack rather than the M1967 butt pack.

Smoke Grenade

Smoke grenades are canister-type grenades used as ground-to-ground or ground-to-air signaling devices, target or landing zone marking devices, or as screening devices for unit movements. Smoke grenades are normally considered non lethal, although incorrect use may cause injury or fatality. The body consists of a sheet steel cylinder with a few emission holes on top and at the bottom to allow smoke release when the grenade is ignited. The filler consists of 250 to 350 grams of colored (red, green, orange, gray, yellow, blue, white, black, or violet) smoke composition (mostly potassium chlorate, lactose and a dye). The reaction is exothermic and grenade casings often will remain scalding hot for some time even after the grenade is no longer emitting smoke.

Another type of smoke grenades are the bursting kind. These are filled with white phosphorus (WP), which is spread by explosive action. White phosphorus catches fire in the presence of air, and burns with a brilliant yellow flame, while producing copious amounts of white smoke (phosphorus pentoxide). These double as incendiary grenades, and a variant of these are also launched from infantry-portable or armored fighting vehicle-mounted grenade launchers. Users must also be wary of wind direction when using smoke grenades.
Smoke grenades should not be confused with smoke bombs, which are typically started with an external fuse rather than a pin. Smoke grenades often cost around $40 USD compared to smoke bombs, which can often cost just a few cents. Smoke grenades generally emit a far larger amount of smoke than smoke bombs that are sold as fireworks.

**Use**

Used to create smoke screens, the grenades can be used to provide opportunity for movement over ground covered by fire. Smoke grenades can also be used to signal aircraft. Thermal imaging is able to 'see' through smoke screens and, as such, fighting vehicles equipped with thermal imaging can use smoke to blind the enemy infantry while still being able to see them using thermal cameras.

![Smoke Grenade](http://en.wikipedia.org/wiki/Smoke_grenade)

**Steel Pot**

The **M1 helmet** (generally referred to as the “steel pot” by U.S. soldiers) is a combat helmet that was used by the American military from World War II until it was succeeded by the PASGT helmet beginning in 1985. For over forty years, the M1 was standard issue for the U.S. military and naval forces, and has become an icon of the American military, with its design inspiring other militaries around the world.

The M1 Helmet was introduced during the World War II in 1942 to replace the M1917A1 Steel helmet. During the service life of the M1 helmet, 20 million US M-1 steel helmets were manufactured. A second US production run of approximately one million helmets was made in 1966-1967, for the Vietnam War. The Vietnam War helmet was different from the World War II/Korean War version by having a lowered, or less pronounced dome shape at the top forward section, and was painted in a light olive green. The M1 was phased out during the 1980s in favor of the PASGT helmet which offered increased ergonomics and ballistic protection. It should be noted that no distinction in nomenclature existed between wartime front seams and post war shells in the United States Army.

**Source:** http://en.wikipedia.org/wiki/Smoke_grenade
supply system, hence World War II shells remained in use until the M1 was retired from service.

While obsolete in United States service, the M1 Helmet and international variants are still in use by other nations around the world. The M1 helmet liner still occupies a symbolic niche in the United States military. For example, liners are currently worn in training by United States Navy SEALs BUD/S candidates, wherein it is painted with the trainees' class number, name, and rank insignia, and painted and chromed versions models are still used in ceremonial units. In Israeli service, reserve soldiers have used the M1 helmet in combat as late as 2006.

**Design**

The M1 is two "one-size-fits-all" helmets: An outer shell, sometimes referred to as the "steel pot", made of metal and a hard hat-type liner that is nestled inside the shell and contains the suspension system that would be adjusted to fit the wearer's head. Helmet covers and netting would be applied by covering the steel shell with the extra material tucked inside the shell and secured by inserting the liner.

The outer shell cannot be worn by itself. The liner can be worn by itself providing protection similar to a hard hat, and was often worn in such fashion by military policemen, Assistant Drill Instructors (known as AI's), and rifle/machine gun/pistol range staff, although they were supposed to wear steel at the range. The liner is sometimes worn in U.S. military ceremonies and parades, painted white or chromed. The depth of the helmet is 7 inches, the width is 9.5 inches and length is 11 inches. The weight of a WWII era M1 is approximately 2.85 pounds including the liner and chinstrap.

**Shell**

The shell of the M1 was changed mainly in silhouette, as seen from the side, from its World War II beginnings. The second, and last, U.S. production run of about 1 million M1s during the mid 1960s, lowered (streamlined) the top forehead portion of the steel shell. The bulk of the helmet shell is constructed from a single piece of pressed non-magnetic steel. The rim edge of the shell has a crimped metal band running around it, which provides a clean edge. This is usually known as the "rim". The metal band of the rim material has a seam where the ends of the strip meet. On the earliest shells the seam meets at the front. This was moved to the back of the rim in 1944, when the rim went from being made of stainless steel to manganese steel.

On each side of the helmet shell there are stainless steel loops for attachment of the chinstrap. The shape of these fixtures, known as bails, is one of the most recognizable distinguishing factors between shells produced at different times. Early World War II production helmets have fixed, rectangular bails, and late-war and 1960s helmets feature movable rectangular bails which swivel inward and
outward. This swivel feature was adopted to address the problem that when earlier helmets were dropped, the bails were more susceptible to breaking off. Early paratrooper shells feature fixed, D-shaped bails. World War II production helmets feature khaki (olive drab late in the war) web chinstraps that are sewn on. 1960s and 70s chinstraps are made of olive drab webbing attached to the shell with blackened metal clips. Nylon, clip-on, chinstraps were introduced in the U.S. military in the 1980s and issued to be fitted by the individual serviceman to his own helmet. These straps featured a two-piece web chin cup and were fastened by a metal snap rather than buckle.

During World War II and later, many soldiers wore the webbing chinstraps unfastened or looped around the back of the helmet and clipped together. This practice arose for two reasons: First, because hand-to-hand combat was anticipated, and an enemy could be expected to attack from behind, reach over the helmet, grab its visor, and pull. If the chinstrap were worn, the head would be snapped back, causing the victim to lose balance, and leave the throat and stomach exposed to a knife thrust. Secondly, many men incorrectly believed that a nearby exploding bomb or artillery shell could cause the chinstrap to snap their neck when the helmet was caught in its concussive force, although a replacement buckle, the T-1 pressure-release buckle, was manufactured that allowed the chinstrap to release automatically should this occur. In place of the chinstrap, the nape strap inside the liner was counted on to provide sufficient contact to keep the helmet from easily falling off the wearer's head.

### Alternative use of steel shell

The design of exterior metal led to some novel uses: When separated from the liner, the shell could be used as an entrenching tool, washbasin, bucket, seat, and, in desperate times, latrine. The shell was also used as a cooking pot but the practice was discouraged, as it would make the metal alloy brittle and useless as protective headwear.

### Liner

The liner is made from many parts. The outer part is shaped to fit snugly into the steel shell. The various elements of the suspension system are riveted, later clipped, inside it. The suspension is made from strips of webbing material stretching around and across the inside of the liner. A sweatband is mounted onto these, which is adjusted to fit around the head of the wearer. World War II and Korean War era liners also have their own chinstrap made from brown leather. The liner chinstrap is snapped or riveted directly to the inside of the liner and does not have bails like the shell chinstrap, but it still swivels inside the helmet. The liner chinstrap is usually seen looped over the brim of the shell and helps to keep the shell in place when its own chinstraps aren't in use.

The first liners were made from compressed paper fibers impregnated with phenolic resin, but were quickly eliminated, because they degraded quickly in high humidity environments and were replaced by constantly evolving plastic
liners. During the same period, the original silver Rayon suspension material was phased out in favor of khaki cotton. After World War II the cotton was changed from khaki or Olive Drab #3 to a color known as Olive Drab #7. Much later, liners switched to using stronger synthetic webbing and had improved neck support. There were many companies making liners during the war — Westinghouse Electric & Manufacturing Company made most of them, while other companies tested, such as Firestone Tire and Rubber Company.

In the 1960s the M1 helmet liner was redesigned, eliminating the leather chin strap, nape strap and a change in the suspension webbing to a pattern resembling an asterisk in a coarse cotton web material in lieu of the earlier herringbone twill. In the early 1970s materials changed to a thicker, more flexible nylon with a rougher unbeveled rim. Later changes included a move to a yellow and green material for liner construction.

Cover

Around late 1942 or early 1943, the United States Marine Corps used a cloth camouflage-patterned cover for its helmets. The cover was made from herringbone twill fabric. It had a "forest green" pattern on one side and a "brown coral island" pattern on the other.

The United States Army often utilized nets to reduce the helmets shine when wet and to allow burlap scrim or vegetation to be added for camouflage purposes. Most nets were acquired from British or Canadian Army stocks or cut from larger camouflage nets, The Army did not adopt an official issue net until the M-1944 mesh net that included a neoprene foliage band, which would been retained on latter Mitchell and woodland camouflage covers.

After World War II, various styles of camouflage cover were used at different times. In the 1960s through 1970s, the type commonly seen in the United States Army and Marine Corps was a reversible fabric cover called the Mitchell pattern. This type was nearly omnipresent in Vietnam, and where, for the first time, the Army wore the cloth camouflage as general issue; whereas in World War II and the Korean War, the Army traditionally wore their helmets only with nets, or just plain, without anything on it. By contrast, United States Marines have consistently worn a cloth camouflage cover over their M-1 helmets in all three major wars — World War II, Korea, and Vietnam. The Korean War (1950–1953) was largely fought using World War II weapons and equipment, and the Marine Corps helmets and camouflage covers were basically the same as those used during World War II. In Vietnam, the green portion of the reversible fabric camouflage was normally worn outermost. Helmet covers in the (European) woodland camouflage, were designed for fighting in the European Theater of Operations (NATO), and became the post-Vietnam (jungle pattern) camouflage cover used by the U.S. military from the late 1970s onward. The (European) Woodland pattern was not reversible; they were only printed on one side. These covers were all constructed from two semi-circular pieces of cloth stitched together to form a dome-like shape conforming to the helmet's shape. They were secured to the
helmet by folding their open ends into the steel pot, and then placing the liner inside, trapping the cloth between the pot and the liner. An olive green elastic band, intended to hold additional camouflage materials, was often worn around the helmet to further hold the cover in place.

Other armies used these or similar covers printed with different camouflage patterns, or employed entirely different methods. In the Dutch Army, for example, it was common practice to use a square piece of burlap as a helmet cover on M1 helmets, usually secured by a net (see above) and a wide rubber band.

During The Battle of the Bulge and Korean War, soldiers made white helmet covers that were good camouflage in the snowy areas. They were not issued to soldiers, so many soldiers simply made them from a white cloth from a shirt or, more commonly, used those that belonged to the Germans, since this is where the idea originated.

The two components of a M1 Helmet (see photo below). On the left, the steel shell in a woodland camouflage cover. On the right, the helmet liner.

Steel Pot and Helmet Liner

Source: http://en.wikipedia.org/wiki/M1_Helmet

### Supplemental Ration Pack

A **Supplementary Ration Pack** is a cardboard box about three feet by two feet by eight inches in size in which were 10 cartons of cigarettes, some chewing tobacco, some candy, several tablets of writing paper and ball point pens, and some replacement boot laces. Each platoon got one of these about once a week.

### Trip Flare

A **tripflare** is a device used by military forces to secure an area and to guard against infiltration. It consists of tripwire around the area, linked to one or more flares. When the tripwire is triggered, as by someone going through it,
the flare is launched and begins burning. The light from the flare simultaneously warns that the perimeter may have been breached and also gives light for investigating. In defensive operations, trip flares are usually placed in predetermined kill-zones with machine guns sighted on them.

A Trip Flare Igniting

**Source:** [http://en.wikipedia.org/wiki/Tripflare](http://en.wikipedia.org/wiki/Tripflare)

**Continued...**

**See Terminology below.**
TERMINOLOGY

11-B

The Military Occupational Specialty of the Infantry is 11-B also known as 11-Bravo or 11-Bush. These are soldiers who generally walk to their final destination and they do the vast majority of fighting in wars. The essential mission of the infantry is to close with and capture or kill the enemy. More than 85 percent of all war casualties are incurred by infantry soldiers.

Infantrymen are soldiers who are specifically trained for the role of fighting on foot to engage the enemy face to face and have historically borne the brunt of the casualties of combat in wars. As the oldest branch of combat arms, they are the backbone of armies. Infantry units have more physically demanding training than other branches of armies, and place a greater emphasis on discipline, fitness, physical strength and aggression.

Infantrymen are distinguished from soldiers trained to fight on horseback (cavalry), in tanks, or in technical roles such as armourers or signalers, but basic infantry skills are fundamental to the training of any soldier, and soldiers of any branch of an army are expected to serve as auxiliary infantry (e.g., patrolling and security) when necessary. Infantry can access and maneuver in terrain inaccessible to vehicles and tanks, and employ infantry support weapons that can provide firepower in the absence of artillery.

Since the end of the Second World War the infantry has become a smaller part of armies of the Western world, constituting typically between 10% and 30% of an army's personnel. Despite still often representing the largest individual arm, with the exception of logistics, this is vastly reduced from pre-war levels. In the United States Army, for instance, there are only approximately 49,000 infantrymen out of about 450,000 active duty enlisted personnel.

This reflects the greatly increased requirement for technical and logistical specialists in Western armies, resulting from the increasing complexity of military technology and equipment and an increased recognition of the importance of logistics in warfare. In armies of developing world nations, infantry still accounts for a majority of soldiers, but they are often lacking adequate training in infantry tactics and resources to be as effective as other infantry.

In the mid-1800s—up to and through the American Civil War-- the United States made extensive use of infantry both in battle, as well as part of opening the western frontier to settlement. The Buffalo Soldiers were an example of the use of both infantry and cavalry during the period immediately following that war and well beyond. In the 1890s and later, some countries, such as Italy with their Bersaglieri, used bicycle infantry, but the real revolution in mobility started in the 1920s with the use of motor vehicles, resulting in motorized infantry. Action in World War II demonstrated the importance of protecting
the soldiers while they are moving around, resulting in the development of mechanized infantry, who use armored vehicles for transport. World War II also saw the first widespread use of paratroopers. These were soldiers that parachuted from airplanes into combat, and they played key roles in several campaigns in the European theater.

**Post modern period**

In the post-modern period typified by the Vietnam conflict, infantry has often depended on technology other than its own feet for delivery into battle. One such example is the United States Army's pioneering use of helicopters to deliver infantry quickly between key locations on the battlefield. Formations such as those now form a part of many armed forces and are referred to as airmobile infantry, and delivering infantry into battle on helicopters is known as an air assault.

Most other present day infantry is either motorized or mechanized, supported by armored fighting vehicles, artillery, and aircraft, but along with light infantry which does not use armored fighting vehicles, is still the only kind of military force that can take and hold some terrain types (such as urban or other close terrain), and thus remains essential to fighting wars. However, the tactic of having massive formations of infantry on open terrain fight it out has fallen into disuse in Western armies ever since World War II. This is mainly because of advanced technology which can support, replace, and exceed the capabilities of infantry. Modern military doctrine supported by political influence has also kept the practice of total war, and minimizing large scale combat casualties.

**Doctrine**

Infantry doctrine is the concise expression of how infantry forces contribute to campaigns, major operations, battles, and engagements. It is a guide to action, not hard and fast rules. Doctrine provides a common frame of reference across the military forces allowing the infantry to function cooperatively in what is now called combined arms operations. Doctrine helps standardize operations, facilitating readiness by establishing common ways of accomplishing infantry tasks. Doctrine links theory, history, experimentation, and practice. Its objective is to foster initiative and creative thinking in the infantry's tactical combat environment.

Doctrine provides the infantry with an authoritative body of statements on how infantry forces conduct operations and provides a common lexicon for use by infantry planners and leaders. Until development of effective artillery doctrines, and more recently precision guided air delivered ordnance, the most important role of the infantry has been as the primary force of inflicting casualties on the enemy through aimed fire. The infantry is also the only combat Arm which can ultimately decide whether any given tactical position is
occupied, and it is the presence of infantry that assures control of terrain. While the tactics of employment in battle have changed, the basic missions of the infantry have not.

**Operations**

**Attack** operations are the most basic role of the infantry, and along with defense, form the two primary stances of the infantry on the battlefield. Traditionally, in an open battle, or meeting engagement, two armies would maneuver to contact, at which point they would form up their infantry and other units opposite each other. Then one or both would advance and attempt to defeat the enemy force. The goal of an attack remains the same: to advance into an enemy-held objective and dislodge the enemy, thereby establishing control of the objective. Attacks are often feared by the infantry conducting them because of the high number of casualties suffered while advancing under enemy fire (mechanized infantry are considered in assaulting positions in contrast to light infantry because of armoured protection and high mobility). Successful attacks rely on sufficient force, preparative reconnaissance and bombardment, and retention of unit cohesion throughout the attack. A subcategory of attacks is the ambush, where infantry lie in wait for enemy forces before attacking at the most vulnerable moment.

**Defense** operations are the natural counter to attacks, in which the mission is to hold an objective and defeat enemy forces attempting to dislodge the defender. Defensive posture offers many advantages to the infantry, including the ability to use terrain and constructed fortifications to advantage and the reduced exposure to enemy fire compared with advancing forces. Effective defense relies on minimizing losses to enemy fire, breaking the enemy’s cohesion before their advance is completed, and preventing enemy penetration of defensive positions.

**Patrol** is the most common infantry mission. Full scale attacks and defensive efforts are occasional, but patrols are constant. Patrols consist of small groups of infantry moving about in areas of possible enemy activity to discern enemy deployments and ambush enemy patrols. Patrols are used not only on the front-lines, but in rear areas where enemy infiltration or insurgencies are possible.

**Pursuit** is a role that the infantry often assumes. The objective of pursuit operations is the destruction of enemy forces which are not capable of effectively engaging friendly units before they can build their strength to the point where they are effective. Infantry traditionally have been the main force to overrun these units in the past, and in modern combat are used to pursue enemy forces in constricted terrain (urban areas in particular), where faster
forces, such as armored vehicles are incapable of going or would be exposed to ambush.

**Escort** consists of protecting other units from ambush, particularly from other infantry. This is one of the most important roles for the modern infantry, in particular when operating along side armored vehicles. In this capacity, infantry essentially conducts patrol on the move, scouring terrain which may hide enemy infantry waiting to ambush friendly vehicles, and identifying enemy strong points for attack by the heavier units.

**Maneuver** operations consume much of an infantry unit's time. Infantry, like all combat units, are often maneuvered to meet battlefield needs, and often must do so under enemy attack. The infantry must maintain their cohesion and readiness during the move to ensure their usefulness when they reach their objective. Traditionally, infantry have relied on their own legs for mobility, but mechanised or armoured infantry often uses trucks and armored vehicles for transport, leaving the light infantry to jobs which they cannot access.

**Reconnaissance/intelligence gathering** Surveillance operations are often carried out with the employment of small recon units or sniper teams which gather information about the enemies Size, Activity, Location, Unit, Time, Equipment (SALUTE report). These infantry units typically are known for their stealth and ability to operate for periods of time within close proximity of the enemy without being detected. They may engage high profile targets or be employed to hunt down terrorist cells and insurgents within a given area. These units may also entice the enemy to engage a located recon unit thus disclosing their location to be destroyed by larger combat assault forces.

**Reserve** assignments for infantry units involve deployment behind the front, although patrol and security operations are usually maintained in case of enemy infiltration. This is usually the best time for infantry units to integrate replacements into units and to maintain equipment. Additionally, soldiers can be rested and general readiness should improve. However, the unit must be ready for deployment at any point.

**Construction** can be undertaken either in reserve or on the front, but consists of using infantry troops as labor for construction of field positions, roads, bridges, airfields, and all other manner of structures. The infantry is often given this assignment because of the physical quantity of men within the unit, although it can lessen a unit's morale and limit the unit's ability to maintain readiness and perform other missions. More often, such jobs are given to specialist engineering corps.
'Base defense' is where infantry units are tasked to protect certain areas like command posts or airbases. Units assigned to this job usually have a large amount of military police attached to them for control of checkpoints and prisons.

**Raid/Hostage Rescue** Infantry units are trained to quickly mobilize, infiltrate, enter and neutralize threat forces when appropriate combat intelligence indicates.

**Daily life**

Because of the very nature of the "work" with firearms, explosives, physical-emotional stress, and genuine violence, casualties and or deaths are not uncommon in both war and in peace. The infantryman is expected and trained to continue on with the mission despite personal fear, despair, fatigue and injury. These are exemplified in the United States Army by an excerpt from the infantryman's creed:

> In the race for victory, I am swift, determined, and courageous; Armed with a fierce will to win. Never will I fail my country's trust. Always I fight on: through the foe, to the objective, to triumph over all. If necessary, I fight to my death.

United States Army Rangers, a specialized light infantry, have their own Ranger Creed that demands faithful service from the infantryman even "...though I be the lone survivor."

Life in an active duty infantry unit is rigorous, a 24 hour cycle makes for long hours of exercise/training/fighting/patrolling in often brutal climates armed only with the weapons, ammunition and essential war fighting equipment that they can carry on their backs. Little or no room is afforded for comforts, remaining space is meant for rations. Infantry are usually afforded upwards of 4000 calories per day when on operations. Accompanying this may be strict water discipline, where water resupply may only be once every few days and infantrymen will have to ration water consumption to two or three liters of water a day, resulting in an almost continuous state of dehydration. The physical demands are extreme. Forced marches, carrying in excess of 80 lbs (36 kg) of equipment upwards of 25 miles (40 km) at a 4-6 mi/h (6–10 km/h) pace are not uncommon. 15 mile runs at a forced pace are very common as well. Teamwork and trust are essential for the survival of not only the individual, but the unit as a whole.
Due to their specialized training and combat tactics it is not uncommon for infantrymen to continue in careers such as law enforcement and government intelligence agencies.

**Equipment**

The equipment of infantry forces has evolved along with the development of military technology in general, but certain constants remain regarding the design and selection of this equipment. Primary types of equipment are weaponry, protective gear, survival gear, and special equipment.

Infantry weapons have included all types of personal weapons, i.e., anything that can be handled by individual soldiers, as well as some small crew-served weapons that can be carried. During operations, especially in modern times, infantry often scavenge and employ whatever weapons they can acquire in addition to those given them by their supply chain.

Infantry from ancient times up until the modern age have wielded a wide array of weaponry. Infantry used all sorts of melee weapons, such as various types swords, axes, and maces, as well as ranged weapons such as javelins, bows, and slings. Infantry of these periods also often wore varying types of armor, including chain mail and Cuirassses. Many of their weapons evolved over time to counter advances made in armor, such as the falchion, whose heavy blade was designed to break chain mail armor. Modern infantry protective gear includes all equipment designed to protect the soldier against enemy attack. Most protective gear comprises personal armor of some type. The use of body armor is again becoming widespread amongst infantry units, primarily using Kevlar technology.

Modern infantry weaponry include rifles, sub machine guns, machine guns, shoulder-fired rocket launchers and missiles, and lighter mortars and grenade launchers. Modern infantry are often equipped with helmets, a gas mask, and in some cases, additional body armor.

**U.S. Infantry Insignia**


**Agent Orange** is the code name for one of the herbicides and defoliants used by the U.S. military in its herbicidal warfare program during the Vietnam War.
from 1961 to 1971. Agent Orange was given its name from the color of the orange-striped 55 US gallons (210 L) barrels in which it was shipped. It is a roughly 1:1 mixture of two phenoxy herbicides in iso-octylester form, 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T).

Agent Orange was by far the most widely used of the so-called "Rainbow Herbicides". Between 1965 and 1970 close to 12,000,000 US gallons (45,000,000 l; 10,000,000 imp gal) of Agent Orange were sprayed in Vietnam, eastern Laos and parts of Cambodia by the US military to defoliate rural/forested land, depriving guerrillas of food and cover, and as part of a general policy of forced draft urbanization by destroying the ability of peasants to support themselves in the countryside.

According to Vietnamese Ministry of Foreign Affairs, 4.8 million Vietnamese people were exposed to Agent Orange, resulting in 400,000 deaths and disabilities, and 500,000 children born with birth defects.

**Early development**

The earliest form of the compound triiodobenzoic acid was studied by Arthur Galston as a plant growth hormone. The research was motivated by the desire to adapt soybeans for short growing season. Arthur Galston is widely known for the social impact his work had on science. This defoliant was modeled after Galston’s discovery of triiodobenzoic acid in 1943. Galston was especially concerned about the compound’s side effects to humans and the environment.

Galston found that excessive usage of the compound caused catastrophic defoliation — a finding used by his colleague Ian Sussex to develop a family of herbicides (Galston later campaigned against its use in Vietnam). These herbicides were developed during the 1940s by independent teams in England and the United States for use in controlling broad-leaf plants.

Phenoxy agents work by mimicking a plant growth hormone, indoleacetic acid (IAA). When sprayed on broad-leaf plants they induce rapid, uncontrolled growth, eventually defoliating them. When sprayed on crops such as wheat or corn, it selectively kills only the broad-leaf weeds in the field, leaving the crop relatively unaffected. First introduced in 1946 in the agricultural farms of Aguadilla, Puerto Rico, these herbicides were in widespread use in agriculture by the middle of the 1950s.

The US government began to explore the use of tactical herbicides in warfare in the mid 1940s. During the 1950s they began to focus on delivery systems of spray tanks and nozzles. The first large scale test using 2,4-D and 2,4,5-T against foliage to improve visibility took place in June 1959 in Fort Drum, NY (Camp Drum). Testing of various herbicides and spray systems continued
throughout the 1950s and 1960s in Puerto Rico and the US. The first test run of herbicides (Agent Purple) in Vietnam took place on August 10, 1961. Agent Orange became the herbicide of choice for defoliation of forests in Vietnam and Laos in 1965 until the health concerns of 2,4,5-T ended its use by the US military in April 1970.

Use in the Vietnam War

During the Vietnam war, between 1962 and 1971, the United States military sprayed 20,000,000 US gallons (76,000,000 l; 17,000,000 imp gal) of chemical herbicides and defoliants in South Vietnam as part of the aerial defoliation program known as Operation Ranch Hand. Agent Orange made up about sixty percent of these herbicides. The concentrations used were 20 to 55 times normal agricultural use for killing plants. The campaign destroyed 5 million acres of upland and mangrove forests and about 500,000 acres of crops. Overall, more than 20% of South Vietnam's forests were sprayed at least once over a nine year period. The first objective was to reduce the dense jungle foliage so that Communist forces might not use it for cover and to deny them use of crops needed for sustenance.

The US began to target food crops in October 1962, primarily using Agent Blue. In 1965, 42 percent of all herbicide spraying was dedicated to food crops. The second objective was spot clearing in sensitive areas such as around base perimeters. It was also used to drive civilians into Republic of Vietnam (RVN)-controlled areas.

Effects on the People

Vietnamese woman born with deformed face as a result of exposure to Agent Orange.
According to Vietnam Red Cross as many as 3 million Vietnamese people have been affected by Agent Orange including at least 150,000 children born with birth defects. The issue of whether or not exposure to dioxin has affected the health of the Vietnamese has been debated since the time of the war when the first animal studies were released showing that TCDD causes cancer and birth defects in rodents. Vietnamese scientists have been conducting epidemiological research on the impact of dioxin to human health since the late 1960s. Studies of veterans who served in the south during the war compared to those who did not have found that those who went south have increased rates of cancer, and nerve, digestive, skin and respiratory disorders. Among the cancers veterans from the south had higher rates of throat cancer, acute/chronic leukemia, Hodgkin’s lymphoma and non-Hodgkin’s lymphoma, prostate cancer, lung cancer, soft tissue sarcoma and liver cancer. Other than liver cancer, these are the same conditions that the US Veteran’s Administration has found to be associated with exposure to Agent Orange/dioxin and are on the list of conditions eligible for compensation and treatment.

The question of dioxin’s impact on reproductive health and birth outcomes is even more controversial, in part because the research done in Vietnam has not for the most part been peer reviewed or published in scientific journals. Whereas the US Institute of Medicine has found only spina bifida and anencephaly to be associated with paternal exposure to dioxin the Vietnamese researchers have found in studies of both exposed males and females that there is an increased risk of abnormal birth outcomes including infertility, miscarriages, still births, and birth defects compared to those who were not exposed. Among the birth defects, spina bifida, hydrocephaly, malformations of the extremities, musculature issues, developmental disabilities, congenital heart defects and cleft-palate are found. There are also higher rates of children with multiple disabilities among exposed populations. These are many of the same birth defects that the US Veterans Administration allows for compensation for female veterans, though it is due to these birth defects being associated with service in Vietnam and not directly to Agent Orange/dioxin.

The most affected zones are the mountainous area along Truong Son (Long Mountains) and the border between Vietnam and Cambodia. The affected residents are living in sub-standard conditions with many genetic diseases.

Perception and information

The general public perception in Vietnam is that the effects are severe and clearly visible in children of veterans and people in affected areas. Veterans have become increasingly concerned about the effects of Agent Orange to humans. While in Vietnam, the veterans were told not to worry, and were persuaded that the chemical was harmless. In the last few years, this opinion has changed, and studies show the true effects Agent Orange has on humans.
Dioxin Hotspots

For more than a decade The Hatfield Group from Vancouver, Canada has been researching the long-term environmental effects of Agent Orange. Their extensive research has found that the areas sprayed by Agent Orange during the war no longer contain measurable amounts of dioxin and do not pose a health threat. About 28 of the former US military bases in Vietnam where the herbicides were stored and loaded onto airplanes still have high level of dioxin in the soil posing a health threat to the surrounding communities.

These 'hotspots' have dioxin contamination that is up to 350 times higher than international recommendations for action. The contaminated soil and sediment continue to affect the citizens of Vietnam, poisoning their food chain and causing illnesses, serious skin diseases as well as a variety of cancers in the lungs, larynx, and prostate. The airbases in Bien Hoa, Da Nang and Phu Cat have been put on a priority list for clean-up or containment by the Vietnamese government.

Children in the areas where Agent Orange was used have been affected and have multiple health problems including cleft palate, mental disabilities, hernias, and extra fingers and toes.

Acknowledgement by the U.S. Government

Handicapped Vietnamese boy posing in front of the billboard denouncing operation Ranch hand.

In 2002, Vietnam and the US held a joint conference on Human Health and Environmental Impacts of Agent Orange. Following the conference the US National Institute of Environmental and Health Sciences (NIEHS) began scientific exchanges between the US and Vietnam and began discussions for a joint research project on the human health impacts of Agent Orange. These negotiations broke down in 2005 when neither side could agree on the research protocol and the research project was canceled. However, more progress has been made on the environmental front. In 2003 the first US-Vietnam workshop on remediation of dioxin was held.
Starting in 2005 the U.S. Environmental Protection Agency (EPA) began to work with the Vietnamese government to measure the level of dioxin at the Da Nang Airbase. Also in 2005 the Joint Advisory Committee on Agent Orange made up of representatives of Vietnamese and US government agencies was established. The committee has been meeting yearly to explore areas of scientific cooperation, technical assistance and environmental remediation of dioxin.

A breakthrough in the diplomatic stalemate on this issue occurred as a result of United States President George W. Bush's state visit to Vietnam in November 2006. In the joint statement, President Bush and President Triet agreed that "further joint efforts to address the environmental contamination near former dioxin storage sites would make a valuable contribution to the continued development of their bilateral relationship.

In late May 2007, President Bush signed into law a supplemental spending bill for the war in Iraq and Afghanistan that included an earmark of $3 million specifically for funding for programs for the remediation of dioxin 'hotspots' on former US military bases and for public health programs for the surrounding communities. The appropriation was renewed in the fiscal year 2009 and again in FY 2010.

**Efforts to Address US Veterans Concerns**

Shortly after returning home, Vietnam Veterans began to suspect that their ill health or the instances of their wives having miscarriages or children born with birth defects may be related to Agent Orange and the other toxic herbicides they were exposed to in Vietnam. Veterans began to file claims in 1977 to the Department of Veterans Affairs for disability payments or health care for conditions that they believed were associated with exposure Agent Orange, or more specifically dioxin, but their claims were denied unless they could prove that the condition began when they were in the service or within one year of their discharge.

**US Congress**

In 1991, the US Congress enacted the Agent Orange Act giving the Department of Veterans Affairs the authority to declare certain conditions 'presumptive' to exposure to Agent Orange/Dioxin enabling these veterans who served in Vietnam eligible to receive treatment and compensation for these conditions. The same law required the National Academy of Sciences to periodically review the science on dioxin and herbicides used in Vietnam to inform the Secretary of Veterans Affairs about the strength of the scientific
evidence showing association between exposure to Agent Orange/Dioxin and certain conditions.

Through this process, the list of 'presumptive' conditions has grown since 1991 and currently the U.S. Department of Veterans Affairs has listed prostate cancer, respiratory cancers, multiple myeloma, type II diabetes, Hodgkin’s disease, non-Hodgkin's lymphoma, soft tissue sarcoma, chloracne, porphyria cutanea tarda, peripheral neuropathy, chronic lymphocytic leukemia, and spina bifida in children of veterans exposed to Agent Orange as conditions associated with exposure to the herbicide. As of October 2009, this list includes B cell leukemias, such as hairy cell leukemia, Parkinson’s disease and ischemic heart disease.

**Help for those affected in Vietnam**

In order to assist those who have been impacted by Agent Orange/Dioxin, the Vietnamese have established "Peace villages", which each host between 50 to 100 victims, giving them medical and psychological help. As of 2006, there were 11 such villages, thus granting some social protection to fewer than a thousand victims. U.S. veterans of the war in Vietnam and individuals who are aware and sympathetic to the impacts of Agent Orange have also supported these programs in Vietnam. An international group of Veterans from the U.S. and its allies during the Vietnam war working together with their former enemy — veterans from the Vietnam Veterans Association — established the Vietnam Friendship Village located outside of Hanoi.

The center provides medical care, rehabilitation and vocational training for children and veterans from Vietnam who have been impacted by Agent Orange. In 1998, The Vietnam Red Cross established the Vietnam Agent Orange Victims Fund to provide direct assistance to families throughout Vietnam that have been impacted by Agent Orange. In 2003, the Vietnam Association of Victims of Agent Orange (VAVA) was formed. In addition to filing the lawsuit against the chemical companies, VAVA also provides medical care, rehabilitation services and financial assistance to those impacted by Agent Orange.
The Vietnamese government provides small monthly stipends to more than 200,000 Vietnamese believed affected by the herbicides; this totaled $40.8 million in 2008 alone. The Vietnam Red Cross has raised more than $22 million to assist the ill or disabled, and several U.S. foundations, United Nations agencies, European governments and non-governmental organizations have given a total of about $23 million for site cleanup, reforestation, and health care and other services to those in need.

**Litigation**

**US Veterans Against the manufacturers**

Since at least 1978, several lawsuits have been filed against the companies which produced Agent Orange, among them Dow Chemical, Monsanto, and Diamond Alkali/Shamrock (which produced 5%).

Hy Mayerson of the law firm The Mayerson Law Offices, P.C. was an early pioneer in Agent Orange litigation, working with renown environmental attorney Victor Yannacone in 1980 on the first class-action suits against wartime manufacturers of Agent Orange. In meeting Dr. Ronald A. Codario, one of the first civilian doctors to see afflicted patients, Mayerson, so impressed by the fact that an M.D. would show so much interest in a Vietnam veteran, forwarded more than a thousand pages of information on Agent Orange and the effects of dioxin on animals and humans to Codario’s office the day after he was first contacted by the doctor as described in the book *Waiting for an Army to Die: The Tragedy of Agent Orange* by Fred A. Wilcox.

The Mayerson Law Offices, P.C., with Sgt. Charles E. Hartz as their principal client, filed the first Agent Orange class action lawsuit, in Pennsylvania in 1980, for the injuries that soldiers in Vietnam suffered through exposure to toxic dioxins in the Agent Orange defoliant. Attorney Hy Mayerson co-wrote the brief that certified the Agent Orange Product Liability action as a class action, the largest ever filed as of it’s filing. Hartz’s deposition was one of the first ever taken in America, and the first for an Agent Orange trial, for the purpose of preserving testimony at trial, as it was understood that Hartz would not live to see the trial because of the brain tumor that began to develop while he was a member of Tiger Force, Special Forces, and LRRPs in Vietnam. The firm also located and supplied critical research to the Veterans’ lead expert Dr. Ronald A. Codario, M.D., including approximately one hundred articles from toxicology journals dating back more than a decade, as well as data about where herbicides had been sprayed, what the effects of dioxin had been on animals and humans, and every accident in factories where herbicides were produced or dioxin was a contaminant of some chemical reaction.
U.S. veterans obtained a $180 million settlement in a class action lawsuit in 1984, with most affected veterans receiving a one-time lump sum payment of $1,200.

**Vietnamese victims class action lawsuit in US Courts**

On January 31, 2004, a victim's rights group, the Vietnam Association for Victims of Agent Orange/Dioxin (VAVA), filed a lawsuit in the United States District Court for the Eastern District of New York in Brooklyn, against several U.S. companies for liability in causing personal injury, by developing and producing the chemical. Dow Chemical and Monsanto were the two largest producers of Agent Orange for the U.S. military and were named in the suit along with the dozens of other companies (Diamond Shamrock, Uniroyal, Thompson Chemicals, Hercules, etc.). On March 10, 2005, Judge Jack B. Weinstein of the United States District Court for the Eastern District of New York - who had presided over the 1984 US veterans class action lawsuit - dismissed the lawsuit ruling that there was no legal basis for the plaintiffs’ claims. He concluded that Agent Orange was not considered a poison under international law at the time of its use by the U.S.; that the U.S. was not prohibited from using it as a herbicide; and that the companies which produced the substance were not liable for the method of its use by the government. The U.S. government was not a party in the lawsuit, due to sovereign immunity, and the court ruled that the chemical companies, as contractors of the US government, shared the same immunity. The case was appealed and heard by the Second Circuit Court of Appeals on June 18, 2007. The Court of Appeals upheld the dismissal of the case stating that the herbicides used during the war were not intended to be used to poison humans and therefore did not violate international law. The US Supreme Court declined to consider the case.

Three judges on the Second Circuit Court of Appeals in Manhattan heard the Appeals case on June 18, 2007. They upheld Weinstein's ruling to dismiss the case. They ruled that though the herbicides contained a dioxin (a known poison) they were not intended to be used as a poison on humans. Therefore they were not considered a chemical weapon and thus not a violation of international law. A further review of the case by the whole panel of judges of the Court of Appeals also confirmed this decision. The lawyers for the Vietnamese filed a petition to the US Supreme Court to hear the case. On March 2, 2009, the Supreme Court denied certiorari and refused to reconsider the ruling of the Court of Appeals.
Ambush

An *ambush* is a long-established military tactic, in which the aggressors (the ambushing force) use concealment to attack a passing enemy. Ambushers strike from concealed positions, such as among dense underbrush or behind hilltops. Ambushes have been used consistently throughout history, from ancient to modern warfare. An ambush predator is an animal which uses similar tactics to capture prey, without the difficulty and wasted energy of a chase.

**Procedure**

In modern warfare, an ambush is most often employed by ground troops up to platoon size against enemy targets, which may be other ground troops, or possibly vehicles. However, in some situations, especially when deep behind enemy lines, the actual attack will be carried out by a platoon; however, a company-sized unit will be deployed to support the attack group, setting up and maintaining a forward patrol harbor from which the attacking force will deploy, and to which they will retire after the attack.

**Planning**

Ambushes are complex, multi-phase operations, and are, therefore, usually planned in some detail. First, a suitable “**killing zone**” is identified. This is the place where the ambush will be laid. It's generally a place where enemy units are expected to pass, and which gives reasonable cover for the deployment, execution, and extraction phases of the ambush patrol. A path along a wooded valley floor would be a typical example.

Ambush can be described geometrically as:

- **Linear**, when a number of firing units are equally distant from the linear kill zone.
- **L-shaped**, when a short leg of firing units are placed to enfilade the sides of the linear kill zone.
- **V-shaped**, when the firing units are distant from the kill zone at the end where the enemy enters, so the firing units lay down bands of intersecting and interlocking fire. This ambush is normally triggered only when the enemy is well into the kill zone. The intersecting bands of fire prevent any attempt of moving out of the kill zone.

**Preparation**

To be successful, an ambush patrol must deploy into the area covertly, ideally under the cover of darkness. The patrol will establish secure and covert positions overlooking the killing zone. Usually, two or more “cut-off” groups will be sent out a short distance from the main ambushing group, into similarly covert positions. Their job is twofold; first, to give the ambush commander early warning of the approaching enemy, and second, when the ambush is initiated, to prevent any enemies from escaping. Another group will cover the front and rear of the ambush position (blocking force), and thus provide all round defense. Care must be taken by the ambush commander to ensure that fire from any weapon cannot inadvertently hit any other friendly unit (this is known as crossfire).

**Waiting**

Having set up the ambush, the next phase is to wait. This could be for a few hours, or a few days, depending on the tactical and supply situation. It is obviously much harder for an ambush patrol to remain covert and alert if sentry rosters, shelter, sleeping, sanitary arrangements, food and water, have to be considered; so this should be done in a patrol harbor, away from the site chosen for the ambush. Ambush patrols will almost always have to be self-sufficient, as re-supply would not be possible without compromising their position.

**Execution**

The arrival of an enemy in the area should be signaled by one of the cut-off units. This may be done by radio or by some other signal, but the enemy must not detect the signal. If radio silence is necessary, the pre-electronic expedient of a cord linking the groups, tugged once or twice as a signal, may be employed. The ambush commander will have given a clear instruction for initiating the ambush. An ambush is ideally initiated by the most effective casualty-producing device available to the attacking elements. This might be a burst from an automatic weapon, or the use of an antipersonnel explosive device (such as a Claymore mine or other directional weapon). Some military
doctrines call for an ambush to be initiated by a signal from a whistle, though in US practice, whistles are not favored, since they do nothing to inflict damage on the enemy. The ambush commander may judge when the ambush will be most effective, and give the signal manually, or the ambush patrol may rely on tripwire or pressure-detonated mines in the kill zone to initiate firing.

After the firefight has been won, the now compromised ambush patrol must leave the area as soon as it is practical to do so. In hit-and-run operations, especially against superior numbers and forces, the ambush force will begin disengaging even before the firefight has been won. In the past, accepted protocol was to check bodies for intelligence, take prisoners, and 'treat' any wounded enemy. Once this was accomplished, the ambush patrol would then exfiltrate the area by a pre-determined route.

**Surviving an ambush**

By definition, the ambush contains the element of total surprise; which means the victims of the ambush have no knowledge of how it has been constructed, or of what measures may have been employed to prevent escape. Therefore – and this has been proven by the experience of war – the only likely method of survival is withdrawal from the killing zone "the way you came in". All other routes out of the killing zone may be blocked, and in a very well-planned and well-executed ambush, even the "back door" will have been closed by the time the ambush is sprung. The published military doctrine is "immediate, positive, and offensive action" (ref: FM 55-30 USARMY, also PFN-T8M20024), but this is very likely to have been anticipated by the ones who set the ambush, and often plays into their hands. The value of withdrawal is the preservation of the force to "live to fight another day", when not taken by surprise.

There is an old saying amongst line troops whose source is lost in history which is often passed from generation to generation: "When they have the drop on you, don't draw!" This is an expression that probably originated in US cavalry days, or perhaps with the Texas Rangers.

**Avoiding the ambush**

The best way to survive an ambush is not to encounter them. In order for this to happen, patrol movement mustn't be predictable in timing or route, and should avoid the most obvious routes. Rather than moving at a constant speed and direction, the patrol should vary these, with occasional stops to observe both the route ahead, and changes behind. Units should move in such a way that they are close enough together for mutual support, but far enough apart so that one burst of automatic fire wouldn't take out the entire unit. When on foot, if possible, the patrol should move in such a way as to maximise their firepower; for example, with the arrowhead and spearhead formation, they should not allow themselves to be skylined. Units on foot should have a point
man some way ahead of the main body, and, if possible, a rearguard as well. Those travelling in vehicles follow the same procedures, with lead and trailing vehicles well ahead of, and well behind, the main body of vehicles.

**Countering an ambush**

In the modern day warfare, this is much easier than before, since a route can be sanitized beforehand by aerial assets, and any obvious ambush sites noted, and counter measures taken. In Afghanistan, Mi-24 Hind gunships were used to locate concentrations of mujahideen guerrillas, and these would then be attacked by the Hinds themselves, or by artillery, using the aircraft as spotters.

**Source:** http://en.wikipedia.org/wiki/Ambush

**AO**

**AO or Area of Operations** – refers to the area where a unit is assigned in a combat zone. It may mean a total “corps’ area or it may mean the much smaller area where a unit is actually operating.

**Article 15**

Within the Uniform Code of Military Justice (UCMJ) is a provision for punishing misconduct through judicial proceedings like a court-martial. The UCMJ also gives commanders the authority to impose nonjudicial punishment, described in the UCMJ under **Article 15**. Article 15 provides commanders an essential tool in maintaining discipline. The Article allows commanders to impose punishment for relatively minor infractions. Only commanders may impose punishment under Article 15. A commander is any warrant officer or commissioned officer that is in command of a unit and has been given authority under AR 600-20, either orally or in writing, to administer nonjudical punishment.

When reviewing the circumstances surrounding an incident of misconduct, the commander will ensure that prior to processing an Article 15, an actual offense under the UCMJ was committed. He ensures the alleged offense violated the UCMJ, Army Regulations, Army Policy, a lawful order, local laws or some other rule the soldier had a duty to obey.

The soldier is informed that the commander has started nonjudicial punishment (Article 15) procedures against him. Once the commander has conducted the hearing and if he decides that the accused is (a) guilty and (b) needs to be punished, he will prescribe punishment that fits the offense(s). Soldiers may present evidence at Article 15 hearings. Evidence would be something that shows a soldier is not guilty of the alleged offense(s). A soldier may also present matters in extenuation and mitigation, which are reasons why he should be punished less or not at all.

The level of proof is the same at both an Article 15 hearing and a court-martial; the imposing commander must be convinced of the accused soldier’s guilt by
the evidence presented before the soldier can be found guilty. Whatever the outcome of the hearing, an Article 15 is not considered a conviction and will not appear in your civilian record. On the other hand, if you demand a trial by court-martial and are convicted, this would be a federal conviction that would stay with you even after you leave the Army. No lawyers are involved in the Article 15 hearing however, the soldier has the right to speak with an attorney prior to accepting proceedings under Article 15. There is also no prosecutor at an Article 15 hearing. At a court-martial, a military lawyer may represent the accused at no cost to the soldier, and there would also be a prosecutor present.

If a soldier thinks he has been punished excessively, or evidence was not properly considered, he may appeal to the next level of command within five days. The soldier is not entitled to a personal appearance in front of the appeal authority (although he may request one) so he should include written statements as to why the appeal should be granted. If the soldier doesn’t submit these statements, the appeal authority may never get his side of what happened.

The appeal authority can take any action to lessen the punishment but may NOT INCREASE the punishment given by the original commander. Article 15s come in different levels: Summarized, Company Grade and Field Grade. They differ in two main respects: the severity of the punishment and in how the record of it can affect a soldier’s future in the Army.

### Maximum Punishments in Article 15

<table>
<thead>
<tr>
<th></th>
<th>Summarized</th>
<th>Company Grade</th>
<th>Field Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction</td>
<td>14 days</td>
<td>14 days</td>
<td>60 days</td>
</tr>
<tr>
<td>Extra Duty</td>
<td>14 days</td>
<td>14 days</td>
<td>45 days</td>
</tr>
<tr>
<td>Pay Forfeiture</td>
<td>None</td>
<td>7 days</td>
<td>½ month for 2 months</td>
</tr>
<tr>
<td>Rank Reduction (E4 &amp; below)</td>
<td>None</td>
<td>1 grade</td>
<td>1 or more grades</td>
</tr>
<tr>
<td>Rank Reduction (E5 &amp; E6)</td>
<td>None</td>
<td>None</td>
<td>1 grade</td>
</tr>
<tr>
<td>Rank Reduction (E7 and up)</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Note: If both restriction and extra duty are imposed they must be served at the same time. Pay forfeiture, restriction and extra duty may be all or partially suspended.

Article 15s can affect a soldier’s future. Summarized Article 15s are filed in the local files (at the installation Staff Judge Advocate office) for a period of two years or until the transfer of the soldier, whichever occurs first. Company and Field Grade Article 15s can be filed in the soldier’s official military personnel file (OMPF). The commander in each case decides where to file the Article 15. An Article 15 in a soldier’s official records will affect promotions, clearances, and special assignments.

**Source:** [http://www.armystudyguide.com/content/army_board_study_guide_topics/military_justice/about-article-15.shtml](http://www.armystudyguide.com/content/army_board_study_guide_topics/military_justice/about-article-15.shtml)
AWOL

**Absent Without Leave (AWOL).** This refers to when a soldier leaves his assigned unit without permission. Some soldiers went AWOL to avoid going to Vietnam. They were generally arrested later and returned to duty; however, they could also be incarcerated for this violation.

Azimuth

An **azimuth** is an angular measurement in a spherical coordinate system. The vector from an observer (origin) to a point of interest is projected perpendicularly onto a reference plane; the angle between the projected vector and the reference vector on the reference plane is called the azimuth.

An example of an azimuth is the measurement of the position of a star in the sky. The star is the point of interest, the reference plane is the horizon or the surface of the sea, and the reference vector points to the north. The azimuth is the angle between the north point and the perpendicular projection of the star down onto the horizon.

Azimuth is usually measured in degrees (°). The concept is used in many practical applications including navigation, astronomy, mapping, mining and artillery. The word **azimuth** is derived from the Arabic word as-simt, which means *direction*, referring to the ways or directions a person faces.

In land navigation, an azimuth is defined as a horizontal angle measured clockwise from a north base line or *meridian*. **Azimuth** has also been more generally defined as a horizontal angle measured clockwise from any fixed reference plane or easily established base direction line.

Today, the reference plane for an azimuth in a general navigational context is typically true north, measured as a 0° azimuth, though other angular units (grad, mil) can also be employed. In any event, the azimuth cannot exceed the highest number of units in a circle – for a 360° circle, this is 359 degrees, 59 minutes, 59 seconds (359° 59' 59").

For example, moving clockwise on a 360° degree circle, a point due east would have an azimuth of 90°, south 180°, and west 270°. However, there are exceptions: some navigation systems use geographic south as the reference plane. Any direction can potentially serve as the plane of reference, as long as it is clearly defined for everyone using that system.

Field soldiers “shot” azimuths with their compass when they were orienting where they were on the ground and when they directed artillery fire to adjust the direction of the fire.

**Source:** [http://en.wikipedia.org/wiki/Azimuth](http://en.wikipedia.org/wiki/Azimuth)

Battalion

A United States Army **battalion** includes the battalion commander (Lieutenant Colonel), his staff, and headquarters, the Command Sergeant Major (CSM),
and usually 3-5 companies, with a total of 300 to 1,200 soldiers. A **regiment** consists of between two and six organic battalions, while a **brigade** consists of between three and seven separate battalions.

During World War II, most infantry regiments consisted of three battalions (a 1st, 2nd, and 3rd) with each battalion consisting of four companies. That is, companies A, B, C, and D were part of the 1st battalion, companies E, F, G, and H constituted the 2nd battalion, and I, K, L, and M in the 3rd. There was no J company. [The letter J was traditionally not used because in 18th and 19th century old style type the capital letters I and J looked alike and were therefore too easily confused with one another.] It was common for a battalion to become temporarily attached to a different regiment. For example, during the confusion and high casualty rates of both the Normandy landings and the Battle of the Bulge, in order to bolster the strength of a depleted infantry regiment, battalions and even companies were moved around as necessary.

From the 1960s through the early 1980's, a typical maneuver (infantry or tank) battalion had five companies: Headquarters and Headquarters Company (HHC) and A, B, and C Companies, plus a Combat Support Company with a scout platoon, mortar platoon and other elements that varied between organizations. These included heavy anti-tank missile platoons, ground surveillance radar sections, man portable anti-aircraft missile sections and others. Beginning in the early to mid-1980's some elements of the Combat Support Companies (the mortar and scout platoons) were merged into the Headquarters Company with the staff and support elements, others were moved to their parent type organization (ground surveillance radar and air defense), and in infantry battalions the heavy anti-tank missile platoon was organized as a separate company (Echo/E). Simultaneously, there was a fourth "type" company added (Delta/D) in most infantry and tank battalions.

The commanding officer of a battalion is usually a lieutenant colonel, although a major can be selected for battalion command in lieu of an available lieutenant colonel. A typical tour of duty for this assignment is twenty-four to thirty-six months.

A battalion command is the first unit command position at which the commanding officer is given an appreciably sized headquarters and staff to assist him or her in commanding the battalion and its subordinate company units. The typical staff usually includes:

- a battalion executive officer, usually a major
- a battalion command sergeant major
- a personnel officer (S1), usually a captain
- an intelligence officer (S2), usually a captain
- an operations officer (S3), usually a major
- a logistics officer (S4), usually a captain
- an attached public affairs officer (S5), usually a captain
- a communications officer (S6), usually a captain
- a medical officer, usually a captain
- a JAG (legal) officer, usually a captain
- a battalion chaplain, usually a captain

In addition, the headquarters will include non-commissioned officers and enlisted support personnel in the occupational specialties of the staff sections; these personnel will ordinarily be assigned to the battalion's headquarters and headquarters company.

Source: http://en.wikipedia.org/wiki/Battalion

Boom Boom  In Vietnamese slang using English words Boom Boom referred to having sex.

Boonies  The Boonies referred to the country side far away from any civilization, villages or towns. The boonies with enemy in them were generally referred to as “Indian Country.”

Brother  The term Brother was used to refer to black soldiers or African American soldiers. Black soldiers gave themselves this label feeling that it further cemented their affinity for each other.

CA  Combat Assault (CA): This refers to being placed in the field by a helicopter to start a mission.

Chop-Chop  Chop-Chop means to move very quickly as in “You better get this done chop-chop.”

Click or Klick  A “Click” or “Klick” is one kilometer.

Company  In the United States Army infantry companies are usually made up of three rifle platoons and a heavy weapons platoon; mechanized infantry companies are usually made up of three rifle platoons and a command element; tank companies are usually made up of three tank platoons and a command element. An infantry company generally has approximately 200 men. A company is usually commanded by an Army captain, although in rare cases they may be commanded by a 1st lieutenant or a major. By tradition, the corresponding unit of artillery is always called a "battery." Similarly, the term "troop" is used for cavalry units, including both the horse-mounted units of history as well as modern armored cavalry and air cavalry units. Companies which are not separate from their parent battalion are identified by letter - for example, "A Company, 1st Battalion, 15th Infantry Regiment". The letters are usually pronounced using the NATO phonetic alphabet or, before that, the Joint Army/Navy Phonetic Alphabet, resulting in names such as "Bravo Company" and "Echo Company" (formerly "Baker" and "Easy" Companies, respectively).
Companies with a separate Table of Organization and Equipment are identified by a number, and are able to operate completely independently from any other unit's support. Company-sized units which are organized under a Table of Distribution and Allowance and are identified with a name or number.

Company-sized units usually consist of four to six platoons (each led by a Lieutenant), although there are examples of Combat Service and Combat Service Support companies that have seven or more platoons. For example, a Transportation Terminal Service Company normally has two Ship Platoons, two Shore Platoons, one Documentation Platoon, one Maintenance Platoon, and the Headquarters Platoon. These platoons are led by first lieutenants, while the company is commanded by a major.

The senior non-commissioned officer of a company is called a first sergeant. Any sergeant holding this position is referred to as "first sergeant" regardless of actual rank and pay grade, though the non-commissioned officer assigned ordinarily has the rank of first sergeant and a grade of E-8. A master sergeant (E-8) assigned to this position will be "laterally promoted" to the rank of first sergeant, unless the appointment is temporary. In some instances, a sergeant first class (E-7) will be appointed to the job in lieu of a qualified first sergeant or master sergeant. Again, in such situations, the NCO holds the duty position and title of "First Sergeant," while retaining the rank of sergeant first class, at a grade of E-7.

Source: http://en.wikipedia.org/wiki/Company_(military_unit)

Concertina Wire

Concertina Wire is heavy duty barbed wire that is for military use only. The spikes are very long and very sharp. The wire is usually in rolls (or coils) and can be deployed by two men. One holds the end and the other walks the wire out in a line. Many rolls can be stacked pyramid style to form a very formidable barrier for perimeter defense. The perimeter of all division base camps and many firebases used concertina wire as the first level of defense.

Conex Box

A Conex Box is a steel shipping container. They generally have the following properties:

- 16 gauge vertically corrugated galvanized steel
- Double, asymmetrical steel doors with ground-level entry
- Heavy-duty, marine-grade wood flooring
- Die-stamped steel roof

The ones used to ship material to Vietnam were generally 20, 24 or 40 feet in length and many were tall enough that a man could stand in them. At Long Binh Jail conex boxes were sometimes used to detain prisoners.
Courts-martial in the United States are criminal trials conducted by the U.S. military. Most commonly, courts-martial are convened to try members of the U.S. military for violations of the Uniform Code of Military Justice, which is the U.S. military's criminal code. However, they can also be convened for other purposes, including military tribunals and the enforcement of martial law in an occupied territory. Courts-martial are governed by the rules of procedure and evidence laid out in the Manual for Courts-Martial and Military Rules of Evidence, respectively.

Courts-martial are adversarial proceedings, as are all United States criminal courts. That is, lawyers representing the government and the accused present the facts, legal aspects, and arguments most favorable to each side; a military judge determines questions of law, and the members of the panel (or military judge in a judge-alone case) determine questions of fact.

There are three types of courts-martial—summary, special, and general. A conviction at a general court-martial is equivalent to a civilian conviction in a federal district court. Special courts-martial are considered "federal misdemeanor courts" because they cannot impose confinement longer than one year. Summary courts-martial have no civilian equivalent.

**Summary Court-Martial**

Trial by summary court-martial provides a simple procedure for resolution of charges of relatively minor misconduct committed by enlisted members of the military. The summary court-martial consists of one individual, typically a judge advocate. That one officer acts both as prosecuting attorney and defense counsel. The maximum punishment at a summary court martial varies with the accused's paygrade. If the accused is in the pay grade of E-4 or below, he or she can be sentenced to 30 days of confinement, reduction to pay grade to Private E-1, or restriction for 60 days. Punishments for servicemembers in paygrades Sergeant E-5 and higher are similar, except that they can only be reduced one paygrade and cannot be confined.

Military members who refuse Article 15 nonjudicial punishment can be referred for special court-martial. Usually this decision is made after the commanding officer consults with the local JAG (Judge Advocate General) commander. The accused must consent to trial by summary court-martial before the court can commence.

**Special Court-Martial**

A special court-martial is the intermediate court level. It consists of a military judge, trial counsel (prosecutor), defense counsel, and a minimum of three officers sitting as a panel of court members or jury. An enlisted accused may
request a court composed of at least one-third enlisted personnel. An accused may also request trial by judge alone. Regardless of the offenses involved, a special court-martial sentence is limited to no more than one year confinement (or a lesser amount if the offenses have a lower maximum), forfeiture of two-thirds’ basic pay per month for one year, a bad-conduct discharge (for enlisted personnel), and certain lesser punishments. An officer accused in a special court-martial cannot be dismissed from the service or confined.

**General Court-Martial**

In a general court-martial, the maximum punishment is that set for each offense under the Manual for Courts-Martial (MCM), and may include death (for certain offenses), confinement, a dishonorable or bad conduct discharge for enlisted personnel, a dismissal for officers, or a number of other forms of punishment. Before a case goes to a general court-martial, a pretrial investigation under Article 32 of the Uniform Code of Military Justice must be conducted, unless waived by the accused. An accused before any court-martial is entitled to free legal representation by military defense counsel (ADC-area defense counsel), and can also retain civilian counsel at his or her expense.

There are procedures for post-trial review in every case, although the extent of those appellate rights depends upon the punishment imposed by the court and approved by the convening authority. Cases involving a punitive discharge, dismissal, confinement for one year or more, or death will undergo automatic review by the appropriate military (Army, Navy, Air Force or Coast Guard) court of criminal appeals, unless the accused waives such review (although death sentences cannot be waived). The Court of Criminal Appeals can correct any legal error it may find, and it can reduce an excessive sentence. The accused will be assigned an appellate defense counsel to represent him or her at no cost before the Court. Civilian counsel may be retained at the accused's own expense. Beyond the Court of Criminal Appeals, the accused can petition the United States Court of Appeals for the Armed Forces for further review (review is automatic for death sentences). That court consists of 5 civilian judges, appointed for a fifteen year term, and it can correct any legal error it may find. Appellate defense counsel will also be available to assist the accused at no charge. Again, the accused can also be represented by civilian counsel, but at his or her own expense. Beyond that court, it is possible to petition the United States Supreme Court to review the case, although such petitions are rarely granted.

**Jury trial in General Courts-Martial**

While the Framers guaranteed American citizens the right of a jury trial both in the text of the Constitution and in the Bill of Rights, they denied it to those serving in the armed forces. And Congress, from the beginning, has retained
the long-standing practice of a convening authority personally selecting the members of a court-martial panel.

A court-martial has always been an ad hoc tribunal created and appointed by the order of a commanding officer, called a convening authority, for the express purpose of considering a set of charges that the commander has referred to the court. The convening authority considers the statutory prescription offered by the United States Congress, those "best qualified," in selecting the panel for the court-martial. In turn, the members of the court-martial, who are generally under the command of the convening authority, take an oath to "faithfully and impartially try, according to the evidence, their conscience, and the laws applicable to trial by court-martial, the case of the accused." By their oath, the panel members expressly agree to leave behind any influence from the commander who appointed them. The current practice in the United States Armed Forces is to appoint a number of officers to a standing panel of members.

The appointed or retained defense attorney may challenge both the military judge and members of the panel for cause. However, the military judge determines the relevance and validity of any challenge. The prosecution and defense initially possess one peremptory challenge to members of the court-martial. The accused may also challenge a member of the panel for cause "at any other time during trial when it becomes apparent that a ground for challenge exists." The Uniform Code of Military Justice (UCMJ) prohibits a convening authority from unlawfully influencing the court. A defense attorney may bring a motion to challenge the validity of the court-martial where it appears that a convening authority has unlawfully influenced court-martial members. A convicted defendant may have his case reviewed de novo by an intermediate military criminal court of appeal, such as the Navy-Marine Corps Court of Criminal Appeal, and then possible further review by the United States Court of Appeals for the Armed Forces (CAAF).

If a service member is court-martialed and they feel that the result was unjust, then the service member can submit their case to the convening authority, which is the officer (usually a general or admiral) that originally had the service member court-martialed. This is similar to asking a civilian governor for clemency or a pardon. After clemency requests the service member may submit their case for review to the Court of Criminal Appeal for their branch. A service member, if sentenced to more than a year confinement, a punitive discharge or dismissal may petition the nation's highest military - the Court of Appeals for the Armed Forces. However, review by the CAAF is discretionary with less than 20 percent of cases reviewed a year.

**Source:** http://en.wikipedia.org/wiki/Courts-martial_in_the_United_States
Cut Some Slack  To **Cut Some Slack** means to give someone preferential treatment. It was generally rare in Vietnam.

Cut a Few Z’s  To **Cut a few Z’s** means to sleep or take a nap.

DAP  A **DAP** was a very elaborate hand shake used by black or African American soldiers. It involved touching each other fists then gently hitting each other fists on top and bottom followed by an elaborate crossing of palms and shaking of hands.

DEROS  **Date Eligible to Return from Overseas (DEROS)** - The date you leave Vietnam.

Didi Mau  In Vietnamese **Didi Mau** means to leave rapidly.

DILLIGAF  **DILLIGAF** was a derisive term that meant “Does it look like I give a f**k.

Dink  **Dink** was a derisive term used to refer to Vietnamese, especially VC and NVA. Vietnamese were also referred to as “gooks” or “slopes.”

Dinky Dau  In Vietnamese **Dinky Dau** means crazy.

Doughnut Dolly  A **Doughnut Dolly** was a woman who was a Red Cross worker in Vietnam. They provided various services to soldiers including snacks and games.

Draftee  A **Draftee** is a young man who was forced into the Army by the Selective Service system. Until the Fall of 1969 young men were drafted by boards that existed in every community. Not surprisingly, most draftees were the sons of the poor, the working poor and non-white. Beginning in the Fall of 1969; however, young men were drafted by lottery according to their birth date. It is not surprising that the Vietnam anti-war movement became really energized at this time because we began to draft the sons of the middle and privileged classes. A draftee had to serve two years in the Army while a person who enlisted generally had to serve three years. By 1968 approximately 88 percent of U.S. Infantry soldiers in Vietnam were draftees and, not surprisingly, they carried a disproportionate share of the “killed in action” (KIAs).

Dung Lai  **Dung Lai** means “Halt” or “Stop” in Vietnamese.

Enlisted Man  **Enlisted men** are soldiers who are not officers. Some of them are sergeants who are military leaders; however, they are not officers. Historically this reference referred to persons who volunteered to serve (enlisted) in the military; however, it was also applied to persons who were drafted because they generally did not become officers.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ETS</td>
<td><strong>ETS or Estimated Time of Separation</strong> (from the Army); i.e., when a GI finished his obligation to serve in the military.</td>
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<tr>
<td>Firebase</td>
<td>A <strong>Firebase</strong> was generally a naked hill far in the unpopulated countryside on which were located bunkers which were occupied by infantry soldiers to provide security of the base, commanders, and artillery and mortar units. The pattern in Vietnam was for U.S. forces to occupy a firebase for a month or two then leave it where its control then reverted to the VC or NVA.</td>
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<tr>
<td>Firefight</td>
<td>A <strong>Firefight</strong> is a military engagement using small arms; i.e., shooting at and receiving fire from an enemy force.</td>
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<tr>
<td>Fire in the hole</td>
<td><strong>Fire in the hole</strong> is what is yelled out to warn others of an impending explosion such as when C-4 is used to blast away trees to make room for a landing zone (LZ).</td>
</tr>
<tr>
<td>FNG</td>
<td><strong>FNG</strong> means F**king New Guy – This refers to soldiers when they first arrived in Vietnam. In some ways it was a put down because others soldiers experienced in combat held new guys in low esteem until they proved their worth. In another way it was just a recognition of one’s newness to the combat environment.</td>
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<tr>
<td>FO</td>
<td>An <strong>FO</strong> is a forward observer; generally an artillery guy assigned to an infantry unit for the purpose of directing artillery fire.</td>
</tr>
<tr>
<td>Forward Trains</td>
<td>This is the <strong>Forward Transit Area</strong> where soldiers were brought temporarily before going to their unit in the field. It was also a resupply point for units in the field.</td>
</tr>
<tr>
<td>Frag</td>
<td>A <strong>“Frag”</strong> is a hand grenade. It is also a term used for killing an officer or NCO by grenade.</td>
</tr>
<tr>
<td>GI</td>
<td><strong>GI</strong> refers to any soldier. The acronym actually means “government issue;” however, since soldiers are totally controlled by their branch of service the term became to mean soldier.</td>
</tr>
<tr>
<td>Grunt</td>
<td>A <strong>Grunt</strong> is an infantry soldier. The term comes from the effects of humping rucksacks filled with 60-70 pounds of equipment which caused one to grunt from time to time.</td>
</tr>
<tr>
<td>H &amp; E</td>
<td><strong>H &amp; E</strong> refers to high explosive rounds from artillery. Generally, when calling in artillery support the first round was a smoke round to mark the location so soldiers on the ground could tell artillery soldiers where to adjust their fire. When the H &amp; E started it got much more serious because artillery fire was normally brought very close to the soldiers positions since most combat in Vietnam was within 25 to 50 meters. As a consequence, soldiers often felt</td>
</tr>
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</table>
“dead fall” which is artillery shrapnel falling. If you were not lucky it could cut you.

H & I Fire  **H & I Fire** refers to “harassment and interdiction” artillery fire. It was designed to alter and hamper the enemy movement. It was not very successful in Vietnam and had the added problem of occasionally resulting in the killing of innocent civilians.

Higher Higher  **Higher Higher** refers to high ranking officers who were in charge of battalions, regiments, brigades, and divisions.

Hootch  A **Hootch** is a shelter of any kind from a building to just a poncho shelter out in the field.

Humping  **Humping** refers to long walks in the boonies. It was referred to as humping because of the heavy rucksacks soldiers had to carry which could amount to 60-70 pounds and it was generally very hot in Vietnam with temperatures often being 100 degrees Fahrenheit or higher.

“It don’t mean nothing”  **It don’t mean nothing** was a commonly used expression in Vietnam when things went bad such as rain, heat, and even firefights. It was how GI’s coped with the uncertainties and inevitable calamites of war.

Jungle Rot  **“Jungle rot,” “New Guinea crud” or “the creeping crud”** are U.S. servicemen’s names for any & every kind of tropical skin disease. Doctors often find the nicknames convenient, since diagnosis is not always easy and many varieties respond to standard treatment: cleaning, painting with silver nitrate and other chemicals, dressing with sal-sulfur ointment, avoidance of sweating, return to the temperate zone. The various kinds of jungle rot were described by Lieut. Commander Robert R. M. McLaughlin in the Naval Medical Bulletin. Some of them:

- Aggravated athlete's foot. This may extend wherever the shoe touches.
- Fungus infections of trunk, thighs, face, scalp. These may be red, white or various shades of brown and may produce temporary baldness.
- A rash like poison ivy from such tropical trees as the papaya. This usually lasts only two weeks.
- Impetigo and scabies. These are not as common as the fungus infections but are very itchy and catching, especially when men do not bathe frequently.

All the eruptions go away in time, but some hang on for months. Civilians often assume the diseases are catching, or venereal. Result: most sufferers try to keep out of sight, even of their families.
In Vietnam, jungle rot was often caused by small cuts often from elephant grass that got a staph infection.

**Source:** [http://www.time.com/time/magazine/article/0,9171,792300,00.html](http://www.time.com/time/magazine/article/0,9171,792300,00.html)

**KIA**

KIA refers to killed in action.

**KP**

Kitchen Patrol (KP). Until relatively recently, the Army used young enlisted men, generally privates, to assist cooks in the preparation of meals for soldiers. The jobs included “DRO” (Dining Room Orderly) who helped set up the dining room, “Outside Man” who deposited garbage outside the dining hall (which was the best when the weather was good), “regular KP” where you peeled potatoes and served the food, and something called “Pots and Pans Man” responsible for cleaning the many and often huge pots and pans used by the cooks.

**Leader’s Recon**

A **Leader’s Recon** involves a company or platoon commander making a search of an area for the purpose of determining the tactical situation in that area.

**Lifer**

A **Lifer** is a career service member. Most soldiers generally denigrated lifers because they believed that lifers were more worried about their careers than the well being of soldiers.

**LP**

An **LP** is a “listening post” which involves usually four soldiers who are located approximately 100 meters or so from their platoon night position for the purpose of providing early warning of incoming enemy troops.

**LT**

**LT** refers to a lieutenant, generally a platoon leader. He may be a second lieutenant, the lowest ranking officer or he may be a first lieutenant.

**LZ**

**Landing Zone or LZ** – This may be a forward firebase or just an open area large enough for helicopters to land in the field.

**Medic**

The main role of the **Combat Medic (68W10)** in the United States Army is to provide medical treatment to wounded soldiers. Whiskeys are staples in the functionality of the US Army, as every squad is required to have a whiskey in attendance when going on any hazardous mission. Every platoon had one medic and there was another for the company as a whole. They are found in every stage of medical treatment in a combat zone. Whiskeys initiate medical treatment at the accident or injury location, maintain medical treatment during evacuation to healthcare facilities, and provide medical treatment in the medical facilities themselves. 68W10s are highly trained to perform medical duties in hazardous and challenging atmospheres. After serving in a combat zone medics receive a Combat Medic badge which is their equivalent of the Combat Infantryman Badge.
Medivac or “dust offs” refers to “medical evacuation” from a combat zone by helicopter. “This was one of the most important innovations of the Vietnam War. In all, Army medivac helicopters carried at least 400,000 U.S. military personnel and a considerably larger number of Vietnamese troops and civilians, to hospitals from 1963 to 1973. It is impossible to say how many lives were saved by this novel method of medical management, but there are a few revealing statistics. In WWII, about 71 percent of men who became casualties survived their wounds. In Korea the figure was 74 percent. In Vietnam over 81 percent of men wounded survived; 90 percent survived who were alive when picked up by a medivac chopper. The ubiquitous medivac helicopter became almost an emblem of the Vietnam conflict. In a war long on frustration and short on popular heroes, the dust-off pilots became almost legendary for their courage, tenacity, and ingenuity. Nearly all the chopper pilots, most of whom were only 2-3 years older than us and some the same age as us, were studs but the medivac guys probably had the biggest balls of all – they paid the price. The rate of loss to hostile fire for medivac choppers was almost three and a half times the loss rate of all other types of helicopter missions, and more than a third of all flight crews of dust-off ships were killed or wounded.”

Source: Richard (Dick) J. Arnold, “You Don’t Know How Lucky We Are To Have Soldiers Like This”

MOS Military Occupational Specialty or MOS. This refers to the type of jobs that soldiers were assigned. Some soldiers who volunteered to join the Army could get guaranteed particular occupational specialties. For those who were drafted; however, almost all became infantrymen (11-B).

MPC Military Payment Certificates (MPC) – This was paper money used by U.S. military personnel to purchase items from the PX. It looked much like Monopoly money, smaller than regular U.S. dollars, with several unusual colors including pink. GIs also used it on the local economy; however, they were not supposed to because that contributed to illegal purchases by Vietnamese and black marketing.

NCO An NCO or Non-Commissioned Officer is a sergeant of any sergeant rank.

Nickel Bag A Nickel Bag was a pouch with $5 worth of marijuana in it about the size of a man’s fist.
| **Non-Com** | A **Non-Com** is a non-commissioned officer or sergeant. |
| **Number 1** | Vietnamese used **Number 1** to mean something good. |
| **Number 10** | Vietnamese used **Number 10** to mean something bad. |

**Platoon**

In the United States Army, **Rifle Platoons** are normally composed of 42 soldiers. They are led by a platoon leader (PL), usually an Infantry second lieutenant (2LT), and with a Platoon Sergeant (PSG), usually a Sergeant First Class (SFC). Rifle Platoons consist of three nine-man Rifle squads and one nine-man Weapons squad. The Platoon Headquarters includes the PL, PSG, along with the PL's Radio-Telephone Operator (RTO), Platoon Forward Observer (FO), the FO's RTO and the Platoon Medic.

In Vietnam it was uncommon to have 42 men in a platoon. After about 1968 platoons generally had 20-30 men; in part, because everyone was serving only one year tours and replacements did not come fast enough.

**Source:** http://en.wikipedia.org/wiki/Platoon

**Point Man**

A **Point Man** was the guy in an infantry unit who walked ahead of the unit. His job was to guide the unit to its destination and provide early warning of enemy soldiers. Point men were frequent casualties.

**POW**

**POW** refers to “Prisoner of War.” There were very few U.S. infantry soldiers that became POWs in Vietnam. Of the approximately 800 POWs finally released by North Vietnam in 1973, almost all of them were Navy and Air Force pilots responsible for bombing targets in North Vietnam. Captured infantrymen were routinely killed on site in part because the NVA and VC did not have the capacity to care for them but also because of the North Vietnamese philosophy of the war. As General Giap, the commander of the NVA said, the goal was “coffins going home.” The idea was to make the war so painful that Americans would push their government to get out which is ultimately what happened.

**Source:** Richard (Dick) J. Arnold, “Why I Probably Won’t Be Seeing Saving Private Ryan”

**PTSD**

**Post-Traumatic Stress Disorder (PTSD)** is a severe anxiety disorder that can develop after exposure to any event that results in psychological trauma. This event may involve the threat of death to oneself or to someone else, or to one's own or someone else's physical, sexual, or psychological integrity, overwhelming the individual's ability to cope. As an effect of psychological trauma, PTSD is less frequent and more enduring than the more commonly seen acute stress response.
Diagnostic symptoms for PTSD include re-experiencing the original trauma(s) through flashbacks or nightmares, avoidance of stimuli associated with the trauma, and increased arousal - such as difficulty falling or staying asleep, anger, and hypervigilance. Formal diagnostic criteria (both DSM-IV and ICD-9) require that the symptoms last more than one month and cause significant impairment in social, occupational, or other important areas of functioning.

It was not uncommon for Vietnam combat veterans to experience PTSD. There are now programs in the U.S. Department of Veterans Affairs to treat this disorder.

**Source:** [http://en.wikipedia.org/wiki/Post-Traumatic_Stress_Disorder](http://en.wikipedia.org/wiki/Post-Traumatic_Stress_Disorder)

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**PX**

**Post Exchange (PX).** This is the multi-purpose store available on all Army bases. At its most basic it sold toiletries, basic personal supplies, magazines, and books. The larger stores also sold a wide variety of products.

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**Radio Call Signs** were used to identify various platoon, company and battalion commanders when communicating on the radio. They generally involved one or more letters and a number (e.g., “6” for platoon leader). The radio protocol involved using the NATO phonetic alphabet which uses words for letters of the alphabet as follows:

- A = Alpha
- B = Bravo
- C = Charlie
- D = Delta
- E = Echo
- F = Foxtrot
- G = Golf
- H = Hotel
- I = India
- J = Juliet
- K = Kilo
- L = Lima
- M = Mike
- N = November
- O = Oscar
- P = Papa
- Q = Quebec
- R = Romeo
- S = Sierra
- T = Tango
- U = Uniform
- V = Victor
- W = Whiskey
- X = X-Ray
- Y = Yankee
- Z = Zulu

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**Rappelling**

To **rappel** is to descend a vertical surface, such as a cliff or wall, by sliding down a belayed rope that is passed under one thigh and over the opposite shoulder or through a device that provides friction, typically while facing the surface and performing a series of short backward leaps to control the descent. Rappelling is to descend from a steep height by this method.

**Source:** [http://www.thefreedictionary.com/rappelled](http://www.thefreedictionary.com/rappelled)

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** REMF**

A **REMF** is a Rear Echelon Mother F**ker. This refers to all soldiers who worked in administrative capacities or otherwise avoided going into the
boonies and combat. This included clerks, personnel and finance specialists, and soldiers who drove trucks or did other support work. It was also used to refer to commanders who worked in the division base camp and their staff. Field soldiers held such individuals in low regard because they did not face the danger of combat and they were often blamed for various troubles faced by field grunts including no mail, late mail, no food, no change of clothes, no water, etc. Helicopter crews and Air Force pilots and crew were not considered to be REMFs.

**R & R**

*R & R* refers to “rest and recreation” although soldiers often referred to it as “rape and run.” It was when soldiers were allowed to travel, generally outside Vietnam, to a location where they could have a vacation. Options included Hong Kong, Tokyo, Manila, Bangkok, Taipei, Sydney, and Honolulu. Honolulu generally was the option for married guys because it was in Hawaii and their wives could travel there to be with them. The military paid for the wife’s transportation to Honolulu. There was an R & R center established in each of these cities for the purpose of advising soldiers where to go, what to do, and how to avoid trouble. The trip was for approximately a week involving six days and six nights with travel back to Vietnam on the seventh day. Soldiers were generally advised to bring no less than $250 for R & R which was generally enough money. R & R generally involved more drinking and sex than it did being a tourist; however, there were many opportunities to visit interesting places at each location.

**RTO**

A *Radio Telephone Operator or RTO* is a soldier responsible for carrying and using a field radio on behalf of a company commander (captain), platoon leader (lieutenant) or a sergeant (either a platoon sergeant or squad leader).

**Rules of Engagement**

In military or police operations, the *rules of engagement (ROE)* determine when, where, and how force shall be used. Such rules are both general and specific, and there have been large variations between cultures throughout history. The rules may be made public, as in a martial law or curfew situation, but are typically only fully known to the force that intends to use them. The ROE should comply with the generally accepted martial law. Typical Rules of Engagement included the following:

- **Level 1: Compliant (Cooperative)**. The subject responds and complies to verbal commands. Close combat techniques do not apply.
- **Level 2: Resistant (Passive)**. The subject resists verbal commands but complies immediately to any contact controls. Close combat techniques do not apply.
- **Level 3: Resistant (Active)**. The subject initially demonstrates physical resistance. Use compliance techniques to control the situation. Level three incorporates close combat techniques to physically force a subject to comply. Techniques include: Come-along holds, Soft-handed stunning blows, Pain compliance through the use of joint manipulation.
and the use of pressure points.

- **Level 4: Assaultive (Bodily Harm).** The subject may physically attack, but does not use a weapon. Use defensive tactics to neutralize the threat. Defensive tactics include Blocks, Strikes, Kicks, Enhanced pain compliance procedures, impact weapon blocks and blows.

- **Level 5: Assaultive (Lethal Force).** The subject usually has a weapon and will either kill or injure someone if he/she is not stopped immediately and brought under control. The subject must be controlled by the use of deadly force with or without a firearm.

Rules of engagement are most often decided upon by commanders and are created to carry out and fall in line with over-arching orders or goals from higher command. In order for this to be accomplished, commanders must manufacture rules of engagement that will not violate the trust of the local population, but will instead foster a relationship of respect and understanding.

**Source:** http://en.wikipedia.org/wiki/Rules_of_engagement

**S-2 Officer**

The **S-2 officer** for a battalion and for other higher units is the intelligence officer. There is a system for identifying officers according to their responsibility as follows:

- 1, for personnel and administration
- 2, for intelligence and security
- 3, for operations
- 4, for logistics (supplies)
- 5, for Plans
- 6, for signal (i.e., communications or IT)
- 7, for Training.
- 8, for Finance and contracts. Also known as "Resource Management".
- 9, for CIMIC or Civil Affairs.

The intelligence section is responsible for collecting and analyzing intelligence information about the enemy to determine what the enemy is doing, or might do, to prevent the accomplishment of the unit's mission. This office may also control maps and geographical information systems and data. At the unit level, the S2 is the unit's security officer, and the S2 section manages all security clearance issues for the unit's personnel.

**Source:** http://en.wikipedia.org/wiki/Staff_(military)

**Say Again**

Say Again was the expression used to mean please repeat what you just said. One never says “repeat” because that is an artillery term for shoot again.
Sham  To **Sham** is to avoid work. This may be done by being absent when work assignments are being given or it may involve doing very little on a work detail. To many soldiers in Vietnam “shamming” was a primary goal.

Short Timer  A **Short Timer** is a GI who has only a small amount of time left to serve. Generally, GIs used this term for anyone who had only a few weeks left. When it got down to a few days a GI would generally brag about it and express his “shortness” using a variety of expressions such as “I am so short I can play handball against the curb,” “I am so short I can sleep in a matchbox,” or “I am so short I left yesterday.”

Sniper  A **sniper** is a highly trained marksman who shoots targets from concealed positions or distances exceeding the capabilities of regular personnel. Snipers typically have specialized training and distinct high-precision rifles. In addition to marksmanship, military snipers are also trained in camouflage, field craft, infiltration, reconnaissance and observation. Snipers are especially effective when deployed within the urban terrain of urban warfare.

The term *sniper* was first attested in 1824 in the sense of the word "sharpshooter". The verb "to snipe" originated in the 1770s among soldiers in British India where a hunter skilled enough to kill the elusive snipe was dubbed a "sniper".

During the American Civil War, the common term used in the United States was "skirmisher". Throughout history armies have used skirmishers to break up enemy formations and to thwart the enemy from flanking the main body of their attack force. They were deployed individually on the extremes of the moving army primarily to scout for the possibility of an enemy ambush. Consequently, a "skirmish" denotes a clash of small scope between these forces. In general, a skirmish was a limited combat, involving troops other than those of the main body. The term "sniper" was not in widespread use in the United States until after the American Civil War.

The key to sniping is accuracy, which applies to both the weapon and the shooter. The weapon should be able to consistently place shots within high tolerances. The sniper in turn must utilize the weapon to accurately place shots under varying conditions. A sniper must have the ability to accurately estimate the various factors that influence a bullet's trajectory and point of impact such as: range to the target, wind direction, wind velocity, altitude and elevation of the sniper and the target and ambient temperature. Mistakes in estimation compound over distance and can decrease lethality or cause a shot to miss completely.

Snipers zero their weapons at a target range or in the field. This is the process of adjusting the scope so that the bullet's point-of-impact is at the point-of-aim (centre of scope or scope's cross-hairs) for a specific distance. A rifle and scope should retain its zero as long as possible under all conditions to reduce the need to re-zero during missions.
A sandbag can serve as a useful platform for shooting a sniper rifle, although any soft surface such as a rucksack will steady a rifle and contribute to consistency. In particular, bipods help when firing from a prone position, and enable the firing position to be sustained for an extended period of time. Many police and military sniper rifles come equipped with an adjustable bipod. Makeshift bipods can also be constructed from items such as tree branches or ski poles.

The term "hide site" refers to a covered and concealed position in which a sniper and his team will conduct surveillance and/or fire from. A hide is to give the shooter good visibility of the surrounding area, good cover from enemy fire, and to conceal and camouflage the sniper. The main purpose of “ghillie suits” and hide sites are to break up the outline of a person with a rifle.

Snipers can target personnel or materiel, but most often they target the most important enemy personnel such as officers or specialists (e.g. communications operators) so as to cause maximum disruption to enemy operations. Other personnel they might target include those who pose an immediate threat to the sniper, like dog handlers, who are often employed in a search for snipers. A sniper identifies officers by their appearance and behavior such as symbols of rank, talking to radio operators, sitting as a passenger in a car, having military servants, binoculars/map cases or talking and moving position more frequently.

If possible, snipers shoot in descending order by rank, or if rank is unavailable, they shoot to disrupt communications.

Due to the unexpected aspect of sniper fire, high lethality of aimed shots and frustration at the inability to locate and attack snipers, sniper tactics have a significant effect on morale. Extensive use of sniper tactics can be used as a psychological strategy in order to induce constant stress in opposing forces. One may note that by many aspects (constant threat, high "per event" lethality, inability to strike back), the psychological impact imposed by snipers is quite similar to those of landmines, booby-traps, and IEDs.

U.S. Army Sniper in a “ghillie suit”

Source: http://en.wikipedia.org/wiki/Sniper
**SOP**  
**Standard Operating Procedure (SOP).** This refers to clear procedures to follow to accomplish a job.

**Squad**  
The most common **rifle squad** has nine soldiers (Figure A-6). It fights as two fire teams. The squad has one squad leader who is generally a Staff Sergeant E-6 but may be a sergeant E-5 (which was typical in Vietnam after about 1968), two fire team leaders who should be Sergeant E-5 but may be Spec 4s (as was often the case in Vietnam), two automatic riflemen, two riflemen, and two grenadiers. Two Vietnam era rifle squads in the three squad platoon would carry the M-60 machine gun.

**Source:** http://orbat.com/site/toe/toe/usa/platoon/toe.html

**Stand Down**  
A **Stand Down** is when soldiers are given the opportunity to relax after being in combat. It generally occurred in the division base camp and almost always involved beer.

**Stars and Stripes**  
**Stars and Stripes** is an independent news source that operates from inside the United States Department of Defense but is editorially separate from it. The First Amendment protection which **Stars and Stripes** enjoys is safeguarded by Congress to whom an independent ombudsman, who serves the readers' interests regularly reports. In addition to its website, **Stars and Stripes** reports on matters affecting military service members and publishes five daily newspaper editions for the United States Armed Forces serving overseas. The European, Mideast, Okinawa, Japan, and Korea editions are also available as free downloads in electronic format.

**Source:** http://en.wikipedia.org/wiki/Stars_and_Stripes_(newspaper)

**Table of Organization and Equipment**  
A **table of organization and equipment (TOE or TO&E)** is a document published by the U.S. Department of Defense which prescribes the organization, staffing, and equippage of units. Also used in acronyms as 'T/O' and 'T/E'.

It also provides information on the mission and capabilities of a unit as well as the unit's current status. A general TOE is applicable to a type of unit (for instance, infantry) rather than a specific unit (the 3rd Infantry Division). In this way, all units of the same branch (such as Infantry) follow the same structural guidelines.

In the U.S. Army, there are four basic types of TOEs:

- The Base Table of Organization and Equipment (BTOE)
  - An organizational design document based on current doctrine and available equipment. It shows the basics of a unit's structure and their wartime requirements (both for personnel and equipment).
- The Objective table of organization and equipment (OTOE)
An updated form of the BTOE, usually formed within the last year. It is a fully modern document and is up to date with current policies and initiatives.

- **A Modification table of organization and equipment (MTOE)**
  - A document that modifies a Basic TOE (BTOE) in regard to a specific unit. Used when a unit's needs are substantially different from the BTOE.

- **A Table of distribution and allowances (TDA)**
  - A type of temporary TOE that is applicable to a specific mission. Used in an instance when there is no applicable TOE.

Each TOE has a unique number that identifies it. When changes are needed, a table is not modified, instead, a new table is drafted from scratch.

**Source:** http://en.wikipedia.org/wiki/Table_of_Organization_and_Equipment

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**The World**

“The World” Refers to the United States or “home.” Many GI’s in Vietnam thought it was so bad it was not part of the “real world” so when they referred to going home they said they were going back to “the World.”

**VD**

A sexually transmitted disease (STD), also known as sexually transmitted infection (STI) or venereal disease (VD), is an illness that has a significant probability of transmission between humans or animals by means of human sexual behavior, including vaginal intercourse, oral sex, and anal sex. VD was rampant in Vietnam; 260 out of every 1,000 men contracted it every year, as against 43 per 1,000 in WWII and 184 in Korea. The most common forms were bacterial including:

- Chancroid (Haemophilus ducreyi)
- Chlamydia (Chlamydia trachomatis)
- Granuloma inguinale or (Klebsiella granulomatis)
- Gonorrhea (Neisseria gonorrhoeae) (the most common)
- Syphilis (Treponema pallidum)

**WAC**

**WAC means Women’s Army Corps.** This refers to all women who are serving in the Army. A single woman soldier was often referred to as a WAC.

**Water Buffalo**

**Water Buffalo** could refer to the animal that Vietnamese had domesticated for use in their farming or it could refer to a large trailer with a water tank on top which generally had four to six spigots on it.

**World Minus**

**World Minus** refers to when a unit fires all the weapons they have at the same time. On a firebase this would include M-16s, M-60 machine guns, 50-Caliber
Machine Guns, 81 mm Mortars, 4-Deuce Mortars, 105 and/or 155 Howitzer Cannons and sometimes other weapons as well.

**WIA**

WIA refers to wounded in action.

**Xin Loi**

In Vietnamese Xin Loi means “sorry about that.”

**Zero Dark Thirty**

Zero Dark Thirty means very early in the morning.

**Zippo Party**

A Zippo Party was a military operation which involved burning down Vietnamese villages. Often Zippo cigarette lighters were used to ignite the huts.

A Classic Zippo Cigarette Lighter

**Continued…**

See People below.
**PEOPLE**

2\(^{nd}/35\(^{th}\)**

The 2\(^{nd}/35\(^{th}\) Battalion was one of two battalions in the 35\(^{th}\) Infantry Regiment along with the 1\(^{st}/35\(^{th}\). Before the Vietnam War there were other battalions in this regiment. They were part of the 25\(^{th}\) Division in Hawaii when they were sent to Vietnam in January 1966. In August, 1967 they became part of the 4\(^{th}\) Infantry Division headquartered at Camp Enari near Pleiku City in the Central Highlands of Vietnam. They left Vietnam in 1970 (April for the 1\(^{st}/35\(^{th}\) and December for the 2\(^{nd}/35\(^{th}\)) and returned to the 25\(^{th}\) Division in Hawaii. Shortly, thereafter the 1\(^{st}/35\(^{th}\) was disbanded so only the 2\(^{nd}/35\(^{th}\) still continues. The regiment has a distinguished history. They were formed on July 1, 1916 at Douglas, Arizona and were transferred to Nogales, Arizona on August 7, 1917 to protect the U.S. border with Mexico. They fought in the Mexican-American War and, in 1922, were transferred to Schofield Barracks in Hawaii in the 25\(^{th}\) Division. They went on to distinguish themselves in WWII in the Pacific, Korea and Vietnam. The current 2\(^{nd}/35\(^{th}\) has served in Afghanistan and Iraq. The battalion’s symbol is the “Blue Cacti.”

![Crest of the 35\(^{th}\) Infantry Regiment](image)

The **4th Infantry Division** is a modular division of the United States Army based at Fort Carson, Colorado, with four brigade combat teams. It is a very technically advanced combat division in the U.S. Army.

The division has two nicknames; the first, "Ivy," is a play on words of the Roman numeral IV or 4. Ivy leaves also symbolize tenacity and fidelity which is the basis of the division's motto: "Steadfast and Loyal". The second nickname, "Iron Horse", has been recently adopted to indicate the speed and power of the division.

**4\(^{th}\) Infantry Division in Vietnam**

The 4th Infantry Division deployed from Fort Lewis, Washington to Camp Holloway, Pleiku, Vietnam on 25 September 1966 and served more than four years, returning to Fort Carson, Colorado on 8 December 1970. Two brigades operated in the Central Highlands/II Corps Zone, but its 3rd Brigade, including the division's armor battalion, was sent to Tay Ninh Province northwest of Saigon to take part in Operation Attleboro (September to November, 1966),
and later Operation Junction City (February to May, 1967), both in War Zone C. After nearly a year of combat, the 3rd Brigade's battalions officially became part of the 25th Infantry Division in exchange for the battalions of the 25th's 3rd Brigade, then in Quang Ngai Province as part of the division-sized Task Force Oregon.

Throughout its service in Vietnam the division conducted combat operations in the western Central Highlands along the border between Cambodia and Vietnam. The division experienced intense combat against NVA regular forces in the mountains surrounding Kontum in the autumn of 1967. The division's 3rd Brigade was withdrawn from Vietnam in April, 1970 and deactivated at Fort Lewis. In May the remainder of the division conducted cross-border operations during the Cambodian Incursion. The "Ivy Division" returned from Vietnam in December and was rejoined in Fort Carson by its former 3rd Brigade from Hawaii, where it had re-deployed as part of the withdrawal of the 25th Infantry Division. One battalion remained in Vietnam as a separate organization until January, 1972.

- **Vietnam Divisional Order of Battle**

  1st Battalion, 8th Infantry  
  2d Battalion, 8th Infantry (Mechanized)  
  3d Battalion, 8th Infantry  
  1st Battalion, 12th Infantry  
  2d Battalion, 12th Infantry (to 25th ID, August 1967 – December 1970)  
  3d Battalion, 12th Infantry  
  1st Battalion, 14th Infantry (from 25th ID, August 1967 – December 1970)  
  1st Battalion, 22nd Infantry (Separate, November 1970 – January 1972)  
  2d Battalion, 22nd Infantry (to 25th ID, August 1967 – December 1970)  
  3d Battalion, 22nd Infantry (to 25th ID, August 1967 – December 1970)  
  1st Battalion, 35th Infantry (from 25th ID, August 1967 – April 1970)  
  2d Battalion, 35th Infantry (from 25th ID, August 1967 – December 1970)  
  2d Battalion, 34th Armor (to 25th ID, August 1967 – December 1970)  
  1st Battalion, 69th Armor (from 25th ID, August 1967 – April 1970)  
  2nd Battalion, 9th Artillery (105 mm) (from 25th ID, August 1967 – April 1970)  
  5th Battalion, 16th Artillery (155 mm)  
  6th Battalion, 29th Artillery (105 mm)  
  4th Battalion, 42d Artillery (105 mm)  
  2d Battalion, 77th Artillery (105 mm) (to 25th ID, August 1967 – December 1970)  
  1st Squadron, 10th Cavalry (Armored) Division Reconnaissance
4th Aviation Battalion  
4th Engineer Battalion  
4th Medical Battalion  
124th Signal Battalion  
704th Maintenance Battalion  
Dedicated Reconnaissance Elements  
Company E, 20th Infantry (Long Range Patrol)  
Company E, 58th Infantry (Long Range Patrol)  
Company K (RANGER), 75th Infantry (Airborne)  
4th Administration Company  
4th Military Police Company  
374th Army Security Agency Company  
Division Support Command and Band

- Vietnam Casualties
  
  1. 2,531 Killed in Action  
  2. 15,229 Wounded in Action

![4th Infantry Division Patch](image)

**Source:** [http://en.wikipedia.org/wiki/4th_Infantry_Division_(United_States)](http://en.wikipedia.org/wiki/4th_Infantry_Division_(United_States))

The **Army of the Republic of Vietnam (ARVN)** was the land-based military forces of the Republic of Vietnam (South Vietnam), which existed from October 26, 1955 until the fall of Saigon on April 30, 1975. The ARVN is often erroneously used as a collective term to refer to all South Vietnamese military forces, including the Vietnam Air Force and Republic of Vietnam Navy. They are estimated to have suffered 1,394,000 casualties (killed and wounded) during the Vietnam War.

After the fall of Saigon and the communist victory, the ARVN was dissolved. While some members had fled the country to the United States or elsewhere, hundreds of thousands of former ARVN soldiers were sent to reeducation camps by the newly unified Vietnamese communist government.

**Vietnamese National Army (VNA) 1949–1955**

The TDND 5 airborne unit fought several battles including Dien Bien Phu. On March 8, 1949, after the Elysee accords the State of Vietnam was recognized.
by France as an independent country ruled by Vietnamese Emperor Bao Dai and the Vietnamese National Army was soon created. The VNA fought in joint operations with the French Union's French Far East Expeditionary Corps against the communist Viet Minh forces led by Ho Chi Minh. The VNA fought in a wide range of campaigns including but not limited to the Battle of Na San (1952), Operation Atlas (1953) and the Battle of Dien Bien Phu (1954).

Benefiting with French assistance the VNA quickly became a modern army modelled after the Expeditionary Corps. It included infantry, artillery, transmission, armored cavalry, airborne, airforce, navy and even a national military academy. By 1953 troopers as well as officers were all Vietnamese, the latter having been trained in Ecoles des Cadres such as Dalat, including Chief of Staff General Nguyen Van Hinh who was a French Union airforce veteran.

After the 1954 Geneva agreements, the French Indochina ceased to exist and by 1956 all French Union troops had withdrawn from Vietnam, Laos and Cambodia. In 1955, by the order of Prime Minister Diem, the VNA crushed the French-supported armed forces of the Binh Xuyen.

**Army of the Republic of Vietnam (ARVN) 1955–1975**

On October 26, 1955, the military was reorganized by the administration of President Ngo Dinh Diem who then established the Army of the Republic of Vietnam. The air force was known as the VNAF. Early on, the focus of the army was the guerrilla fighters of the Vietnam National Liberation Front (NLF), a shadow government formed to oppose the Diem administration. The United States, under President John F. Kennedy sent advisors and a great deal of financial support to aid ARVN in combating the Communist insurgents. A major campaign, developed by Ngo Dinh Nhu and later resurrected under another name was the "Strategic Hamlet Program" which was regarded as unsuccessful by western media because it was "inhumane" to move villagers from the countryside to fortified villages. ARVN and President Diem began to be criticized by the foreign press when the troops were used to crush armed anti-government religious groups like the Cao Dai and Hoa Hao as well as to raid Buddhist temples, which according to Diem, were harboring Communist guerrillas. This most notably occurred on the night of August 21, 1963, during the Xa Loi Pagoda raids conducted by the Special Forces, which caused a death toll estimated to range into the hundreds. In 1963 Ngo Dinh Diem was killed in a coup d'état carried out by ARVN officers and encouraged by US officials such as Henry Cabot Lodge, Jr. In the confusion that followed, General Duong Van Minh took control, but was only the first in a succession of ARVN generals to assume the presidency of South Vietnam. During these years, the United States began taking full control of the war against the communist NLF and the role of the ARVN became less and less significant. They were also plagued by continuing problems of severe corruption amongst
the officer corps. Although the U.S. was highly critical of them, the ARVN continued to be entirely U.S. armed and funded.

The U.S. had provided the ARVN with 640,000 M-16 rifles, 34,000 M79 grenade launchers, 40,000 radios, 20,000 quarter-ton trucks, 214 M41 Walker Bulldog light tanks, 77 M577 Command tracks (command version of the M-113 APC), 930 M-113s (APC/ACAVs), 120 V-100s (wheeled armored cars), and 190 M48 tanks; however on the eleventh hour, a US effort in November 1972 managed to transfer 59 more M48A3 Patton tanks, 100 additional M-113A1 ACAVs (Armored Cavalry Assault Vehicles), and over 500 extra aircraft to South Vietnam. Despite such impressive figures, the Vietnamese were not as well equipped as the American G.I.s they replaced. The 1972 offensive had been driven back only with a massive US bombing campaign against North Vietnam. The VNAF air force had 200 A1, A-37 Ground Attack Aircraft and F-5 fighters, 30 AC-47 gunships and 600 transport, training and reconnaissance aircraft, and 500 helicopters. But their lightweight attack fighters lacked the punch of offensive bombers and fighters such as the B-52 and F-4 Phantom. Many aircraft were shot down due to superior NVA surface-to-air missiles. ARVN ground forces were severely outnumbered by the NVA, which had the world's fifth largest army in 1975.

In 1975 the North Vietnam Army (NVA) rather quickly overran South Vietnam and defeated the ARVN. Some ARVN soldiers escaped and were eventually brought to the United States; however, thousands wound up in “reeducation camps” and were forced to do hard labor and live in second class citizenship in the new unified Vietnam.


Kit Carson Scout

The Kit Carson Scouts (Hội Chánh Viên in Vietnamese), loosely translated as "members who have returned to the righteous side" belonged to a special program created by the U.S. Marine Corps during the Viet Nam conflict and involving the use of former Viet Cong combatants. The program was later also adopted by the U.S. Army.

The Kit Carson Scout Program was started in the Fall of 1966 when Staff Sergeant Johnson of 5th CIT (counterintelligence team) recruited two former Viet Cong (Hoi ChanhVien or Chieu Hoi) to work with U.S. Marine infantry troops in a program proposed to and agreed on by Major General Nickerson, the commanding officer in Viet Nam of the 1st Marine Division. The program went operational on November 10, 1966, the Marine Corps birthday. On that day, Johnson and a contingency of officers from the division's headquarters in Da Nang brought the first two Vietnamese Kit Carson Scouts to the 7th Marine Regiment headquarters in Chu Lai, whose TAOR (tactical area of operational responsibility) included the coastal plain area where both of the two Kit Carson scouts had operated while with the Viet
Cong. Vo van Tam had been an assistant company commander with the elite 409th Sapper Battalion, while Huynh ngoc Chanh had been an assistant company commander with the 38th Local Force Battalion. Both units historically operated in Quang Ngai and Quang Tin provinces. These were the two southernmost provinces in the northernmost five province area of South Viet Nam known as I Corps—the other three northern provinces being Quang Nam, Thua Thien and Quang Tri. The northern boundary of Quang Tri touched the Demilitarized Zone (DMZ) and was the border with North Vietnam on the opposite (northern) side of the DMZ. The 409th Sapper Battalion, Tam’s former unit, was a higher level unit that operated over a larger territory, and its military successes included slipping under the barbed wire and attacking the key airfield at the large Chu Lai base, an action that Tam had participated in before his defection.

The two scouts were paired with Marine Pvt (Private) Allen Sells, newly arrived in country and language-trained in the first class graduated from the Marine Corps language school at Camp Del Mar in Camp Pendleton. Upon arriving at 1st Battalion, 7th Marines on the southern bank of the Song Tra Bong River in Binh Son District of Quang Ngai Province, the two scouts and Pvt. Sells were joined by LCpl (Lance Corporal) Ernest C. Jaramillo, an S-2 Scout already assigned to 1/7. Jaramillo, while not part of the team, played a useful role in early development of operational tactics through his knowledge of S-2 procedures. Private Sells, the two Kit Carson Scouts and Jaramillo immediately moved to the forward position headquarters of Delta Company, 1/7 and prepared to begin operating with the Kit Carson Scouts in the base area of the 38th Local Force Battalion and the 95th Local Force Company.

While Quang Ngai and Quang Tinh Provinces had numerous Viet Cong guerrillas and regional units like the 38th Local Force Battalion, the 48th Local Force Battalion and the 95th Local Force Company, this area of South Viet Nam was also the operating area for the Viet Cong 2nd Main Force Division and the 3rd NVA Division, whose senior officers were North Vietnamese professionals commanding ranks of soldiers primarily recruited in South Viet Nam. During their years with the Viet Cong, both Kit Carson Scouts had earlier spent months on end in combat training and indoctrination, largely in the mountainous areas of Kontum Province in 1963 through 1965. On November 11, 1966, Sells, Tam and Chanh deployed for the first time with Delta Company, 1/7 on a company-size patrol on the Mui Nam Tram Peninsula, including the hamlets of Phouc Hoa and Tuyet Diem.

**Early days**

Early tactics for the two scouts were the identification of Viet Cong guerrillas and cadre among the civilian populace and narrative descriptions of how the Viet Cong moved and interacted with civilians within the areas where Tam and Chanh had previously operated as enemy combatants. The scouts additionally
proved adept at identifying booby traps, caves and tunnels and caches of enemy weapons. The two initial Kit Carsons were also used and found invaluable in conducting tactical interrogations before newly-detained prisoners were sent to the rear from their point of capture. These tactics were developed over a month of operations in Binh Son District, including a battalion operation, Rio Blanco, which engaged elements of the 2nd Main Force Division in a joint effort combining U.S. Marine forces of 1/7 with Korean Marines and the 2nd ARVN Division, headquartered in Quang Ngai City. During the Christmas week, Sells and his two scouts operated for the first time in Quang Tin Province sweeping Ky Xuan Island north of the large air base at Chu Lai.

The third American recruited to the program was Pfc (Private First Class) Richard Gualano, also a graduate of the Marine's Del Mar Vietnamese language school and an earlier classmate of Sells. Within a short time, Sells and Gualano were recruiting additional scouts from the Chieu Hoi Center in Quang Ngai City, while Sells traveled to DaNang to work with 7th CIT in recruiting scouts from the DaNang Chieu Hoi center.

The program quickly developed command level interest throughout the 1st Marine Division and then the 3rd Marine Division, which organized its own program extending all the way north to the DMZ. By midyear of 1967, the U.S. Army forces operating in I Corps had become aware of the program and soon after the Kit Carson Scout Program expanded to American units throughout Viet Nam.

General Westmoreland issued an order in September 1967; a message directing all infantry divisions in Vietnam, including the U.S. Army units, to begin using Kit Carson Scouts in conjunction with friendly operations. He directed that a minimum of 100 scouts per division was necessary to ensure effectiveness. The 3rd Marine Division was the first unit in Vietnam to reach that level when the fourth Kit Carson Scout class graduated from the school in Quang Tri City during December, 1967. As the program matured, non-military Viet Cong cadre and occasionally defecting North Vietnamese officers were enlisted into the Program and became a valuable source of intelligence on the conduct of the war.

**Recruitment and Language Issues**

The majority of early Kit Carson Scouts defected to the South Vietnamese government forces and became Hoi Chanh Vien primarily because they suffered either from malaria or grave wounds beyond what could be medically treated by the rudimentary medical care available on the Viet Cong/NVA side. Most had a distrust of Vietnamese soldiers and interpreters because of the degree to which friendly forces had been infiltrated by enemy agents, so it was imperative that their handlers be Vietnamese speaking Americans.

Early in the war and the life of the Kit Carson Scout Program, the most obvious barrier to expansion was that few Americans could speak the language. The Chieu Hoi, moreover, had during their service with the enemy little or no contact with
anyone speaking English and had not even minimal English language skills. Added to this problem was the use by the Viet Cong and NVA of code words, such as calling a division an "agricultural site" in their written correspondence, so that American interpreters had also to learn this "hidden" language in order to recognize the importance of what was being said and communicating intelligence back to U.S. field commanders.

Source: http://en.wikipedia.org/wiki/Kit_Carson_Scouts

The French term Montagnard, meaning "People from the mountain(s)" refers to an indigenous people group generally from the Central Highlands of Vietnam who were also referred to as “Degar.” It includes individuals from multiple tribal groups, including the Bahnar, Jarai, Koho, Manong, and Rhade tribes. Many Montagnards came to North Carolina and South Carolina in the late 1970s after the Vietnam War.

Before the Vietnam War, the population of the Central Highlands, estimated at between 3 and 3.5 million, was almost exclusively Degar. Today, the population is approximately 4 million, of whom about 1 million are Degars. The 30 or so Degar tribes in the Central Highlands comprise more than six different ethnic groups who speak languages drawn primarily from the Malayo-Polynesian, Tai, and Mon-Khmer language families. The main tribes, in order of population, are the Jarai, Rhade, Bahnar, Koho, Hmong, and Stieng. Originally inhabitants of the coastal areas of the region, they were driven to the uninhabited mountainous areas by invading Vietnamese and Cambodians beginning prior to the 9th century AD.

The 1960s saw contact between the Degar and the U.S. military, as American involvement in the Vietnam War escalated and the Central Highlands emerged as a strategically important area, in large part because it included the Ho Chi Minh trail, the North Vietnamese supply line for Viet Cong forces in the south. The U.S. military, particularly the U.S. Army’s Special Forces, developed base camps in the area and recruited the Degar, roughly 40,000 of whom fought alongside American soldiers and became a major part of the U.S. military effort in the Highlands.

Thousands of Degar fled to Cambodia after the fall of Saigon to the North Vietnamese Army, fearing that the new government would launch reprisals against them because they had aided the Army of the Republic of Vietnam. The U.S. military resettled some Degar in the United States, primarily in South Carolina, but these evacuees numbered less than two thousand. In addition, the Vietnamese government has steadily displaced thousands of villagers from Vietnam's central highlands, to use the fertile land for coffee plantations.

Outside of Vietnam, the largest communities of Montagnards are located in Greensboro, Raleigh, and Charlotte, North Carolina. Montagnard family names include Kpa, Mlo, Ksor, Siu, Nie, Buonya, Rmah, and other family names vary due to different tribes.

Source: http://en.wikipedia.org/wiki/Montagnard_(Vietnam)

During the French Indochina War (1946–1954), the VPA was often referred to as the Việt Minh. In the context of the Vietnam War (1959–1975), the army was referred to as the North Vietnamese Army (NVA) or the People's Army of Vietnam (PAVN). This allowed writers, the US Military, and the general public, to distinguish northern communists from the southern communists, or Viet Cong. However, northerners and southerners were always under the same command structure. According to Hanoi's official history, the Vietcong was a branch of the PAVN.

The predecessor of the PAVN was the Armed Propaganda Unit for National Liberation which consisted of 34 fighters headed by Vo Nguyen Giap who later became the first 4 Star General of VPA on May 5, 1948 and a well-known world-wide military commander for leading PAVN to victories over French forces in the battle of Dien Bien Phu Battle in 1954 and the US forces in the Fall of Saigon in April 30,1975. At first, This Propaganda Unit was formed under the guidelines of President Ho Chí Minh on December 22, 1944 with the aim to introduce its members as main force to drive the French colonialists and Japanese occupiers from Vietnam. The group was renamed the "Vietnam Liberation Army" in May 1945. In September, the army was again renamed the "Vietnam National Defence Army." At this point, it had about 1,000 soldiers. In 1950, it was officially named the People's Army of Vietnam.

Though PAVN lost to the US forces and ARVN in the South it won the political will of the US citizens to end the war. It was after the Tet Offensive, the hatred of the US people went to climax and the government had to think about a "decent" withdrawal ending its nightmare in Vietnam. Demonstrations increased in quality and quantity after the Tet Offensive and made the U.S. government promise a plan to bring their soldiers home. From 1968 to 1972, the 5th, 7th and 9th divisions had to fight for their existence in Cambodia against the US forces, ARVN and Cambodian Lon Nol's troops. They succeeded by supporting Khomer Rouge forces to fight Lon Nol's regime, battered and chased the ARVN from Cambodia and containing the US influences in Cambodia.

After the US's withdrawal from south Vietnam in 1973 according to Paris Agreement, in early 1975, the VPA launched a Great Spring 1975 campaign to unite Vietnam. The ARVN was totally defeated in 55 days by 4 VPA corps of
regular armed forces. Then these 4 corps became regular forces of VPA until now.

American soldiers often referred to the Viet Cong as “Victor Charles” or just “Charlie;” however, they referred to the NVA as “Mr. Charles” because they had great respect for NVA soldiers who were arguably the best infantry soldiers in the world at the time.

Source: http://en.wikipedia.org/wiki/North_Vietnamese_Army

VC

The VC or Viet Cong (Vietnamese: Việt Cộng), or National Liberation Front (NLF), was a political organization and army in South Vietnam and Cambodia that fought the United States and South Vietnamese governments during the Vietnam War (1955–1975). It had both guerrilla and regular army units, as well as a network of cadres who organized peasants in the territory it controlled. Many soldiers were recruited in South Vietnam, but others were attached to the People's Army of Vietnam (PAVN), the regular North Vietnamese army. During the war, communists and anti-war spokesmen insisted the Vietcong was an insurgency indigenous to the South, while the U.S. and South Vietnamese governments disputed this and portrayed the group as a tool of Hanoi. This allowed writers to distinguish northern communists from the southern communists. However, northerners and southerners were always under the same command structure.

Southern Vietnamese communists established the National Liberation Front in 1960 to encourage the participation of non-communists in the insurgency. Many of the Vietcong's core members were "regroupees," southern Vietminh who had resettled in the North after the Geneva Accord (1954). Hanoi gave the regroupees military training and sent them back to the South along the Ho Chi Minh trail in the early 1960s. The NLF called for Southerners to "overthrow the camouflaged colonial regime of the American imperialists" and to make "efforts toward the peaceful unification." The Vietcong's best-known action was the Tet Offensive, a massive assault on more than 100 South Vietnamese urban centers in 1968, including an attack on the US embassy in Saigon. The offensive riveted the attention of the world's media for weeks, but also overextended the Vietcong. Later communist offensives were conducted predominately by the North Vietnamese. The group was dissolved in 1976 when North and South Vietnam were officially unified under a communist government.

Source: http://en.wikipedia.org/wiki/Viet_Cong
An Khe

**An Khe** (Vietnamese: *An Khê*) is a town (*thị xã*) of Gia Lai Province in the Central Highlands region of Vietnam. As of 2003 the district had a population of 63,118. The district covers an area of 199 km. The district capital lies at An Khe. Located on the main highway, QL-19 between Qui Nhon on the coast and Pleiku in the Central Highlands, An Khe was of strategic significance during the Vietnam War. From mid-1965 to 1968, the American 1st Cavalry Division was based there. The 1st Cav saw ongoing action in the war. The Army 25th Ordnance Detachment (Explosive Ordnance Disposal) also was located at the base camp and provided disposal support. Later in 1968 the 1st Cavalry Division relocated, and the Army's 173rd Airborne Brigade took over the base camp. In March, 1970, the 4th Infantry Division moved its base camp from Pleiku to the 1st Cav base camp at An Khe.

**Source:** [http://en.wikipedia.org/wiki/An_Kh%C3%AA_District](http://en.wikipedia.org/wiki/An_Kh%C3%AA_District)

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Ban Me Thuot

**Ban Me Thuot**, formerly Lac Giao is the largest city in the central highlands, west-central Vietnam. At an elevation of 1,759 feet (536 metres), it lies at the southern end of the Dac Lac Plateau, 55 miles (89 km) north-northwest of Da Lat. It has teacher-training and vocational schools, hospitals, and a commercial airport. There are coffee, tea, and rubber plantations in the surrounding area. Rice is grown in the Krong River valley to the west. The region is dominated by the Cham-speaking Rhade. Further away to the northwest is Yok Don, Vietnam’s largest national park. Several ethnic groups live within it, notably the M’nung people who traditionally specialized in hunting and domesticating the wild elephants that roamed in the area.

The Battle of Ban Me Thuot was part of North Vietnam’s Campaign 275 to capture the Central Highlands following the victory at Phuoc Long on January 6, 1975. Buôn Ma Thuột was selected as the first objective during the Central Military Party Committee session on January 9. In order to achieve their objectives, General Võ Nguyên Giáp put emphasis on secrecy and surprise to force the South Vietnamese army to defend the northern areas of the Central Highlands, as major North Vietnamese units would launch diversionery attacks elsewhere.

There was a statute in Ban Me Thuot commemorating the visit by Teddy Roosevelt when he was president of the U.S. to hunt tigers. Buon Me Tuot is known as the coffee capital of Vietnam. The most expensive and sweetest is weasel coffee.


Camp Enari  
Camp Enari was the base camp of the 4th Infantry Division from when it arrived in Vietnam in 1966. It was located in Pleiku Province approximately in the middle of the Central Highlands of South Vietnam not far from the border of Cambodia and Dragon Mountain. It was named for Lieutenant Mark N. Enari who earned the Silver Star while fighting the North Vietnamese regulars during Operation Paul Revere IV in the Central Highlands of Vietnam. Lt. Enari died as a result of the wounds he received during that battle. Camp Enari was close to the Ho Chi Minh Trail in Cambodia down which the North Vietnamese Army (NVA) and Viet Cong (VC) brought supplies for their fighting forces in South Vietnam.

Camp Radcliff  
Camp Radcliff was originally built as the base for the 1st Cavalry Division. It was home for the 4th Infantry Division from March 1970 until the 4th Infantry Division went home in December 1970. Many Regulars are well familiar with the base camp at An Khe, and its landmarks, such as Hon Cong Mountain and "The Golf Course". Hon Cong Mountain was really a very large hill in the middle of the base and it had a huge 1st Cav Patch on it.

In August 1965, Major Donald G. Radcliff was the executive officer of the 1st Squadron, 9th Cavalry, 1st Cavalry Division, and a member of the site selection team that scoured the countryside in Binh Dinh Province to find the ideal location for the 1st Cavalry Division's base camp. The team was in Vietnam in advance of the Division, who were still aboard ship, travelling across the Pacific. The site selection team was under command of Brigadier General John M. Wright.

The location was ideal because of near perfect climatic conditions for an airmobile unit, and the strategic location allowed for the defense and control of the Central Highlands. The general knew that a dirt airstrip would create dust storms during takeoffs and landings, so the underlying grass and brush would have to stay, but be cut close to the ground. General Wright, not anticipating that the advanced party would only include 150 personnel of mostly upper ranks, called a formation shortly after their arrival. "Gentlemen," he began, "you will all be issued a machete or a grub hook; they both do exactly the same job. We are going to cut brush until we have a 'golf course' here. You may as well hang your rank insignia on a tree because until this area is transformed, we will all avail ourselves to this manual task. When the golf course is completed, you may then put back your rank insignia."

The "golf course" extended from the center of the helicopter landing area in all directions, beyond cantonment areas to the defense perimeter known as the "green line". While everyone from officers and senior NCO's to Privates swung grub hooks to clear the six-square kilometer area, soldiers on loan from the 1st Brigade, 101st Airborne guarded the perimeter.
On 1 September 1965, Major Radcliff was posthumously awarded the Distinguished Flying Cross on US Army Vietnam General Orders Number 372. The US Ambassador to Vietnam, Henry Cabot Lodge, flew from Saigon to officially dedicate the new base as Camp Radcliff in formal ceremonies on 21 February 1966. The nickname "the Golf Course", synonymous with Camp Radcliff, stood as a tribute to the tenacity and "can do" spirit of the 1st Cav's advance team, many of whom later lost their lives in combat.

Source: http://1-22infantry.org/history/camradcliff.htm

Cam Rahn Bay

The Bay of Cam Ranh is one of the jewels of Vietnam. The long protective seaward peninsula and natural inner and outer harbors form what many believe to be the best and most beautiful deep water port facility in the entire world. It also has a long history of military usage going back as far as 1905, when the Russian Fleet under Admiral Zinovy Rozhestvenski stopped there during its long around the world voyage to meet defeat at the hands of the Japanese Admiral Heihachiro Togo during the Battle of Tsushima. The Japanese also used the bay to assemble their warships and transports as they prepared for the invasion of Malaysia in the very early part of World War II which ultimately led to the downfall of Singapore.

During the Vietnam conflict, the United States turned the bay into a major supply entrance point. Besides the natural anchorages, significant off-loading docks for large cargo ships and their associated warehouses were put in place. The US Army based a number of transportation units there to distribute supplies by semi-tractor trailer trucks throughout South Vietnam.

In addition, a large U.S. Air Force (USAF) base was constructed with runways long enough to accommodate the huge C-141 and later C-5 transport aircraft. This was used not only for cargo, but also as a main entrance and departure point for many of the American personnel assigned to the conflict. The entire northern half of the eastern peninsula, which protected the bay from monsoon weather and seas, was a beehive of military logistical activity beginning in 1966-67, and remained so for as long as the US was involved in the conflict. The US Navy also based some of their Market Time patrol aircraft at Cam Ranh. A squadron of P-2 Neptunes operated from the air base. And until April of 1967, one of the final remaining P-5 Marlin sea plane squadrons in service used the quiet waters of the bay as an excellent runway and sea plane tender anchorage from which surveillance flights were made. Here the USS Salisbury Sound (AV-13) is visited by a Swift Boat, with a P-5 Marlin hoisted on deck for maintenance. At the southern tip of the long peninsula, just off the point identified on the charts as Mui Cha Da, and referred to by personnel from other services as South Beach, was Naval Support Facility Cam Ranh Bay. This served as home base for the fourteen or so Swift Boats of Coastal Division 14,
and starting in mid 1967, the Commander of all Swift Boats (Coastal Squadron One) and the Commander of Operation Market Time Task Force 115.

Source: http://pcf45.com/cam_ranh/camranh.html

Ho Chi Minh Trail

The **Ho Chi Minh trail** was a logistical system that ran from the Democratic Republic of Vietnam (North Vietnam) to the Republic of Vietnam (South Vietnam) through the neighboring kingdoms of Laos and Cambodia. The system provided support, in the form of manpower and materiel, to the National Front for the Liberation of South Vietnam, or derogatively, Vietcong, and the People's Army of Vietnam (PAVN), or North Vietnamese Army (NVA), during the Vietnam War (1959–1975).

The trail was not a single route, but rather a complex maze of truck routes, paths for foot and bicycle traffic, and river transportation systems. The name, taken from North Vietnamese president Ho Chi Minh, is of American origin. Although the trail was mostly in Laos, the communists called it the Truong Son Strategic Supply Route, after a mountain range in central Vietnam. According to the U.S. National Security Agency's official history of the war, the Trail system was "one of the great achievements of military engineering of the 20th century."

Parts of what became the Ho Chi Minh trail had existed for centuries as primitive footpaths that facilitated trade in the region. The area through which the system meandered was among the most rugged in Southeast Asia: a sparsely-populated region of rugged mountains (1,500–8,000 feet), triple-canopy jungle and dense primeval rainforests. During the First Indochina War the Viet Minh maintained north/south communication utilizing this system of trails and paths.

The popular conception of the logistical arrangements on the trail sometimes bordered on the romantic. The image of barefoot hordes pushing heavily-loaded bicycles, driving oxcarts, or acting as human pack animals, moving hundreds of tons of supplies in this manner was quickly supplanted by trucks (especially Soviet, Chinese, or Eastern Bloc models), which quickly replaced the human as the main method of supply transportation. As early as December 1961, the 3rd Truck Transportation Group of PAVN's General Rear Services Department had become the first motor transport unit fielded by the North Vietnamese to work the trail and the use of motor transport quickly escalated.

The system developed into an intricate maze of 18-foot (5.5 m) wide dirt roads (paved with gravel and corduroyed in some areas), foot and bicycle paths, and truck parks. There were numerous supply bunkers, storage areas, barracks, hospitals, and command and control facilities. All of this was concealed from aerial observation by an intricate system of natural and man-made camouflage that was constantly expanded and replaced. By 1973, trucks could drive the
entire length of the trail without emerging from the canopy except to ford streams or cross them on crude bridges built beneath the surface of the water.

During 1961 U.S. intelligence analysts estimated that 5,843 enemy infiltrators (actually 4,000) had moved south on the trail; in 1962 12,675 (actually 5,300); in 1963 7,693 (actually 4,700); and in 1964 12,424. The supply capacity of the trail reached 20 to 30 tons per day in 1964 and it was estimated by the U.S. that 12,000 (actually 9,000) North Vietnamese regulars had reached South Vietnam that year.

By 1965 the U.S. command in Saigon estimated that communist supply requirements for their southern forces amounted to 234 tons of all supplies per day and that 195 tons were moving through Laos. U.S. Defense Intelligence Agency analysts concluded that during the 1965 Laotian dry season the enemy was moving 30 trucks per day (90 tons) over the Trail, far above the Saigon estimate. This demonstrates one of the key problems that arose when discussing the North Vietnamese supply effort and U.S. attempts to halt it.

One shocking revelation for American intelligence analysts during late 1968 was the discovery of a petroleum pipeline running southwest from the North Vietnamese port of Vinh. By early the following year, the pipeline had crossed the Laotian frontier and, by 1970, it reached the approaches to the Ashau Valley in South Vietnam. The plastic pipeline, assisted by numerous small pumping stations, managed to transfer diesel fuel, gasoline, and kerosene all through the same pipe. Thanks to the efforts of the PAVN 592nd Pipelaying Regiment, the number of pipelines entering Laos would increase to six during that year.

In May of 1970 American and South Vietnamese forces attacked the Ho Chi Minh Trail for the first time interdicting tons of supplies and weapons. There was relatively little fighting during this operation because the NVA had intelligence on the operations and generally abandoned their positions in Cambodia prior to the arrival of American and South Vietnamese troops.

Source: http://en.wikipedia.org/wiki/Ho_Chi_Minh_trail

I-Corps

The Republic of Vietnam was divided into four corps tactical zones, each of which was a political as well as military jurisdiction. Each corps commander thus acted as political and military chief of his region. Under him province chiefs conducted both civil and military administration and under the province chiefs in turn were district chiefs. Villages and hamlets were beginning to elect their own local governments. Autonomous cities, including Hue and Da Nang in I Corps and Saigon and Cam Ranh elsewhere in the country, were administered by mayors who reported directly to the government in Saigon. The location and terrain of this region made it both strategically important and hard to protect. In the north, I Corps bordered the Demilitarized Zone (DMZ)
which separated South Vietnam from its northern enemy and in fact was far from demilitarized. On the west, I Corps abutted Laos and the enemy bases supplied by the Ho Chi Minh Trail. North Vietnamese troops could easily invade the region from either direction, and their long-range artillery could shell northern Quang Tri from the relative safety of North Vietnam and Laos. I Corps covered 10,000 square miles.

The terrain within I Corps favored the enemy. The rugged, jungle-blanketed mountains that cover the western pan of the region hid Communist supply bases and the camps of main force units and facilitated the infiltration of North Vietnamese replacements and reinforcements. East of the mountains, a narrow rolling piedmont quickly gives way to a flat, wet coastal plain much of which is covered by rice paddies and beyond which lie beaches of the South China Sea. Most of the Vietnamese inhabitants of I Corps live in the flatlands, either in the thousands of villages and hamlets interspersed among the rice fields or in the large cities of Hue and Da Nang. Concealed among the civilians were the enemy’s political agents and guerrillas, and from the populated areas the enemy drew recruits and supplies.

An estimated 78,000 enemy troops operated in I Corps. According to allied intelligence, the Communist order of battle included about 49,000 North Vietnamese Army (NVA) regulars, perhaps 6,000 main force Viet Cong (VC), over 12,000 VC guerrillas, and about 11,000 supply and administrative personnel. Almost half of these troops, some 42 infantry and 11 support battalions, were believed to be massed along or near the DMZ, while the second largest concentration-16 combat and 4 support battalions-threatened Da Nang in Quang Nam Province.

The cities and provinces in I corps were as follows: Quang Tri, Thua Thien, Quang Nam, Quang Tin, Quang Ngai, Hue, Da Nang

I corps became mostly a Marine area of operation; however, the Army paid big dues there as well. More than half of all American servicemen who died in combat from 1967 onward died in I Corps, 52 percent.


II Corps

The II Corps was a corps of the Army of the Republic of Vietnam (ARVN), the army of the nation state of South Vietnam that existed from 1955 to 1975.

It was one of four corps in the ARVN, and it oversaw the region of the central highlands region, north of the capital Saigon. Its corps headquarters was in the mountain town of Pleiku.
The cities and provinces in II corps were as follows: Kontum, Binh Dinh, Pleiku, Phu Bon, Phu Yen, Dar Lac, Khanh Hoa, Ninh Thuan, Tuyon Duc, Quang Duc, Lan Dong, Binh Thuan, Can Raah


**III-Corps**

The **III Corps** was a corps of the Army of the Republic of Vietnam (ARVN), the army of the nation state of South Vietnam that existed from 1955 to 1975. It was one of four corps in the ARVN, and it oversaw the region of the country surrounding the capital Saigon.

The Fifth Division based in Bien Hoa on the northern outskirts of Saigon was a part of the III Corps, and due to the division's close proximity to the capital Saigon was a key factor in the success or failure of the various coup attempts in the nation's history.

The cities and provinces in III corps were as follows: Binh Tuy, Long Khanh, Phou Long, Binh Long, Dinh Duong, Tay Ninh, Hay Hghia, Bien Hao, Phuoc Tuy, Long An, Gia Dinh, Vung Tau, Saigon


**IV-Corps**

The **IV Corps** was a corps of the Army of the Republic of Vietnam (ARVN), the army of the nation state of South Vietnam that existed from 1955 to 1975. It was one of four corps in the ARVN, and it oversaw the Mekong Delta region of the country.

The Seventh Division based in My Tho was a part of the IV Corps, and due to the division's close proximity to the capital Saigon was a key factor in the success or failure of the various coup attempts in the nation's history.

The cities and provinces in IV corps were as follows: Go Cong, Kien Tuong, Kien Phong, Dinh Tuong, Kien Hoa, Vinh Binh, Vinh Long, An Giang, Kion Giang, Chunong Thion, Phong Dinh, Ba Xuyen, An Xuyen, Duc Liou


**Long Binh Jail**

**Long Binh Jail (also called LBJ or the "LBJ Ranch" or Long Binh Stockade)** was a U.S. military serviceman's prison located at Long Binh, in the province of Dong Nai, South Vietnam during the Vietnam War. The prison was established in 1966 and turned over to the South Vietnamese in 1973. It was the U.S. Army's in-country detention center for Vietnam, and referred to as "Long Binh Jail", presumably favored over its formal name Long Binh Stockade for the sake of abbreviating it "LBJ" and thereby referring to then-president Lyndon B. Johnson.
On the night of August 29, 1968, a group of black inmates got loaded on "weed". They approached the administration building at 11:45 p.m. and attacked the guards. From there, chaos erupted and other inmates joined the riot. These inmates began to set buildings on fire, burning the mess hall, barber shop, latrine, administration and finance buildings. About 200 inmates were involved in destroying the camp. The rioters beat white inmates and attacked guards. Despite the violence, only four inmates escaped the facility and one fatality was reported. Private Edward Haskett of St. Petersburg, Florida, was beaten to death with a shovel. The next day the 720th Military Police (MP) force responded. The force surrounded the camp and set up a perimeter at the gate. The riot finally ended on September 7, leaving 52 inmates and 63 MPs injured. The prisoners were moved to an area outside of LBJ which was surrounded by barbed wire. The members of the 720th MP Battalion communication shops were sent into rewire the prison. (SP/5 Ron Henselman)

Source: http://en.wikipedia.org/wiki/Long_Binh_Jail

LZ Action  
*LZ Action* was a firebase on Highway 19 (QL 19) which was the East-West Highway across the middle of South Vietnam in the Central Highlands and was close to Camp Radcliff in An Khe. It was near the Mang Yang Pass which was the location of some major fighting. This highway was mentioned in Bernard Fall's classic book *A Street Without Joy* about the French Indo-China War, and is the road where the French "Mobile Groupment 100" had been destroyed in 1954 in a series of ambushes between LZ Schueller and Bridge 26. The primary mission of this firebase was to ensure that Highway 19 was open and available for movement by U.S. military vehicles. When I was there it was primarily a tanker firebase.

LZ Dean  
*LZ Dean* was a firebase not far from Ban Me Thuot in a mountainous area.

Pleiku  
*Pleiku* is a town in central Vietnam, located in that nation's central highland region. It is the capital of the Gia Lai Province; it is inhabited primarily by the Bahnar and Jarai ethnic groups, sometimes known as the Montagnards or Degar.

The town is the centre of the urban district of Pleiku which covers an area of 261 km. As of 2003 the district had a population of 186,763. The town sits at the junction of several highways—the northern road to Kontum and the highway west to Stœng Trêng in Cambodia.

It was strategically important during the Vietnam War because it was the primary terminus of the military supply logistics corridor extending westwards along Highway 19 from the coastal population center and port facilities of Qui Nhon. Additionally, its central location on the plateau, between Kontum in the north, and Buôn Ma Thuôt to the south, and the North Vietnamese Army's base areas in Cambodia to the west made Pleiku the main center of defense of the
entire highland region of the Republic of Vietnam. This was strategically obvious to both sides; the U.S. established an armed presence very early in the conflict at Camp Holloway, and the Việt Cộng attack on this base in early 1965 was one of the key escalating events of the conflict. The base camp of the 4th Infantry Division was located just outside Pleiku and there was a U.S. Air Force base there as well.

After the fall of Ban Me Thuot in early 1975, and the insecurity of Highway 19 leading from Qui Nhon, President Thiệu ordered the hasty evacuation of Pleiku. This military operation to attempt the withdrawal of ARVN forces down the ill-maintained tertiary road LTL-7B through Cheo Reo to Tuy Hòa led to a horrific catastrophe of over a hundred thousand evacuees from the Pleiku and Kontum areas killed or stranded without support.

**Source:** http://en.wikipedia.org/wiki/Pleiku

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**The Wall** refers to the Vietnam War Memorial in Washington D.C. The **Vietnam Veterans Memorial** is a national memorial in Washington, D.C. It honors U.S. service members of the U.S. armed forces who fought in the Vietnam War, service members who died in service in Vietnam/South East Asia, and those service members who were unaccounted for (Missing In Action) during the War. Its construction and related issues have been the source of controversies, some of which have resulted in additions to the memorial complex.

The memorial currently consists of three separate parts: the Three Soldiers statue, the Vietnam Women's Memorial, and the Vietnam Veterans Memorial Wall, which is the best-known part of the memorial.

The memorial was inspired by Jan Scruggs, an infantryman who served in Vietnam with the U.S. Army's 199th Light Infantry Brigade. In March 1979, he saw The Deer Hunter, which reminded him "of the people he'd seen suffer and die in Vietnam". That night he decided to build a memorial with the names of everyone killed in the Vietnam War.

The main part of the memorial, which was completed in 1982, is in Constitution Gardens adjacent to the National Mall, just northeast of the Lincoln Memorial. The memorial is maintained by the U.S. National Park Service, and receives around 3 million visitors each year. The Memorial Wall was designed by U.S. landscape architect Maya Lin. The typesetting of the original 58,627 names on the wall was performed by Datalantic in Atlanta, Georgia. In 2007, it was ranked tenth on the "List of America's Favorite Architecture" by the American Institute of Architects.
Continued…
See Army Ranks below.

**ARMY RANKS**

**Private** is a soldier of the lowest military rank (equivalent to NATO Rank Grades OR-1 to OR-3 depending on the force served in). The term derives from the medieval term "private soldiers" (a term still used in the United Kingdom), denoting soldiers who were either hired, conscripted, or feudalized into service by a nobleman forming an army. The usage of "Private" dates from the 18th century, when the army of Napoleon Bonaparte first established the permanent rank of Soldat. In modern military parlance, 'Private' is shortened to 'Pte' in the United Kingdom and other Commonwealth countries and to 'Pvt.' in the United States. Also informally known in UK as a "Squaddie".

In the U.S. Army, Private (PVT) is used for the two lowest enlisted ranks, just below Private First Class. The lowest rank (officially known as Private E-1 (PVT) and sometimes referred to as recruit but also held by some soldiers after an Article 15 or prisoners after conviction until they are dishonorably discharged) wears no uniform insignia, while the second, Private E-2 (PV2), wears a single chevron. Advancement to the higher rank is currently automatic after six months time in service, but may get shortened to four months if given a waiver (a pay raise may take effect after four months of service, even without advancement to Private E-2 if the private's commanders believe the private's performance has warranted it).

In the U.S. Marine Corps, Private (PVT) only refers to the lowest enlisted rank, just below Private First Class. A Marine Corps Private wears no uniform insignia. Most new, non-officer Marines begin their military career as a Private. It is important to note that, in the Marine Corps, Privates First Class are not referred to as "Privates." It is more appropriate to use either "Private First Class" or "PFC."

**Spec 4**

**Specialist** (abbreviated "SPC") is one of the four junior enlisted ranks in the U.S. Army, just above Private First Class and equivalent in pay grade to Corporal. Unlike Corporals, Specialists are not considered junior non-commissioned officers (NCO).

On 1 March 1955, four grades of Specialist were established: Specialist Third Class (E-4), Specialist Second Class (E-5), Specialist First Class (E-6), and
Master Specialist (E-7). They were created to reward personnel with higher degrees of experience and technical knowledge. Appointment to either Specialist or Non-Commissioned Officer status was determined by Military Occupational Specialty. Different Military Occupational Specialties had various transition points, for example in the band career field (excluding special bands at D.C. and West Point) a bandsman could not achieve Non-Commissioned Officer status until pay grade E-6 was attained. In some military occupational specialties, a soldier was appointed either a Specialist or Non-Commissioned Officer depending on which particular position or "slot" that he or she was filling in the Modified Table of Organization and Equipment (MTOE).

Specialist grades paralleled the corresponding grade of non-commissioned officer (E-4 through E-7) only in terms of pay. The Specialist grades, although they outranked the Enlisted grades (E-1 to E-3), were outranked by all Non-Commissioned Officers (E-4 to E-9) and lacked the authority conferred on them. This is the major differentiation between a Specialist and a "hard striper".

When the so-called "Super Grades" (E-8 and E-9) were introduced in 1958, the Specialist grade titles were changed to Specialist Four through Specialist Seven and the notional grades of Specialist Eight and Specialist Nine were added on top.

Only the lowest Specialist grade survives today, as the higher grades were gradually phased out. Specialist 8 and 9, which had existed only on paper, were eliminated in 1965. Specialist 7 was abolished in 1978 and Specialist 5 and 6 in 1985. At that time, the rank of Specialist 4 simply became known as "Specialist," which is how it is referred to today. While the official abbreviation was changed from "SP4" to "SPC" upon the elimination of the SP5 and SP6 ranks, the SIDPERS database was initially authorized to continue using SP4 until such time as the change could be made at little or no additional expense in conjunction with other system upgrades. The continued use of SP4 on automatically produced documents (transfer orders, leave & earnings statements, unit manning reports, inter alia), hampered the adoption of the new abbreviation (and, to a lesser extent, the absence of "-4" in the non-abbreviated rank) by individual soldiers who naturally viewed the computer produced documents as the final word on what the proper term was.

Today, the rank of Specialist is the typical rank to which Privates First Class are promoted. It is granted far more often than corporal (E-4), which is now reserved as a fast-track rank for personnel who have either passed the leadership development course or have been assigned low-level supervisory or clerical duties.
In deference to the original rating of Specialist 4, the modern day rank of Specialist is also sometimes known as "Spec Four." Slang terms for the rank of Specialist include "E-4 Mafia," indicating a reference to the large number of soldiers of E-4 rank who see their roles as performing the "grunt work" in the army. The Mafia reference is derived from some Specialists who are in positions to do favors for other Army specialists, such as supply administration specialists, but sometimes do not show equal generosity to senior enlisted, officers, or privates. The rank of Specialist is sometimes called a "Sham Shield": E-4s are the most experienced of the lower ranks and have usually figured out how to "sham" out of details. A specialist is sometimes ironically called a "full bird private", a play on "full bird colonel." During the Vietnam era, a Specialist 5 would sometimes refer to himself as a "Private E-5" to indicate that his duties and privileges were not different from what they had been when he was a private.

Specialist (Spec 4)

Source: http://en.wikipedia.org/wiki/Specialist_(rank)

Sergeant

In the United States Army, although there are several ranks of sergeant, the lowest carries the title of Sergeant (SGT) E-5. Newly promoted Sergeants are known as "buck sergeants". Sergeant is the enlisted rank in the U.S. Army above specialist and corporal and below staff sergeant, and is the second-lowest grade of non-commissioned officer. Sergeants in the infantry for example lead fire teams of four men. There are two fire teams in a 9-man rifle squad, which is led by a staff sergeant.

Sergeant (E-5) Stripes

Source: http://en.wikipedia.org/wiki/Sergeant

Staff Sergeant

Staff Sergeant (SSG) is E-6 rank in the U.S. Army, just above Sergeant and below Sergeant First Class, and is a non-commissioned officer. Staff Sergeants are generally placed in charge of squads, but can also act as platoon sergeants in the absence of a Sergeant First Class. In support units, Staff Sergeants ordinarily hold headquarters positions due to the number of slots available for SSG in these units. Staff Sergeants are typically assigned as a squad leader or Company Operations Noncommissioned Officer in Charge at the company level, but may also hold other positions depending on the type of unit. Staff Sergeants are referred to as "Sergeant" except for in certain training environments and schools. The NATO
The rank of staff sergeant in the U.S. Army (along with Technical Sergeant (renamed Sergeant First Class in 1948) and Master Sergeant) was created by Congress after the First World War.

**Staff Sergeant (E-6) Stripes**

Source: http://en.wikipedia.org/wiki/Staff_Sergeant

**Sergeant First Class** (SFC) is the seventh enlisted rank in the U.S. Army, above Staff Sergeant and below Master Sergeant and First Sergeant, and is the first senior non-commissioned officer rank. A Sergeant First Class is typically assigned as a Platoon Sergeant at the company level or Battalion Operations Noncommissioned Officer in Charge at the battalion level, but may also hold other positions depending on the type of unit. A Sergeant First Class' primary responsibility is training and mentoring Lieutenants.

A Sergeant First Class is addressed as "sergeant" except in certain situations; such as Cannon Artillery units, where a Sergeant First Class serving as Platoon Sergeant is commonly referred to as "Smoke". They may also be culturally referred to as "platoon daddy", though not directly or in a professional setting. If a Sergeant First Class is appointed to fill the role of First Sergeant, he or she is addressed as "First Sergeant".

**Sergeant First Class (E-7) Stripes**

Source: http://en.wikipedia.org/wiki/Sergeant_First_Class

In the United States Army, the rank of **First Sergeant** is above the rank of Master Sergeant and below the rank of Sergeant Major. The rank is abbreviated as 1SG in the Army or 1stSgt in the Marine Corps. While superior in rank to Master Sergeant, it is the same pay grade (E-8). Master Sergeants are laterally promoted to First Sergeant upon selection by the senior leadership at Battalion or higher depending on available positions ("billets") and opportunities. Upon reassignment to a non-First Sergeant billet, the soldier reverts back to their original rank of Master Sergeant. First Sergeants are generally the senior non-commissioned officers of company (battery, troop) sized units, and are unofficially but commonly referred to as "The First Shirt," "Top" "Top Sergeant", "Top Soldier", "Top Asskicker" "Top Kick", or "Top Hat", due to their seniority and their position at the top of the company's
enlisted ranks. They are also sometimes referred to as "Second Hat", in recognition that even though a company includes several lieutenants, it is more often the First Sergeant that the Company Commander will turn to when entrusting important responsibilities. First Sergeants handle the leadership and professional development of their Non-Commissioned officers, manage the promotable soldiers within the company, and are the first step in an Article 15 (Nonjudicial punishment) proceeding, as well as have a host of other responsibilities.

First Sergeant (E-8) Stripes

Source: http://en.wikipedia.org/wiki/First_Sergeant

Sergeant Major  

In the U.S. Army, **Sergeant Major** refers to both a military rank and a specific administrative position. The rank refers to the highest enlisted rank, just above First Sergeant, with a pay grade of E-9, NATO rank OR-9. The leadership position, Command Sergeant Major, is the senior enlisted advisor to the commanding officer and carries with it certain ceremonial functions such as caring for the unit's colors (flag). Additionally, they serve as monitors of, and advocates for, the enlisted men in the command. This position exists in units of battalion size and larger.

Because the Command Sergeant Major represents all of the enlisted soldiers in the command, he or she does not wear the collar insignia of his or her career specialty (e.g., infantry, quartermaster, intelligence, inter alios), but instead wears the Command Sergeant Major (formerly "branch immaterial") collar insignia. The insignia is a gold-color rendering of the coat of arms of the United States; like the branch of service insignia of all U.S. Army enlisted soldiers, it is placed upon a gold-colored metal disk, one inch in diameter.

An alternative usage of Command Sergeant Major is the senior NCO of a headquarters unit at battalion level or above; the soldier filling this position should carry the rank of Sergeant Major, but personnel shortages may, from time to time, force this sergeant major position to be held by a senior First Sergeant or Master Sergeant, both E-8.

A SGM or CSM is referred to, and addressed, as "Sergeant Major".
In the United States, **Second Lieutenant** is typically the entry-level rank for most commissioned officers.

In the U.S. Army and the U.S. Marine Corps, a second lieutenant typically leads a platoon-size element (16 to 44 soldiers or Marines). In the Army, the rank bore no insignia until December 1917, when a gold bar was introduced to contrast with the silver bar of a first lieutenant.

In the U.S. Air Force, a second lieutenant may supervise flights of varying sizes, depending upon the career field, as a flight commander or assistant flight commander or may work in a variety of administrative positions at the squadron, group, or wing level.

As a result of the gold color of the bars, second lieutenants are often colloquially referred to as **Butterbars** or **Nuggets**. Other colloquialisms include **Commissioned Privates**, **2nd Luoy**, or **Brown Bars** (this last is due to the subdued gold color of the bar as worn on tactical uniforms).

The corresponding United States Coast Guard and United States Navy rank is ensign.

People who have a bachelor's degree, or members of ROTC (Reserve Officers' Training Corps) in college may also enter as a Second Lieutenant. Newly commissioned Second Lieutenants usually attend a Basic Officer Training course.

**Source:** http://en.wikipedia.org/wiki/Second_Lieutenant
**1st Lieutenant**

In the United States Army, Air Force, and Marine Corps, a *First Lieutenant* is a junior commissioned officer. It is just above the rank of second lieutenant and just below the rank of captain. It is equivalent to the rank of lieutenant (junior grade) in the other uniformed services.

A second lieutenant (grade O-1) is usually promoted to first lieutenant (grade O-2) after 18 months in the Army or 24 months in the Air Force and Marine Corps. The difference between the two ranks is slight, primarily being experience and higher pay. It is not uncommon to see officers moved to positions requiring more experience after promotion to first lieutenant. For example, in the Army and Marine Corps these positions can include leading a specialty platoon, or assignment as the Executive Officer for a company-sized unit (65-150 soldiers). In the Air Force, a first lieutenant may be a flight commander or section’s Officer in Charge with varied supervisory responsibilities, including supervision of as many as 100+ personnel, although in a flying unit, a first lieutenant is a rated officer (pilot, navigator, or air battle manager) who has just finished training for his career field and has few supervisory responsibilities.

**Source:** [http://en.wikipedia.org/wiki/First_Lieutenant](http://en.wikipedia.org/wiki/First_Lieutenant)

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**Captain**

The army rank of *Captain* is a commissioned officer rank historically corresponding to command of a company of soldiers including 75 – 200 soldiers. The rank is also used by some air forces and marine forces. Today a captain is typically either the commander or second-in-command of a company or cavalry troop. In the Chinese People's Liberation Army, a captain may also command a platoon, or be the second-in-command of a battalion.

Captain is one rank above a lieutenant (or first lieutenant) and one below a major (or commandant). The rank of captain is generally considered to be the highest rank a soldier can achieve while remaining in the field.

The rank of captain should not be confused with the naval rank of captain or with the Commonwealth air force rank of Group Captain, both of which are equivalent to “full Colonel.”
Major

Major is a rank of commissioned officer, with corresponding ranks existing in almost every military in the world.

When used unhyphenated, in conjunction with no other indicator of rank, the term refers to the rank just senior to that of an Army captain and just below the rank of lieutenant colonel. It is considered the most junior of the field ranks. In some militaries, notably France, the rank is referred to as "Commandant", while in others it is known as "Captain-Major". It is also used in some police forces and other paramilitary rank structures.

When used in hyphenated or combined fashion, the term can also imply seniority at other levels of rank, including "General-Major" or "Major General", denoting a mid-level general officer, and "Sergeant Major", denoting the most senior NCO of a military unit.

Lt. Colonel

In the United States Army, Air Force, and Marine Corps, a Lieutenant Colonel is a field grade military officer rank just above the rank of major and just below the rank of colonel. It is equivalent to the rank of commander in the other uniformed services.

Source: http://en.wikipedia.org/wiki/Lt._Colonel
The pay grade for the rank of lieutenant colonel is O-5. The insignia for the rank consists of a silver oak leaf, with slight stylized differences between the Army/Air Force version and the Navy/Marine Corps version.

In the United States Army, a lieutenant colonel typically commands a battalion-sized unit (300 to 1,000 soldiers), with a Sergeant Major as principal NCO adviser. A lieutenant colonel may also serve as a brigade or task force Executive Officer, or principal staff officer, S-1 (administration and personnel), S-2 (intelligence), S-3 (operations), S-4 (logistics), S-5 (civil/military affairs), or S-6 (computers and communications). Usage of "The S-n" may refer to either a specific staff section or the staff officer leading a section. Lieutenant Colonels may also be junior staff at a variety of higher echelons.

In the United States Air Force, a lieutenant colonel is generally a director of operations or a squadron commander in the operations group, a squadron commander in the mission support and maintenance groups, or a squadron commander or division chief in a medical group. Lieutenant colonels may also serve on general staffs and may be the heads of some wing staff departments.

In the 21st century U.S. military, the rank of lieutenant colonel is usually gained after 16–22 years of service as an officer. As most officers are eligible to retire after 20 years active service, it is the most common rank at which career officers retire.

Source: http://en.wikipedia.org/wiki/Lieutenant_Colonel_(United_States)

Colonel

In the United States Army, Air Force, and Marine Corps, Colonel (pronounced “ker-nel”) is a senior field grade military officer rank just above the rank of lieutenant colonel and just below the rank of brigadier general. It is equivalent to the rank of captain in the other uniformed services–the Navy, Coast Guard, Public Health Service Commissioned Corps, and National Oceanic and Atmospheric Administration Commissioned Corps.
The pay grade for the rank of colonel is O-6 and was sometimes referred to as “full Colonel.”

World War I and World War II saw the largest numbers of Colonels ever appointed in the United States armed forces. This was mostly due to the temporary ranks of the National Army and the Army of the United States, where those who would normally hold the rank of Captain in the peacetime Regular Army were thrust into the rank of Colonel during these two wars.

It was also during World War I that a tradition developed in that Colonels would wear the eagle insignia with the head pointing outwards from the neck as if to “face the enemy”. This was in contrast to the Army uniform regulations of the time, which stated that the eagle would be worn on the left collar, with the beak of the eagle facing inwards towards the wearer’s neck. Photographic evidence and service records from the Military Personnel Records Center indicate that this tradition lasted into World War II, after which time more strict uniform regulations prevented Colonels from reversing the insignia in this fashion. The United States Navy, however, also picked up on this tradition and Midshipmen today are taught that during times of war Navy Captains will reverse their collar insignia (which is the same eagle insignia as that of Colonel) in order to have the eagle facing the enemies of the United States.

By the end of the Korean War, appointments to the rank of Colonel were standardized to be granted after roughly 16–18 years of service in the military, however temporary Colonel appointments continued well into the Vietnam War. The last temporary appointments to the rank of Colonel occurred in the late 1970s; since then all Colonels have received permanent appointments upon promotion. Currently, an officer reaches the rank of colonel after about 22 years of military service.

![Colonel](http://en.wikipedia.org/wiki/Colonel_(United_States)

**Source:** http://en.wikipedia.org/wiki/Colonel_(United_States)

General

There are four levels of generals in the Army.

- **Brigadier General** is a very senior rank in the Armed Forces. It is the lowest ranking General Officer between the ranks of Colonel and Major General. A Brigadier General is typically in command of a Brigade consisting of around 3,000 soldiers (three Battalions);
- **Major General** (two stars) is the second highest ranking general between
Brigadier General and Lieutenant General and is generally in command of a division with 10,000 to 20,000 soldiers;

- **Lieutenant General** (three stars) is the third highest ranking general between Major General and General and is generally in command of Corps size unit (20,000 to 45,000 soldiers) and is appointed by the President with confirmation by the U.S. Senate;

- **General** (four stars) is the highest ranking general except in time of war where there may be a “General of the Army.” A General is usually in command of the entire Army and is also appointed by the President with confirmation by the U.S. Senate.; and

- **General of the Army** (five stars – serves only in time of war) and is also appointed by the President with confirmation by the U. S. Senate.

To remember these grades of general use the jingle “be my little general” which references the four levels of general under General of the Army.

Source: http://en.wikipedia.org/wiki/General_officer
ARMY TRAINING

Basic Combat Training, or BCT, is a nine-week training period that teaches identical skills for all MOSs (Military Occupational Specialties). This is because the Army believes that no matter the soldier's specialty, they should all be taught the basic skills of combat so they will be ready to properly defend themselves (as well as their fellow soldiers) when and if necessary.

BCT is divided into three phases, each phase lasting three weeks. The three phases are each represented by a color (red, white, and blue) for Phase I, Phase II, and Phase III. BCT trainees are progressively allowed more responsibility, privileges, and independence each time they achieve a new phase of training. Whereas trainees in Phase I are constantly monitored and led around by their drill sergeants, Phase III trainees are largely responsible for making sure tasks are completed correctly and on-time, and keeping themselves on-schedule.

At some Basic Training stations, the current phase is denoted by the color of guidon carried by the platoon. Following the recruits' successful completion of the Field Training Exercise (a final exercise just before graduation), the Phase III blue guidon is sometimes traded for a tri-color red, white, and blue guidon that symbolizes successful completion of all three BCT phases.

Phase I

During Phase I or "Red Phase", also called the "Patriot phase" recruits are subject to "Total Control", meaning their every action is monitored and constantly corrected by drill sergeants. As may be expected, recruits are often subjected to group "corrective action" for even minor infractions. The purpose being to develop an acute attention to detail as well as foster a sense of common responsibility among the unit.

Week 1

Week 1 begins with the recruits meeting the drill sergeants who will be responsible for their training throughout BCT. The drill sergeants pick up their recruits from Reception Battalion and either transport or march them to their company area. The company area is the common area for the entire company, and is surrounded by four barracks — one for each platoon in the company.

Upon arrival at the company area, recruits are subjected to exercises such as the "bag drill". This is a training exercise in which all the recruits' duffel bags are dumped into one large pile, and the recruits are told to find their personal duffel bags simultaneously, and within a set time limit. The exercise is designed so that the soldiers fail in their task and must keep trying again, until
they realize that they must work together in order to complete the task within the time limit. Following the bag drill, the recruits are divided into platoons.

Drill & Ceremony training begins during week 1. This refers to correct procedures for marching, and body movements such as standing at attention, "facing" (right-face/left-face), "at ease," etc. For this and many other exercises, soldiers are sometimes issued fake rifles known as "rubber ducks", so that they can become familiar with the proper handling of their weapon before they have actually been trained to use it. More recently recruits have begun to be issued fully functional M16A2/A4s during the first week of BCT to allow for early familiarization with the weapon.

Classroom instructions are given in each of the seven "Army Core Values," which include loyalty, duty, respect, selfless service, honor, integrity, and personal courage. Note that the initials spell out the mnemonic LDRSHIP (leadership). There are also classes held on subjects that involve day-to-day personal life in the Army, such as sexual harassment and race relations.

**Week 2**

During week 2, recruits begin unarmed combat training, also known as hand-to-hand combat, Combatives, or Ground Fighting Technique (GFT). The training often culminates in a competition where each platoon chooses one recruit to compete. At gender-integrated training stations, the platoons each choose one male and one female recruit.

Recruits are also instructed in map reading, land navigation, and compass use. These skills are put to the test at the Compass Course, where recruits are divided into groups and must navigate their way to a series of points throughout a wooded area.

Recruits will also tackle other physical challenges including Victory Tower and the Teamwork Development Course. Victory Tower is an exercise where recruits must navigate through several obstacles at extreme heights, including climbing and traversing rope ladders and bridges. They must then rappel down a 50-foot wall (back-first, with rope harness). In the Teamwork Development Course, squads must negotiate a series of obstacles, with emphasis on working as a team rather than as individuals.

First aid training is also given during this period. Recruits are trained in evaluating and properly treating casualties, ranging from the simple dressing of a wound to application of a tourniquet. Recruits are also trained in how to evaluate and treat heat casualties such as dehydration. Proper procedures for setting up and removing an IV are now being introduced, including closely supervised live practice on each other.
Week 3

Recruits begin training for bayonet use using pugil sticks and then move on to the Bayonet Assault Course. Other hands-on instruction sessions include person-carrying methods and physical problem-solving.

Recruits are also commonly sent to the "gas chamber" during this week, which is a large, sealed chamber where soldiers are subjected to CS gas while wearing their protective masks. The gas chamber is the culmination of a series of instructions on gas mask use. Recruits are forced to unmask just before exiting the chamber, so that they can briefly experience the effects of the gas. Drill sergeants will usually ask each recruit to recite information while they are unmasked, such as name, rank, social security number, the Pledge of Allegiance, the Soldiers’ Creed, or the three Army general orders, so that the recruit is forced to open their mouth/eyes and/or take a breath. Recruits that answer incorrectly are sometimes sent for another trip through the gas chamber.

Week 3 is also when the recruits are introduced to their standard-issue weapon, the M16A2 assault rifle or the M4 carbine. This does not yet involve the actual firing of the rifle. It does include Basic Rifle Marksmanship (BRM) fundamentals training (instruction in marksmanship techniques without firing the rifle), as well as maintenance tasks, including "field stripping" (quickly disassembling) the rifle, cleaning it, and reassembling it correctly. With the focus toward Weapon Familiarization, many of these tasks (such as maintenance, and disassembly and reassembly) are now done during Week 1 as a part of the initial round of classroom instruction.

Phase II

Phase II, called the "White Phase" or "Gunfighter Phase", is where soldiers begin actually firing weapons. With the service rifle (M16 A2), they will fire at various targets, which are progressively farther-and-farther downrange, resulting in more-and-more difficult shooting. Additionally, there are pop-up targets at long range. Other weapons the soldier becomes familiarized with include various grenades (such as the M67 fragmentation grenade) and grenade launchers (such as the M203 grenade launcher).

A soldier practices using his fixed bayonet, attached to a dummy rifle.
The second week of Phase II involves familiarization with the bayonet, anti-tank/armor weaponry and other heavy weapons. There is also an obstacle course which the soldiers are expected to negotiate in a certain amount of time. This is also known as the confidence course since the main objective of running the course is to build self-confidence. There is also the expectation of working as a team with the assigned Battle Buddy.

Additionally, there is continual, intense physical training (PT), as well as drill and ceremony training. At the conclusion of Phase II, soldiers are expected to demonstrate proficiency with the various weaponry in which they trained, using numerous "go or no-go" (pass/fail) exercises, prior to being allowed to move on to Phase III.

**Phase III**

Phase III, the "Blue Phase" or "Warrior Phase" is the culmination and the most challenging of all the training phases. During this phase, there is a PT final. At some locations, soldiers that fail are not allowed to go into the field with the rest of the platoon. The Final PT Test consists of the Standard Army Annual PT Examination. A minimum of 150 points is required to pass US Army Basic Training. Those that pass will move on to "Bivouac" (camping) and FTX (Field Training Exercises), such as nighttime combat operations and MOUT training. There is no access to the dining facility during these exercises, so meals are given in the form of either MREs (Meal Ready to Eat) or "hot alphas". Drill sergeants will make much of this an adversarial process, working against the recruits in many of the night operations, trying to foil plans, etc. Other BCT companies also in their FTX weeks may join in simulated combat scenarios, generally at night, with intense competition to prove their particular company the better trained.

Week 2 of Phase III (the 8th week of Basic Training) culminates in a special tactical FTX (Field Training Exercise), during which the drill sergeants will advise, but allow recruit platoon leaders and squad leaders to exercise primary decision-making. They attempt to make virtually every one of these exercises different. Because being a soldier is potentially an extremely hazardous job, recruits must demonstrate extreme aggression and fearlessness, tempered by intelligence and common sense. Only those that demonstrate these vital attributes will be permitted to move on to AIT.

Following their FTX, recruits then move into the final week of training, often called "recovery week". At this time, soldiers must service and/or repair any items they are not taking on to AIT including weapons, bedding, issued equipment (helmet, canteen, gas mask, etc.) as well as ensuring the platoon barracks is in good order to receive the next platoon of trainees. This week also
includes a final fitting of the recruit's dress uniform as well as practice for the graduation ceremony which takes place at the end of the week.

Source: http://en.wikipedia.org/wiki/United_States_Army_Basic_Training

**AIT**  
**Advanced Individual Training, or AIT,** is where new soldiers receive specific training in their chosen MOS. The length of AIT training varies depending on the MOS and can last anywhere from three weeks to nearly two years. The current longest AIT training lasts 84 weeks (1 year and 8 months).

Just like BCT, AIT progressively allows trainees more and more privileges. At the start of AIT, trainees are in Phase IV. After a varying length of time and satisfactory performance, the trainees are awarded Phase V. Phase V often includes the privilege of applying for off-post passes or use of a cell phone. Phase V+ is awarded after a similar length of time and continued good conduct. Phase V+ trainees may walk about the base without having a battle buddy present, be able to drink alcohol on weekends (provided one is of legal drinking age), and even stay off-post overnight on weekends. These privileges vary, however.

Source: http://en.wikipedia.org/wiki/United_States_Army_Basic_Training

**Low Crawl**  
This is an exercise where one crawls on the ground on his stomach using his elbows and legs to move forward. It is very valuable when bullets are flying in combat.

**NCOC**  
**Non-Commissioned Officer Course or NCOC.** This course began in 1967 to help alleviate the problem of too few junior-level sergeants in the Army; especially Sergeant E-5 and Staff Sergeant E-6 which were critical to the infantry in Vietnam. Because all tours in Vietnam were for one year, eventually the Army ran out of junior NCOs because so many soldiers got out of the Army after serving in Vietnam. The NCOC course was a three month course which generally followed the curriculum of the first half of OCS with the same instructors. Upon completion of the course, graduates generally went to work at infantry AIT (Advanced Individual Training) units then went straight to Vietnam. Most NCOC graduates were draftees. They were also mostly young, generally 19-21 years old which meant that they would lead men in combat who were their own age as opposed to a career sergeant who was much older and more experienced. Despite these disadvantages they performed well bringing credit to themselves and their units. During its existence, there were 26,078 graduates of NCOC. Of these 1,118 were killed in Vietnam and of these 4 were awarded the Medal of Honor. The school was discontinued in 1972 as the United States began to withdraw from Vietnam; however, the Army now provides advanced training to NCOs to help them improve their performance. In 2009 a memorial to the NCOC graduates was
established at the National Infantry Museum’s Walk of Honor (see photos below).

OCS

The United States Army's Infantry Officer Candidate School (OCS), located at Fort Benning, Georgia, provides training to become a commissioned officer in the U.S. Army. Officer candidates are drawn from enlisted members (up to Master Sergeant), Warrant Officers, inter-service transfers, or civilian college graduates who enlist for guaranteed attendance at OCS after they complete Basic Combat Training (BCT).

OCS is a rigorous 12-week course designed to train, assess, evaluate, and develop second lieutenants for the U.S. Army's sixteen basic branches. It is the only commissioning source that can be responsive to the Army's changing personnel requirements due to its short length, compared to other commissioning programs and their requirements. Completing OCS is one of several ways of becoming a U.S. Army commissioned officer. The other methods are:

- Graduation from United States Military Academy (USMA) at West Point
- Completing Reserve Officers' Training Corps (ROTC)
- State-level Officer Candidate Schools programmed by the Army National Guard at Regional Training Institutes (RTI), with curriculum identical to the federal OCS program.
- Direct Commissioning normally is used for accessions of Chaplains, medical professionals, and Judge Advocate General (JAG) lawyers. Currently, the U.S. Army Reserve is using this method in limited numbers for the basic branches as well.
- Interservice Transfer as a commissioned officer of another United States military branch.
- Battlefield commissions, or meritorious commissions, though
technically still provided for, have not been used by the US Army since the Korean War.

**History**

Historically, OCS has provided the means by which the U.S. Army could generate large numbers of junior officers during periods of increasing personnel requirements, typically during wars. Prior to 1973, OCS was branch-specific, at one time there being eight separate schools; by 1964, the Army had consolidated OCS into two schools: Field Artillery OCS at Fort Sill, Oklahoma, and Infantry OCS at Fort Benning. The Vietnam war brought expansion of the OCS program, but it was short lived. In 1973, OCS was made branch immaterial and was consolidated into two courses taught at Ft. Benning, and another at Fort McClellan, Alabama for female Officer Candidates; the course length was reduced to 14-weeks. In 1976, the OCS at Ft. Benning integrated females, and became the only OCS left in the active Army, with the closure of the WAC School. The term "90-day wonders", both as a pejorative and term of affection, has been intermittently applied to junior officers commissioned through OCS since World War II.

**World War II era**

Officer Candidate School was first proposed in June 1938, as the Army began expanding in anticipation of hostilities when a plan for an officer-training program was submitted to the Chief of Infantry by Brigadier General Asa L. Singleton, Commandant of the Infantry School. No action was taken until July 1940, however, when Brig. Gen. Courtney Hodges, Assistant Commandant of the Infantry School, presented a revised plan to (then) Brig. Gen. Omar Bradley, Commandant of the Infantry School. In July 1941, the OCS stood up as the Infantry, Field Artillery, and Coastal Artillery Officer Candidate Schools, each respectively located at Fort Benning, Fort Sill, and Fort Monroe, Virginia.

In addition to the aforementioned programs, there were Officer Candidate Schools stood up for other branches, for instance the Signal Corps at Fort Monmouth, New Jersey. Due to the rapid creation of these programs because of wartime necessity, and then the rapid closures, or restructuring, soon after the end of the war, historical records were not always created or adequately maintained and little is known about many of these branch specific commissioning courses.

The Infantry course, on the other hand is well documented, and it stands today as the precursor of the branch immaterial course taught at Fort Benning. On 27 September 1941, the first Infantry OCS class graduated 171 second lieutenants; 204 men started the 17-week course in July. Testament to the ability of OCS to produce new second lieutenants quickly can be found in War
Department decision that ROTC could not fulfill the national demand for officers; so in May 1943, the advanced course in ROTC was suspended and basic course graduates were immediately sent to OCS so they could be commissioned sooner.

During the war, the Army's policy of racial segregation continued among enlisted members; Army training policy, however, provided that blacks and whites would train together in officer candidate schools (beginning in 1942). Officer Candidate School was the Army's first formal experiment with integration. Black and white candidates lived separately, but all of the candidates trained together. Despite this integrated training, in most instances, the graduates would go on to join racially segregated units.

General Bradley is credited with establishing the format, discipline, and code of honor still used in OCS today. Bradley emphasized rigorous training, strict discipline and efficient organization. These tenets remain the base values of today's Officer Candidate School. Between July 1941 and May 1947, over 100,000 candidates were enrolled in 448 Infantry OCS classes, of these approximately 67 percent completed the course to earn commissions. After World War II, Infantry OCS was transferred to Fort Riley, Kansas, as part of the Ground General School. Due to the post-war downsizing of the Army and the declining need for new Officers, all but Infantry OCS was closed. Finally, on 1 November 1947, it was deactivated. The final class graduated only 52 second lieutenants.

With the outbreak of the Korean War, and the Army's rapid expansion in response, the shortage of on-hand officers, and projected commissions, caused the Department of the Army to re-open Infantry OCS at Ft. Benning on 18 February 1951. The course was lengthened from 17 to 22 weeks, as a result of lessons learned from WWII; thus permitting more instruction in Infantry tactics. The Infantry Officer Candidate School became the 1st Officer Candidate Battalion, 2nd Student Regiment. The strength of OCS rapidly increased. As one of eight branch programs, Infantry OCS included as many as 29 companies with a class graduating every week. During the Korean War, OCS commissioned approximately 7,000 Infantry officers.

**VIETNAM WAR**

During the height of the Vietnam War, Infantry OCS produced 7,000 officers annually from five student battalions, all located at Ft. Benning. Also, during the war, a female OCS was once again established; it was stood up at Fort McClellan, Alabama, as part of the WAC Center and School. Other OCS programs were located at Fort Gordon, Georgia (Signal Corps); Fort Sill, Oklahoma (Artillery), Fort Lee, Virginia (Quarter Master), Fort Eustis, Virginia (Transportation), Fort Knox, Kentucky (Armor), Fort Belvoir, Virginia (Engineer) and Aberdeen Proving Ground, Maryland (Ordinance). In April
1973, a branch immaterial OCS was established at Fort Benning, ending the Infantry and Field Artillery based courses.

**Course Description**

The Army's Officer Candidate School is programmed to teach basic leadership and Soldier tasks, using the Infantry battle drills found in Army Field Manual 3-21.8 as a framework for instruction and evaluation of leadership potential. A total of 71 tasks are taught and tested while at OCS. A candidate should expect to be under constant observation and evaluation by their cadre. Mental and emotional stress is induced through a variety of controlled methods, to test problem solving and moral resolve. Additionally, the course is meant to be physically demanding, with numerous tactical road marches, timed runs of varying distance from 2 miles to 5 miles, and Army Combatives training. Beginning with the first class of FY 2008, the calendar length of OCS was shortened from 14 weeks to 12 weeks, thus allowing for more classes to be conducted each Fiscal Year; thereby raising the maximum capacity of the school to train Second Lieutenants to meet future commissioning needs as the Army grows. The current capacity of each class that is conducted is limited to 172 Officer Candidates.

Officer Candidate School is conducted in two phases: basic phase and senior phase. Students are referred to as either Basic Officer Candidates (BOCs) or Senior Officer Candidates (SOCs) as their classes progress. Initially, upon arrival, the candidates have very few privileges, and enter into a controlled environment similar to BCT, though they are expected to act like leaders and take charge and responsibility immediately. As they progress through the course, they may earn and request privileges. Their bearing, deportment, and behavior individually, and collectively, will affect the return of their privileges.

All graduating candidates are commissioned as Second Lieutenants upon graduation.

Officer Candidate School Logo

Source:  http://en.wikipedia.org/wiki/Officer_Candidate_School_(U.S._Army)
**PT**  
**Physical Training or PT.** Especially in training environments, physical training was a big part of the Army curriculum. It involved many long runs and a variety of exercises including pushups.

**ROTC**  
The Reserve Officers' Training Corps (ROTC) is a college-based, officer commissioning program, predominantly in the United States. It is designed as a college elective that focuses on leadership development, problem solving, strategic planning, and professional ethics.

The U.S. Armed Forces and a number of other national militaries, particularly those countries with strong historical ties to the United States, have ROTC programs. The Republic of the Philippines established its program in 1912, with the creation of the first unit at the University of the Philippines during American colonial rule. ROTC in the Republic of Korea started in 1963.

ROTC produces officers in all branches of the U.S. Armed Forces except the U.S. Coast Guard. ROTC graduates constitute 56 percent of U.S. Army, 11 percent of U.S. Marine Corps, 20 percent of U.S. Navy, and 41 percent of U.S. Air Force officers, for a combined 39 percent of all active duty officers in the Department of Defense. The Philippine-based National ROTC Alumni Association (NRAA) estimates that 75 percent of the officer corps of the Armed Forces of the Philippines come from ROTC.

With the exception of the U.S. Coast Guard, each of the U.S. Armed Forces offer competitive, merit-based scholarships to ROTC students, often covering full tuition for college in exchange for extended periods of active military service. For example, in the U.S. Army ROTC, students who receive an Army ROTC scholarship or enter the Army ROTC Advanced Course must agree to complete an eight-year period of service with the Army after college. U.S. Army and U.S. Air Force ROTC students are referred to as cadets, while U.S. Naval ROTC students are known as midshipmen; these terms coincide with their service academy counterparts. The Naval ROTC program commissions both U.S. Navy and U.S. Marine Corps officers. The U.S. Coast Guard sponsors only a JROTC program.

Army ROTC units are organized as brigades, battalions, and companies. Air Force ROTC units are detachments with the students organized into wings, groups, squadrons, and flights, like the active Air Force. Naval ROTC units are organized into Naval battalions. If the Marine students are integrated with the Navy students, there are companies; but having the Navy students in departments and divisions like a ship, and the Marines in a separate company is only done when an ROTC unit has sufficient members to warrant an extra division.
History of U.S. ROTC

The concept of ROTC in the United States began with the Morrill Act of 1862 which established the land-grant colleges. Part of the federal government's requirement for these schools was that they include military tactics as part of their curriculum, forming what became known as ROTC. The college from which ROTC originated is Norwich University in Northfield, Vermont. Norwich was founded in 1819 at Norwich, Vermont, as the American Literary, Scientific and Military Academy.

Until the 1960s, many major universities required compulsory ROTC for all of their male students. However, because of the protests that culminated in the opposition to U.S. involvement in the Vietnam War, compulsory ROTC was dropped in favor of voluntary programs. In some places ROTC was expelled from campus altogether, although it was always possible to participate in off-campus ROTC.

In recent years, concerted efforts are being made at some Ivy League universities that have previously banned ROTC, including Harvard and Columbia, to return ROTC to campus. In the 21st century, the debate often focuses around the Congressional don't ask, don't tell law, signed into law by President Bill Clinton in 1993, which forbids homosexuals serving in the United States military from disclosing their sexual orientation at the risk of expulsion. Some schools believe this legal mandate would require them to waive or amend their non-discrimination policies. The Supreme Court ruled in March 2006 that they are entitled to hold this opinion, but at the expense of federal funding (see Solomon Amendment).

Under current law, there are three types of ROTC programs administered, each with a different element.

- The first are the programs at the six senior military colleges, also known as military schools. These institutions grant baccalaureate degrees (at a minimum) and organize all or some of their students into a corps of cadets under some sort of military discipline. Those participating in the cadet program must attend at least 2 years of ROTC education.
- The second are programs at "civilian colleges." As defined under Army regulations, these are schools that grant baccalaureate or graduate degrees and are not operated on a military basis.
- The third category is programs at military junior colleges (MJC). These are military schools that provide junior college education (typically A.S. or A.A. degree). These schools do not grant baccalaureate degrees but meet all other requirements of military colleges (if participating in the Early Commissioning Program), and cadets are required to meet the same military standards as other schools (if enrolled in ECP), as set by
Army Cadet Command. Cadets can be commissioned as second lieutenants in the Army Reserve/Army National Guard as graduating sophomores. Upon commissioning, these lieutenants are required to complete their bachelors degree at another institution (of the lieutenant's choosing) while serving in their units. Upon receiving their bachelors, ECP lieutenants can assess active duty and go onto active duty as a first lieutenant. Only the Army currently offers an Early Commissioning Program. In time of war, MJC's have played a significant role in producing officers for the Army. During the Vietnam war, the requirement to complete one's bachelor degree was not in effect. Therefore, upon commissioning, LT's went straight onto active duty.

One difference between civilian colleges and the senior or junior military colleges is enrollment option in ROTC. ROTC is voluntary for students attending civilian colleges and universities; however, with few exceptions (as outlined in both Army regulations and federal law), it is required of students attending the senior and junior military colleges. Another major difference between the senior military colleges and civilian colleges is that under federal law, graduates of the SMCs are guaranteed active duty assignments if requested.

**Army Reserve Officers' Training Corps**

The *Army Reserve Officers' Training Corps* (ROTC, AROTC, or SROTC) is the United States Army component of the Reserve Officers' Training Corps. It is the largest branch of the ROTC program, with 20,000 ROTC cadets in 272 ROTC programs at major universities throughout the United States.

The modern Army Reserve Officers' Training Corps was created by the National Defense Act of 1916. This program commissioned its first class of lieutenants in 1920. The concept behind ROTC, however, had its roots in military training which began taking place in civilian colleges and universities as early as 1819 with the founding of the American Literary, Scientific and Military Academy at Norwich, Vermont, followed by various state chartered military schools, and finally civilian land grant colleges after the Civil War, which required military training.

**Army ROTC Progression**

For a cadet who takes only the first two years of ROTC (Basic Course), there is no military obligation, unless the student is a 3-4 year scholarship cadet or has other specific scholarships. If a cadet has accepted a scholarship, service commitments may vary. With some exceptions, in order to progress to the last two years of the program (Advanced Course), the cadet must contract with
the United States Army. To do so, the student enlists in the United States Army Reserve Control Group (ROTC) as a cadet and elects to serve on either Active Duty or in a reserve component (Army National Guard or Army Reserve).

**Course of Instruction**

There are two ROTC courses of instruction administered: branch material and general military science. The far majority of ROTC programs today are general military science (many having previously been branch material). If a program is branch material, the course of instruction is designed to prepare the cadet for appointment as a commissioned officer in a specific branch of the Army. A branch material unit may offer training in one or more specific branches. The cadet will train during ROTC specifically for that branch (e.g., aviation, engineering, nursing). When the cadet graduates, he or she will be commissioned in that branch. If the program is general military science (GMS), then the ROTC program will prepare the cadet for appointment as a commissioned officer in any branch of the Army for which he or she is qualified, as determined by the Army through a selection process. The following is an outline of a general military science program

**Basic Course**

**Basic Course Qualification Requirements**

A candidate for freshman and sophomore level ROTC training must:

- Be of good moral character
- Be a citizen of the United States
- Be able to graduate before 30 years of age
- Be physically able to participate in the program of instruction
- Meet other entrance requirements as determined by the departmental chair, current Army regulations, and University policies

A student who does not meet all of the above requirements should consult with the Department of Military Science and Leadership to determine if waivers can be granted.

**Military Science I Year (MSI)**

This year serves as the cadets’ first introduction to the Army. Topics covered include military courtesy, military history, basic first aid, basic rifle marksmanship, basic hand grenade use, land navigation, rappelling,
fundamentals of leadership, map orienteering, field training, and drill and ceremony.

Military Science II Year (MSII)

The second year is an expansion of the topics taught in the first year of the program. Cadets are introduced to tactics, troop leading procedures, basics of operations orders, and ethics.

Advanced Course

Military Science III Year (MSIII)

The third year marks the beginning of the Advanced Course. This is where most cadets must contract with the Army to continue in the program. Cadets may be eligible for the Advanced Course if the following criteria are met:

- The cadet has prior military service OR
- The cadet has completed the first two years of the program (Basic Course) OR
- The cadet has graduated the Leaders Training Course (formerly Basic Camp) at Ft. Knox AND
- The cadet has completed 54 credits (at least 60 preferred) of college coursework.

The course sequence in this year is mainly focused on the application of leadership and small-unit tactics. Cadets are assigned rotating leadership positions within the School Battalion and are evaluated on their performance and leadership abilities while in those positions. Third-year cadets practice briefing operations orders, executing small-unit tactics, leading and participating in physical training, and preparing for successful performance at the four week Leader Development and Assessment Course during the summer following the third year. Under current regulations, attendance at the course is mandatory (in the past, Ranger School was offered as an alternative to select cadets).

Leader Development and Assessment Course (LDAC)

The Leader Development and Assessment Course (LDAC) (formerly Advanced Camp) is a paid four-week leadership course conducted at Fort Lewis, Washington, during the summer. Typically, cadets attend LDAC during the summer between their first and second years in the Advanced Course. At LDAC, cadets take on various leadership roles and are evaluated on their performance and leadership abilities in those positions. Cadets also participate in adventure training, to include: confidence and obstacle courses, rappelling,
water safety, weapons firing, and patrolling. Cadets must attend and complete this course to earn an Army commission. The time spent at LDAC by cadets has been reduced from 33 days to 28 days.

**Military Science IV Year (MSIV)**

This is the final year of the ROTC program and the main focus is towards preparing cadets to become successful lieutenants in the Army upon graduation and commissioning. Senior cadets apply for their branches (career fields). Senior cadets apply before end of their third year but have until mid September to make any changes before they are locked in. In early September, cadets are notified of which service and status they were granted (e.g., Regular Army, Army Reserve, Army National Guard; as well as whether they will be active duty or not). The next thing they will be notified is the branch of choice in mid October. Last but not least, cadets will be given their requested first duty location from late March through early April. In the mean time, senior cadets are assigned cadet battalion staff positions and are responsible for evaluating MS III cadets, planning and coordinating training operations and missions. MSIV’s main goal is to teach and train MSIII cadets as well as be a mentor and establish sustainable systems to meet all requirements and provide quality training designed to develop and prepare the best leaders for United States Army.

**Branch Assignment for ROTC Cadets**

Branch selection factors Branch assignments are made according to the needs of the Army. Consideration is given to the cadet's area of academic specialty. Army policy is to assign graduating cadets to a branch and specialty code based on the following:

- Army branch/specialty strength requirements.
- Academic disciplines.
- Personal preference.
- Recommendation of PMS. (Professor of Military Science)
- Demonstrated performance and potential.
- Prior military experience.
- Other experience.
- Sex.

**Lab**

Labs place students in leadership positions, teaches and provides practical experience in military drill and ceremonies, troop leading procedures, small
unit tactical operations, rappelling, and water survival. Labs are held during the week and run for approximately two hours.

**Physical Fitness Training**

Physical fitness training builds physical conditioning, teamwork, and self-confidence. Physical fitness training sessions are scheduled for one-hour and the intensity, time and type of exercises varies. All ROTC Students must complete the Army Physical Fitness Test (APFT) with at least the minimum (60%) in each of the three categories according to their age bracket (See Army Physical Fitness Test). Also each battalion may make its own standards. For example; a battalion may set a standard of scoring no less than 70% (10% more than the Army requires) in each category. Failure to reach the battalion standard may require increased physical fitness training on days of rest (commonly known as "Incentive PT").

**Cadre**

The cadre usually consists of 5 to 7 Officers ranking for Colonel to 2nd Lieutenant as well as some soldiers from the enlisted side ranking from Staff Sergeant to Master Sergeant and civilian technical assistants. It is the cadres’ job to teach and help the Military Science Cadets achieve the goal of 2nd Lieutenant. Every Army ROTC school has a Professor of Military Science; it is their job to instruct the MSIV’s as they make the transition from Army Cadet to 2nd Lieutenant. Assistant Professor of Military Science; it is their job to instruct the MSI’s and teach them the fundamentals of the military. Recruiting Operations Officer; it is their job to make sure that every cadet coming into their program is eligible. The Recruiting Operations Officer also handles the Scholarships within its school. The Executive Officer and enlisted personnel also help with the training of the MS Cadets. The civilian technicians are usually retired military personnel whose job is to help the Officers with paperwork and medical forms from the MSI’s.

**Scholarships**

The United States Army offers ROTC scholarships that allow students to finance their education. **Scholarship Eligibility Requirements**

- Must be a U.S. Citizen
- At least 17 years of age before the scholarship is effective
- Scored a 920 on SAT or 19 on ACT
- 2.5 GPA or higher
- Participant in leadership, extra-curricular, and athletic activities
- Under 27 years old at time of commissioning
- High school grad or equivalent
- Agree to accept a commission upon graduation
- Meet physical standards
- Must be accepted to the university that offers the scholarship

Note that these are just the minimum requirements. The Army seeks to recruit what it calls Scholar, Athlete, Leaders (SAL's). A typical 4-year scholarship winner scores around 1250 on the SAT (or 24 on the ACT), and has a high school GPA of 3.5. A large number of scholarship winners are also members of the National Honor Society, serve in student-body government, or are varsity sports team captains.

Types of Army ROTC Scholarships

There are three types of Army ROTC scholarships available:

- The four-year scholarship is designed for high school students planning on attending a four-year college program.
- The three-year scholarship is available for students who have three academic years of college remaining.
- The two-year scholarship is available for students who have two academic years of college remaining.

The Army ROTC scholarship entitles its recipients to full-tuition assistance, as well as a textbook/fee allowance and a monthly stipend to cover the student’s living expenses. Typically, cadets receive tuition assistance. However, they also have the option to apply the scholarship to their ‘room and board’ expenses instead of school tuition.

The amount that cadets on the ROTC scholarship receive for their monthly stipend depends on their year in school:

- Year 1: $300 a month
- Year 2: $350 a month
- Year 3: $450 a month
- Year 4: $500 a month

Alternative Method to Receive the ROTC Scholarship

The Simultaneous Membership Program (SMP) is an alternative route to receive ROTC scholarship benefits. The program requires that cadets enlist in the Army National Guard and complete Basic Combat Training (BCT) and an Advanced Individual Training (AIT) of their choice. Once they complete
both BCT and AIT they may contract with ROTC at their school. The benefits are as follows:

*National Guard Benefits*

- Drill pay at E-5
- Cadet rank
- GI Bill
- Full tuition assistance

Cadets can not be deployed with the Army National Guard overseas as long as they are contracted with ROTC. However, they are required to attend all National Guard events. This includes drill weekend, advanced training, and also state-wide emergencies.

*Organization*

*Training Options*

Cadets may compete for training opportunities conducted at Active Army Schools. This training is usually conducted during the summer months but some allocations are available during the winter holidays. Cadets are selected to attend this excellent training based on their overall standing within the program. Since the number of allocations are limited, selection for schools is competitive and based on factors including ROTC grades, academic grades, participation in ROTC activities, APFT scores and advisor recommendations.

*Air Assault School (AA)*

Cadets are trained in airmobile operations, including rappelling from helicopters, airmobile tactics and rigging air mobile cargo. This is a two-week course taught at Fort Campbell, KY or Fort Rucker, AL. Upon successful completion, the cadet is awarded the Air Assault Badge.

*Airborne School (ABN)*

Army paratrooper training is conducted for three weeks at Fort Benning, GA. Upon successful completion cadets are awarded the Parachutist Badge. This training qualifies the Cadet to be a US Army Paratrooper.

*Cadet Field Training (CFT)*

This is an 8-week program of instruction executed by the United States
Military Academy to develop the leadership skills of sophomore cadets. Seven weeks of CFT will be at Camp Buckner, with one week at Fort Knox, KY for Mounted Maneuver Training (MMT). CFT consists of basic skill level training ending with Maneuver Light Training where the cadets train on how to defend and attack an opposing force.

**The Cadet Intern Program (CIP)**

An initiative of ASA/MRA, allows cadets to work with Department of the Army (DA), OCAR, NGB, and OSD for 3 weeks.

**Cadet Troop Leadership Training (CTLT)**

Cadet Troop Leadership Training is an optional program for MSIII cadets during the summer following completion of LDAC. This three week CONUS or 4 week OCONUS program trains Cadets in lieutenant positions with active Army and Reserve component units. Assignments are available in nearly all branches and with units world wide.

**Northern Warfare Training Course (NW)**

This is a three-week course covering tactical operations in a cold weather climate. The course is taught at Fort Greeley, AK. Cadets will be trained in winter survival techniques, skiing, snowshoeing and cold weather patrolling.

**Mountain Warfare School**

This course is taught at the Ethan Allen Firing Range in Jericho, VT. It is taught in two phases, each lasting two weeks. The summer phase teaches and tests Cadets on military mountaineering operations including rock climbing, rappelling and orienteering. The winter phase teaches and tests on similar tasks but in the winter environment. It includes ice climbing, cross-country skiing and cold weather operations.

**Activities and Clubs**

**Ranger Challenge**

Ranger Challenge is the Varsity sport of Army ROTC. A Ranger Challenge Team is made up of nine and five-man teams of Cadets. They compete against other colleges throughout the nation in events such as: patrolling, weapons assembly, one-rope bridge, Army Physical Fitness Test, Land navigation, and a ten kilometer road march. This is both a physically and mentally grueling
competition. Participating in Ranger Challenge PT will put you in position to make the cut and be part of the team.

**Color Guard**

It is open to anyone in the battalion. Color Guard is responsible for posting the colors for ceremonial events (football games, Dining In or Out, Mil Ball, and Commencement), as well as cannon detail at football games, in order to show honor towards flag and country.

**Military Ball (Mil Ball)**

Is a formal event held every year for the entire Battalion. These social events are designed to allow Cadets to experience the type of social gathering and military etiquette they can expect as future commissioned officers. Cadets are encouraged to bring spouses/dates. Many dignitaries are invited, including the school president, certain university officials, and representatives of veterans’ societies, parents and relatives.

**Reserve Officers' Battalions**

ROTC is composed of seven brigades which, in turn command 272 ROTC units, referred to as battalions (though these units are typically much smaller than regular army battalions.) The brigades command ROTC units throughout different regions of the country.

- **2nd Reserve Officers' Training Corps Brigade** (CT, MA, ME, NH, NJ, NY, PA, RI, VT, Germany, Italy)
- **3rd Reserve Officers' Training Corps Brigade** (IA, IL, KS, MN, MO, ND, NE, SD, WI)
- **4th Reserve Officers' Training Corps Brigade** (DC, DE, MD, NC, SC, VA, WV)
- **5th Reserve Officers' Training Corps Brigade** (AR, AZ, CO, NM, OK, TX, UT, WY)
- **6th Reserve Officers' Training Corps Brigade** (AL, FL, GA, LA, MS, PR, VI)
- **7th Reserve Officers' Training Corps Brigade** (IN, KY, MI, OH, TN)
- **8th Reserve Officers' Training Corps Brigade** (AK, AS, CA, GU, HI, ID, MP, MT, NV, OR, WA, Korea, Japan)
Cadet Creed

I am an ARMY Cadet.
Soon I will take an oath to become an Army Officer committed to defending the values which make this nation great.
Honor is my Touchstone.
I understand mission first and people always.
I am the past - the Spirit of those warriors who have made the final sacrifice.
I am the present - the scholar and apprentice soldier enhancing my skills in the science of warfare and the art of leadership
But above all, I am the future - the future warrior leader of the United States Army.
May God grant me the compassion and judgment to lead and the gallantry in battle to win. I will do my duty.

Source:  http://en.wikipedia.org/wiki/Army_Reservation_Officers%27_Training_Corps

The United States Military Academy at West Point (also known as USMA, West Point, or Army) is a four-year coeducational federal service academy located at West Point, New York. Established in 1802, USMA is the oldest of the United States's five service academies. The military garrison at West Point was occupied in 1778 and played a key role in the Revolutionary War. The academy sits on scenic high ground overlooking the Hudson River, 50 miles (80 km) north of New York City. The entire central campus is a national landmark and home to scores of historic sites, buildings, and monuments. The majority of the campus's neogothic buildings are constructed from gray and black granite. The campus is a popular tourist destination complete with a large visitor center and the oldest museum in the United States Army.

Candidates for admission must both apply directly to the academy and receive a nomination, usually from a congressman. Students are officers-in-training and are referred to as cadets. Tuition for cadets is fully funded by the Army in exchange for an active duty service obligation upon graduation.
Approximately 1,300 cadets enter the Academy each spring with about 1,000 cadets graduating. Graduates are commissioned as second lieutenants. The academic program grants a bachelor of science degree with a curriculum that grades cadets' performance upon a broad academic program, military leadership performance, and mandatory participation in competitive athletics. Cadets are required to adhere to the Cadet Honor Code, which states that "a cadet will not lie, cheat, steal, or tolerate those who do".

Because of the academy's age and unique mission, its traditions influenced other institutions. It was the first American college to have class rings, and its technical curriculum was a model for later engineering schools. West Point's
student body has a unique rank structure and lexicon. All cadets reside on campus and dine together en masse on weekdays for breakfast and lunch. The academy fields fifteen men's and nine women's National Collegiate Athletic Association (NCAA) sports teams while every student competes in at least one sport, either at intramural or intercollegiate level, each semester. Its football team was a national power in the early and mid 20th century, winning three national championships. Its alumni and students are collectively referred to as "The Long Gray Line" and its ranks include two Presidents of the United States, numerous famous generals, and seventy-four Medal of Honor recipients.

History

Colonial period, founding, and early years

West Point was first occupied by the Continental Army on 27 January 1778, making it the longest continually occupied post in the United States. Between 1778 and 1780, Polish engineer and military hero Tadeusz Kościuszko oversaw the construction of the garrison defenses. The Great Chain and high ground above the narrow "S" curve in the Hudson River enabled the Continental Army to prevent British ships from sailing up river and dividing the Colonies. It was as commander of the fortifications at West Point that Benedict Arnold committed his infamous act of treason when he attempted to sell the fort to the British. The main fort at West Point had originally been named after Arnold, but was changed to Fort Clinton after Arnold's betrayal.

Congress formally authorized the establishment and funding of the United States Military Academy on 16 March 1802, though "cadets" had been undergoing training in artillery and engineering studies at the garrison since 1794. The first official graduate of the academy was Joseph Gardner Swift, who graduated in October 1802 and would later return as Superintendent from 1812 to 14. The early years of the academy were a tumultuous time, with few standards for admission or length of study. Cadets ranged in age from 10 to 37 and attended between 6 months to 6 years. The impending War of 1812 caused Congress to authorize a more formal system of education at the academy, and increased the size of the Corps of Cadets to 250.

In 1817, Colonel Sylvanus Thayer became the Superintendent and established the curriculum still in use to this day. Thayer instilled strict disciplinary standards, set a standard course of academic study, and emphasized honorable conduct. Known as the "Father of the Military Academy", he is honored with a monument on campus for the profound impact he left upon the academy's history. Founded to be a school of engineering, for the first half of the 19th century, USMA produced graduates who gained recognition for engineering the bulk of the nation's initial railway lines, bridges, harbors and roads. The academy was the only engineering school in the country until the founding of Rensselaer Polytechnic Institute in 1824. It was so successful in its
engineering curriculum that it significantly influenced every American engineering school founded prior to the Civil War.

The Mexican–American War brought the academy to prominence as graduates proved themselves in battle for the first time. Future Civil War commanders Ulysses S. Grant and Robert E. Lee first distinguished themselves in battle in Mexico. In all, 452 of 523 graduates who served in the war received battlefield promotions or awards for bravery. The school experienced a rapid modernization during the 1850s, often romanticized by the graduates who led both sides of the Civil War as the "end of the Old West Point era". New barracks brought better heat and gas lighting, while new ordnance and tactics training incorporated new rifle and musket technology and accommodated transportation advances created by the steam engine. With the outbreak of the Civil War, West Point graduates filled the general officer ranks of the rapidly expanding Union and Confederate armies. Two hundred ninety-four graduates served as general officers for the Union, and one hundred fifty-one served as general officers for the Confederacy. Of all living graduates at the time of the war, 105 (10%) were killed, and another 151 (15%) were wounded. Nearly every general officer of note from either army during the Civil War was a graduate of West Point and a West Point graduate commanded the forces of one or both sides in every one of the 60 major battles of the war.

**After the Civil War**

Immediately following the Civil War, the academy enjoyed unprecedented fame as a result of the role its graduates had played. However, the post-war years were a difficult time for the academy as it struggled to admit and reintegrate cadets from former confederate states. The first cadets from Southern states were re-admitted in 1868, and 1870 saw the admission of the first African-American cadet, James Webster Smith of South Carolina. Smith endured harsh treatment and was eventually dismissed for academic deficiency under controversial circumstances in 1874. As a result, Henry O. Flipper of Georgia became the first African-American graduate in 1877, graduating 50th in a class of 76. Two of the most notable graduates during this period were George Washington Goethals from the class of 1880, and John J. Pershing from the class of 1886. Goethals gained prominence as the chief engineer of the Panama Canal, and Pershing would become famous for his exploits against the famed Pancho Villa in Mexico and later for leading American Forces during World War I.

Besides the integration of southern-state and African-American cadets, the post-war academy also struggled with the issue of hazing. In its first 65 years, hazing was uncommon or non-existent beyond small pranks played upon the incoming freshmen, but took a harsher tone as Civil War veterans began to fill the incoming freshman classes. The upper class cadets saw it as their duty to "teach the plebes their manners". Hazing at the academy entered the national
spotlight with the death of former cadet Oscar Booz in 1901. Congressional hearings, which included testimony by Douglas MacArthur, investigated his death and the pattern of systemic hazing of freshmen. When MacArthur returned as superintendent, he made an effort to end the practice of hazing the incoming freshmen by placing Army Sergeants in charge of training new cadets during freshman summer. The practice of hazing continued on some levels well into the late 20th century, but is no longer allowed in the present day.

The demand for junior officers during the Spanish American War caused the class of 1899 to graduate early, and the Philippine-American War did the same for the class of 1901. This increased demand for officers led Congress to increase the size of the Corps of Cadets to 481 cadets in 1900. The period between 1900 and 1915 saw a construction boom as much of West Point's old infrastructure was rebuilt. Many of the academy's most famous graduates graduated during the 15-year period between 1900 and 1915: Douglas MacArthur (1903), Joseph Stilwell (1904), Henry "Hap" Arnold (1907), George S. Patton (1909), Dwight D. Eisenhower, and Omar Bradley (both 1915). The class of 1915 is known as "the class the stars fell on" for the exceptionally high percentage of general officers that rose from that class (59 of 164). With war raging in Europe, Congress anticipated potential American involvement and increased the authorized strength to 1,332 cadets in 1916. The outbreak of America's involvement in World War I caused a sharp increase in the demand for army officers, and the academy accelerated the graduation for all three of the upper classes to meet this requirement. By the war's end in 1918, only the freshman cadets remained (those who had entered in the summer of 1918).

Douglas MacArthur became superintendent in 1919, instituting sweeping reforms to the academic process, including introducing a greater emphasis on history and humanities. He made major changes to the field training regimen and the Cadet Honor Committee was formed under his watch in 1922. MacArthur was a firm supporter of athletics at the academy, as he famously said "Upon the fields of friendly strife are sown the seeds that, upon other fields, on other days, will bear the fruits of victory." West Point was first officially accredited in 1925, and in 1933 began granting bachelor of science degrees to all graduates. In 1935, the academy's authorized strength increased to 1,960 cadets.

**World War II and Cold War**

As World War II (WWII) engulfed Europe, Congress authorized an increase to 2,496 cadets in 1942, and began graduating classes early. The class of 1943 graduated six months early in January 1943, and the next four classes graduated after only three years. To accommodate this accelerated schedule, summer training was formally moved to a recently acquired piece of land.
southwest of main post. The site would later become Camp Buckner. West Point played a prominent role in WWII; four out of five of the five-star generals were alumni and nearly 500 graduates died. Immediately following the war in 1945, Maxwell Taylor (class of 1922) became superintendent. He expanded and modernized the academic program and abolished antiquated courses in fencing and horsemanship.

Unlike previous conflicts, the Korean War did not disrupt class graduation schedules. More than half of the army leadership during the war was composed of academy graduates. As a result, 157 alumni perished in the conflict. Garrison H. Davidson became superintendent in 1956 and instituted several reforms that included refining the admissions process, changing the core curriculum to include electives, and increasing the academic degree standards for academy instructors. The 1960s saw the size of the Corps expand to 4,400 cadets while the barracks and academic support structure grew proportionally. West Point was not immune to the social upheaval of American society during the Vietnam War. The first woman joined the faculty of the all-male institution amidst controversy in 1968. The Army granted its first honorable discharge to a West Point graduate who claimed conscientious objector status in 1971. The academy struggled to fill its incoming classes as its graduates led troops in Southeast Asia, where 273 graduates died.

**Modern era**

Following the 1973 Paris Peace Accords that ended American involvement in Vietnam, the strain and stigma of earlier social unrest dissolved and West Point enjoyed surging enrollments. West Point admitted its first 119 female cadets in 1976, after Congress authorized the admission of women to the federal service academies in 1975. Women currently comprise approximately 15% of entering new cadets. In 1989, Kristin Baker became the first female First Captain (an effigy of her is now on display in the Museum), the highest ranking senior cadet at the academy. Two other females have been appointed as First Captain: Grace H. Chung in 2004 and Stephanie Hightower in 2006. Rebecca Marier became the academy's first female valedictorian in 1995. The first female West Point graduate to attain flag (general officer) rank was Rebecca Halstead, class of 1981. Vincent Brooks became the first African-American First Captain in 1980.

In 1985, cadets were formally authorized to declare an academic major; all previous graduates had been awarded a general bachelor of science degree. Five years later there was a major revision of the "Fourth Class System", as the Cadet Leader Development System (CLDS) became the guidance for the development of all four classes.
The class of 1990 was the first one to be issued a standard and mandatory computer to every Cadet, the Zenith Data Systems 248. The academy was also an early adopter of the internet in the mid 1990s, and was recognized in 2006 as one of the nation's "most wired" campuses.

During the Gulf War, alumnus General Schwarzkopf was the commander of Allied Forces, and the current American senior generals in Iraq, Generals Petraeus and Odierno, and Afghanistan, General Stanley McChrystal and Lieutenant General David Rodriguez, are also alumni. Following the 11 September attacks, applications for admission to the academy increased dramatically, security on campus was increased, and the curriculum was revamped to include coursework on terrorism and military drills in civilian environments. Seventy-eight graduates have died during operations related to Operation Iraqi Freedom and the ongoing Global War on Terror. In December 2009, President Barack Obama delivered a major speech in Eisenhower Hall Theater outlining his policy for deploying 30,000 additional troops to Afghanistan as well as setting a timetable for withdrawal.

**Campus**

The academy is located approximately 50 miles (80 km) north of New York City on the western bank of the Hudson River. West Point, New York is incorporated as a federal military reservation in Orange County and is adjacent to Highland Falls. Based on the significance both of the Revolutionary War fort ruins and of the military academy itself, the majority of the academy area was declared a National Historic Landmark in 1960. In 1841, Charles Dickens visited the academy and said "It could not stand on more appropriate ground, and any ground more beautiful can hardly be." One of the most visited and scenic sites on post, Trophy Point, overlooks the Hudson river to the north, and is home to many captured cannon from past wars as well as the Stanford White-designed Battle Monument. Though the entire military reservation encompasses 15,974 acres (65 km²), the academic area of the campus, known as "central area" or "the cadet area", is entirely accessible to cadets or visitors by foot.

In 1902, the Boston architectural firm Cram, Goodhue, and Ferguson was awarded a major construction contract that set the predominantly neogothic architectural style still seen today. Most of the buildings of the central cadet area are in this style, as typified by the Cadet Chapel, completed in 1910. These buildings are nearly all constructed from granite that has a predominantly gray and black hue. The barracks that were built in the 1960s were designed to mimic this style. Other buildings on post, notably the oldest private residences for the faculty, are built in the Federal, Georgian, or English Tudor styles. A few buildings, such as Cullum Hall and the Old Cadet Chapel, are built in the Neoclassical style.
The academy grounds are home to numerous monuments and statues. The central cadet parade ground, the Plain, hosts the largest number, and includes the Washington Monument, Thayer Monument, Eisenhower Monument, MacArthur Monument, Kosciuszko Monument, and Sedgwick Monument. Patton Monument was first dedicated in front of the cadet library in 1950, but in 2004 it was placed in storage to make room for the construction of Jefferson Hall.

With the completion of Jefferson Hall, Patton's statue was relocated and unveiled at a temporary location on 15 May 2009, where it will remain until the completion of the renovation of the old cadet library and Bartlett Hall. There is also a statue commemorating brotherhood and friendship from the Ecole Polytechnique in the cadet central area just outside Nininger Hall. The remaining campus area is home to 27 other monuments and memorials.

The West Point Cemetery is the final resting place of many notable graduates and faculty, including George Armstrong Custer, Winfield Scott, William Westmoreland, Earl Blaik, Maggie Dixon, and sixteen Medal of Honor recipients. The cemetery is also the burial place of several recent graduates who have died during the ongoing conflict in Iraq and Afghanistan. Many of the older grave sites have large and ornate grave markers, the largest belonging to Egbert Viele (class of 1847), chief engineer of Brooklyn's Prospect Park. The cemetery is also home to a monument to Revolutionary War heroine Margaret Corbin.

The West Point Military Reservation contains one of three U.S. Treasury's gold mints.

**Athletic facilities**

West Point is home to historic athletic facilities like Michie Stadium and Gillis Field House as well as modern facilities such as the Lichtenburg Tennis Center, Anderson Rugby Complex, and the Lou Gross Gymnastics Facility. Michie Stadium recently underwent a significant upgrade in facilities for the football team, and the academy installed a new artificial turf field in the summer of 2008. The academy has its own golf course and ski slope, located on the northwest edge of the main campus, just outside of the Washington Gate.

**West Point Museum**

The visitor's center is just outside the Thayer Gate in the village of Highland Falls and offers the opportunity to arrange for a guided tour. These tours, which are the only way the general public can access the academy grounds, leave the visitor's center several times a day. The West Point Museum is directly adjacent to the visitor's center, in the renovated Olmsted Hall on the
grounds of the former Ladycliff College. Originally opened to the public in 1854, the West Point Museum is the oldest military museum in the country. During the summer months, the museum operates access to the Fort Putnam historic site on main post.

**Administration**

**Academy leadership**

The commanding officer at the USMA is the Superintendent. This position is roughly equivalent to the president of a civilian university, but due to his status as the commanding general of the academy, the Superintendent holds more influence over the daily lives of the cadets than would a civilian university president. Since 1812, all Superintendents have been West Point graduates, though this has never been an official prerequisite to hold that position. In recent years, the position of Superintendent has been held by a Lieutenant General. The current Superintendent, Lieutenant General Franklin L. Hagenbeck, took command on 9 June 2006. The academy is a direct reporting unit, and as such, the Superintendent reports directly to the Army Chief of Staff (CSA).

There are two other general officer positions at the academy. Brigadier General William E. Rapp is the Commandant of Cadets, and Brigadier General Patrick Finnegan is the Dean of the Academic Board. There are 13 academic departments at USMA, each with a colonel as the head of department. These 13 tenured colonels comprise the core of the Academic Board. These officers are titled "Professors USMA" or PUSMA. The academy is also overseen by the Board of Visitors (BOV). The BOV is a panel of Senators, Congressional Representatives, and presidential appointees who "shall inquire into the morale and discipline, curriculum, instruction, physical equipment, fiscal affairs, academic methods, and other matters relating to the academy that the board decides to consider". Currently the BOV is chaired by Senator Kay Bailey Hutchison and is composed of four Senators, five Congressmen, and six presidential appointees.

**Admission**

The admission process consists of two parts. Candidates must apply directly to USMA for admission, and they must obtain a nomination. The majority of candidates receive their nomination from their congressman. The nomination process is not political and applicants do not have to know their congressman to be nominated. The nomination process typically consists of writing essays, obtaining letters of recommendation, and a formal interview. Admission to West Point is selective: 12.75% of applicants were admitted (total of 1292) to the Class of 2012. Candidates must be between 17 and 23 years old, unmarried, and with no legal obligation to support a child. Above average high
school or previous college grades and strong performance on standardized testing is expected. The interquartile range on the SAT was 1100–1360 and 68% ranked in the top fifth of their high school class. To be eligible for appointment, candidates must also undergo a Candidate Fitness Assessment and a complete physical exam. About 15 candidates are admitted each year from foreign countries at the expense of the sponsoring nation. Candidates may have previous college experience, but they may not transfer, meaning that regardless of previous college credit, they enter the academy as a fourth class cadet and undergo the entire four-year program.

If a candidate is considered qualified but not selected, he may receive an offer to attend the United States Military Academy Preparatory School. Upon graduation from USMAPS, these candidates are appointed to the academy if they receive the recommendation of the USMAPS Commandant and meet medical admission requirements.

The West Point Association of Graduates (WPAOG) also offers scholarship support to people who do not initially make it into West Point. The scholarships usually cover around $7000 to civilian universities; the students who receive these scholarships do so under the stipulation that they will be admitted to and attend West Point a year later. Those who do not must repay the AOG. New Mexico Military Institute, Marion Military Institute, and Valley Forge Military College are three colleges that students often attend on the AOG scholarship prior to admission to West Point.

Curriculum

West Point is a medium-sized, highly residential baccalaureate college, with a full-time, four-year undergraduate program that emphasizes instruction in the arts, sciences, and professions with no graduate program. There are 45 academic majors and the most popular majors are in foreign languages, management information systems, history, economics, and mechanical engineering. West Point is accredited by the Middle States Commission on Higher Education. Military officers compose 75% of the faculty, while civilian professors make up the remaining 25% of faculty positions.

A cadet's class rank, which determines his army branch and assignment upon graduation, is calculated as a combination of academic performance (55%), military leadership performance (30%), and physical fitness and athletic performance (15%). The 2008 Forbes magazine report on America's Best Colleges ranks West Point #6 nationally and #1 among public institutions. The 2008 National Liberal Arts College category in U.S. News & World Report ranks West Point #14 among liberal arts colleges, and #1 among public institutions. In 2009, West Point was named the best college in America by Forbes Magazine.
Academics

The academy's teaching style forms part of the Thayer system, which was implemented by Sylvanus Thayer during his tour as Superintendent. This form of instruction emphasizes small classes with daily homework, and strives to make students actively responsible for their own learning by completing homework assignments prior to class and bringing the work to class to discuss collaboratively.

The academic program consists of a structured core of 31 courses balanced between the arts and sciences. Although cadets choose their majors in the fall of their sophomore year, they take the same course of instruction until the beginning of their junior year. This core course of instruction consists of mathematics, computer science, chemistry, physics, engineering, history, physical geography, philosophy, leadership and general psychology, English composition and literature, foreign language, political science, international relations, economics, and constitutional law. Some advanced cadets may "validate" out of the base-level classes and take advanced or accelerated courses earlier as freshmen or sophomores. Regardless of major, all cadets graduate with a Bachelor of Science degree.

Military

All cadets receive commissioning as Second Lieutenants in the U.S. Army upon graduation, so military and leadership education is nested with academic instruction. Military training and discipline fall under purview of the Office of the Commandant. Entering freshmen, or fourth class cadets, are referred to as New Cadets, and enter the academy on Reception Day or R-day, which marks the start of cadet basic training (CBT), known colloquially as Beast Barracks, or simply Beast. Most cadets consider Beast to be their most difficult time at the academy because of the strenuous transition from civilian to military life. Their second summer, cadets undergo cadet field training (CFT) at nearby Camp Buckner, where they train more advanced field craft and military skills. During a cadet's third summer, they may serve as instructors for CBT or CFT. Rising Firstie (senior) cadets now also spend one month training at Camp Buckner, where they train for modern tactical situations that they will soon face as new platoon leaders. Cadets also have the opportunity during their second, third and fourth summers to serve in active army units and military schools around the world.

Active duty officers in the rank of captain or major serve as company TAC Officers (Teach Assess Counsel). The role of the TAC is to mentor, train, and teach the cadets proper standards of good order and discipline and to be good role models for the cadets. There is one TAC for every cadet company. There
is also one senior Non-Commissioned Officer to assist each TAC, known as TAC-NCOs.

The Department of Military Instruction (DMI) is responsible for all military arts and sciences education as well as planning and executing the cadet summer training. Within DMI there is a representative from each of the Army's branches. These "branch reps" serve as proponents for their respective branches and liaise with cadets as they prepare for branch selection and graduation.

**Physical**

The Department of Physical Education (DPE) administers the physical program, which includes both physical education classes, physical fitness testing, and competitive athletics. The head of DPE holds the title of Master of the Sword, dating to the 1800s when DPE taught swordsmanship as part of the curriculum.

All cadets take a prescribed series of physical fitness courses. All cadets take military movement (applied gymnastics), boxing (men) or self defense (women), swimming, and beginning in 2009, advanced combatives. Cadets can also take elective physical activity classes such as scuba, rock climbing, and aerobic fitness.

As with all soldiers in the Army, cadets also must pass the Army Physical Fitness Test twice per year. Additionally, during their junior year, cadets must pass the Indoor Obstacle Course Test (IOCT), which DPE has administered in Hayes Gymnasium since 1944.

Since Douglas MacArthur's tenure as superintendent, every cadet has been required to participate in either an intercollegiate sport, a club sport, or an intramural (referred to as "company athletics") sport each semester.

**Moral and ethical training**

Moral-ethical development occurs throughout the entirety of the cadet experience by living under the honor code and through formal leadership programs available at the academy. These include instruction in the values of the military profession through Professional Military Ethics Education (PME$^2$), voluntary religious programs, interaction with staff and faculty role models, and an extensive guest-speaker program. The foundation of the ethical code at West Point is found in the academy's motto, "Duty, Honor, Country".
West Point's Cadet Honor Code reads simply that: "A cadet will not lie, cheat, or steal, or tolerate those who do." Cadets accused of violating the Honor Code face an investigative and hearing process. If they are found guilty by a jury of their peers, they face severe consequences ranging from being "turned back" (repeating an academic year) to separation from the academy. Cadets previously enforced an unofficial sanction known as "silencing" by not speaking to cadets accused of violating the honor code, but the practice ended in 1973 after national scrutiny.

Throughout the four years at the academy, Cadets take PME$^2$ classes. These classes start during Cadet Basic Training and run the entire breadth of their time at the academy. As the cadets mature in rank and experience, they transform from receivers of information to facilitators and teachers of PME$^2$ topics. The Simon Center for the Professional Military Ethic, located in Ninenger Hall in central area, is the coordinator for most PME$^2$ training in conjunction with the cadet TAC officers.

**Cadet life**

**Rank and organization**

Cadets are not referred to as freshmen, sophomores, juniors, or seniors. Instead they are officially called fourth class, third class, second class, and first class cadets. Colloquially, freshmen are plebes, sophomores are yearlings or yuks, juniors are cows, and seniors are firsties. Some of the origins of the class names are known, some are not. Plebeians were the lower class of ancient Roman society, while yearling is a euphemism for a year-old animal. The origin of cow is less known. There are a number of theories for the origin of the term cow, however the most prevalent and probably accurate one is that cadets in years past had no leave until the end of their yearling year, when they were granted a summer long furlough. Their return as second classmen was heralded as *The cows coming home*. Firstie is short for first class cadet.

The Corps of Cadets is officially organized into a brigade. The senior ranking cadet, the Brigade Commander, is known traditionally as the *First Captain*. The brigade is organized into four regiments. Within each regiment there are two battalions, which consists of four companies. Companies are lettered A through H, with a number signifying which regiment it belongs to. For example, there are four "A" companies: A1, A2, A3, and A4. First class cadets hold the leadership positions within the brigade from the First Captain down to platoon leaders within the companies. Leadership responsibility decreases with the lower classes, with second class cadets holding the rank of cadet sergeant,
third class cadets holding the rank of cadet corporal, and fourth class cadets as cadet privates.

**Life in the corps**

Because of the academy's congressional nomination process, students come from all 50 states. The academy is also authorized up to 60 allied nation exchange cadets, who undergo the same four-year curriculum as fully integrated members of the Corps of Cadets. Cadets attend the United States Military Academy free of charge, with all tuition and board paid for by the Army in return for a service commitment of five years of active duty and three years of reserve status upon graduation. In addition to a small salary, Cadets receive meals in the dining halls, and internet and phone in their barracks. The student population was 4,487 cadets for the 2007-2008 academic year. The student body is 15.1% female. 92% of entering students re-matriculated for a second year; the four-year graduation rate was 80% and the six-year rate was 81%.

All cadets reside on campus for their entire four years in one of the seven barracks buildings. Most cadets are housed with one roommate, but some rooms are designed for three cadets. Cadets are grouped into "companies", which have alpha-numeric codes to identify them. All companies live together in the same barracks area. The academy has the cadets change companies after their freshmen or sophomore years. This process is known as scrambling, and the method of scrambling has changed several times in recent years. All 4,000 cadets dine together at breakfast and lunch in the Washington Hall during the weekdays. The cadet fitness center, Arvin Gymnasium, which was recently rebuilt in 2004, houses extensive physical fitness facilities and equipment for student use.

Each class of cadets elects representatives to serve as class president and fill several administrative positions. They also elect a ring and crest committee, which designs the class's crest, the emblem that signifies their class and it is embossed upon their class rings. Each class crest is required to contain the initials *USMA* and their class motto. The class motto is proposed by the class during cadet basic training and voted on by the class prior to the beginning of their freshman academic year. Class mottos typically have verbiage that rhymes or is phonetically similar with their class year.

Cadets today live and work within the framework of the CLDS, which specifies the roles that a cadet plays throughout their four years at the academy. Cadets begin their USMA careers as trainees (new cadets), then advance in rank, starting as CDT Privates (freshmen) and culminating as CDT Officers (seniors). Freshmen have no leadership responsibilities, but have a
host of duties to perform as they learn how to follow orders and operate in an environment of rigid rank structure, while seniors have significant leadership responsibilities and significantly more privileges that correspond to their rank.

Activities

Cadets have a host of extra curricular activities available, most run by the office of the Directorate of Cadet Activities (DCA). DCA sponsors or operates 113 athletic and non-sport clubs. Many cadets join several clubs during their time at the academy and find their time spent with their clubs a welcome respite from the rigors of cadet life. DCA is responsible for a wide range of activities that provide improved quality of life for cadets, including: three cadet-oriented restaurants, the Cadet Store, and the Howitzer and Bugle Notes. The Howitzer is the annual yearbook, while Bugle Notes, also known as the "plebe bible", is the manual of plebe knowledge. Plebe knowledge is a lengthy collection of traditions, songs, poems, anecdotes, and facts about the academy, the army, the Old Corps, and the rivalry with Navy that all plebes must memorize during cadet basic training. During plebe year, plebes may be asked, and are expected to answer, any inquiry about plebe knowledge asked by upper class cadets. Other knowledge is historical in nature, including information as found in Bugle Notes. However, some knowledge changes daily, such as "the days" (a running list of the number of days until important academy events), the menu in the mess hall for the day, or the lead stories in The New York Times.

Each cadet class celebrates at least one special "class weekend" per academic year. Fourth class cadets participate in Plebe Parent Weekend during the first weekend of spring break. In February, third class cadets celebrate the winter season with Yearling Winter Weekend. In late January the second class cadets celebrate 500th Night, marking the remaining 500 days before graduation. First class cadets celebrate three different formal occasions. In late August, first class cadets celebrate Ring Weekend, in February they mark their last 100 days with 100th Night, and in May they have a full week of events culminating in their graduation. All of the "class weekends" involve a formal dinner and social dance, known in old cadet slang as a "hop", held at Eisenhower Hall.

Athletics

Since 1899, Army's mascot has officially been a mule because the animal symbolizes strength and perseverance. The academy's football team was nicknamed "The Black Knights of the Hudson" due to the black color of its uniforms. This nickname has since been officially shortened to "Black Knights". U.S. sports media use "Army" as a synonym for the academy. "On Brave Old Army Team" is the school's fight song. Army's chief sports rival is the Naval Academy due to its long-standing football rivalry and the intra-service rivalry with the Navy in general. Fourth class cadets verbally greet
upper-class cadets and faculty with "Beat Navy", while the tunnel that runs under Washington Road is named the "Beat Navy" tunnel. In the first half of the 20th century, Army and Notre Dame were football rivals, but that rivalry has since died out.

**Football**

Army football began in 1890, when Navy challenged the cadets to a game of the relatively new sport. Navy defeated Army at West Point that year, but Army avenged the loss in Annapolis the following year. The academies still clash every December in what is traditionally the last regular-season Division I college-football game. The 2009 football season marked Army's eighth consecutive loss to Navy. Army's football team reached its pinnacle of success under coach Earl Blaik when Army won consecutive national championships in 1944 and 1945, and produced three Heisman trophy winners: Doc Blanchard (1945), Glenn Davis (1946) and Pete Dawkins (1958). Past NFL coaches Vince Lombardi and Bill Parcells were Army assistant coaches early in their careers. The football team plays its home games at Michie Stadium, where the playing field is named after Earl Blaik. Cadets' attendance is mandatory at football games and the Corps stands for the duration of the game. At all home games, one of the four regiments marches onto the field in formation before the team takes the field and leads the crowd in traditional Army cheers. Between the 1998 and 2004 seasons, Army's football program was a member of Conference USA, but has since reverted to its former independent status. West Point competes with Navy and Air Force for the Commander-in-Chief's Trophy.

**Other sports**

Though football may receive a lot of media attention due to its annual rivalry game, West Point has a long history of athletics in other NCAA sports. Army is a member of the Division I Patriot League in most sports, while its men's ice hockey program competes in Atlantic Hockey. Every year, Army faces the Royal Military College of Canada (RMC) Paladins in the annual West Point Weekend hockey game. This series, conceived in 1923, is the longest running annual international sporting event in the world, and was featured on a $100 commemorative gold Canadian coin in 2006.

The men's lacrosse team has won eight national championships and appeared in the NCAA tournament sixteen times. In its early years, lacrosse was used by football players, like the "Lonesome End" Bill Carpenter, to stay in shape during the off-season. The 2005–06 women's basketball team went 20–11 and won the Patriot League tournament. They went to the 2006 NCAA Women's Division I Basketball Tournament as a 15th-ranked seed, where they lost to Tennessee, 102–54. It was the first March Madness tournament appearance for any Army basketball team. The head coach of that team, Maggie Dixon, died.
soon after the season at only 28 years of age. Bob Knight, the winningest men's basketball coach in NCAA history, began his head coaching career at Army in the late 1960s before moving on to Indiana and Texas Tech. One of Knight's players at Army was Mike Krzyzewski, who later was head coach at Army before moving on to Duke, where he has won four national championships.

Approximately 15% of cadets are members of a club sport team. West Point fields a total of 24 club sports teams and in the last two years, academy club teams have won six national championships. So far in 2009, Army was won the national titles in Judo, Boxing, Orienteering, and Pistol. In 2008, West Point club sport teams won national championships in boxing, orienteering, men's team handball, and women's pistol, while in 2007, West Point captured national titles in cycling and women's team handball.

The majority of the student body, about 65%, competes in intramural sports, known at the academy as "company athletics". DPE's Competitive Sports committee runs the club and company athletics sports programs and was recently named one of the "15 Most Influential Sports Education Teams in America" by the Institute for International Sport. The fall season sees competition in basketball, biathlon, full-contact football, soccer, ultimate disc, and wrestling; while the spring season sees competition in combative grappling, floor hockey, orienteering, rugby, and swimming. In the spring, each company also fields a team entry into the annual Sandhurst Competition, a military skills event conducted by the Department of Military Instruction.

**Traditions**

Due to West Point's age and its uniquely singular mission of producing Army officers, it has many time-honored traditions. The list below are some of the traditions unique to or started by the academy.

**Cullum number**

The Cullum number is a reference and identification number assigned to each graduate. It was created by brevet Major General George W. Cullum (USMA Class of 1833) who, in 1850, began the monumental work of chronicling the biographies of every graduate. He assigned number one to the first West Point graduate, Joseph Gardner Swift, and then numbered all successive graduates in sequence. Before his death in 1892, General Cullum completed the first three volumes of a work that eventually comprised 10 volumes, entitled *General Cullum’s Biographical Register of the Officers and Graduates of the United States Military Academy, and covering USMA classes from 1802 through 1850*. From 1802 through the Class of 1977, graduates were listed by general order of Merit. Beginning with the Class of 1978, graduates were listed alphabetically, and then by date of graduation. Seven graduates have an "A"
suffix after their Cullum Number. For various reasons these graduates were omitted from the original class roster, and a suffix letter was added to avoid renumbering the entire class and subsequent classes.

**Class ring**

West Point began the collegiate tradition of the class ring, beginning with the class of 1835. The class of 1836 chose no rings, and the class of 1879 had cuff links in lieu of a class ring. Before 1917, cadets could design much of the ring individually, but now only the center stone can be individualized. One side of the ring bears the academy crest, while the other side bears the class crest and the center stone ring bears the words _West Point_ and the class year. The academy library has a large collection of cadet rings on display. Senior cadets receive their rings during Ring Weekend in the early fall of their senior year. Immediately after senior cadets return to the barracks after receiving their rings, fourth class cadets take the opportunity to surround senior cadets from their company and ask to touch their rings. After reciting a poem known to cadets as the "Ring Poop", the senior usually grants the freshmen permission to touch the ring.

**Thayer Award**

West Point is home to the Sylvanus Thayer Award. Given annually by the academy since 1958, the award honors an outstanding citizen whose service and accomplishments in the national interest exemplify the academy's motto, "Duty, Honor, Country". Currently, the award guidelines state that the recipient not be a graduate of the academy. The award has been awarded to many notable American citizens, to include George H. W. Bush, Colin Powell, Tom Brokaw, Sandra Day O'Connor, Henry Kissinger, Ronald Reagan, Barry Goldwater, Carl Vinson, Douglas MacArthur, Barbara Jordan, William J. Perry, and Bob Hope.

**Sedgwick's spurs**

A monument to Union general John Sedgwick stands on the outskirts of the Plain. Sedgwick's bronze statue has spurs with rowels that freely rotate. Cadet legend states that if a cadet is in danger of failing a class, they are to don their full-dress parade uniform the night before the final exam. If the cadet visits the statue and spins the rowels at the stroke of midnight, the cadet will pass the exam and the course. Although being out of their rooms after midnight is officially against regulations, violations have been known to be overlooked for the sake of tradition.

**Goat-Engineer game**

As part of the run-up to the Navy football game, the Corps of Cadets plays the
Goat-Engineer game. First played in 1907, it is a game between the "Goats" (the bottom half of the senior (Firstie) class academically), and the "Engineers" (the top half). The game is played with full pads and helmets using eight-man football rules. The location has changed over the years, with recent venues being Shea Stadium, Michie Stadium, and Daly Field. Legend states that Army will beat Navy if the goats win, and the opposite if the engineers win. In recent years, female cadets have begun playing a flag football contest, so there are now two Goat-Engineer games, played back to back the same night.

**Walking the area**

From the earliest days of the academy, one form of punishment for cadets who commit regulatory infractions has been a process officially known as *punishment tours*. This process is better known to the cadets as "walking the area" or "hours" because as punishment, cadets must walk a specified number of hours in retribution. Cadets are "awarded" punishment tours based upon the severity of the infraction. Being late to class or having an unkempt room may result in as little as 5 hours while more severe misconduct infractions may result in upwards of 60 to 80 hours. In its most traditional form, punishment tours are "walked off" by wearing the dress gray uniform under arms and walking back and forth in a designated area of the cadet barracks courtyard, known as "the area". Cadets who get into trouble frequently and spend many weekends "walking off their hours" are known as "area birds". Cadets who walk more than 100 total hours in their career are affectionately known as "Century Men". An alternate form of punishment to walking hours is known as "fatigue tours", where assigned hours may be "worked off" by manual labor such as cleaning the barracks. Certain cadets whose academics are deficient may also conduct "sitting tours", where they have to "sit hours" in a designated academic room in a controlled study environment, for which they receive half credit towards their reduction of tours. Cadets' uniforms are inspected before their tours begin each day. A small number of cadets may be relieved of their tours that day if their uniforms are exceptionally presentable. Another tradition associated with punishment tours is that any visiting head of state has the authority to grant "amnesty", releasing all cadets with outstanding hours from the remainder of their assigned tours.

**Notable alumni**

An unofficial motto of the academy's history department is "Much of the history we teach was made by people we taught." Graduates of the academy refer to themselves as the "The Long Gray Line", a phrase taken from the academy's traditional hymn "The Corps". The academy has produced just under 65,000 alumni, including two Presidents of the United States: Ulysses S. Grant and Dwight D. Eisenhower; the president of the Confederate States of America, Jefferson Davis; and three foreign heads of state: Anastasio Somoza Debayle of Nicaragua, Fidel V. Ramos of the Philippines, and José María...
Figueres of Costa Rica. Alumni currently serving in public office include Senator Jack Reed, Governor of Nebraska David Heineman, and Congressmen Geoff Davis, Brett Guthrie, and John Shimkus.

The academy has produced many notable generals during its 207 years. During the Civil War, graduates included Hood, Jackson, Lee, Longstreet, Meade, Sheridan, Sherman, and Stuart. George Armstrong Custer graduated last in his class of 1861. During World War I, the academy produced General of the Armies John J. Pershing. During World War II, West Point was the alma mater of Arnold, Bradley, Clark, Eichelberger, Gavin, Groves, MacArthur, Patton, Stillwell, Taylor, Van Fleet, and Wainwright, with many of these graduates also serving in commanding roles in the Korean War. During the Vietnam War, notable graduates general officers included Abrams, Moore, and Westmoreland. West Point also produced some famous generals and statesmen of recent note including Abizaid, Clark, Haig, McCaffrey, Schwarzkopf, and Scowcroft. The commander of United States Forces - Iraq, General Raymond T. Odierno and commander U.S. Forces Afghanistan, General David Petraeus are graduates. A total of 74 graduates have been awarded the Medal of Honor.

West Point has produced 18 NASA astronauts. Other noted alumni include Jim Kimsey, founder of AOL; Bob McDonald, CEO of Procter & Gamble; Alden Partridge, founder of Norwich University; and Oliver O. Howard, founder of Howard University. West Point's contributions to sport include three Heisman Trophy winners: Glenn Davis, Doc Blanchard, and Pete Dawkins.

Among American universities, the academy is fourth on the list of total winners for Rhodes Scholarships, seventh for Marshall Scholarships and fourth on the list of Hertz Fellowships. The official alumni association of West Point is the West Point Association of Graduates (WPAOG or AOG), headquartered at Herbert Hall.

Source: http://en.wikipedia.org/wiki/United_States_Military_Academy

The United States Army Airborne School — widely known as Jump School — conducts the basic paratrooper (military parachutist) training for the United States armed forces. It is operated by the 1st Battalion (Airborne), 507th Infantry, United States Army Infantry School, Fort Benning, Georgia. The Airborne School conducts the Basic Airborne Course, which is open to soldiers of both genders from all branches of the US Army, its sister services, and allied military personnel.

The purpose of the Basic Airborne Course is to qualify the volunteer (all students volunteer for this school) in the use of the parachute as a means of
combat deployment and to develop leadership, self-confidence, and an aggressive spirit through mental and physical conditioning.

The course is three weeks long and consists of "Ground Week", "Tower Week" and "Jump Week". Rigorous physical training (PT) is emphasized throughout the entire course. The initial entry PT test consists of the standard Army Physical Fitness Test (APFT). All age groups must pass this test using the 17-21 age group standards. The pullup requirement was lifted in October 2006.

**Curriculum**

**Ground Week**

During Ground Week, students begin an intensive program of instruction to build individual airborne skills, which prepare them to make a parachute jump, and land safely. They train on the mock door, practice parachute landing falls (PLF), exit the 34-foot (10 m) tower, and train on the lateral drift apparatus (LDA). To go forward to Tower Training Week, students must individually qualify on the 34-foot (10 m) tower, the LDA, successfully complete all PLFs, and pass all PT requirements.

**Tower Week**

A team effort is added to the training with the "mass exit" concept. The apparati used this week are the 34-foot (10 m) towers, the swing landing trainer (SLT), the mock door for mass exit training, the suspended harness,

**Jump Week**

During Jump Week students make five parachute jumps into Fryar Drop Zone (DZ) located in Alabama, which is part of the Fort Benning Military Reservation. Trainees must run to the air field, conduct pre-jump training, and then get into their harnesses and await their turn to jump. Generally, two of the jumps are "combat equipment jumps", in which the jumper carries a ruck sack and a dummy weapon. The other three jumps are "hollywood", in that the jumper only wears the parachute and reserve. At least one jump is required to be at night, although weather and other factors, such as holidays, may result in all five jumps being hollywood day jumps.
Personnel

Instructors

The Airborne School instructors are commonly referred to as "Black Hats", due to the black baseball cap with their dress uniform rank insignia and parachutist badge that is the distinguishing part of their uniform. However, all students within the school are required to call them "Sergeant Airborne" (or Petty Officer Airborne in case of a Navy instructor). Unusual for an Army school, instructors may come from the United States Army, Marine Corps, Navy or Air Force. The reasoning behind this is because students from all four main branches of the military are able to attend, so each branch insists that they have at least one representative to ensure quality instruction. They train students in the use of static line deployed parachutes.

The battalion is organized into six companies: Headquarters and Headquarters Company (HHC) for administrative actions and command and control; four Line Companies (A, B, C, and D) execute the Basic Airborne Course Program of Instruction (POI) and Company (E) provides parachute rigger support.

Students

The vast majority of students at Airborne School come from the U.S. Army. These include soldiers on assignment to the 82nd Airborne Division, XVIII Airborne Corps, 4th BCT 25th Infantry Division, 173rd Airborne BCT, 75th Ranger Regiment, or the Special Forces Qualification Course. Recent BUD/S (U.S. Navy Seals) graduates also attend the school in order to be jump qualified. Summer classes are frequently made up of substantial numbers of cadets from ROTC and West Point. Excess seats go to other personnel at Fort Benning on assignment to Officer Candidate School or the Basic Officer Leaders Course. The United States Parachutist Badge (commonly referred to as "Jump Wings") is awarded to U.S. Armed Forces personnel upon completion of Airborne School regardless of branch or MOS.

Upon arrival, students are given roster numbers which must be put on their equipment. Since military rank is not taken away during training, enlisted cadets, NCOs, and officers are distinguished by a plain number, C, N, or A placed in front of their roster number, respectively.

Traditions

Keeper of the Wings

During the first day of jump school the Black Hats discover who the youngest
student in the class is. They give him a brand new set of jump wings. These are the standard Army issue type, not the shiny ones. This student is now officially the "Keeper of the Wings". Every first morning formation the Company 1SG will call the Keeper of the Wings to the front of the formation to inspect the jump wings. The Keeper of the Wings is required to highly shine these wings. The 1SG is never satisfied with the condition of the wings and the entire class suffers by having to do more push-ups. This normally goes on throughout the entire course. Of course each Company 1SG handles this tradition a little differently.

**Blood Wings**

Was a tradition of pinning the student's jump wings on through the uniform and directly into the chest causing very minor discomfort. In the old days this was done right on the Drop Zone after completing the fifth and final qualifying jump. Blood Wings have been banned and is now against Army regulations, since the 1980s. Students cannot even request it at jump school, but Army traditions die hard, thus paratroopers have taken to doing it in private so no one gets offended.

Parachutist Badge

Source: [http://en.wikipedia.org/wiki/United_States_Army_Airborne_School](http://en.wikipedia.org/wiki/United_States_Army_Airborne_School)

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**Ranger School**

The United States Army **Ranger School** is an extremely intense, 61+ days, combat leadership course, oriented to small-unit tactics at Fort Benning, Georgia, U.S.A., (the woodland terrain, 'Benning Phase'), at Camp Rogers and Camp Darby, Georgia; 'the Mountain Phase' at Camp Merrill, near Dahlonega, Georgia and the Florida Phase at Camp Rudder, Eglin Air Force Base, Florida. The Desert Phase, conducted first at Dugway Proving Ground, Utah and later at Fort Bliss, Texas was eliminated in 1995. The last Ranger School class to go through the Desert Phase was class 7-95.

The United States Army Ranger School is not organizationally affiliated with the 75th Ranger Regiment. Ranger School falls under control of the United States Army Training and Doctrine Command (TRADOC) as a school open to most male members of the United States Army. The 75th Ranger Regiment is a Special Operations war fighting unit organized under the United States Army Special Operations Command. The two share a common heritage and subordinate battalions common lineage, otherwise the two are not connected.
Both units are headquartered at Fort Benning, GA, another reason the difference is often confused.

Ranger School was formed in 1950, during the Korean War, in order to train soldiers in Ranger tactics. Ranger training at Fort Benning, Georgia began in September 1950 during the Korean war with the formation and training of 17 Airborne Ranger companies by the Ranger Training Command. In October 1951 the Commandant of the US Army Infantry School established the Ranger Department and extended Ranger training to all combat units in the Army. The first Ranger Class for individual candidates graduated on 1 March 1952. On 1 November 1987, the Ranger Department expanded into the Ranger Training Brigade, and established four Ranger Training Battalions.

Ranger School is recognized as the Army's premier leadership course and it is impossible to attain a leadership position in the 75th Ranger Regiment without it.

The purpose of the course is learning to soldier as a combat leader while enduring the great mental and psychological stresses and physical fatigue of combat; the Ranger Instructors (RI) create and cultivate such a physical and mental environment. Field craft instruction comprises most of the coursework; students plan and execute daily patrolling, perform reconnaissance, ambushes, and raids against dispersed targets, followed by stealthy movement to a new patrol base to plan the next mission. Ranger students conduct about 20 hours of training per day, while consuming two or fewer meals daily totaling about 2,200 Calories (9,200 kJ), with an average of 3.5 hours of sleep a day. Students sleep more before a parachute jump for safety considerations. Ranger students typically wear and carry some 65–90 pounds (29–41 kg) of weapons, equipment, and training ammunition while patrolling more than 200 miles (320 km) throughout the course.

Ranger Tab

Source: http://en.wikipedia.org/wiki/Ranger_School

| Tiger Land | This is a part of Fort Polk in Louisiana where infantry training occurred. |
| U.S. Infantry School | The United States Army Infantry School is in Fort Benning, Georgia. It is the headquarters for infantry training in the U.S. Army. |
For new recruits specializing in infantry, the ITB conducts sixteen weeks of One Station Unit Training (OSUT) consisting of both Basic Combat Training (BCT) and Advanced Individual Training (AIT). The mission of the Infantry Training Brigade is to transform civilians into disciplined infantrymen that possess the Army Values, fundamental soldier skills, physical fitness, character, confidence, commitment, and the Warrior Ethos to become adaptive and flexible infantrymen ready to accomplish the mission of the Infantry.

Other training opportunities at Fort Benning include the following:

- **199th Light Infantry Brigade (Reflagged from 11th Infantry Regiment)**
  - HHC, 199th Bde
    - Maneuver Captains Career Course
    - International Student Training Detachment
  - 1st Battalion, 507th Parachute Infantry Regiment
    - Basic Airborne School
    - Jumpmaster School
    - Pathfinder School
    - Silver Wings (A parachute performance team)
  - 1st Battalion, 11th Infantry (Basic Officer Leader Course II (BOLC II))
  - 2nd Battalion, 11th Infantry (Infantry Basic Officer Leader Course (IBOLC))
  - 3rd Battalion, 11th Infantry (Officer Candidate School) (OCS)

- **Ranger Training Brigade**
  - 4th Ranger Training Battalion (Camp Rogers, Camp Darby)
  - 5th Ranger Training Battalion (Camp Frank D. Merrill Sub Post, Dahlonega, Georgia)
  - 6th Ranger Training Battalion (Camp James E. Rudder, Auxiliary Field 6, Eglin Air Force Base, Florida)

- **Non-Commissioned Officers Academy**
  - Advanced Noncommissioned Officer Course (ANCOC)
  - Basic Noncommissioned Officer Course (BNCOC)
  - Warrior Leader Course (WLC)
  - Drill Sergeant School

- **Combined Arms and Tactics Directorate (CATD)**

- **Directorate of Operations and Training/G-3**
  - Training Support Center

- **Office of Infantry Proponenty (OIP) "Warrior Ethos" program that was launched in 2003 by the United States Army.**

Infantry officers who have completed commissioning and the Basic Officer Leadership Course then attend the Infantry Officer Basic Leadership Course in 2nd battalion. This is a course of instruction, as the name implies, in basic infantry skills, including marksmanship, machine gunnery, tactics, and
planning.

The brigade also conducts specialized training for soldiers in Basic Airborne, Pathfinder, and Jumpmaster courses.

U.S. Infantry School Patch

Source: http://en.wikipedia.org/wiki/United_States_Army_Infantry_School

Continued…

See Transportation below.
TRANSPORTATION

APC

The M-113 **armoured personnel carrier (APC)** is an armoured fighting vehicle designed to transport infantry to the battlefield.

APCs are usually armed with only a machine gun although variants carry recoilless rifles, anti-tank guided missiles (ATGMs), or mortars. They are not usually designed to take part in a direct-fire battle, but to carry troops to the battlefield safe from shrapnel and ambush. They may have wheels or tracks.

Although the M113 was designed as an APC, it was among the first to be used in battle in the early 1960s when South Vietnam ARVN troops fought while mounted against infantry which sometimes lacked effective antitank weapons. After the Battle of Ap Bac showed that the exposed machine gun was vulnerable to enemy fire, they were fitted with the ACAV armour kit which protected the main machine gun and added shields for two additional gunners.

The M113 served in Vietnam as one of the most effective and widely used armoured vehicles of that war, and remains in service today as a lighter and less expensive alternative to purpose-built IFVs.

Most armoured personnel carriers use a diesel engine comparable to that used in a large truck or in a typical city bus (APCs are often known to troops as 'Battle Taxis' or 'Battle Buses'). The M113 for instance used the same engine as the standard General Motors urban bus.

Many APCs are amphibious. Usually tracked APCs are powered by their tracks in the water, and wheeled APCs have propellors or water jets. Preparations for amphibious operations usually comprises checking the integrity of the hull and folding down a trim vane in front. Swimming required fairly still waters, and good entry and exit points. Speed in water is typically 3–6 km/h.

Armour on APCs are usually composed of simple steel or aluminium, sufficient for protection against small fire arms and most shell fragments. Just about any type of anti-tank weapon can defeat the armour of an APC as well as heavy machine guns.

The usual armament for an APC is a 12.7 (.50") or 14.5 mm heavy machine gun. This is mounted on top of the vehicle, either on a simple pintle mount, sometimes with a gun shield, or a small turret. Sometimes an automatic grenade launcher is used instead.
The C-123 Provider was an American military transport aircraft designed by Chase Aircraft and subsequently built by Fairchild Aircraft for the United States Air Force. In addition to its USAF service, which included later service with the Air Force Reserve and Air National Guard, it also went on to serve most notably with the United States Coast Guard and various air forces in South East Asia.

Design and development

The C-123 Provider was designed originally as an assault glider aircraft for the United States Air Force (USAF) by Chase Aircraft as the XCG-20 (Chase designation MS-8 Avitruc. Two powered variants of the XCG-20 were developed during the early 1950s, as the XC-123 and XC-123A. The only difference between the two was the engine. The XC-123 used two Pratt & Whitney R-2800-CB-15 air-cooled radial piston engines, while the XC-123A used two General Electric J47-GE-11 turbojets, the same as those on the Boeing B-47 Stratojet. It was initially well regarded for tactical troop transport for its ruggedness and reliability and ability to operate from short and unimproved airstrips, which meant the low slung turbojets, prone to ingesting foreign objects, were dropped in favor of the more conventional option. The XC-123A had its engines replaced with R-2800s and was redesignated YC-123D.

By 1953, Henry J. Kaiser purchased a majority share in Chase Aircraft, feeling that after having completed C-119s for Fairchild under contract, he could take control of the impending C-123 contract. Two airframes were completed at Kaiser's Willow Run factory in Ypsilanti, Michigan, before personal politics led to Kaiser's being told that no further contracts with him would be honored. The C-123 contract was put up for bid, and the two completed airframes scrapped. The contract was finally awarded to Fairchild Engine and Airplane, who assumed production of the former Chase C-123B, a refined version of the XC-123.
Operational history

The first recipients of C-123 aircraft would be USAF transport units, soon followed by the United States Coast Guard (USCG) who used the aircraft for search and rescue missions, and even the US Air Force Demonstration Team, the “Thunderbirds,” would use C-123s for a time. The type would also be widely exported under various US military assistance programs, directly from USAF stocks.

The aircraft was nearly ignored by the USAF for service in Vietnam, but a political rivalry with the US Army and the Army's use of the CV-2 Caribou and later pre-production order for the C-8 Buffalo, led to a decision to deploy C-123s there. To compete with the well-performing CV-2, the USAF and Fairchild furthered development on the C-123 to allow it to do similar work on short runways. This additional development increased the utility of the aircraft and its variants to allow it to perform a number of unique tasks, including the HC-123B which operated with the USCG fitted with additional radar equipment for search and rescue missions through 1971, and the C-123J which were fitted with retractable skis for operations in Greenland and Alaska on compacted snow runways.

By 1962, the C-123K variant aircraft was evaluated for operations in Southeast Asia and their stellar performance led the Air Force to upgrade 180 of the C-123B aircraft to the new C-123K standard, which featured auxiliary jet pods underneath the wings, and anti-skid brakes. In 1968, the aircraft helped resupply troops in Khe Sanh, Vietnam during a three-month siege by North Vietnam.

A number of C-123s were configured as VIP transports, including General William Westmoreland's White Whale. The C-123 also gained notoriety for its use in "Operation Ranch Hand" defoliation operations in Vietnam. Oddly enough, the USAF had officially chosen not to procure the VC-123C VIP transport, opting instead for the Convair VC-131D.

The first C-123s to reach South Vietnam were part of the USAF’s Special Aerial Spray Flight, as part of Operation Ranch Hand tasked with defoliating the jungle in order to deny rebels their traditional hiding places. These aircraft began their operations at the end of 1961. Aircraft fitted with spraying equipment were given the U prefix as a role modifier, with the most common types being the UC-123B and the UC-123K. Aircraft configured for this use were the last to see military service, in the control of outbreaks of insect-borne disease. The C-123 was also used as "jump aircraft" for U.S. Army Airborne students located at Lawson Army Airfield, Fort Benning, Georgia in the late 1970s and early 1980s. This aircraft was used in conjunction with the C-130 Hercules and C-141 Starlifter.
With the end of the Vietnam War, remaining C-123Ks and UC-123Ks were transferred to Air Force Reserve (AFRES) and the Air National Guard (ANG) that were operationally-gained by Tactical Air Command (TAC) prior to 1975 and Military Airlift Command (MAC) after 1975.

The 302nd Tactical Airlift Wing at Rickenbacker AFB (later Rickenbacker ANGB), Ohio flew the last UC-123Ks Providers in operational service before converting to the C-130 Hercules. Known as the Special Spray Flight, these aircraft were used to control insect-borne diseases, with missions to Alaska, South America and Guam being among the humanitarian duties performed by this Air Force Reserve unit.

The final examples of the C-123 in active US military service were retired from the Air Force Reserve and Air National Guard in the early 1980s. Some airframes were transferred to the Federal Aviation Administration (FAA) for test and evaluation programs while others were transferred to the US Department of Agriculture (USDA) for miscellaneous programs. These aircraft were also retired by the end of the 1990s.

**Experimental projects**

In 1954, the **YC-123D**, formerly the XC-123A prototype, flew in its modified state after being converted by Stroukoff Aircraft. While the most obvious change from the original XC-123A was the switch of engines, the YC-123D also had a Boundary layer control (BLC) system fitted. This system directs air from the engines at high speed over the top of the wing, making the wing act as if the aircraft is flying at a much higher airspeed. As a result, the YC-123D had a greatly reduced take-off and landing distance. Compared to the C-123B, the YC-123D could land in 755 feet instead of 1,200, and take-off with only 850 feet of runway instead of 1,950, with a 50,000 pound total weight.

In 1955 Stroukoff, under contract from the USAF, produced a single **YC-123E**, designed to be able to take off from any surface, and also equipped with BLC. The new aircraft also featured Stroukoff's *Pantobase* system, combining a ski system with a sealed fuselage and wing mounted floats, while retaining its normal landing gear. The skis worked both on snow and water, and the system effectively allowed the aircraft to land on water, land, snow or ice.

In 1956 the USAF awarded a contract to Fairchild to design an improved version of the C-123 under the designation **C-136**, but the contract was cancelled before the aircraft was built.

At much the same time the **YC-123H** was under development, the product of a Fairchild modification program started in 1956 and completed in 1957. A "Jet Augmentation Program" for existing C-123Bs had been initiated in 1955 at the behest of the USAF, and in the YC-123H contract the USAF expanded it to
allow the mounting of two pod-mounted General Electric CJ-610 (later developed as the military J85) turbojets. Perhaps more impressive was the new wide-track main landing gear, noticeable since the larger gear and tires required the removal of the landing gear doors. The new gear reduced the aircraft’s turning radius and improved the Maximum Take Off Weight (MTOW) of the aircraft, along with being rugged enough to stand up to unimproved runways, all important factors for the C-123's mission profile. Testing both in the United States and in South Vietnam continued until the YC-123H crashed in an accident in 1963. However, many of the design improvements were carried over to the C-123K.

In 1979, the Royal Thai government, seeking to extend the life of their C-123 fleet, placed a contract with the Mancro Aircraft Company, supported by the USAF, to convert a single C-123B to turboprop powerplants. Allison T56-A-7 turboprops were used and by the time the aircraft, dubbed C-123T, was complete it had new "wet" wings, an Auxiliary Power Unit (APU) to assist with power movement of the control surfaces, and a heating system for the cargo compartments that also fed a new deicing system. Budgetary restrictions forced the Thai government to abandon the program in 1981, and with a lack of interested parties development of the C-123T stopped. However, it concluded the life of the C-123 by making it the only aircraft (at least this is claimed) to operate under jet, internal combustion and turboprop engine power, and as a glider, during its history.

**Black Spot and other special military C-123s**

During the conflict in Vietnam, a number of C-123s were modified for specialized roles. Most of these modifications were on a one or two-aircraft level. Only the usage of C-123s as "flare ships" to illuminate targets for fixed wing gunships such as the AC-47 and AC-119G were more numerous. These aircraft, operating under the call-sign *Candle* were flown by the USAF's 14th Special Operations Wing.

A single C-123B was tested as a possible replacement for the *Candle* aircraft, with its rear loading ramp removed and replaced with a large box with 28 large lights. The airplane could continuously light a 2 mile circle from an altitude of 12,000 feet. This aircraft, under the provisional designation NC-123B was dropped because the lights, fixed to the aircraft, made it far easier for enemy gunners to track compared to the earlier flare ships.

The "Candle" aircraft had an extended life when several UC-123K's were transferred to Nakhon Phanom Royal Thai Air Force Base in Thailand. During that period, it was used as a flare ship as well as a forward air control (FAC) aircraft. The flare duties were generally used for troops in contact (TIC) while the FAC mission directed air strikes in Laos over the Ho Chi Minh trail.
Another NC-123B was used as a radio relay aircraft over the Ho Chi Minh trail, with equipment to read the signals from various sensors on the ground designed to pick up enemy truck activity.

Two C-123K aircraft modified in September 1965 under Project **Black Spot**. The Black Spot aircraft were to fit under the "self-contained night attack capability" that was Operation Shed Light's primary focus and E-Systems of Greenville, Texas was contracted to complete the modifications. These aircraft featured a variety of new sensors including Low Light Level TV (LLLTV), Forward Looking Infrared (FLIR), and a laser rangefinder. The aircraft looked radically different visibly from its transport brethren, as the new equipment required lengthening the nose by over 50 inches. The aircraft also featured an armament system designed to carry BLU-3/B (using the ADU-253/B adapter) or BLU-26/B (using the ADU-272/B adapter) bomblets, or CBU-68/Bs cluster bombs.

The two aircraft, AF Serial Numbers 54-0691 and 54-0698, were first designated NC-123K in 1968 and then redesignated **AC-123K** in 1969. These NC/AC-123Ks were first deployed operationally at Osan AB, South Korea between August and October 1968, and flying in support of operations against North Korean infiltrators approaching by boat. The operations in Korea met with a certain level of success and as a result the NC/AC-123Ks were transferred to South Vietnam in November 1968. The aircraft operated there until January 1969, when they were redeployed to Ubon RTAB, Thailand. The two aircraft were then returned to the United States to Hurlburt Field, Florida in May 1969, where a second round of training occurred. Four crews attended a ground school in Greenville, Texas and returned to Hurlburt where they flew the aircraft for the first time.

The fate of the aircraft is still unclear. Sources have missions terminating in early July 1970 and the aircraft flying to the Military Aircraft Storage and Disposition Center (MASDC) "boneyard" at Davis-Monthan AFB, AZ, where they were returned to C-123K standard, then returned to South Vietnam still wearing their camouflage and black undersides for transport duty. However, the official history states that combat operations ceased on 11 May 1969, with no mention of the second deployment. While the second deployment is mentioned in associated documentation, the only dates are of the arrival in Thailand and there is no information as to when they departed or where their destination was.

**Specifications (C-123K Provider)**

**General characteristics**

- **Crew:** 4
The Lockheed C-130 Hercules is a four-engine turboprop military transport aircraft designed and built originally by Lockheed, now Lockheed Martin. Capable of using unprepared runways for takeoffs and landings, the C-130 was originally designed as a troop, medical evacuation, and cargo transport aircraft. The versatile airframe has found uses in a variety of other roles, including as a gunship (AC 130), for airborne assault, search and rescue, scientific research support, weather reconnaissance, aerial refueling, maritime patrol and aerial
firefighting. It is the main tactical airlifter for many military forces worldwide. Over 40 models and variants of the Hercules serve with more than 50 nations.

During its years of service the Hercules family has participated in countless military, civilian and humanitarian aid operations. The family has the longest continuous production run of any military aircraft in history. In 2007, the C-130 became the fifth aircraft—after the English Electric Canberra, B-52 Stratofortress, Tupolev Tu-95, and KC-135 Stratotanker—to mark 50 years of continuous use with its original primary customer, in this case, the United States Air Force. The C-130 is also the only military aircraft to remain in continuous production for 50 years with its original customer, as the updated C-130J Super Hercules.

C-130 Hercules

Source:  http://en.wikipedia.org/wiki/C-130_Hercules

The Boeing C-135 Stratolifter is a transport aircraft derived from the prototype Boeing 367-80 jet airliner (also the basis for the 707) in the early 1950s. It has a narrower fuselage and is shorter than the 707. Boeing gave the aircraft the internal designation of Model 717. Since the first one was built in August 1956, the C-135 has been a visible fixture of the United States Air Force.

Boeing C-135 Stratolifter

Source:  http://en.wikipedia.org/wiki/C-135_Stratolifter
The Boeing-Vertol CH-47 Chinook is a twin-engine, tandem rotor heavy-lift helicopter. Its top speed of 170 knots (196 mph, 315 km/h) was faster than contemporary utility and attack helicopters of the 1960s. It is one of the few aircraft of that era such as the C-130 and the UH-1 'Huey' that is still in production and front line service with over 1,179 built so far. Its primary roles include troop movement, artillery emplacement and battlefield resupply. It has a wide loading ramp at the rear of the fuselage and three external-cargo hooks.

The Chinook was designed and initially produced by Boeing Vertol in the early 1960s. The helicopter is now produced by Boeing Integrated Defense Systems. Chinooks have been sold to 16 nations. Although some nations operate larger helicopters such as the Russian Mil Mi-26, the Chinook remains the heaviest lifting helicopter used by its largest operators, the U.S. Army and the Royal Air Force.


The M35 family of trucks is a long-lived vehicle initially deployed by the United States Army, and subsequently utilized by many nations around the world. A truck in the 2 1/2 ton weight class, it was one of many vehicles in US military service to have been referred to as the "deuce and a half." While the basic M35 cargo truck are rated to carry 5,000 pounds across country or 10,000 pounds over roads, they have been known to haul twice as much as rated. Trucks in this weight class are considered medium duty by the military and Department of Transportation. The M35 series formed the basis for a wide range of specialized vehicles.
Huey

The **UH-1 Iroquois (Huey or Slick)** is a military helicopter powered by a single, turboshaft engine, with a two-bladed main rotor and tail rotor. The helicopter was developed by Bell Helicopter to meet the United States Army's requirement for a medical evacuation and utility helicopter in 1952, and first flew on 20 October 1956. Ordered into production in March 1960, the UH-1 was the first turbine-powered helicopter to enter production for the United States military, and more than 16,000 have been produced worldwide.

The first combat operation of the UH-1 was in the service of the U.S. Army during the Vietnam War. The original designation of HU-1 led to the helicopter's nickname of Huey. In September 1962, the designation was changed to UH-1, but Huey remained in common use, as well as being chosen as the official name by the United States Marine Corps. Approximately 7,000 UH-1 aircraft saw service in Vietnam.
WEAPONS

AMERICAN WEAPONS

45 Caliber Handgun

The **M1911 45 Caliber Handgun** is a single-action, semi-automatic, magazine-fed, and recoil-operated handgun chambered for the .45 ACP cartridge. It was designed by John M. Browning, and was the standard-issue side arm for the United States armed forces from 1911 to 1985, and is still carried by some U.S. forces. It was widely used in World War I, World War II, the Korean War, and the Vietnam War. Its formal designation as of 1940 was **Automatic Pistol, Caliber .45, M1911** for the original Model of 1911 or **Automatic Pistol, Caliber .45, M1911A1** for the M1911A1, adopted in 1924. The designation changed to **Pistol, Caliber .45, Automatic, M1911A1** in the Vietnam era. In total, the United States procured around 2.7 million M1911 and M1911A1 pistols in military contracts during its service life.

In response to problems encountered by American units fighting Moro guerrillas during the Philippine-American War, the then-standard Colt M1892 revolver, in .38 Long Colt, was found to be unsuitable for the rigors of jungle warfare, particularly in terms of stopping power, as the Moros had very high battle morale and frequently used drugs to inhibit the sensation of pain. The U.S. Army briefly reverted to using the M1873 single-action revolver in .45 Colt caliber, which had been standard during the last decades of the 19th century; the heavier bullet was found to be more effective against charging tribesmen. The problems with the .38 Long Colt led to the Army shipping new single action .45 Colt revolvers to the Philippines in 1902. It also prompted the then-Chief of Ordnance, General William Crozier, to authorize further testing for a new service pistol.

Following the 1904 Thompson-LaGarde pistol round effectiveness tests, Colonel John T. Thompson stated that the new pistol "should not be of less than .45 caliber" and would preferably be semi-automatic in operation. This led to the 1906 trials of pistols from six firearms manufacturing companies (namely, Colt, Bergmann, Deutsche Waffen und Munitionsfabriken (DWM), Savage Arms Company, Knoble, Webley, and White-Merril).

Of the six designs submitted, three were eliminated early on, leaving only the Savage, Colt, and DWM designs chambered in the new .45 ACP (Automatic Colt Pistol) cartridge. These three still had issues that needed correction, but only Colt and Savage resubmitted their designs. There is some debate over the reasons for DWM's withdrawal—some say they felt there was bias and that the DWM design was being used primarily as a "whipping boy" for the Savage and Colt pistols, though this does not fit well with the earlier 1900 purchase of the DWM design over the Colt and Steyr entries. In any case, a series of field
tests from 1907 to 1911 were held to decide between the Savage and Colt designs. Both designs were improved between each testing over their initial entries, leading up to the final test before adoption.

Among the areas of success for the Colt was a 6,000 round test at the end of 1910 attended by its designer, John Browning. The Colt gun passed with flying colors, having no malfunctions, while the Savage designs had 37.

**Service history**

Following its success in trials, the Colt pistol was formally adopted by the Army on March 29, 1911, thus gaining its designation, M1911 (Model of 1911). It was adopted by the Navy and Marine Corps in 1913. Originally manufactured only by Colt, demand for the firearm in World War I saw the expansion of manufacture to the government-owned Springfield Armory.

Battlefield experience in the First World War led to some more small external changes, completed in 1924. The new version received a modified type classification, M1911A1. Changes to the original design were minor and consisted of a shorter trigger, cutouts in the frame behind the trigger, an arched mainspring housing, a longer grip safety spur (to prevent slide bite), a wider front sight, a shorter spur on the hammer, and simplified grip checkering by eliminating the "Double Diamond" reliefs. Those unfamiliar with the design are often unable to tell the difference between the two versions at a glance. No significant internal changes were made, and parts remained interchangeable between the two.

**Replacement for most uses**

After World War II, the M1911 continued to be a mainstay of the United States Armed Forces in the Korean War and the Vietnam War and was even used during Desert Storm in specialized U.S. Army units & US Navy Mobile Construction Battalions (Seabees). It has gone on to see service in both Operation Iraqi Freedom and Operation Enduring Freedom, with U.S. Army Special Forces Groups and Marine Corps Force Reconnaissance Companies.

However, by the late 1970s the M1911A1 was acknowledged to be showing its age. Under political pressure from NATO to conform to the NATO-standard pistol cartridge, the US Air Force's Joint Service Small Arms Program was run to select a new semi-automatic pistol using the NATO-standard 9mm Parabellum pistol cartridge. After trials, the Beretta 92S-1 was chosen. This result was contested by the Army which subsequently ran its own competition (the XM9 trials) in 1981 which eventually led to the official adoption of the Beretta 92F on January 14, 1985.
The 4-Deuce Mortar was standardized in the United States as the M30 in 1951. It was also known as the “Goon Gun.” This weapon first saw combat during the Korean War. There the M30 served along side the M2 4.2 Inch Chemical Mortar of World War II fame that it would gradually replace.

The M30 provided heavy mortar support for ground operations in Vietnam, beginning with the earliest deployments of United States Forces, and remained in that theater for the duration of the United States' involvement. It would also serve with distinction with the Republic of Korea (ROK) forces committed to Vietnam as well as with the Army of the Republic of Vietnam (ARVN).

The M30 4.2 Inch Mortar had been phased out of U.S. service in the 1990s in favor of the newer NATO standard 120mm Mortar, M120/M121.

In the U.S. Army Mechanized role, the M30 was transported by the M106 series of Mortar Carriers. The M106 being part of the M113 Family of Vehicles. This vehicle provided the crew basic protection from small arms fire as well as from shell fragments and also has an amphibious capability with preparation. However, the M106 had to stop and set up to fire the weapon internally through open roof hatches. The weapon could also be dismounted from it's carrier.
The 8 inch Gun M-1 was a 203 mm towed heavy gun developed in the United States. It was used by the US Army and the British Army in World War II.

**Development**

Serious development began in June 1940 of an 8-inch (200 mm) gun that would have a range of 33,500 yards (30,600 m), a road speed of 25 mph (40 km/h), be transported in 2 loads weighing no more than 44,000 lb (20,000 kg) and be suitable for rail movement. Use of the carriage of the 240 mm howitzer M1 eased development, but the gun was very troublesome and wasn’t standardized until January 1944. The main problems were excessive bore wear and poor accuracy, but it was felt that nothing better could be produced in a timely manner. Thus it entered production at a low rate and in small numbers.

Like the 240 mm howitzer, it was mounted on a stretched Heavy Tank T26E3 chassis that had an extra bogie wheel per side as the 8in Gun Motor Carriage T93, but the war ended before they could be used and were later scrapped.

**Transport**

It also shared transport wagons with the 240 mm howitzer. One six-wheeled wagon carried the carriage and the other carried the barrel as shown below:

![8 Inch Artillery Gun](http://en.wikipedia.org/wiki/8_inch_Gun_M1)

The Browning M2 50 Caliber Machine Gun is an air-cooled, belt-fed machine gun. The M2 fires from a closed bolt, operated on the short recoil principle. The M2 fires the .50 BMG cartridge, which offers long range accuracy and good stopping power. The M2 has varying cyclic rates of fire, depending upon the model. The M2HB (heavy barrel) air-cooled ground gun has a cyclic rate of 450-575 rounds per minute. The early M2 water-cooled AA guns had a cyclic rate of around 450-600 rpm. The M2HB's sustained rate of fire is considered to be anything less than 400 rounds per minute. The M2 is a scaled-up version of John Browning’s M1917 .30 caliber machine gun (even
using the same timing gauges). The M2 has a maximum range of 7.4 kilometers (4.55 miles), with a maximum effective range of 1.8 kilometers (1.2 miles) when fired from the M3 tripod. In its ground-portable, crew-served role as the M2HB, the gun itself weighs in at a hefty 84 pounds (38 kg), and the assembled M3 tripod another 44 pounds (20 kg). In this configuration, the V-shaped "butterfly" trigger is located at the very rear of the weapon, with a "spade handle" hand-grip on either side of it and the bolt release in the center. The spade handles are gripped and the butterfly trigger is depressed with one or both thumbs. Recently new rear buffer assemblies have used squeeze triggers mounted to the hand grips, doing away with the butterfly triggers.

When the bolt release is locked down by the bolt latch release lock on the buffer tube sleeve, the gun functions in fully automatic mode. Conversely, the bolt release can be unlocked into the up position resulting in single-shot firing (the gunner must press the bolt latch release to send the bolt forward). Unlike virtually all other modern machine guns, it has no safety (although a sliding safety switch has recently been fielded to USMC armorer for installation on their weapons). Troops in the field have been known to add an improvised safety measure against accidental firing by slipping an expended shell casing under the butterfly trigger.

Because the M2 was intentionally designed to be fit into many configurations, it can be adapted to feed from the left or right side of the weapon by exchanging the belt-holding pawls, and the front and rear cartridge stops (3-piece set to include link stripper), then reversing the bolt switch. You must also convert the top-cover belt feed slide assembly from left to right hand feed as well as the spring and plunger in the feed arm. This will take a well trained individual less than 2 minutes to perform.

The charging assembly may be changed from left to right hand charge. A right hand charging handle spring, lock wire and a little know how are all that are required to accomplish this. The weapon can be battle ready and easily interchanged if the weapon is fitted with a retracting slide assembly on both sides of the weapon system to eliminate the need to have the weapon taken in to accomplish this task.

M2 50 Caliber Machine Gun

Source: http://en.wikipedia.org/wiki/M2_Browning_machine-gun
The **M252 81 mm medium weight mortar** is an American smooth bore, muzzle-loading, high-angle-of-fire weapon used for long-range indirect fire support to light infantry, air assault, and airborne units across the entire front of a battalion zone of influence. In the U.S. Army and U.S. Marine Corps, it is normally deployed in the mortar platoon of an infantry battalion.

The M252 is an adaptation of the standard British 81 mm mortar, the L16 81mm Mortar developed in the 1950s.

**Design**

The M252 system weighs 91 lb (41 kg) completely assembled and is composed of the M253 Cannon (35 lb, 16 kg), M177 Mount (27 lb, 12 kg), M3A1 Baseplate (29 lb, 13 kg), and the M64A1 Sight Unit (2.5 lb, 1.1 kg). The mount consists of a bipod and a base plate which is provided with screw type elevating and traversing mechanisms to elevate/traverse the mortar. The M64A1 sight unit (also used on the M224) is attached to the bipod mount. The M252 is a gravity-fired smooth bore system. Attached to the muzzle of the weapon is the Blast Attenuation Device (BAD), used to reduce the blast effects on the mortar crew. To increase cooling efficiency, the breech end is finned, though first-hand accounts attest that the level of cooling is negligible. The cannon also has a crew-removable breech plug and firing pin.

**History**

The M252 entered service with the U.S. Army and replaced the previous 81 mm mortar in 1986. It was adopted due to the extended range (from 4,500 meters to 5,650 meters) and lethality compared to the previous 81 mm mortar (the M29). In the U.S. it is produced by Watervliet Arsenal.

**Operation**

**Crew**

The M252 uses a crew of five enlisted personnel to operate: the squad leader, the gunner, the assistant gunner, the first ammunition bearer, and the second ammunition bearer.

1. The squad leader stands directly behind the mortar where he can command and control his squad. In addition to having general oversight of all squad activities, he also supervises the emplacement, laying, and firing of the weapon.

2. The gunner stands to the left of the mortar where he can manipulate the sight, traversing handwheel, and elevating handwheel. He places firing
data on the sight and lays the mortar for deflection and elevation. He makes large deflection shifts by shifting the bipod assembly and keeps the bubbles level during firing.

3. The assistant gunner stands to the right of the mortar, facing the barrel and ready to load. In addition to loading, he swabs the bore after 10 rounds have been fired or after each fire mission. The assistant gunner is the person who actually fires the weapon.

4. The first ammunition bearer stands to the right rear of the mortar. He has the duty of preparing the ammunition (charge settings, fuzes, etc...) and passing it to the assistant gunner.

5. The second ammunition bearer stands to the right rear of the mortar behind the ammunition bearer. He maintains and keeps a record of the ammunition in addition to the data corresponding to each fire mission. His two-fold records include a written table of firing data, type, and number of rounds fired, and the safety pins pulled from each round to provide physical evidence to the accuracy of the table. In addition he provides local security for the mortar position.

**Types of rounds**

While the M252 does fire a weapon specific series of ammunition, it can also fire rounds from the M29 Mortar (only at charge 3 or below though). The M252 Mortar can fire the following principal classifications of training and service ammunition.

2. Smoke Cartridge: Designations M819 and M375-series. Used as a screening, signaling, or marking munition[^1].
4. Training practice (TP): Designations M880, M879, M68 and sabot. Used for training in limited areas.
5. Infrared Illumination (IR): Produces illumination which is only visible through the use of night vision devices.

**Fuzes**

The M224 rounds have two fuze types: the Multioption Fuze (M734) and the Point-Detonating Fuze (M935). The M734 is used for the M720 HE round and can be set to function as proximity burst, near-surface burst, impact burst, or delay burst.
Method of propulsion

The range of mortars are controlled by what are referred to as "charges." Charges are semi-circular nitrocellulose donuts that resemble a puffy letter "C." Ammunition for the M252 mortar come with four charges. Longer range shots require more propellant than can be easily stored in the tail of the round, hence the necessity of the charges to be placed on the round. Once a target is ranged, the correct charge is placed on the round by removing the charges from the projectile. Once the charges are verified by the section leader, the round is dropped down the muzzle of the tube. The round, pulled by gravity, accelerates down the smooth bore until the primer in the base of the tail boom of the round. The primer detonates igniting the charge in the tail fin which in turn ignites any of the C-charges on the round. The expanding gas created by the burning charges push against the obturator band on the round, sealing the gasses and gives the round forward momentum. The round is accelerated by the gasses until it leaves the end of the tube.

105 and 155 Howitzers

The term “Artillery” applies to a combat arm of most military services when used organizationally to describe units and formations of the national armed forces that operate the weapons. The gunners and their guns are usually grouped in teams called either ‘crews’ or ‘detachments’. Several such crews and teams with other functions are combined into a unit of artillery usually called a battery, although sometimes called a company. Batteries are roughly equivalent to a company in the infantry, and are combined into larger military organizations for administrative and operational purpose.

During military operations the role of field artillery is to provide close support to other arms in combat or to attack targets. The latter role is typically achieved by delivering either high explosive munitions to inflict casualties on the enemy from casing fragments and other debris and blast, or by demolition of enemy
positions, equipment and vehicles. The artillery fire may be directed by an artillery observer.

Military doctrine has played a significant influence on the core engineering design considerations of Artillery ordnance through its history, in seeking to achieve a balance between delivered volume of fire with ordnance mobility. However, during the modern period the consideration of protecting the gunners also arose due to the late-19th century introduction of the new generation of infantry weapons using conoidal bullet, better known as the Minié ball, with a range almost as long as that of field artillery.

The gunners' increasing proximity to, and participation in direct combat against other combat arms and attacks by aircraft made the introduction of a gun shield necessary. The problems of how to employ a fixed or horse towed gun in mobile warfare necessitated the development of new methods of getting the artillery into combat. Three distinct forms of artillery developed; the tank, which later became a combat arm in its own right as the technology matured beyond a simple tracked box with a cannon mounted in it, the self-propelled gun which was designed to accompany a mobile force and provide continuous fire support and the towed gun which was used primarily to attack or defend a fixed line. These influences have guided the development of artillery ordnance, systems, organizations and operations until the present, with artillery systems capable of providing support at ranges from as little as 100 m to the intercontinental ranges of ballistic missiles. The only combat in which artillery is unable to take part is close quarters combat.

**105 Howitzer**

The **105 mm M2A1 (M101A1) howitzer** was the standard light field howitzer for the United States in World War II, seeing action in both European and Pacific theatres. Entering production in 1941, it quickly entered the war against the Imperial Japanese Army in the Pacific, where it gained a reputation for its accuracy and powerful punch. The M101 fired 105 mm high explosive (HE) semi-fixed ammunition and had a range of 11,200 metres (12,200 yd), making it suitable for supporting infantry.

All of these qualities of the weapon, along with its widespread production, led to its adoption by many countries after the war. Its ammunition type also became the standard for many foreign countries' later models. In 1962 the artillery designation system was changed and the 105mm M2A1 howitzer became the M101A1. It continued to see service in the Korean and Vietnam Wars. Though a similar model, the M102 howitzer, shared the same roles in battle, it never fully replaced the M101. Today the 101A1 has been retired by the U.S. military, though it continues to see service with many other countries.
155 Howitzer

The **M114 155 mm howitzer** was a towed howitzer used by the United States Army. It was first produced in 1942 as a medium artillery piece under the designation of **155 mm Howitzer M1**. It saw service with the US Army during World War II, the Korean War, and the Vietnam War, before being replaced by the M198 howitzer.

A new carriage was under development for much of the 1930s for the existing World War I-era M-1918 155 mm howitzer, which was a license-built French Canon de 155 C modèle 1917 Schneider until 1939 when it was realized that it didn't make a whole lot of sense to put a new carriage underneath an obsolete howitzer. So development began anew with a carriage designed to be used for either the 155 mm howitzer or the 4.7-inch (120 mm) gun. This was completed by 15 May 1941 when the Howitzer M1 on the Carriage M1 was standardized.

The howitzer itself differed from the older model by a lengthened barrel of 20 calibers and a new breech mechanism. Uniquely it was the sole 'slow-cone' interrupted screw mechanism to enter service after 1920. This meant that two separate movements were necessary to open the breech, versus the single movement of the 'steep cone' mechanism that simultaneously rotated and withdrew the breech.

The M1A1 was redesignated as the M114A1 in 1962.

105 Howitzer Artillery on LZ Dean named “Scunion”

**Source:** [http://en.wikipedia.org/wiki/Artillery](http://en.wikipedia.org/wiki/Artillery)

AC-130

The **Lockheed AC-130 gunship** (also nicknamed "The Angel of Death" due to the shape that the anti-missile flares take) is a heavily-armed ground-attack aircraft. The basic airframe is manufactured by Lockheed, and Boeing is responsible for the conversion into a gunship and for aircraft support. It is a
variant of the C-130 Hercules transport plane. The AC-130A Gunship II superseded the AC-47 Gunship I in the Vietnam War.

The gunship's sole user is the United States Air Force, which uses AC-130H Spectre and AC-130U Spooky variants. The AC-130 is powered by four Allison T56-A-15 turboprops and has an armament ranging from 25 mm Gatling-type cannons to 105 mm howitzers. It has a standard crew of twelve or thirteen airmen, including five officers (two pilots, a navigator, an electronic warfare officer and a fire control officer) and three enlisted personnel (flight engineer, electronics operators, and aerial gunner).

The US Air Force uses the AC-130 gunships for close air support, air interdiction, and force protection. Close air support roles include supporting ground troops, escorting convoys, and flying urban operations. Air interdiction missions are conducted against planned targets and targets of opportunity. Force protection missions include defending air bases and other facilities. Currently, AC-130U Spooky model gunships are stationed at Hurlburt Field in Northwest Florida and the AC-130H models are stationed at Cannon AFB, New Mexico. The gunship squadrons are part of the Air Force Special Operations Command (AFSOC), a component of United States Special Operations Command (SOCOM).

The C-130 Hercules was selected to replace the AC-47 Spooky Gunship I used during the Vietnam War, to improve gunship endurance capabilities and increase capacity to carry munitions. In 1967, JC-130A USAF 54-1626 was selected for conversion into the prototype AC-130A gunship. The modifications were done that year at Wright-Patterson Air Force Base, by the Aeronautical Systems Division. A direct view night vision telescope was installed in the forward door, an early forward looking infrared (FLIR) in the forward part of the left wheel well, and Gatling guns fixed facing down and aft along the left side. The analog fire control computer prototype was handcrafted by RAF Wing Commander Tom Pinkerton at the USAF Avionics Laboratory. Flight testing of the prototype was subsequently performed primarily at Eglin Air Force Base, followed by further testing and modifications. By September 1967, the aircraft was certified ready for combat testing and was flown to Nha Trang Air Base, South Vietnam for a 90 day test program. The AC-130 was later supplemented by the AC-119 Shadow Gunship III, which later proved underpowered.

During the Vietnam era, the various AC-130 versions following the Pave Pronto modifications were equipped with a magnetic anomaly detector (MAD) system called the Black Crow (AN/ASD-5), a highly sensitive passive device with a phased-array antenna located in the left-front nose radome that could pick up localized deviations in earth's magnetic field and is normally used to detect submerged submarines. The Black Crow system on the AC-130A/E/H could accurately detect the unshielded ignition coils of North Vietnamese
trucks that were hidden under the dense foliage of the jungle canopy along the Ho Chi Minh trail. It could also detect the signal from a hand-held transmitter that was used by air controllers on the ground to identify and locate specific target types. The system was slaved into the targeting computer.

The AC-130 Gunship first arrived in South Vietnam on 21 September 1967 under the Gunship II program, and began combat operations over Laos and South Vietnam that year. By 30 October 1968, enough AC-130 Gunship IIs arrived to form a squadron, the 16th Special Operations Squadron (SOS) of the 8th Tactical Fighter Wing (TFW), at Ubon Royal Thai Air Force Base, Thailand. By December 1968 most AC-130s were flown under F-4 Phantom II escort from the 479th Tactical Fighter Squadron, normally three Phantoms per Gunship. In late 1969, under the code name of "Surprise Package", 56-0490 arrived with solid state laser illuminated low light level TV with a companion YAG laser designator, an improved forward looking infrared (FLIR) sensor, video recording for TV and FLIR, an inertial navigation system, and a prototype digital fire control computer.

In Vietnam, they destroyed more than 10,000 trucks and participated in many crucial close air support missions. Six Spectres were lost to enemy fire.

AC-130 Spectre / Spooky

Source: http://en.wikipedia.org/wiki/Lockheed_AC-130

Operation Arc Light was the code name given to the use of B-52 strategic bombers in Southeast Asia.

In 1964 U.S. and South Vietnamese intelligence sources began to detect regular North Vietnamese Army (NVA) units operating in base areas inside the Republic of Vietnam. The U.S. military evaluated ways to counter this development, and the resulting proposals leaned heavily on the concepts of air mobility and airpower.
After World War II, even into the nuclear era of Massive Retaliation, the Air Force had maintained an interest in the use of heavy bombers in a conventional role. U.S. Air Force planners recognized that it would take massive amounts of concentrated firepower to disrupt troop concentrations in jungle areas. As the war in Southeast Asia intensified, the Air Force looked to the Strategic Air Command bomber fleet to provide this massed firepower and selected the B-52 *Stratofortress* for this role.

The eight-jet B-52 first flew in 1952. Designed as a high altitude nuclear bomber, the *Stratofortress* served almost 40 years as the mainstay of the bomber leg of the U.S. nuclear triad. Affectionately nicknamed by its aircrews the Buff (*Big Ugly Fat Fellow*), the B-52 has shown its versatility by adopting to the low altitude penetration role in the Cold War, then dropping iron bombs in Vietnam. The B-52 still soldiers on, most recently as a true CAS aircraft with precision guided weapons in Afghanistan and Iraq.

For its Arc Light role in Vietnam, the B-52D models were given the "Big Belly" mod to carry up to 108 Mk 82 (500-pound) bombs internally and on underwing pylons.

The first Arc Light missions were flown from Andersen AFB on Guam beginning on June 18, 1965. In 1967 U Tapao Royal Thai Air Base was added both to relieve the crowding at Andersen and to reduce the flight time to targets in Vietnam. A year later Kadena AB in Okinawa became the third Arc Light base to support the increasing operational tempo that peaked in 1968.

In addition to bombing missions against enemy base areas, the B-52's were used in a close support role in major battles including the *La Drang Valley* and the *siege of Khe Sanh*. Arc Light missions were flown over the Ho Chi Minh Trail in Laos and selectively in the southern part of North Vietnam.

The B-52 force played a major role in *Operation Linebacker* (Apr-May 1972) and the Christmas 1972 *Operation Linebacker II*. 
Claymore

The M18 Claymore, a directional fragmentation mine, is 8-1/2 inches long, 1-3/8 inches wide, 3-1/4 inches high, and weighs 3-1/2 pounds. The mine contains 700 steel spheres (10.5 grains) and 1-1/2 pound layer of composition C-4 explosive and is initiated by a No. 2 electric blasting cap. The M18 command-detonated mine may be employed with obstacles or on the approaches, forward edges, flanks and rear edges of protective minefields as close-in protection against a dismounted Infantry attack.

Cobra Gunship

The Bell AH-1 Cobra (company designation: Model 209) is a two-bladed, single engine attack helicopter manufactured by Bell Helicopter. It shares a common engine, transmission and rotor system with the older UH-1 Iroquois. The AH-1 is also referred to as the HueyCobra or Snake.

The AH-1 was the backbone of the United States Army's attack helicopter fleet, but has been replaced by the AH-64 Apache in Army service. Upgraded versions continue to fly with the militaries of several other nations. The AH-1 twin engine versions remain in service with United States Marine Corps as the service's primary attack helicopter. Surplus AH-1 helicopters have been converted for fighting forest fires. The United States Forest Service refers to their program as the Firewatch Cobra. Garlick Helicopters also converts surplus AH-1s for forest firefighting under the name, FireSnake.
Development

Background

Closely related with the development of the Bell AH-1 is the story of the Bell UH-1 Iroquois—predecessor of the modern helicopter, icon of the Vietnam War and still one of the most numerous helicopter types in service today.

The UH-1 made the theory of air cavalry practical, as the new tactics called for US forces to be highly mobile across a wide area. Unlike before, they would not stand and fight long battles, and they would not stay and hold positions. Instead, the plan was that the troops carried by fleets of UH-1 Hueys would range across the country, to fight the enemy at times and places of their own choice.

It soon became clear that the unarmed troop helicopters were vulnerable against ground fire from Việt Cộng and North Vietnamese troops, particularly as they came down to drop their troops in a landing zone. Without friendly support from artillery or ground forces, the only way to pacify a landing zone was from the air, preferably with a machine that could closely escort the transport helicopters, and loiter over the landing zone as the battle progressed. By 1962 a small number of armed UH-1As were used as escorts, armed with multiple machine guns and rocket mounts.

The massive expansion of American military presence in Vietnam opened a new era of war from the air. The linchpin of US Army tactics were the helicopters, and the protection of those helicopters became a vital role.

Bell Model 207 Sioux Scout

Bell had been investigating helicopter gunships since the late 1950s, and had created a mockup of its D 255 helicopter gunship concept, named "Iroquois Warrior". In June 1962, Bell displayed the mockup to Army officials, hoping to solicit funding for further development. The D 255 Iroquois Warrior was planned to be a purpose-built attack aircraft based on the UH-1B components with a new, slender airframe and a two-seat, tandem cockpit. It featured a grenade launcher in a ball turret on the nose, a 20 mm belly-mounted gun pod, and stub wings for mounting rockets or SS-10 anti-armor missiles.

The Army was interested and awarded Bell a proof of concept contract in December 1962. Bell modified a Model 47 into the sleek Model 207 Sioux Scout which first flew in July 1963. The Sioux Scout had all the key features of a modern helicopter gunship: a tandem cockpit, stub wings for weapons, and a chin-mounted gun turret. After evaluating the Sioux Scout in early 1964, the
Army was impressed, but also believed the Sioux Scout was too small, underpowered, unsophisticated, and fragile to be of practical use.

**AAFSS**

Army's solution to the shortcomings of the Sioux Scout was to launch the Advanced Aerial Fire Support System (AAFSS) competition. The AAFSS requirement would give birth to the Lockheed AH-56 Cheyenne—a heavy battlefield helicopter that would prove to be over-ambitious, over-complex and over-budget, before being canceled 10 years later in 1972. The Cheyenne program developed future technology and demonstrated some impressive performance, but was never made to work as a functional gunship. It served to underline an important rule of the combat helicopter—survival would be ensured only by the right mix of speed, agility and weapons.

At the same time, despite the Army's preference for the AAFSS—for which Bell Helicopter was not selected to compete—Bell stuck with their own idea of a smaller and lighter gunship. In January 1965 Bell invested $1 million to proceed with a new design. Mating the proven transmission, the "540" rotor system of the UH-1C augmented by a Stability Control Augmentation System (SCAS), and the T53 turboshaft engine of the UH-1 with the design philosophy of the Sioux Scout, Bell produced the Model 209. Bell's Model 209 largely resembled the "Iroquois Warrior" mockup.

In Vietnam, events were also advancing in favor of the Model 209. Attacks on US forces were increasing, and by the end of June 1965 there were already 50,000 US ground troops in Vietnam. 1965 was also the deadline for AAFSS selection, but the program would become stuck in technical difficulties and political bickering. The U.S. Army needed an interim gunship for Vietnam and it asked five companies to provide a quick solution. Submissions came in for armed variants of the Boeing-Vertol ACH-47A, Kaman HH-2C Tomahawk, Piasecki 16H Pathfinder, Sikorsky S-61, and the Bell 209.

On 3 September 1965 Bell rolled out the prototype, and four days later it made its maiden flight, only eight months after the go-ahead. In April 1966, the Model 209 won an evaluation against the other rival helicopters. Then the Army signed the first production contract for 110 aircraft. Bell added Cobra to the UH-1's Huey nickname to produce its *HueyCobra* name for the 209. The Army applied the *Cobra* name to its AH-1G designation for the helicopter.

The Bell 209 demonstrator was used for the next six years to test weapons and fit of equipment. It had been modified to the match AH-1 production standard by the early 1970s. The demonstrator was retired to the Patton Museum at Fort Knox, Kentucky and converted to approximately its original appearance.
Into production

The Bell 209 design was modified for production. The retractable skids were replaced by simpler fixed skids. A new wide-blade rotor was featured. For production, a plexiglass canopy replaced the 209's armored glass canopy which was heavy enough to harm performance. Other changes were incorporated after entering service. The main one of these was moving the tail rotor from the helicopter's left side to the right for improved effectiveness of the rotor.

The U.S. Marine Corps was interested in the Cobra and ordered an improved twin-engined version in 1968 under the designation AH-1J. This would lead to more twin-engine variants. In 1972, the Army sought improved antiarmor capability. Under the Improved Cobra Armament Program (ICAP), trials of eight AH-1s fitted with TOW missiles were conducted in 1973. After passing qualification tests the following year, Bell was contracted with upgrading AH-1Gs to the TOW-capable AH-1Q configuration. A more powerful T53 engine and transmission was added from 1976 resulting in the AH-1S version. The AH-1S was upgraded in three steps, culminating with the AH-1F.

Operational history

United States

By June 1967, the first AH-1G HueyCobras had been delivered. Originally designated as UH-1H, the "A" for attack designation was soon adopted and when the improved UH-1D became the UH-1H, the HueyCobra became the AH-1G. The AH-1 was initially considered a variant of the H-1 line, resulting in the G series letter.

AH-1 Cobras were in use by the Army during the Tet offensive in 1968 and through the end of the Vietnam War. Huey Cobras provided fire support for ground forces, escorted transport helicopters and other roles, including aerial rocket artillery (ARA) battalions in the two Airmobile divisions. They also formed "hunter killer" teams by pairing with OH-6A scout helicopters. A team featured one OH-6 flying slow and low to find enemy forces. If the OH-6 drew fire, the Cobra could strike at the then revealed enemy. Bell built 1,116 AH-1Gs for the US Army between 1967 and 1973, and the Cobras chalked up over a million operational hours in Vietnam. Out of nearly 1,110 AH-1s delivered from 1967 to 1973 approximately 300 were lost to combat and accidents during the war.

The US Marine Corps used AH-1G Cobras in Vietnam for a short time before acquiring twin-engine AH-1J Cobras.
AH-1 Cobras were deployed for Operation Urgent Fury, the invasion of Grenada in 1983, flying close-support and helicopter escort missions. Army Cobras participated in the US invasion of Panama in 1989, during Operation Just Cause.

During Operation Desert Shield (1990) and Operation Desert Storm (Jan-Feb 1991), the Cobras and SeaCobras deployed in a support role. The USMC deployed 91 SeaCobras and the US Army 140 Cobras, generally fitted with engine inlet sand filters and operating from forward, dispersed sites in the desert. Three AH-1s were lost in accidents during fighting and afterward. Cobras destroyed hundreds of Iraqi armored vehicles and other targets in the fighting, though the Army relegated the Cobra to the patrol and scout roles.

Army Cobras provided support for the US humanitarian intervention during Operation Restore Hope in Somalia in 1993. They were also employed during the US invasion of Haiti in 1994. US Cobras were also used in operations throughout the 1990s. In December 1995, Cobras deployed to Bosnia with the U.S. Army's 1st Armored Division as a part of Operation Joint Endeavor.

The US Army phased out the AH-1 during the 1990s and retired the AH-1 from active service in March 1999, offering them to NATO allies. The Army retired the AH-1 from reserves in September 2001. The retired AH-1s have been passed to other nations and to the USDA Forest Service. AH-1 Cobras continue to be in service with the US military, by the US Marine Corps, which operate twin-engine AH-1 SuperCobras.

**Specifications**

**AH-1G HueyCobra**

**General characteristics**

- **Crew:** 2: one pilot, one co-pilot/gunner (CPG)
- **Length:** 53 ft (16.2 m) (with both rotors turning)
- **Rotor diameter:** 44 ft (13.4 m)
- **Height:** 13 ft 6 in (4.12 m)
- **Empty weight:** 5,810 lb (2,630 kg)
- **Max takeoff weight:** 9,500 lb (4,310 kg)
- **Powerplant:** 1× Lycoming T53-L-13 turboshaft, 1,100 shp (820 kW)
- **Rotor system:** 2 blades on main rotor, 2 blades on tail rotor
• **Fuselage length:** 44 ft 5 in (13.5 m)
• **Stub wing span:** 10 ft 4 in (3.15 m)

**Performance**

• **Never exceed speed:** 190 knots (219 mph, 352 km/h)
• **Maximum speed:** 149 knots (171 mph, 227 km/h)
• **Range:** 310 nmi (357 mi, 574 km)
• **Service ceiling:** 11,400 ft (3,475 m)
• **Rate of climb:** 1,230 ft/min (6.25 m/s)

**Armament**

• 2 × 7.62 mm (0.308 in) multi-barrel Miniguns, or 2 × M129 40 mm Grenade launchers, or one of each, in the M28 turret. (When one of each was mounted, the minigun was mounted on the right side of the turret, due to feeding problems.)
• 2.75 in (70 mm) rockets - 7 rockets mounted in the **M158** launcher or 19 rockets in the **M200** launcher
• M18 7.62 mm Minigun pod or XM35 armament subsystem with XM195 20 mm cannon

**AH-1F "Modernized" Cobra**

**General characteristics**

• **Crew:** 2: one pilot, one co-pilot/gunner (CPG)
• **Length:** 53 ft (16.1 m) (with both rotors turning)
• **Rotor diameter:** 44 ft (13.6 m)
• **Height:** 13 ft 6 in (4.12 m)
• **Empty weight:** 6,600 lb (2,993 kg)
• **Max takeoff weight:** 10,000 lb (4,500 kg)
• **Powerplant:** 1× Lycoming T53-L-703 turboshift, 1,800 shp (1,300 kW)
• **Rotor system:** 2 blades on main rotor, 2 blades on tail rotor
• **Fuselage length:** 44 ft 7 in (13.6 m)
• **Stub wing span:** 10 ft 4 in (3.15 m)

**Performance**

• **Never exceed speed:** 170 knots (196 mph, 315 km/h)
• **Maximum speed:** 149 knots (172 mph, 277 km/h)
• **Range:** 274 nmi (315 mi, 510 km)
- **Service ceiling**: 12,200 ft (3,720 m)
- **Rate of climb**: 1,620 ft/min (8.2 m/s)

**Armament**

- M197 3-barreled 20 mm Gatling type cannon
- Hydra 70 2.75 in (70 mm) rockets - 7 rockets mounted in the **M260** launcher or 19 rockets in the **M261** launcher[^35]
- TOW Missiles - 4 or 8 missiles mounted in two-missile launchers on each hardpoint

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**Bell AH-1G Huey Cobra**


**CS Gas**  

**CS Gas** - 2-chlorobenzalmalononitrile (also called o-Chlorobenzylidene Malononitrile) (chemical formula: C10H5ClN2) is the defining component of a "tear gas" commonly referred to as CS gas, which is used as a riot control agent. "CS gas" is actually an aerosol of a volatile solvent (a substance that dissolves other substances and that easily evaporates) and 2-chlorobenzalmalononitrile, which is a solid compound at room temperature. CS gas is generally accepted as being non-lethal. The chemical reacts with moisture on the skin and in the eyes, causing a burning sensation and the immediate forceful and uncontrollable shutting of the eyes. Effects usually include tears streaming from the eyes, coughing, running nose full of mucus, burning in the nose and throat areas, disorientation, dizziness and restricted breathing. In highly concentrated doses it can also induce severe coughing and vomiting. Almost all of the immediate effects wear off in a matter of minutes.

CS gas was administered in war with hand grenade canisters and mortars; however, it could also be delivered by aircraft.
**Vietnam**

It has been reported that thousands of tons of CS gas were used by the U.S. forces in Vietnam to bring Viet Cong into the open. It was also used by the North Vietnamese forces in some battles like Hue in 1968 or during the Easter Offensive in 1972.

**Current Prohibition**

Use of CS in war is prohibited under the terms of the 1997 Chemical Weapons Convention, signed by most nations in 1993 with all but five other nations signing between the years of 1994 through 1997. The reasoning behind the prohibition is pragmatic: use of CS by one combatant could easily trigger retaliation with much more toxic chemical weapons such as nerve agents. Only five nations have not signed the Chemical Weapons Convention and are therefore unhindered by restrictions on the use of CS gas: Angola, Egypt, North Korea, Somalia, and Syria. Domestic police use of CS is legal in many countries, however, as the Chemical Weapons Convention prohibits only military use.


**Daisy Chain**

In electrical and electronic engineering a daisy chain is a wiring scheme in which, for example, device A is wired to device B, device B is wired to device C, device C is wired to device D, etc. Connections do not form webs (in the preceding example, device C cannot be directly connected to device A), nor do they loop back from the last device to the first. For example, A-B-C-D-E, A-B-C-D-E & C-M-N-O (branched at C) are daisy chain, whereas A-B-C-D-E-A (loop) is not a daisy chain. Daisy chains may be used for power, analog signals, digital data, or a combination thereof. In Vietnam a common practice was to set up booby traps with Claymore mines which were daisy chained with det (detonation) cord.

**F-4**

The *McDonnell Douglas F-4 Phantom II* is a tandem two-seat, twin-engined, all-weather, long-range supersonic jet interceptor fighter/fighter-bomber originally developed for the U.S. Navy by McDonnell Aircraft. Proving highly adaptable, it became a major part of the air wings of the United States Navy, Marine Corps, and Air Force. It was used extensively by all three of these services during the Vietnam War, serving as the principal air superiority fighter for both the Navy and Air Force, as well as being important in the ground-attack and reconnaissance roles by the close of U.S. involvement in the war.

First entering service in 1960, the Phantom continued to form a major part of U.S. military air power throughout the 1970s and 1980s, being gradually
replaced by more modern aircraft such as the F-15 Eagle and F-16 Fighting Falcon in the U.S. Air Force; the F-14 Tomcat and F/A-18 Hornet in the U.S. Navy; and the F/A-18 in the U.S. Marine Corps. It remained in use by the U.S. in the reconnaissance and Wild Weasel roles in the 1991 Gulf War, finally leaving service in 1996. The Phantom was also operated by the armed forces of 11 other nations. Israeli Phantoms saw extensive combat in several Arab–Israeli conflicts, while Iran used its large fleet of Phantoms in the Iran–Iraq War. Phantoms remain in front line service with seven countries, and in use as an unmanned target in the U.S. Air Force. Phantom production ran from 1958 to 1979, with a total of 5,195 built.

The F-4 Phantom was designed as a fleet defense fighter for the U.S. Navy, and first entered service in 1960. By 1963, it had been adopted by the U.S. Air Force for the fighter-bomber role. When production ended in 1981, 5,195 Phantom IIs had been built, making it the most numerous American supersonic military aircraft. Until the advent of the F-15 Eagle, the F-4 also held a record for the longest continuous production for a fighter with a run of 24 years. Innovations in the F-4 included an advanced pulse-doppler radar and extensive use of titanium in its airframe.

Despite the imposing dimensions and a maximum takeoff weight of over 60,000 lb (27,000 kg), the F-4 had a top speed of Mach 2.23 and an initial climb of over 41,000 ft/min (210 m/s). Shortly after its introduction, the Phantom set 15 world records, including an absolute speed record of 1,606.342 mph (2,585.086 km/h), and an absolute altitude record of 98,557 ft (30,040 m). Although set in 1959–1962, five of the speed records were not broken until 1975 when the F-15 Eagle came into service.

The F-4 could carry up to 18,650 pounds (8,480 kg) of weapons on nine external hardpoints, including air-to-air and air-to-ground missiles, and unguided, guided, and nuclear bombs. Since the F-8 Crusader was to be used for close combat, the F-4 was designed, like other interceptors of the day, without an internal cannon. In a dogfight, the RIO or WSO (Weapons System Officer, commonly called "backseater" or "pitter") assisted in spotting opposing fighters, visually as well as on radar. It became the primary fighter-bomber of both the Navy and Air Force by the end of the Vietnam War.

Due to its distinctive appearance and widespread service with United States military and its allies, the F-4 is one of the best-known icons of the Cold War. It served in the Vietnam War and Arab–Israeli conflicts, with American F-4 crews claiming 277 aerial victories in Southeast Asia and completing countless ground attack sorties.

The F-4 Phantom has the distinction of being the last United States fighter flown to attain ace status in the 20th century. During the Vietnam War, the USAF had one pilot and two WSOs, and the USN one pilot and one RIO, become aces in air-to-air combat. It was also a capable tactical reconnaissance and Wild Weasel
(suppression of enemy air defenses) platform, seeing action as late as 1991, during Operation Desert Storm.

The F-4 Phantom II was also the only aircraft used by both U.S. flight demonstration teams. The USAF Thunderbirds (F-4E) and the USN Blue Angels (F-4J) both switched to the Phantom for the 1969 season; the Thunderbirds flew it for five seasons, the Blue Angels for six.

The baseline performance of a Mach 2-class fighter with long range and a bomber-sized payload would be the template for the next generation of large and light/middle-weight fighters optimized for daylight air combat. The Phantom would be replaced by the F-15 Eagle and F-16 Fighting Falcon in the U.S. Air Force. In the U.S. Navy, it would be replaced by the F-14 Tomcat and the F/A-18 Hornet which revived the concept of a dual-role attack fighter.

F-4 Phantom II

Source: http://en.wikipedia.org/wiki/McDonnell_Douglas_F-4_Phantom_II

F-100

The North American F-100 Super Sabre was a supersonic jet fighter aircraft that served with the United States Air Force (USAF) from 1954 to 1971 and with the Air National Guard (ANG) until 1979. As the first of the Century Series collection of USAF jet fighters, it was capable of supersonic speed in level flight. The F-100 was originally designed as a higher performance follow-on to the F-86 Sabre air superiority fighter.

Adapted as a fighter bomber, the F-100 would be supplanted by the Mach 2 class F-105 Thunderchief for strike missions over North Vietnam. The F-100 flew extensively over South Vietnam as the Air Force's primary close air support jet until replaced by the more efficient subsonic A-7 Corsair II. The F-100 also served in several NATO air forces and with other US allies. In its later life, it was often referred to as "the Hun," a shortened version of "one hundred."

In January 1951, North American Aviation delivered an unsolicited proposal for a supersonic day fighter to the United States Air Force. Named Sabre 45
because of its 45° wing sweep, it represented an evolution of the F-86 Sabre. The mockup was inspected 7 July 1951 and after over a hundred modifications, the new aircraft was accepted as the F-100 on 30 November 1951. Extensive use of titanium throughout the aircraft was notable. On 3 January 1952, the USAF ordered two prototypes followed by 23 F-100As in February and an additional 250 F-100As in August.

The YF-100A first flew on 25 May 1953, seven months ahead of schedule. It reached Mach 1.05 in spite of being fitted with a de-rated XJ57-P-7 engine. The second prototype flew on 14 October 1953, followed by the first production F-100A on 9 October 1953. The USAF operational evaluation from November 1953 to December 1955 found the new fighter to have superior performance but declared it not ready for widescale deployment due to various deficiencies in the design. These findings were subsequently confirmed during Project Hot Rod operational suitability tests. Particularly troubling was the yaw instability in certain regimes of flight which produced inertia coupling. The aircraft could develop a sudden yaw and roll which would happen too fast for the pilot to correct and would quickly overstress the aircraft structure to disintegration. It was under these conditions that North American's chief test pilot, George Welch, was killed while dive testing an early-production F-100A on 12 October 1954. Another control problem stemmed from handling characteristics of the swept wing at high angles of attack. As the aircraft approached stall speeds, loss of lift on the tips of the wings caused a violent pitch-up. This particular phenomenon (which could easily be fatal at low altitude where there was insufficient time to recover) became known as the "Sabre Dance".

Nevertheless, delays in the F-84F Thunderstreak program pushed the Tactical Air Command to order the raw F-100A into service. TAC also requested that future F-100s should be fighter-bombers, with the capability of delivering nuclear bombs.

The North American F-107 was a follow-on Mach 2 development of the F-100 with the air intake moved above and behind the cockpit. It was not developed in favor of the F-105 Thunderchief.

The F-100A officially entered USAF service on 27 September 1954 with 479th Fighter Wing at George AFB, CA. By 10 November 1954, the F-100As suffered six major accidents due to flight instability, structural failures, and hydraulic system failures, prompting the Air Force to ground the entire fleet until February 1955. The 479th finally became operational in September 1955. Due to ongoing problems, the Air Force began phasing out the F-100A in 1958, with the last aircraft leaving active duty in 1961. By that time, 47 aircraft were lost in major accidents. Escalating tension due to construction of the
Berlin Wall in August 1961 forced the USAF to recall the F-100As into active service in early 1962. The aircraft was finally retired in 1970.

The TAC request for a fighter-bomber was addressed with the **F-100C** which flew in March 1954 and entered service on 14 July 1955 with the 450th Fighter Wing, Foster AFB, TX. Operational testing in 1955 revealed that the F-100C was at best an interim solution, sharing all the vices of the F-100A. The uprated J57-P-21 engine boosted performance but continued to suffer from compressor stalls. On a positive note, the F-100C was considered an excellent platform for nuclear toss bombing because of its high top speed. The inertia coupling problem was more or less addressed with installation of a yaw damper in the 146th F-100C, later retrofitted to earlier aircraft. A pitch damper was added starting with the 301st F-100C, at a cost of US$10,000 per aircraft.

The addition of "wet" hardpoints meant the F-100C could carry a pair of 275 US gal (1,040 l) and a pair of 200 US gal (770 l) drop tanks. However, the combination caused loss of directional stability at high speeds and the four tanks were soon replaced by a pair of 450 US gal (1,730 l) drop tanks. The 450s proved scarce and expensive and were often replaced by smaller 335 US gal (1,290 l) tanks. Most troubling to TAC was the fact, that, as of 1965, only 125 F-100Cs were capable of utilizing all non-nuclear weapons in the Air Force inventory, particularly cluster bombs and AIM-9 Sidewinder air-to-air missiles. By the time the F-100C was phased out in June 1970, 85 had been lost in major accidents.

The definitive **F-100D** aimed to address the offensive shortcomings of the F-100C by being primarily a ground attack aircraft with secondary fighter capability. To this effect, the aircraft was fitted with autopilot, upgraded avionics, and, starting with the 184th production aircraft, the Sidewinder capability. In 1959, 65 aircraft were modified to also fire the AGM-12 Bullpup air-to-ground missile. To further address the dangerous flight characteristics, the wing span was extended by 26 in (66 cm) and the vertical tail area was increased by 27%.

The first F-100D (54-2121) flew on 24 January 1956, piloted by Daniel Darnell. It entered service on 29 September 1956 with 405th Fighter Wing at Langley AFB. The aircraft suffered from reliability problems with the constant speed drive which provides constant-frequency current to electrical systems. In fact, the drive was so unreliable that USAF required it to have its own oil system to minimize damage in case of failure. Landing gear and brake parachute malfunctions claimed a number of aircraft, and the refueling probes had a tendency to break away during high speed maneuvers. Numerous post-production fixes created such a diversity of capabilities between individual aircraft that by 1965 around 700 F-100Ds underwent High Wire modifications.
to standardize the weapon systems. High Wire modifications took 60 days per aircraft at a total cost of US$150 million. In 1966, Combat Skyspot program fitted some F-100Ds with an X band radar transmitter to allow for ground-directed bombing in inclement weather or at night.

In 1961, at England AFB, LA, (401st Tactical Wing), there were four fighter/bomber squadrons. These were the 412th, 413th, 414th and the 415th (Fighting Tigers). The 415th aircraft were modified to be the only self starting fighters in the world. This was accomplished with the addition of a large canister to the underside of the aircraft. This canister contained a black powder compound. The canister was ignited (electromechanical) and drove the jet engine to minimal ignition point. During the Berlin Crisis (approximately 09/61) the 615th was deployed to Ramstein AB, Germany to support the Germans. At the initial briefing, the 415th personnel were informed that due to the close proximity of the USSR, if an ICBM were to be launched, they would only have thirty minutes to launch the 415th aircraft and retire to the nearest German bunker.

In 1967, the USAF began a structural reinforcement program to extend the aircraft's service life from the designed 3,000 flying hours to 7,000. Over 500 F-100Ds were lost, predominantly in accidents. After one aircraft suffered wing failure, particular attention was paid to lining the wings with external bracing strips. During the Vietnam War, combat losses constituted as many as 50 aircraft per year. On 7 June 1957, an F-100D fitted with an Astrodyne booster rocket making 150,000 lbf (667.2 kN) of thrust successfully performed a zero length launch. The capability was incorporated into late-production aircraft. After a major accident, the USAF Thunderbirds reverted from F-105 Thunderchief to the F-100D which they operated from 1964 until it was replaced by the F-4 Phantom II in 1968.

The F-100 was the subject of many modification programs over the course of its service. Many of these were improvements to electronics, structural strengthening, and projects to improve ease of maintenance. One of the more interesting of these was the replacement of the original afterburner of the J-57 engine with the more advanced afterburners from retired Convair F-102 Delta Dagger interceptors. This modification changed the appearance of the aft end of the F-100, doing away with the original "petal-style" exhaust. The afterburner modification started in the 1970s and solved maintenance problems with the old type as well as operational problems, including compressor stall problems.

The F-100F two-seat trainer entered service in 1958. It received many of the same weapons and airframe upgrades as the F-100D, including the new afterburners. By 1970, 74 F-100Fs were lost in major accidents.
By 1972, the F-100 was mostly phased out of USAF active service and turned over to tactical fighter groups and squadrons in the Air National Guard. In Air National Guard units, the F-100 was eventually replaced by the F-4 Phantom II, A-7 Corsair II, and A-10 Thunderbolt II, with the last F-100 retiring in 1979. In foreign service, Royal Danish Air Force and Turkish Air Force F-100s soldiered on until 1982.

Over the lifetime of its USAF service, a total of 889 F-100 aircraft were destroyed in accidents, involving the deaths of 324 pilots. The deadliest year for F-100 accidents was 1958, with 116 aircraft destroyed, and 47 pilots killed.

After Super Sabres were withdrawn from service, a large number were converted into remote-controlled drones (QF-100) under the USAF Full Scale Aerial Target (FSAT) program for use as targets for various anti-aircraft weapons, including missile-carrying fighters and fighter-interceptors, with FSAT operations being conducted primarily at Tyndall AFB, FL. A few F-100s also found their way into civilian hands, primarily with defense contractors supporting USAF and NASA flight test activities at Edwards AFB, CA.

**Vietnam War**

On 16 April 1961 six Super Sabres were deployed from Clark Air Force Base in the Philippines to Don Muang Airfield in Thailand for air defense purposes; the first F-100s to enter combat in Southeast Asia. From that date until their redeployment in 1971, the F-100s would be the longest serving US jet fighter bomber to fight in the Vietnam War. Serving as MiG CAP escorts for F-105 Thunderchiefs, MISTY FACs, and Wild Weasels over North Vietnam, and then relegated to close air support and ground attacks within South Vietnam.

On 18 August 1964, the first F-100D to be shot down by ground fire was piloted by 1st Lt Colin A. Clark, of the 428th TFS; Clark ejected and survived. On 4 April 1965 as escorts protecting F-105s attacking the Thanh Hoa Bridge, F-100 Super Sabres fought the USAF's first air-to-air jet combat duel in the Vietnam War, in which an F-100 piloted by Capt Donald W. Kilgus shot down a North Vietnamese Air Force MiG-17, using cannon fire, while another fired Sidewinder missiles. The surviving North Vietnamese pilot reported 3 of his planes were shot down. Although recorded by the US as one probable kill, this represented the first aerial victory by US forces in Vietnam. However, the small force of 4 MiG-17s had evaded the F-100s to claim two F-105s. The F-100 was soon replaced by the F-4C for MiG CAP which pilots noted suffered for lacking built-in guns for dogfights.

By war's end, 242 F-100 Super Sabres had been lost in Vietnam, as the F-100 was progressively replaced by the F-4 Phantom II and the F-105 Thunderchief.
The Hun had logged 360,283 combat sorties during the war and its wartime operations came to end on 31 July 1971.

![F-100](image)

**Source:** http://en.wikipedia.org/wiki/North_American_F-100_Super_Sabre

F-101

The **McDonnell F-101 Voodoo** was a supersonic military fighter flown by the USAF and the RCAF. Initially designed by McDonnell Aircraft as a long-range bomber escort (known as a penetration fighter) for the Strategic Air Command (SAC), the Voodoo was instead developed as a nuclear armed fighter bomber for the Tactical Air Command (TAC), and as a photo reconnaissance aircraft based on the same airframe. Extensively modified versions were produced as an all-weather interceptor aircraft, serving with the Air Defense Command, later renamed the Aerospace Defense Command (ADC), the Air National Guard, the Royal Canadian Air Force and the unified Canadian Forces after 1968.

The Voodoo's career as a strike fighter was relatively brief, but the reconnaissance versions served for some time. Along with the US Air Force's U-2 and US Navy's RF-8 Crusaders, the RF-101 reconnaissance variant of the Voodoo was instrumental during the Cuban Missile Crisis and saw extensive service during the Vietnam War. Interceptor versions served with the Air National Guard until 1982, and in Canadian service they were a front line part of NORAD until their replacement with the CF-18 Hornet in the 1980s.

**Operational history**

**F-101A / RF-101G**

Despite Strategic Air Command’s loss of interest, the aircraft attracted the attention of Tactical Air Command, and the F-101 was reconfigured as a fighter bomber, intended to carry a single nuclear weapon for use against battlefield targets such as airfields. With the support of TAC, testing was
resumed, with Category II flight tests beginning in early 1955. A number of problems were identified during development, with many of these fixed. The aircraft had a dangerous tendency toward severe pitch-up at high angle of attack that was never entirely solved. Around 2,300 improvements were made to the aircraft in 1955–56 before full production was resumed in November 1956.

**F-101A Voodoo**

The first F-101A was delivered in May 1957 to the 27th Strategic Fighter Wing, replacing their F-84F Thunderstreak. The F-101A was powered by two Pratt & Whitney J57-P-13 turbojets, allowing good acceleration, climb-performance, ease in penetrating the sound barrier in level flight, and a maximum performance of Mach 1.52. The F-101’s large internal fuel capacity allowed a range of approximately 3,000 mi (4,828 km) nonstop. The aircraft was fitted with an MA-7 fire-control radar for both air-to-air and air-to-ground use, augmented by an MA-2 Low Altitude Bombing System (LABS) system for delivering nuclear weapons, and was designed to carry a Mk 28 nuclear bomb. The original intended payload for the F-101A was the McDonnell Model 96 store, a large fuel/weapons pod similar in concept to that of the B-58 Hustler, but was cancelled in March 1956 before the F-101 entered service. Other operational nuclear payloads included the Mk 7, Mk 43, and Mk 57 weapons. (While theoretically capable of carrying conventional bombs, rockets, or Falcon air-to-air missiles, the Voodoo never used such weapons operationally). It was fitted with four 20mm M39 cannon, with one cannon often removed in service to make room for a TACAN beacon-receiver.

The F-101 set a number of speed records, including: a **JF-101A** setting a world speed record of 1,207 mph (1,942 km/h) on 12 December 1957 during "Operation Firewall", handily beating the previous record set by the Fairey Delta 2. On 27 November 1957, during "Operation Sun Run," an **RF-101C** set the Los Angeles-New York-Los Angeles record in 6 hours 46 minutes, the New York to Los Angeles record in 3 hours, 36 minutes, and the Los Angeles to New York record in 3 hours 7 minutes. An **F-101A** flew from Carswell, Texas to Bermuda without refueling.

A total of 77 F-101As were built. They were gradually withdrawn from service starting in 1966. Twenty-nine survivors were converted to **RF-101G** specifications with a modified nose, housing reconnaissance cameras in place of cannons and radar. These served with the Air National Guard through 1972.

**RF-101C**

Using the reinforced airframe of the F-101C, the **RF-101C** first flew on 12 July 1957, entering service in 1958. Like the RF-101A, the RF-101C had six cameras in place of radar and cannons in the reshaped nose. Unlike the RF-
101A, the RF-101C retained the ability to carry a single nuclear weapon on the centerline pylon. 166 RF-101Cs were built, including 96 originally scheduled to be F-101C fighter-bombers.

The 1964 Project "Toy Tiger" fitted some RF-101C with a new camera package and a centerline pod for photo-flash cartridges. Some were further upgraded under the Mod 1181 program with automatic control for the cameras.

The RF-101C saw service during the Cuban Missile Crisis and soon followed the F-100 Super Sabres into combat when RF-101s from the 67th Tactical Reconnaissance Wing deployed to Vietnam in October 1961. The RF-101C saw heavy service during the Vietnam War, with the first F-101 being lost in November 1964 to ground fire. From 1965 through November 1970, its role was gradually taken over by the RF-4C Phantom II. In some 35,000 sorties, 39 aircraft were lost, 33 in combat, including five to SAMs, one to an airfield attack, and one in air combat to a MiG-21 in September 1967. The RF-101C's speed made it largely immune to MiG interception. 27 of the combat losses occurred on reconnaissance missions over North Vietnam. In April 1967, ALQ-71 ECM pods were fitted to provide some protection against SAMs. Although the Voodoo was again able to operate at medium altitudes, the added drag decreased the speed enough to make RF-101 vulnerable to MiGs and thus requiring fighter escort.

After withdrawal from Vietnam, the RF-101C continued to serve with USAF units through 1979.

In service, the RF-101C was nicknamed the "Long Bird;" it was the only version of the Voodoo to see combat.
The Republic F-105 Thunderchief, was a supersonic fighter-bomber used by the United States Air Force. The Mach 2 capable F-105 bore the brunt of strike bombing over North Vietnam during the early years of the Vietnam War, and has the distinction of being the only US aircraft to have ever been removed from combat due to attrition. Originally designed and deployed as a single seat aircraft, a two-seat Wild Weasel version was later developed for use in the specialized Suppression of Enemy Air Defenses (SEAD) role against surface-to-air missile sites. It was commonly known as the Thud by its crews.

As a follow-on to the Mach 1 capable F-100, the F-105 was also armed with missiles and a cannon; however, its design was tailored to high-speed low-altitude penetration carrying a single nuclear bomb internally. First flown in 1955, the Thunderchief entered service in 1958. As the largest single-engined fighter ever employed by the USAF, the single-seat F-105 would be adapted to deliver a greater bomb load than the four-engined, 10-man strategic bombers of World War II like the B-17 and B-24. The F-105 would be best remembered as the primary strike bomber over North Vietnam in the early stages of the Vietnam War. Over 20,000 Thunderchief sorties were flown, with 382 aircraft lost (nearly half of the 833 produced) including 62 operational losses. Although it lacked the agility of the smaller MiG fighters, USAF F-105s demonstrated the effectiveness of guns, and were credited with downing 27 enemy aircraft.

During the war, the two-seat F-105F and F-105G Wild Weasel variants became the first dedicated Suppression of Enemy Air Defenses (SEAD) platforms, fighting against the Soviet-built S-75 Dvina/(SA-2 Guideline) surface-to-air missiles. Two Wild Weasel pilots were awarded the Medal of Honor for attacking North Vietnamese surface-to-air missile sites, with one shooting down two MiG-17s the same day. The dangerous missions often required them to be the “first in, last out”, suppressing enemy air defenses and
keeping them suppressed while strike aircraft accomplished their missions and then left the area.

Although the F-105 weighed 50,000 lb (22,680 kg), the aircraft could exceed the speed of sound at sea level and Mach 2 at high altitude. It could carry up to 14,000 lb (6,350 kg) of bombs and missiles. The Thunderchief was later replaced as a strike aircraft over North Vietnam by both the F-4 Phantom II and the swing-wing F-111. However, the "Wild Weasel" variants of the F-105 remained in service until 1984, when they were replaced by a specialized F-4G "Wild Weasel V".

**Design**

The F-105 was designed primarily for low-level interdiction and its low-altitude speed was its greatest asset when dealing with Soviet/Communist Chinese-made MiG-17/J-5s and MiG-21 fighters. The Thunderchief's highly loaded wing was excellent for speed and aerodynamic stability but not for sustained turns in a dogfight. Nevertheless, the F-105 managed 27 officially credited air-to-air victories against North Vietnamese aircraft at the cost of 17 aircraft lost to enemy fighters (North Vietnamese pilots claimed to have shot down an additional 23 F-105s but none have been confirmed by USAF). All victories were against MiG-17s. A total of 24.5 were shot down with cannon fire (one victory was shared with an F-4), and three with AIM-9 Sidewinder missiles. F-4 Phantoms were tasked with escorting the Thuds from enemy fighters, but they lacked the internal gun and ranging gunsight of the Thunderchief until late in the war.

On the basis of combat experience, the F-105D was updated with a better ejection seat, radar homing and warning (RHAW) antenna on the tail fin, additional armor, and protection to the hydraulic system which proved to be very vulnerable to combat damage. The hot and humid climate of Southeast Asia created problems for the capricious electronics, a problem encountered by virtually all advanced U.S. aircraft of the war. High ambient temperatures also exacerbated the F-105's propensity for engine fires due to inadequate cooling of the afterburner. Most of the aircraft deployed to Vietnam were eventually fitted with ram-air scoops to ameliorate this problem.

**Special modifications**

The rear cockpits of several two-seat F-105Fs were modified under project *Commando Nail* with an R-14A radar and a radar scope that offered high resolution. These aircraft were used for all-weather and night low-level strikes against especially dangerous targets by a unit from the 13th Tactical Fighter Squadron (1966–1975) dubbed "Ryan's Raiders" starting in April 1967. *Commando Nail* aircraft were also used to develop tactics for proposed B-58 Hustler bomber missions in Vietnam, although the Hustler was never deployed.
to Southeast Asia. Some of these aircraft were later converted to the Wild Weasel III standard.

In an effort to thwart MiG attacks, several F-105Fs were also fitted with Hallicrafters QRC-128 VHF jammers under project Combat Martin. The North Vietnamese interceptor force followed Soviet air-defense doctrine, with pilots under rigid direction of ground controllers over radio links. The QRC-128, nicknamed "Colonel Computer", filled up the rear cockpit of the F-105F and bounced voice communications over the radio channel back out after a delay, resulting in an obnoxious garble. However, the first time the Combat Martin was used, the US National Security Agency (NSA), in charge of US strategic signals intelligence, ordered the Air Force to cease and desist immediately, since the NSA believed that the intelligence obtained by monitoring the channels outweighed the benefits of jamming them. Some of these aircraft were eventually brought to the Wild Weasel III standard.

Persistent problems with the AN/ARN-85 LORAN system resulted in 30 F-105Ds being upgraded to the AN/ARN-92 in a long dorsal spine. Known as Thunderstick II aircraft, these F-105s could achieve a bombing circular error probable of 50 ft (15 m) from an altitude of 15,000 ft (4,570 m). Although the first of these aircraft flew in 1969, they were never deployed to Vietnam.

Wild Weasel

In 1965, the USAF began operating two-seat F-100F Super Sabres specially equipped for Suppression of Enemy Air Defenses mission in Vietnam. Nicknamed the Wild Weasel, these aircraft achieved 9 confirmed victories against North Vietnamese surface-to-air missile radars. The second crew member was a Navigator trained as an Electronic Warfare Officer (EWO), nicknamed the Bear (as in trained bear), whose job was to decipher the information from the aircraft's sensors and guide the pilot towards the targets. However, the F-100F was an interim solution and because of its limited payload it usually had to rely on accompanying strike aircraft to actually attack the SAM sites. It also lacked the speed and the endurance to effectively protect the USAF's primary strike fighter—the F-105. With twice the payload capacity of the Super Sabre and considerably better performance, the two-seat F-105F was an ideal candidate for a more definitive SEAD platform.

The resulting EF-105F Wild Weasel III (the EF designation was popularly used but unofficial) supplemented its sensors and electronic jamming equipment with AGM-45 Shrike anti-radiation missiles and conventional bombs, giving it an offensive capability lacking in the F-100F. The first of these aircraft flew on 15 January 1966 and they began arriving in Southeast Asia in June, with five assigned to the 13th TFS at Korat Republic of Thailand Air Force Base (RTAFB) and six more to the 354th TFS at Takhli RTAFB. In a typical early mission, a single EF-105F would accompany one or two flights
of F-105Ds to provide protection from enemy ground fire. While this strategy was effective in reducing F-105D losses, the Weasel aircraft suffered heavy casualties with five of the first 11 lost in July and August 1966. Attacks into high-risk environments saw the Weasels operating in "Iron Hand" Hunter-Killer flights of mixed single-seat and two-seat Thunderchiefs, suppressing sites during attacks by the strike force and attacking others during ingress and egress.

The EF-105Fs were upgraded to the definitive Wild Weasel Thunderchief, the F-105G, with the first aircraft arriving in Southeast Asia in late 1967. The genesis of the F-105G was a PACAF policy that all USAF fighter-bombers operating over North Vietnam had to carry ECM pods, which served to degrade the Weasels own electronics and occupied one ordnance wing hardpoint. The F-105G incorporated a considerable amount of new SEAD-specific avionics, including an upgraded RHAW system which required a redesign of the wingtips. To free outboard hardpoints for additional weapons, the Westinghouse AN/ALQ-105 electronic countermeasures were permanently installed in two long blisters on the underside of the fuselage. Thirty aircraft were fitted with specially designed pylons to permit carrying of the AGM-78 Standard anti-radiation missile, a considerable improvement over the somewhat lackluster Shrike. On a typical mission, the F-105G carried two Shrikes on outboard pylons, a single Standard on an inboard pylon balanced by a 450 US gal (1,703 l) fuel tank on the other side, and a 650 US gal (2,461 l) centerline fuel tank. The Wild Weasel aircraft were usually the first to arrive in the target area and the last to leave, staying after the strike to support rescue of downed aircrews. As such, fuel was a precious commodity and it was not uncommon for a Wild Weasel to require a 30-minute leave for aerial refueling in order to continue its mission.

Although the F-105D was withdrawn from Vietnam in 1970, the Wild Weasel aircraft soldiered on until the end of the war. They were gradually replaced by the F-4G Wild Weasel IV variant of the F-4 Phantom II. F-105B/D/F/Gs served with the Air Force Reserve and the Air National Guard units until the mid-1980s. The last Air National Guard unit was the 116th Tactical Fighter Group of the Georgia Air National Guard at Dobbins AFB, Georgia, flying the F-105G through 1983. The last Air Force Reserve unit, and the last USAF operator of the Thunderchief, was the 419th Tactical Fighter Wing at Hill AFB, Utah, which flew the F-105B/D/F through 1984.

**Flying the F-105**

The initial reaction of the fighter pilot community to their new aircraft was lukewarm. Between its massive dimensions and troubled early service life, the F-105 had garnered a number of uncomplimentary nicknames. In addition to the aforementioned "Thud", nicknames included the "Squat Bomber", "Lead Sled", and the "Hyper Hog" and/or "Ultra Hog". The aircraft's offensive
capabilities were sarcastically referred to as a "Triple Threat"--It could bomb you, strafe you, or fall on you. With time, however, the F-105's responsive controls, excellent performance at high speed and low altitude, and sophisticated electronics won over even some of the F-104 Starfighter pilots. The "Thud" changed to a term of respect and endearment to the point where the F-84F Thunderflash became known as the "Thud's Mother".

Former F-86 Sabre pilot Jerry Noel Hoblit recalled the awe of the F-105's size after seeing it in person for the first time; he could not manage to reach the air intake lip even with a running jump. The F-105 had a spacious cockpit with a good layout (particularly after introduction of "tape" instruments) and visibility (except to the rear), and the advanced electronics were easy to learn and operate. With high wing loading, the Thunderchief was by all accounts an excellent aircraft to fly at high speeds. Takeoffs and landings were often performed in the 230 mph (370 km/h) range. The spoilers provided good roll control at all speeds and the distinctive four-petal airbrakes (which also opened slightly when the afterburner was engaged to allow for the larger flow of exhaust gases) were highly effective even at supersonic speeds. Loss of control due to a spin or complications of adverse yaw required deliberate effort from the pilot and spontaneous spin recovery was rapid.

**Vietnam War**

In spite of a troubled early service life, the F-105 became the dominant attack aircraft during the early Vietnam War. The F-105 could carry more than twice the bomb load farther and faster than the F-100, which was used mostly in South Vietnam. In a foreshadowing of its Wild Weasel role, the first F-105D combat mission of the war involved an attack on 14 August 1964 against an anti-aircraft artillery site on Plaine des Jarres. This mission was carried out by aircraft of the 36th TFS, 6441st Tactical Fighter Wing deployed from Yokota Air Base Japan to Korat Royal Thai Air Force Base. The first Thunderchief of the war was also lost in this mission (the pilot managed to eject safely). The first strike mission took place on 13 January 1965 with the destruction of the Ben Ken bridge in Laos. Following the start of Operation Rolling Thunder on 1 March 1965, a large number of F-105Ds were deployed in Royal Thai Air Force Bases at Khorat and Takhli. On 2 August 1967, F-105Ds from 335th and 338th Tactical Fighter Squadrons made the first of many successful raids on the Paul Doumer bridge. While the planes were first deployed with their original natural metal finish, they soon adopted the distinctive two-green and tan Vietnam camouflage scheme which blended into the jungle landscape.

On a typical combat mission into North Vietnam, the F-105D carried two 450 US gal (1,703-l) wing-mounted fuel tanks, a 390 US gal (1,476-l) fuel tank in the bomb bay, and five 1,000 lb (454 kg) or six 750 lb (340 kg) bombs, and required inflight refueling going to and sometimes returning from Hanoi 700 mi (1,125 km) distant. Thunderchiefs made a loop north of Hanoi over a
mountain nicknamed the *Thud Ridge* 21°16′47″N 105°49′37″E21.27972°N 105.82694°E at high speed and low altitude in order to avoid the heavily defended airspace around the city. Although the ridge provided proper shielding from the North Vietnamese radars and SAMs, the installment of anti-aircraft artillery and a MiG fighter airfield at the southern end of the valley prevented the F-105s from fully exploiting the benefit of cover. The name "Thud Ridge" (also the name of a book by Jack Broughton about the F-105) came from the prominent role of the mountain in F-105 missions.

Unfortunately, the low-altitude attacks and dive bombings forced the F-105s to fly right through the frequently heavy North Vietnamese anti-aircraft fire. Designed originally to be a nuclear bomber and not for hitting precision targets, the F-105 had only a dive bombing sight for the pilot to hit its target, and lacked any kind of a bomb guidance system that would allow for bombing from a stand-off distance, and so it could only hit its targets by dive bombing through the local anti-aircraft fire. This period of time was also before the "smart" laser and TV-guided bombs were developed. The attrition rates were so high that the USAF began experiencing shortages of combat-ready aircraft. 382 F-105s were lost in Southeast Asia, 320 of those in combat - most to enemy ground fire. Of the 610 single-seat F-105Ds built, 283 were shot down and 52 lost operationally. Of the 143 F-105F/G two-seaters, 37 were shot down and 10 lost operationally (one "Ryan's Raiders" night interdiction aircraft and one Combat Martin jammer without a back-seat WSO were lost in combat, the other 45 losses were Wild Weasel aircraft).

As production of F-105s had ended, the type was thus replaced in the Vietnam War by other aircraft, primarily the F-4 Phantom, and, the new A-7 Corsair II, which despite being a cheaper subsonic aircraft, had the computerized stand-off bombing and guidance systems that the F-105 lacked. By November 1970, the last of the F-105Ds had been withdrawn from combat in Vietnam.

**Retirement**

The Thunderchief was rapidly withdrawn from USAF service after the end of the Vietnam War. Of the 833 F-105s built, nearly 50% were lost in Vietnam. By US military standards the F-105 was no longer considered combat-effective. Some aircraft remained in service in the 1970s and 1980s with Air Force Reserve and Air National Guard units, but their extended wartime service meant that many F-105s had already reached or exceeded their service lives by the mid-1970s. The F-105 Thunderchief was officially retired on 25 February 1984 and replaced by the F-4 Phantom II. The F-105, however, had a very good service life since most of its fellow US made 2nd generation aircraft were also retired from service in the mid-1970s, 10 years before the Thud retired.
The M14 rifle, formally the United States Rifle, Caliber 7.62 mm, M14, is an American selective fire automatic rifle firing 7.62x51mm NATO (.308 Winchester) ammunition. It was the standard issue U.S. rifle from 1959 to 1970. The M14 was used for U.S. Army and Marine Corps basic and advanced individual training, and was the standard issue infantry rifle in CONUS, Europe, and South Korea, until replaced by the M16 rifle in 1970. It remains in use as a ceremonial weapon. The M14 also provides the basis for the M21 and M25 sniper rifles. It was the last so-called "battle rifle" (a term applied to weapons firing full-power rifle ammunition) issued in quantity to U.S. troops.

The M16 (more formally Rifle, Caliber 5.56 mm, M16) is the United States military designation for the AR-15 rifle. Colt purchased the rights to the AR-15 from ArmaLite and currently uses that designation only for semi-automatic versions of the rifle. The M16 rifle fires the 5.56x45mm cartridge and can produce massive wounding and hydrostatic shock effects when the bullet impacts at high velocity and yaws in tissue leading to fragmentation and rapid transfer of energy. However, terminal effects can be unimpressive when the bullet fails to yaw or fragment in tissue. The M16 entered United States Army service as the M16A1 and was put into action for jungle warfare in South
Vietnam in 1963, becoming the standard U.S. rifle of the Vietnam War by 1969, replacing the M14 rifle in that role. It has been in used by 15 NATO countries, and is the most produced firearm in its caliber.

![M-16](http://en.wikipedia.org/wiki/M16_rifle)

**Source:** http://en.wikipedia.org/wiki/M16_rifle

### M21 Sniper Rifle

The **M21 Sniper Weapon System** (SWS) is the semi-automatic sniper rifle adaptation of the M14 rifle. It is chambered for the 7.62x51mm NATO cartridge.

The United States Army wanted an accurate sniper rifle during the Vietnam War. The M14 was selected because of its accuracy, reliability, and the ability for a quick second shot. As a result, in 1969, the Rock Island Arsenal converted 1,435 National Match (target grade) M14s by adding a Leatherwood 3–9x Adjustable Ranging Telescope and providing National Match grade ammunition. It was designated the M21 in 1975. The M21 remained the Army's primary sniper rifle until 1988, when it was replaced by the M24 Sniper Weapon System.

In standard military use, the M21 uses a 20-round box magazine as the other members of the M14 family, and weighs 11.6 pounds (5.27 kg) without the scope. The U.S. military never officially authorized or purchased magazines in any other capacity, although 5- and 10-round magazines are available.

![M-21 Sniper Rifle](http://en.wikipedia.org/wiki/M21_Sniper_Weapon_System)

**Source:** http://en.wikipedia.org/wiki/M21_Sniper_Weapon_System
M26 and M61 Hand Grenades

The M26 and later, the M-61, is a **fragmentation grenade** developed by the United States military. Its distinct lemon shape led it to being nicknamed the "lemon grenade".

Fragmentation is caused by a special fragmentation coil that lies between the outer layer and explosive filling. The coil is designed so that fragmentation will not exceed a radius of 15m, allowing for a more controlled blast that is less likely to injure the thrower than previous designs.

**Using**

To use the grenade, the user must first pull the safety pin while gripping the striking lever in his/her palm. As long as the user holds the striking lever in place, the fuse will not ignite. The fuse ignites only when the striking lever is released, as upon throwing (or, unfortunately, dropping).

On the M61, which was a later version of the M26, the extra safety clip must be removed before the grenade is thrown in addition to the safety pin. This clip was added after numerous unplanned detonations occurred by the safety pin snagging on underbrush, particularly in the jungles of Vietnam. There were other accidents which occurred when a grenade hit tree limbs close to the thrower.

M-61 Fragmentation Grenade

**Source:** [http://en.wikipedia.org/wiki/M61_grenade](http://en.wikipedia.org/wiki/M61_grenade)

M48 Tank

The M48 Patton was the third and final US medium gun tank of the Patton series, named after General George S. Patton, commander of the U.S. Third Army during World War II and one of the earliest American advocates for the use of tanks in battle. It was a further development of the M47 Patton tank. The M48 Patton served as an interim tank until replaced by the US Army's first Main Battle Tank (MBT), the M60 Combat Tank. The M48 served as the U.S. Army and Marine Corps's primary battle tank during the Vietnam War. It was widely used by U.S. Cold War allies, especially other NATO countries.
The M48 Patton tank was designed to replace the previous M47 Pattons and M4 Shermans. Although largely resembling the M47, the M48 Patton was a completely new tank design. Some M48A5 models served well into the 1980s. Many various M48 Patton models remain in service internationally. The M48 was the last US tank to mount the 90mm tank gun, with the last model, the M48A5, being upgraded to carry the new standard weapon of the M60, the 105mm gun.

The M48s saw extensive action during the Vietnam War, over 600 Pattons would be deployed with US Forces during the war. The initial M48s landed with the US Marine 1st and 3rd Tank Battalions in 1965; the Marine 5th Tank Battalion would later become a reinforcement unit. Remaining Pattons deployed to South Vietnam were in three U.S. Army battalions, the 1-77th Armor near the DMZ, the 1-69th Armor in the Central Highlands, and the 2-34th Armor near the Mekong Delta. Each battalion consisted of approximately fifty seven tanks. M48s were also used by Armored Cavalry Squadrons in Vietnam, until replaced by M551 Sheridan tanks. The M67A1 flamethrower tank (nicknamed the Zippo) was an M48 variant used in Vietnam.

The M48s performed admirably in Vietnam in the infantry-support role. However, there were few actual tank versus tank battles. One was between the 1-69th Armor and PT-76 light amphibious tanks of the NVA 202nd Armored Regiment near Ben Het in 1969. The M48s provided adequate protection for its crew from small arms, mines, and rocket-propelled grenades. South Vietnamese M-48s and M-41s fought bravely in the defence of South Vietnam in the so called Ho Chi Minh Offensive in 1975. In several incidents, the South Vietnamese Army successfully defeated NVA T-34 and T-55 tanks and even slowed the North's offensive. However since the United States Congress passed bans on the transfer of fuel and ammunition to South Vietnam, the American-made tanks were soon out of ammunition and fuel and were abandoned to the North Vietnamese Army in 1975 which put them in predictably short service of the Vietnamese People's Army after the war ended in May 1975.

4th Infantry Division Troops Move on Their M48 Patton Tank in Vietnam

Source: http://en.wikipedia.org/wiki/M48_Patton
The **M60** (formally the United States Machine Gun, Caliber 7.62 mm, M60) is a family of American general purpose machine guns firing 7.62x51mm NATO cartridges from a disintegrating belt of M13 links. There are several types of live ammunition approved for use in the M60, including ball, tracer, and armor-piercing rounds. The M60 was referred to as "The Pig" during the Vietnam War. It weighed 23 pounds.

Introduced in 1957, it has served with every branch of the U.S. military and still serves with other armed forces. Its manufacture and continued upgrade for military and commercial purchase continues into the 21st century though it has been replaced or supplemented in most roles by other designs, notably the M240 in U.S. service.

The M60 is a belt-fed machine gun that fires the 7.62 mm NATO cartridge commonly used in larger rifles. It is generally used as crew-served weapon and operated by a team of two or three men. The team consists of the gunner, the assistant gunner (AG in military slang), and the ammunition bearer. The gun's weight and the amount of ammunition it consumes when fired make it difficult for a single soldier to carry and operate. The gunner carries the weapon and, depending on his strength and stamina, anywhere from 200 to 1000 rounds of ammunition. The assistant carries a spare barrel and extra ammunition, and reloads and spots targets for the gunner. The ammunition bearer carries additional ammunition and the tripod with associated traversing and elevation mechanism, if issued, and fetches more ammunition as needed during firing. The basic ammunition load carried by the crew is 600 to 900 rounds and theoretically allows approximately two minutes of continuous firing at the maximum rate of fire. All crews carry more than the basic load, sometimes three or more times the basic amount.

The M60 can be accurately fired at short ranges from the shoulder due to its design. This was an initial requirement for the design and a hold-over in concept from the M1918 Browning Automatic Rifle. It may also be fired from the integral bipod, M122 tripod, and some other mounts.

M60 ammunition comes in a cloth bandolier containing a cardboard box of 100 pre-linked rounds. The M60 changed from M1 link to the different M13 link, a change from the older link system with which it was not compatible. The cloth bandolier is reinforced to allow it to be hung from the current version of the feed tray. Historically, units in Vietnam used B3A cans from C-rations packs locked into the ammunition box attachment system to roll the ammunition belts over for a straighter and smoother feed to the loading port to enhance reliability of feed. The later models changed the ammunition box attachment point and made this adaptation unnecessary.

The M60 machine gun began development in the late 1940s as a program for a new, lighter 7.62 mm machine gun. The design included features that had been
successful on earlier designs (most notably the German MG 42 and FG 42), as well as improvements of its own. It was intended to replace the M1918 Browning Automatic Rifle and M1919A6 Browning machine gun in the squad automatic weapon role. It was also to replace the M1919 family in the medium machine gun role. One of the weapons tested against it during its procurement process was the FN MAG.

The U.S. Army officially adopted the M60 in 1957. It later served in the Vietnam War as a squad automatic weapon with many U.S. units. Every soldier in the rifle squad would carry an additional 200 linked rounds of ammunition for the M60, a spare barrel, or both. The up-gunned M113 armored personnel carrier ACAV added two M60 gunners beside the main .50 gun, and the Patrol Boat, River had one in addition to two 50 cal mounts.

Source: http://en.wikipedia.org/wiki/M60_machine_gun

M-72 LAW

The M72 LAW (Light Anti-Tank Weapon, also referred to as the Light Anti-Armor Weapon or LAW as well as LAWS Light Anti-Armor Weapons System) is a portable one-shot 66 mm unguided anti-tank weapon, designed in the United States by Paul V. Choate, Charles B. Weeks, and Frank A. Spinale et al. while with the Hesse-Eastern Division of Norris Thermadore, currently produced by Nammo Raufoss AS in Norway.

In early 1963 the LAW was adopted by the United States Army and the United States Marines as their primary individual infantry anti-tank weapon, replacing the M31 HEAT rifle grenade and the M20A1 "Super Bazooka" in the US Army.

The weapon consists of a rocket packed inside of a launcher made up of two tubes, one inside the other. While closed, the outer assembly acts as a watertight assembly for the rocket and the percussion cap-type firing mechanism that activates the rocket. The outer tube contains the trigger, the arming handle, front and rear sights, and the rear cover. The inner tube contains the channel assembly which houses the firing pin assembly, including the detent lever. When extended, the inner tube telescopes outward toward the
rear, guided by the channel assembly which rides in an alignment slot in the outer tube's trigger housing assembly. This causes the detent lever to move under the trigger assembly in the outer tube, both locking the inner tube in the extended position and cocking the weapon. Once armed, the weapon is no longer watertight even if the launcher is collapsed into its original configuration.

When fired, the striker in the rear tube impacts a primer which ignites a small amount of powder that "flashes" down a tube to the rear of the rocket igniting the propellant in the rocket motor, The rocket motor burns complete before leaving the mouth of the launcher, producing gases around 1,400 °F (760 °C). The rocket propels the 66 mm warhead forward without significant recoil. As the warhead emerges from the launcher, six fins spring out from the base of the rocket tube, stabilizing the warhead's flight. The early LAW warhead, developed from the M31 HEAT rifle grenade warhead, uses a simple, but extremely safe and reliable piezoelectric fuze system, which on impact with the target a certain type of crystal in the front nose section is crushed causing a micro-second electric current to be generated which detonates the warhead. The fuse then detonates a booster charge located in the base of the warhead which sets off the main warhead charge. The force of the main charge forces the copper liner into a directional particle jet that in relation to the size of the warhead is capable of massive amount of penetration. A unique mechanical set-back safety on the base of the detonator grounds the circuit till the missile is accelerated from the tube. The accelerations causes each of the 3 disk in the set back to rotate 90 degrees in succession, ungrounding the circuit and completing a circuit from the nose to the base of the detonator when the piezoelectric crystal is crushed on impact.

M-72 LAW

Source:  http://en.wikipedia.org/wiki/M72_LAW

M-79 Grenade Launcher

The M79 – Grenade Launcher is a single shot, break-open weapon with rifled barrel. The barrel is hinged to the receiver and is locked closed by the rotating the lever at the tang of the receiver. 40mm cartridges of various types are loaded from the breech, then barrel is closed. Internal hammer is cocked automatically upon reloading. There is a manual safety, which automatically switches on when gun is reloaded. The trigger guard can be hinged sideways, so the gun can be fired in the winter gloves. The stock is made from wood, and the butt is fitted with the rubber recoil pad. Open sights consist of a hooded front sight and an adjustable ladder-type rear (with windage adjustment), and is
graduated from 75 to 375 meters in 25 m increments. It must be noted that trained operators often left the rear sight in its folding down position, and aimed down the barrel, still achieving good accuracy.

The story of a "Thumper" or "Blooper" (both were unofficial nick-names for M79) began in 1951, when the US Army recognized the need to fill the gap between the maximum range of a hand-thrown grenade (about 50 meters) and the minimum range of 60mm mortars (about 400 meters). By the 1952, the army had a desired projectile, made in the form of a 40mm hollow ball, loaded with HE charge and with a pre-fragmented shell, made from notched square wire, blazed together to form a shell. Early tests were conducted using spring-powered launchers and cup-shaped grenade launcher adapters for M1 Garand rifle, all under the codename PROJECT NIBLICK. In the 1952-53 Picatinny Arsenal developed a short, stubby, rimmed cartridge case about 46mm long, with so-called "high/low pressure" system, to launch the 40mm shells. The high/low pressure" system consists of a small, thick-walled compartment at the base of the cartridge case, where propellant (smokeless gunpowder) is stored. This compartment is connected to the empty cartridge interior by several vents. The small compartment formed the "high pressure" area, necessary to achieve proper burning characteristics of a propellant, while the empty interior of the case formed the "low pressure" area, resulting in mild barrel pressures, and low projectile velocities. This system allowed for lighter and less expensive cartridge cases and barrels, while maintaining necessary ballistic properties. the resulting cartridge has been type-classified as M406 HE-FRAG.

Springfield Armory (the former Government arsenal) began to develop several launchers for 40mm M406 ammunition, and by the 1960 the first hand-held, single shot 40mm grenade launcher had been officially type classified as M79. First production M79 units were issued to US troops in 1961, and before production in USA ceased in 1971, more than 300,000 of M79 launchers were manufactured in USA by several contractors. Copies of M79 were later manufactured in south Korea by Daewoo and in South Africa by Milcor. At the present time the M79 is no longer used by US army, although it still can be encountered in the hands of soldiers of many other countries, such as Australia, El Salvador, Israel, Malaysia, Saudi Arabia, Turkey and some others.

First widely used in Vietnam, the M79 turned to be a complete success. Reliable and quite accurate in the hands of a trained operators, it provided extremely mobile firepower to the smallest of infantry units. Following the successful development of the M406 HE-FRAG round, several other types of 40mm ammunition were rapidly developed, including smoke and illumination rounds, HE-DP (dual purpose, fragmentation/antitank), incendiary, buckshot canister (for close-combat and self-defense). The key downside to the M79 was that it required the grenadier to carry an additional personal defense weapon, such as pistol or a submachine gun. This inconvenience was the key
reason for development of the M203 underbarrel grenade launcher, which
superceded the M79 in the service since early 1970s.

M-79 Grenade Launcher

Source: http://en.wikipedia.org/wiki/M79_grenade_launcher

Napalm

Napalm (naphthenic and palmitic acids) is a thickening/gelling agent generally
mixed with gasoline or a similar fuel for use in military operations. The term
napalm is a combination of the names of its derivatives (coprecipitated
aluminum salts of naphthenic and palmitic acids). Colloquially, napalm is
used as a generic reference to several flammable liquids used in warfare, often
jellied gasoline. "Napalm B" is the modern variant of napalm and, although
chemically different, is often referred to simply as napalm.

Use of fire in warfare has a long history; thickened burning compositions
proved their advantages. The development of napalm was precipitated by the
use of jellied gasoline mixtures by the Allied forces in World War II. The
latex used in these early forms of incendiary warfare became logistically
difficult to use in the Pacific theatre as natural rubber was in short supply;
which prompted the researchers of chemical companies Du Pont and Standard
Oil, as well as researchers at Harvard University, to engage in a government
competition to develop a superior
alternative. A team of chemists lead by Louis Fieser at Harvard were the first
to develop napalm in 1942 for the U.S. Army.

Between 1965–1969, Dow Chemical Company manufactured napalm for the
US government. After news reports of the weapon's effects the company
experienced boycotts of its products and its recruiters faced violent protests on
college campuses. The company however decided that "its first obligation was
the government". Meanwhile, napalm became a symbol of the Vietnam War.

When used as a part of an incendiary weapon, napalm can cause severe burns
(ranging from superficial to subdermal) to the skin and body, asphyxiation,
unconsciousness, and death. In this implementation, explosions can create an
atmosphere of greater than 20% carbon monoxide and firestorms with self-
perpetuating windstorms of up to 70 mph.
One of the main features of napalm is that it sticks well to the naked skin, and hence it leaves no real chance for removing the burning napalm from the skin of the victim.

Napalm is suitable for use against dug-in enemy personnel. The burning incendiary composition flows into foxholes, trenches and bunkers, and drainage and irrigation ditches and other improvised troop shelters. People even in undamaged shelters can be killed by hyperthermia/heat stroke, radiant heat, dehydration, suffocation, smoke exposure, or carbon monoxide poisoning. The firebombing raids on German cities, e.g. Dresden and Hamburg, frequently caused death by this mechanism; the resulting deformation to the baked corpses was referred to as Bombenbrandschumpfedichen (incendiary-bomb-shrunken bodies). One firebomb released from a low-flying plane can damage an area of 2500 sq.yards.

The US Air Force and US Navy used napalm with great effect against all kinds of targets to include troops, tanks, buildings and even railroad tunnels. The demoralizing effect napalm had on the enemy became apparent when scores of Vietnamese troops began to surrender to aircraft flying overhead. Pilots noted that they saw surviving enemy troops waving white flags on subsequent passes after dropping napalm. The pilots radioed to ground troops and the enemy combatants were captured.

Source: http://en.wikipedia.org/wiki/Napalm

Quad-50

**M-51 and M-45/M-55 Quadruple .50-caliber Machine Guns**

The standard .50-cal. Browning M2 machine gun ("Ma Deuce") was supplied with a variety of mounting systems, from a post or tripod to multiple mounts that fired two or more guns in tandem. The four-gun multiple mount was called the Quad-50. Use of the Quad 50 in World War II was primarily for anti-aircraft defense.

The M51 and M45/M55 mount were supplied on an M20 1-ton, 2 wheel trailer base, intended to be towed by a 2 1/2 ton truck. The gun mount, separate from the trailer, was also fitted to the M-16 Multiple Gun Motor Carriage, a halftrack to form a self-propelled unit and was used with other vehicles or stationary mounts. The heavier four-wheel trailer shown in the top photo was also supplied.

A single gunner operates the Quad-50, positioned in the middle of the mount. An electric trigger mechanism fires all four guns in tandem. The 'Tombstone' drum magazines (top photo and below) held 200 rounds each.
Following D-Day in June 1944, the M55, the quadruple .50-caliber machine guns on a trailer, were available in greater numbers than the M16 Multiple Gun Carriage halftrack with a mounted Quad-50. Since the M-55 trailer did not have as much mobility, the First Army obtained 700 excess halftracks, took the quad mounts off the M55s and bolted them to the halftracks creating a force of "M16B halftracks", as they were called. Other multiple mountings were used, such as the M33 twin mount utilized during WW II.

Quad 50s in Vietnam

The Quad-50 mount continued in service during the Vietnam War. They were used in semi-fixed locations to protect the perimeter of fire bases, but most famously they were mounted on the special gun trucks that protected convoys (photo below). The gun trucks were specially modified cargo trucks outfitted with armor and powerful weapons, often the Quad-50. Ambushes and roadblocks were effectively countered by the tremendous firepower of the Quad-50 system. A typical gun truck crew had six members, including driver, gunner, and loaders.

Quad-50 in Vietnam

Source: http://www.olive-drab.com/od_other_firearms_mg_m2_quad50.php

A combat shotgun is a shotgun that is intended for use in an offensive role, typically by a military force. The earliest shotguns specifically designed for combat were the trench guns or trench shotguns issued in World War I. While limited in range, the multiple projectiles typically used in a shotgun shell provide increased hit probability unmatched by other small arms.

The most common type of shotgun used for this purpose is the manually-operated, slide-action/pump-action type, because it is less prone to malfunction (particularly when dirty) than semi-automatic designs. Pump-action shotguns are also less expensive than their semi-automatic counterparts. Even so, semi-automatic shotguns such as the SPAS-12 and Benelli M1014 are currently seeing service in
NATO-aligned armed forces. The Mossberg 590A1 is currently the pump-action of choice for US armed forces and has seen service with other militaries.

Combat shotguns typically have much shorter barrels than shotguns for hunting and usually, though not always, have magazines of modified design to hold more than the 3 to 5 shots normal with sporting or hunting shotguns. Most combat shotguns have tubular magazines to hold the cartridges, mounted underneath the barrel, identical to those of hunting shotguns except for being longer to hold more ammunition, though some recent designs have detachable box magazines.

Combat shotguns for military use are mostly similar to the police riot shotgun; but the military versions may have provisions to mount a bayonet and may be fitted with ventilated steel or plastic hand guards over the barrel to reduce the danger of a soldier burning his hand on the hot barrel during rapid fire. Riot shotguns are also more likely to trade off the increased magazine capacity for the decreased size that entails; for example, a combat model would be more likely to have a 51 cm (20 inch) barrel and a 7 to 10 shot capacity, while riot shotguns are often found with barrels of 35 to 46 cm (14 to 18 inches) and a capacity of 5 or 6 rounds.

The combat shotgun has evolved from its original role as a short range combat weapon into a wider role in modern times. With proper configuration, ammunition and training, the modern combat shotgun plays three roles:

1. Offensive weapon
2. Breaching system
3. Less lethal crowd control

Effective range of the shotgun with standard buckshot is limited to about 30 meters with a full stock (depending on the sights on the gun), and 10 when equipped only with a pistol grip due to the difficulty in accurately aiming without a full stock. Slug rounds, if available, can extend the effective range of the shotgun to 100 meters (although this is also dependent on the shotgun's sighting system; right sights and ghost ring sights will allow the average shooter to effectively engage human-sized targets at considerably greater distances than with a bead sight).

A Joint Service Combat Shotgun Program report on the lethality of shotguns in war states, in support of the use of the shotgun in warfare, "the probability of hitting a man-sized target with a shotgun was superior to that of all other weapons", and goes on to support this with statistics compiled by the British from the conflict in Borneo in the 1960s.

The buckshot typically used in a combat shotgun spreads out to a greater or lesser degree depending on the barrel choke, and can be effective at ranges as far as 70 m (75 yards). The delivery of the large number of projectiles simultaneously makes the shotgun the most effective short range weapon commonly used, with a hit probability 45% greater than a submachine gun, and twice as great as an assault rifle. While each pellet is only as effective as a small caliber handgun, and offers
very poor penetration against an armored target, the multiple projectiles increases the likelihood of one or more peripheral wounds.

A number of compromises are involved in choosing a shot size:

- Smaller pellets lose velocity more rapidly and penetrate the target less
- Larger pellets means fewer pellets, resulting in a reduced probability of hits
- Heavier loads produce more recoil and less velocity than lighter loads
- Reduced recoil loads (less shot and/or lower velocity) may produce smaller patterns, which may decrease hit probability

**Ammunition**

The most common type of ammunition used in combat shotguns, whether for military or law enforcement purposes, is buckshot, typically a 70 mm (2 3/4 inch) 12 gauge shell loaded with 9 hardened 00 buckshot, with a diameter of about 8.4 mm (.33 inch). Buckshot is brutally effective at close ranges against unarmored targets—enough so that Germany issued a protest against its use in 1918. The only other types of ammunition currently in use in military shotguns are breaching rounds, which are either specially designed frangible rounds designed to destroy a door lock or hinge while minimizing the risk of damage to occupants of the room or very light (#9) birdshot, which accomplishes the same purpose. Shotgun slugs are currently under consideration by the US military as an anti-material round; the tendency of typical commercial shotgun slugs to deform on impact would render them illegal under the Hague Convention of 1899 and so a jacketed, hardened or sabot slug may be adopted. Less lethal rounds are used by U.S. troops serving as police forces in occupied territory; beanbag and rubber bullet rounds are commonly used to discourage looters and rioters.

In military use, flechette ammunition has also been used in shotguns (primarily by special forces, such as its use by the SEALs in the Vietnam War), but this is not common. Other experimental shotgun ammunition has been created, such as SCIMTR, but none have been successful enough to be adopted.

Due to the great flexibility of the shotgun, it is often used in non-offensive roles as well. The US Infantry, for example, offers a number of less lethal varieties of ammunition for use in the riot control role, and for door breaching with #9 birdshot, shotgun slugs, and specialized breaching rounds. Less-lethal options also include the use of grenade launching cups, special launching cartridges and a less-lethal grenade.

There are a number of experimental rounds currently under development and consideration by the US military, including explosive rounds and stand-off breaching rounds, which could further improve the range and flexibility of the combat shotgun.
Method of operation

There are two primary modes of operation for combat shotguns, the pump action, and various semi-automatic designs, usually gas operated. The SPAS-12, SPAS-15, and Benelli M3 shotguns, combine the two, offering pump action or, when the pump is locked forwards, gas operation. There have also been a few fully automatic shotguns produced such as the AA-12.

The auto-loading shotgun (semi or full automatic) offers a higher (theoretical) rate of fire than a pump shotgun, though controlling a heavy recoiling shotgun in rapid fire is difficult. The auto-loading action is more suitable for firing from a prone position, as operation of a pump action moves the elbow normally used to support the shotgun, and it can more effectively be used one-handed, unlike pump actions which require two hands for effective cycling of the action.

The pump shotgun is more versatile than the semiautomatic, as it will more readily fire low powered less lethal munitions which lack sufficient pressure to cycle the action in an auto-loading design. A pump shotgun, which does not rely on its ammunition for energy to cycle, operates normally with the lower powered ammunition, and provides utility in combat and riot control situations. In addition, the pump shotgun has an advantage in situations such as door breaching, where the shotgun is immediately dropped (retained by a sling) and replaced by another weapon after the door has been breached. By not cycling the action after firing the final breaching rounds (multiple rounds are often required) the pump shotgun is left without a loaded round in the chamber, unlike a semiautomatic shotgun.

Remington 1100 Tactical Shotgun in 12 Gauge

Source: http://en.wikipedia.org/wiki/Combat_shotgun

Spooky

The Douglas AC-47 Spooky (also nicknamed "Puff, the Magic Dragon") was the first in a series of gunships developed by the United States Air Force during the Vietnam War. It was felt that more firepower than could be provided by light and medium ground-attack aircraft was needed in some situations when ground forces called for close air support. This term was later applied to AC-130 gunships which replaced the AC-47.

The AC-47 was a United States Air Force C-47 Skytrain (the military version of the DC-3) that had been modified by mounting three 7.62mm General Electric miniguns to fire through two rear window openings and the side cargo door, all on the left (pilot's) side of the aircraft. Other armament configurations could also be found on similar C-47 based aircraft around the world. The guns
were actuated by a control on the pilot's yoke, where he could control the guns either individually or together, though gunners were also among the crew to assist with gun failures and similar issues. Its primary function was close air support for ground troops. It could orbit the target for hours providing suppressing fire. Coverage given by a Spooky was over an elliptical area approximately 52 yd (47.5 m) in diameter, placing a round every 2.4 yd (2.2 m) during a 3-second burst.

The plane carried 24,000 rounds of minigun ammunition and flares, which it could drop to illuminate the battleground.

The aircraft was vulnerable to ground fire due to the age of its airframe. Further gunship designs, the AC-119 gunship and the AC-130 gunship, were developed based on newer cargo airframes.

When the AC-47 was introduced there were no preceding designs to gauge how successful the concept would be. The USAF found itself in a precarious situation when requests for additional gunships began to come in. It simply did not have enough miniguns to fit additional aircraft after the first two conversions. The next four aircraft were equipped with ten .30 caliber AN/M2 machine guns. It was quickly discovered, however, that these weapons, using ammunition stocks from WWII and Korea, jammed easily, produced large amounts of gases from firing, and, even in ten-gun groups, could only provide the density of fire of a single minigun. All four of these aircraft were retrofitted to the standard armament configuration when additional miniguns arrived.

The AC-47 initially used SUU-11/A gun pods that were installed on locally fabricated mounts for the gunship application. Emerson Electric eventually developed the MXU-470/A to replace the gun pods, which were also used on subsequent gunships.

Puff's first significant success occurred on the night of 23-24 December 1964. An FC-47 arrived over the Special Forces outpost at Tranh Yend in the Mekong Delta just 37 minutes after an air support request, fired 4,500 rounds of ammunition, and broke the Viet Cong attack. The FC-47 was then called to support a second outpost at Trung Hung, about 20 miles away. The aircraft again blunted the VC attack, forcing a retreat. Between 15 and 26 December the FC-47s flew 16 combat sorties, all successful. On 8 February 1965, an FC-47 flying over the Bong Son area of Vietnam’s Central Highlands demonstrated its capabilities in the process of blunting a Vietcong offensive. For over four hours, it fired 20,500 rounds into a Viet Cong hilltop position, killing an estimated 300 Vietcong troops.

So successful were the early gunship trials that the second aircraft was returned to the United States early in 1965 to provide crew training. In July 1965, Headquarters USAF ordered TAC to establish an AC-47 squadron. By
November 1965, a total of 5 aircraft were operating with the 4th Air Commando Squadron, activated in August as the first operational unit, and by the end of 1965, a total of 26 had been converted. Training Detachment 8, 1st Air Commando Wing, was subsequently established at Forbes AFB, Kansas. In Operation Big Shoot, the 4th ACS in Vietnam grew to 20 AC-47s (16 aircraft plus four reserves for attrition).

One of the most publicized battles of the Vietnam War was the siege of Khe Sanh in early 1968, known as "Operation Niagara." More than 24,000 tactical and 2,700 B-52 strikes dropped 110,000 tons of ordnance in attacks that averaged over 300 sorties per day. During the two and one-half months of combat in that tiny area, fighters were in the air day and night. At night, AC-47 gunships kept up a constant chatter of fire against enemy troops. During darkness, AC-47 gunships provided illumination against enemy troops.

![AC-47 - Spooky](http://en.wikipedia.org/wiki/AC-47_Spooky)

**Source:** http://en.wikipedia.org/wiki/AC-47_Spooky

**Tac Air strike** involved three jets being guided by a small propeller driven airplane which was the forward air controller (FAC). The FAC would drop smoke on targets to mark them for the jets and would also give the jet pilots advice about how to adjust their fire. Typically these jets were F-100s, F-105s or F-4s. The jets would come in and drop Napalm then fly up into the sky and come around from a different angle and fire rockets. Then they would go back up in the sky and come from a different angle and fire their machine guns. Infantry soldiers thought that was the way to fight a war rather than charging hills with rifles.
NVA and VC WEAPONS

51 Caliber Machine Gun

The **51 Caliber Machine Gun** in Vietnam was produced in the Soviet Union or China; however, it was also produced by some other nations. It used a 12.7x108 mm cartridge. The **12.7x108mm** cartridge is a heavy machine gun and anti-materiel rifle cartridge used by the Soviet Union, the former Warsaw Pact, modern Russia, and other countries. This type of machine gun was mostly used against equipment such as trucks, APCs and tanks rather than against personnel; however, it was also used against personnel in the Vietnam War.

The cartridge is the approximate Russian equivalent of the NATO .50 BMG (12.7x99mm NATO) cartridge. The differences between the two are the bullet shape, the types of powder used, and that the casing of the 12.7x108mm is 9 mm longer and marginally more powerful than U.S. 50 cal. U.S .50 cal and Russian 12.7mm ammunition are not interchangeable in either weapon.

The Russian and Chinese made 51 Caliber Machine Guns were used extensively by the North Vietnamese Army (NVA) and, to a lesser degree by the Viet Cong (VC) during the Vietnam War.

Source: [http://en.wikipedia.org/wiki/12.7x108mm](http://en.wikipedia.org/wiki/12.7x108mm)

60 mm Mortar

The Type 31 was a Chinese 60 mm calibre light mortar copied from the American M2 mortar, which in turn was copied from the French Stokes-Brandt M1935 mortar. The Type 31 had a shorter barrel, 675 mm long and a shorter maximum range of 1530 metres and a rate of fire of 30 rounds per minute. The 60 mm mortar was a popular weapon of the VC because it was relatively light and easy to use.

![Chinese Type 31 60 mm Mortar](http://www.probertencyclopaedia.com/browse/FYT.HTM)

Source: [http://www.probertencyclopaedia.com/browse/FYT.HTM](http://www.probertencyclopaedia.com/browse/FYT.HTM)
**82 mm Mortar**

The **“Soviet Style” 82mm Mortar** is a conventional drop-fired mortar. It also generally resembles the U.S. 81mm Mortar from the W.W. II Era. The 82mm Mortar’s breech piece is threaded into the barrel and has a ball fitting to mate into a triangular base plate. The mortar is a conventional drop-fired mortar with a fixed firing pin. The bipod has a cross-leveling gear operated by a threaded sleeve between one leg and the elevating gear. This is attached to the yoke, which carries the traversing screw and the shock-spring cylinders.

The “Soviet Style” 82mm Mortar is used world-wide by many nations and insurgent groups. It can fire its own ammunition plus any captured or acquired stocks of 81mm Mortar ammunition. It was widely used by the NVA and VC in Vietnam.

Source: [http://www.lovettartillery.com/82mm%20Yugoslavian%20Mortar.html](http://www.lovettartillery.com/82mm%20Yugoslavian%20Mortar.html)

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**122 mm Katyusha multiple rocket launchers** (Russian: Катюша) are a type of rocket artillery first built and fielded by the Soviet Union in World War II. Compared to other artillery, these multiple rocket launchers deliver a devastating amount of explosives to an area target quickly, but with lower accuracy and requiring a longer time to reload. They are fragile compared to artillery guns, but inexpensive and easy to produce. Katyushas of World War II, the first self-propelled artillery mass-produced by the Soviet Union, were usually mounted on trucks. This mobility gave Katyushas (and other self-propelled artillery) another advantage: being able to deliver a large blow all at once, and then move before being located and attacked with counter-battery fire.

Katyusha weapons of World War II included the BM-13 launcher, light BM-8, and heavy BM-31. Today, the nickname is also applied to newer truck-mounted Soviet multiple rocket launchers—notably the common BM-21—and derivatives.
Katyushas of World War II

Katyusha rocket launchers were mounted on many platforms during World War II, including on trucks, artillery tractors, tanks, and armoured trains, as well as on naval and riverine vessels as assault support weapons.

The design was relatively simple, consisting of racks of parallel rails on which rockets were mounted, with a folding frame to raise the rails to launch position. Each truck had between 14 and 48 launchers. The 132-mm diameter M-13 rocket of the BM-13 system was 180 centimetres (70.9 in) long, 13.2 centimetres (5.2 in) in diameter and weighed 42 kilograms (92 lb). Initially, the caliber was 130 mm, but the caliber was changed (first the designation, and then the actual size), to avoid confusing them with regular artillery shells. It was propelled by a solid nitrocellulose-based propellant of tubular shape, arranged in a steel-case rocket engine with a single central nozzle at the bottom end. The rocket was stabilised by cruciform fins of pressed sheet steel. The warhead, either fragmentation, high-explosive or shaped-charge, weighed around 22 kg (48 lb). The range of the rockets was about 5.4 kilometres (3.4 mi). Later, 82-mm diameter M-8 and 310-mm diameter M-31 rockets were also developed.

The weapon is less accurate than conventional artillery guns, but is extremely effective in saturation bombardment, and was particularly feared by German soldiers. A battery of four BM-13 launchers could fire a salvo in 7–10 seconds that delivered 4.35 tons of high explosives over a four-hectare (10 acres) impact zone. With an efficient crew, the launchers could redeploy to a new location immediately after firing, denying the enemy the opportunity for counterbattery fire. Katyusha batteries were often massed in very large numbers to create a shock effect on enemy forces. The weapon's disadvantage was the long time it took to reload a launcher, in contrast to conventional guns which could sustain a continuous low rate of fire.

The sound of the rocket launching also was unique in that the constant "woosh" sound that came from the firing of the rockets could be used for psychological warfare. The rocket's devastating destruction also helped to lower the morale of the German army.

In June 1938, the Soviet Jet Propulsion Research Institute (RNII) in Leningrad was authorized by the Main Artillery Directorate (GAU) to develop a multiple rocket launcher for the RS-132 aircraft rocket (RS for Reaktivnyy Smaryad, 'rocket-powered shell'). I. Gvay led a design team in Chelyabinsk, Russia, which built several prototype launchers firing the modified 132mm M-132 rockets over the sides of ZiS-5 trucks. These proved unstable, and V.N. Galkovskiy proposed mounting the launch rails longitudinally. In August
1939, the result was the BM-13 (BM stands for Boyevaya Mashina, 'combat vehicle' for M-13 rockets).

The first large-scale testing of the rocket launchers took place at the end of 1938, when 233 rounds of various types were used. A salvo of rockets could completely straddle a target at a range of 5,500 metres (3.4 mi). But the artillery branch was not fond of the Katyusha, because it took up to 50 minutes to load and fire 24 rounds, while a conventional howitzer could fire 95 to 150 rounds in the same time. Testing with various rockets was conducted through 1940, and the BM-13-16 with launch rails for sixteen rockets was authorized for production. Only forty launchers were built before Germany invaded the Soviet Union in June 1941.

After their success in the first month of the war, mass production was ordered and the development of other models proceeded. The Katyushas were inexpensive and could be manufactured in light industrial installations which did not have the heavy equipment to build conventional artillery gun barrels. By the end of 1942, 3,237 Katyusha launchers of all types had been built, and by the end of the war total production reached about 10,000.

**Katyushas since World War II**

Russian forces use BM-27 rocket launchers during the Second Chechen War

The success and economy of multiple rocket launchers (MRL) have led them to continue to be developed. During the Cold War, the Soviet Union fielded several models of Katyushas, notably the BM-21 launchers fitting the stereotypical Katyusha mould, and the larger BM-27. Advances in artillery munitions have been applied to some Katyusha-type multiple launch rocket systems, including bomblet submunitions, remotely-deployed land mines, and chemical warheads.

With the breakup of the Soviet Union, Russia inherited most of its military arsenal including the Katyusha rockets. In recent history, they have been used by Russian forces during the First and Second Chechen Wars and by Armenian and Azerbaijani forces during the Nagorno-Karabakh War. Georgian
government forces are reported to have used BM-21 or similar rocket artillery in fighting in the 2008 South Ossetia war.

Katyushas were exported to Afghanistan, Angola, Czechoslovakia, Egypt, East Germany, Hungary, Iran, Iraq, North Korea, Poland, Syria, and Vietnam. They were also built in Czechoslovakia, People's Republic of China, North Korea, and Iran.

Katyushas also saw action in the Korean War, used by the Chinese People's Volunteer Army against the South and United Nations forces. Soviet BM-13s were known to have been imported to China before the Sino-Soviet split and were operational in the People's Liberation Army.

Israel captured BM-24 MRLs during the Six-Day War (1967), used them in two battalions during the Yom Kippur War (1973) and the 1982 Lebanon War, and later developed the MAR-240 launcher for the same rockets, based on a Sherman tank chassis. During the 2006 Lebanon War, Hezbollah fired between 3,970 and 4,228 rockets, from light truck-mounts and single-rail man-portable launchers. About 95% of these were 122 mm (4.8 in) Syrian-manufactured Katyusha artillery rockets, which carried warheads up to 30 kg (66 lb) and had a range of up to 30 km (19 mi). Hamas has launched 122-mm “Grad-type Katyusha” rockets from the Gaza Strip against several cities in Israel, although they are not reported to have truck-mounted launchers.

Katyushas were also allegedly used by the Rwandan Patriotic Front during its 1990 invasion of Rwanda, through the 1994 genocide. They were effective in battle, but translated into much anti-Tutsi sentiment in the local media.

It was reported that BM-21 launchers were used against American forces during 2003 invasion of Iraq. They have also been used in the Afghanistan and Iraq insurgencies. In Iraq, according to Associated Press and Agence France-Presse reports, Katyusha rockets were fired at the Green Zone late March 2008.


The AK-47 is a selective fire, gas operated 7.62x39mm assault rifle, first developed in the Soviet Union by Mikhail Kalashnikov. The designation AK-47 stands for Kalashnikov automatic rifle, model of 1947 (Russian: АвтоматKalashnikova 47, tr. Avtomat Kalashnikova 47). It is therefore also known as Avtomat Kalashnikova (or simply 'AK'), Kalashnikov or in Russian jargon Kalash.

Design work on the AK began in 1944. In 1946 a version of the rifle, the AK-46, was presented for official military trials, and a year later the fixed stock
version was introduced into service with select units of the Red Army (of the Soviet Union). An early development of the design was the AKS-47 (S—Skladnoy or "folding"), which differed in being equipped with an underfolding metal shoulder stock. The AK-47 was officially accepted by the Soviet Armed Forces in 1949 and used by the majority of the member states of the former Warsaw Pact.

The AK-47 fires the 7.62x39mm cartridge which produces significant wounding (including remote wounding effects known as hydrostatic shock) in cases where the bullet tumbles and fragments in tissue, but which produces relatively minor wounds in cases where the bullet exits before beginning to yaw.

The original AK-47 was one of the first true assault rifles. Even after seven decades, due to its durability, low production cost and ease of use, the model and its variants remain the most widely used and popular assault rifles in the world. It has been manufactured in many countries and has seen service with regular armed forces as well as irregular, revolutionary and terrorist organizations worldwide. The AK-47 was also used as a basis for the development of many other types of individual and crew-served firearms. More AK-type rifles have been produced than all other assault rifles combined.


AZP S-60 Anti-Aircraft Gun

57 mm AZP S-60 (Russian: Автоматическая зенитная пушка С-60, abbrev. АЗП (AZP); literally: Automatic anti-aircraft gun S-60) is a Soviet towed, road-transportable, short- to medium-range, single-barrel anti-aircraft gun from the 1950s. The gun was extensively used in Warsaw Pact, Middle Eastern and South-East Asian countries including North Vietnam.

History

In the late 1940s, the Soviets started to develop a 57 mm anti-aircraft gun, to replace its 37 mm guns. Three different models were presented, and the winning design was made by V. G. Grabin. According to western intelligence sources, the German prototype gun 5,5 cm Gerät 58 formed the basis for the
design. The Soviets were also able to study German 5 cm Flak 41 guns that had been captured following the Battle of Stalingrad.

The prototype passed the field tests in 1946 and was accepted into service in 1950, after some minor modifications. The anti-aircraft gun was given the name 57 mm AZP S-60. Grabin continued the development and fielded the SPAAG version ZSU-57-2 in 1955.

The fire direction device was developed from the German Lambda calculator (Kommandogerät 40, 40A, and 40B) and was called PUAZO-5A. It had also a distance measuring device called D-49. The fire direction was also made more effective by including Grom-2 (10 cm wavelength) radars to the AA-batteries. The whole system was called SON-9. Later on, the calculators would be changed into the more modern RPK-1 Vaza, which had been designed by M. M. Kositskin. The calculator and the radars were transported by Ural 375 trucks.

The 57 mm gun replaced the 37 mm divisional guns in Soviet service in the 1950s. A divisional anti-aircraft regiment consisted of two AA-batteries with six 57 mm guns each. The PVO air-defence troops AA-regiments consisted of four 57 mm AA-batteries (24 guns).

In the mid-1960s, the Soviet divisional anti-aircraft units began replacing their AA-guns with missiles and by the end of the 1970s, the AA-guns had almost disappeared. They were however used in many other countries.

Operational history

The S-60 and its Chinese copy (the Type 59) have seen combat in several wars all over the World, e.g. the Six-Day War and the Yom Kippur War in the Middle East and the Soviet war in Afghanistan. During the Vietnam War, the S-60 was the keystone of North Vietnamese low-altitude air defense and was most effective between 460 meters and 1,500 meters.

In Iraq (Iran–Iraq War, Gulf War and Iraq War), the S-60, normally deployed in battalions of 36 guns, served consistently in defense of divisional headquarters and field artillery assets.

Ammunition types

The S-60 fires ammunition in 57x384SR caliber, a cartridge noticeably weaker than the 57mm ammunition of either Bofors 57mm AA gun, or Soviet 57 anti-tank guns of WWII. Modern anti-aircraft rounds have not been developed for the gun - the main characteristics of the Soviet-era ammunition is listed in the
table below. In addition to these People's Republic of China manufactures ammunition in 57x384SR caliber, designated Type 59 HE-T, Type 59 AP-T, and Type 76 HE-T.

Training rounds include a blank round MK-281 ("Manöver-Kartusche", East German designation), and training rounds with -IN suffix (UBR-281U-IN, UOR-281U-IN) identifying the rounds as fuzeless versions of the APCBC and HE rounds with dummy fuzes and intert filling replacing the explosive cavities.

**Versions**

- **AK-725**: Naval version of the S-60 gun. Introduced in 1958. Mounted in single, double and quadruple mounts (designated ZIF-31) on many early Soviet destroyers.
- **ZIF-72**: Naval version which is enclosed in a metal housing and fully automatic. Also exported to India. Introduced in the mid-1970s.
- **ZSU-57-2**: Self-propelled version with two 57 mm S-60 guns (designated S-68)
- **Type-80**: Chinese version of the ZSU-57-2.

Source: [http://en.wikipedia.org/wiki/57_mm_AZP_S-60](http://en.wikipedia.org/wiki/57_mm_AZP_S-60)
The **RPG-2** was the first rocket-propelled grenade launcher designed in the Soviet Union.

**Development**

The RPG-2 (Russian: РПГ-2, Ручной противотанковый гранатомёт, *Ruchnoy Protivotankovy Granatomyot*; English: "manually operated antitank grenade launcher"), was a man-portable, shoulder-launched rocket propelled grenade anti-armor weapon. The chief attributes of the RPG-2 were robustness, simplicity, and low cost. However its short range and inaccuracy led to its eventual replacement by the more effective RPG-7. **Widely distributed to allies of the Soviet Union, it was also produced under license by other countries, including China and North Vietnam.** Widely used against the U.S. military in the Vietnam War, **its Vietnamese variants were called the B-40 and B-50.**

The RPG-2 design was based on the German *Panzerfaust* anti-tank weapon developed during World War II.

Developed in 1947 and first delivered to the Soviet Army in 1949, the RPG-2 was deployed at a squad level. Although the RPG-2 could be operated by one man, standard military practice called for a two-man crew: a grenadier carrying the launcher and a purpose-built backpack containing three grenades and an assistant armed with a rifle and carrying another three-grenade backpack.

**Description**

The RPG-2 rocket launcher is a simple 40 millimeter steel tube into which the PG-2 82 mm diameter rocket propelled grenade is fitted. The center section of the tube has a thin wooden covering to protect the user from the heat generated by a rocket launch. The wooden covering also makes using the weapon in extreme cold conditions easier.

The total length of the weapon with a grenade fitted was 120 centimeters (47 inches) and it weighed 4.48 kilograms (9.8 pounds). Only a simple iron sight was provided for aiming.

Only one type of grenade, the PG-2 HEAT (High Explosive Anti-Tank), was used in the RPG-2. The propellant was in a cardboard case that had to be attached to the grenade before loading. Once attached to the propellant charge the grenade was inserted into the smooth-bore launcher from the front.
NVA Soldier firing a B-40 Rocket Grenade Launcher


Chicom 53 Rifle

The **Chicom 53** is a peasant weapon which is bolt action single shot. It is long with a very long bayonet which folds up under the stock. It was manufactured in China; however, this a very old weapon because it was replaced by the AK-47 prior to the Vietnam War which were also produced in China.

Chicom 53 Rifle

Chicom Grenade

A **Chicom Grenade** was similar to the German "Potato Masher" grenade. It usually had a bamboo handle with a wooden screw cap on the end attached to a friction fuse running down the middle. They were manufactured in China and they were crude, but effective. They were frequently used by the Viet Cong (VC).

Chicom Grenade

Source:  http://www.swampfox.info/Glossary/CHICOM.html
The **PPSh-41** (*Pistolet-Pulemyot Shpagina*; Russian: Пистолет-пулемёт Шпагина; "Shpagin machine pistol") submachine gun was one of the most mass produced weapons of its type in World War II. It was designed by Georgi Shpagin as an inexpensive alternative to the PPD-40. The PPSh operated with simple blowback action, had a box or drum magazine, and fired the 7.62x25mm pistol round. It was made with metal stampings to ease production, and its chrome-lined chamber and bore helped to make the weapon very low-maintenance in combat environments.

**History**

The impetus for the development of the PPSh came partly from the Winter War against Finland, where it was found that submachine guns were a highly effective tool for close-quarter fighting in forests or built-up urban areas. The weapon was developed in mid-1941 and was produced in a network of factories in Moscow, with high-level local Party members made directly responsible for production targets being met.

A few hundred weapons were produced in November 1941 and another 155,000 were produced over the next five months. By spring 1942, the PPSh factories were producing roughly 3,000 units a day. The PPSh-41 was a classic example of a design adapted for mass production (other examples of such wartime design were the M3 submachine gun, MP40 and the Sten). Its parts (excluding the barrel) could be produced by a relatively unskilled workforce with simple equipment available in an auto repair garage or tin shop, freeing up more skilled workers for other tasks. The PPSh-41 used 87 components compared to 95 for the PPD-40 and the PPSh could be manufactured with 7.3 machining hours compared with 13.7 hours for the PPD.

In the field, the PPSh was a durable, low-maintenance weapon that could fire 900 rounds/min. The weapon had a crude compensator to lessen muzzle climb and a hinged receiver which facilitated field-stripping and cleaning the bore in battle conditions.

Over 6 million of these weapons were produced by the end of the war. The Soviets would often equip whole regiments and even entire divisions with the weapon, giving them unmatched short-range firepower. Though 35-round curved box magazines were available from 1942, the average infantryman would keep a higher-capacity, 71 round, drum magazine as the initial load. The PPSh-41 drum magazine was a copy of the Finnish M31 Suomi magazine which held 71 rounds, but in practice, misfeeding of the spring was likely to occur with more than 65 or so cartridges. The standard load was probably one drum and a number of box magazines, when box magazines were available.
**Features**

Some of the PPSh's drawbacks included the difficulty of reloading, the tendency of the drums to jam (solved by the box magazines) and the high risk of accidental discharge when dropped - the last being a fault common to all open bolt submachine gun designs. Despite these drawbacks, the PPSh-41 was still admired by Soviet soldiers for its low recoil, reliability, and lethality at close range. The PPSh fired the standard 7.62x25mm pistol round such as used in the TT-33 pistol.

The captured PPSh was in particular a favorite weapon of the Germans. Because of the similarities between the 7.62x25mm Tokarev and the 7.63x25mm Mauser cartridge used in the Mauser C96 pistol, the PPSh was easily supplied with ammunition. In fact so many were captured that it became the second-most-common submachinegun used by German forces. Attempts were also made to convert the weapon to 9mm Parabellum to conform to German logistics. The Wehrmacht officially adopted the converted PPSh-41 as the MP41(r); unconverted PPSh-41s were designated MP717(r) and supplied with 7.63x25mm Mauser ammunition (which is dimensionally identical to 7.62x25mm, but somewhat less powerful). German-language manuals for the use of captured PPShs were printed and distributed in the Wehrmacht.

During the war the PPS, an even more simplified submachine gun, was introduced in Soviet service, although it did not replace the PPSh-41 during the war.

**Variants**

- **Type 50**: A Chinese-made version of the PPsh-41. Unlike its Soviet counterpart, it only accepts stick-based magazines.
- **Type 49**: A North-Korean made version of the PPsh-41. This model only accepts drum-based magazines.
- **K-50M**: A Vietnamese-made submachine gun based on the Type 50s supplied by China during the Vietnam War. The chief difference was that the cooling sleeve of the K-50 was truncated to three inches and a foresight based on that of the French MAT-49 was attached to the front of the barrel. Modifications include the addition of a pistol grip, a steel wire-made stock and the shortened barrel.\[11\] The changes made the K-50 much lighter by 500 g (1.1 lb) lighter than the PPSh41 at 3.4 kg (7.5 lb) as opposed to 3.9 kg (8.6 lb). The weapon uses a 35-round stick magazine, but the 71-round drum magazine can be used if the stock was fully retracted.
- In 2008, a semi-automatic version of the PPSh-41 became available as SKL-41 on the German market. This version is converted to fire
the 9mm Parabellum cartridge. Aside from replicas of its original magazines, it also accepts MP 40 magazines.

Submachine guns captured from the NVA
PPS-43, MP 40 and K-50M


MiG-17

The Mikoyan-Gurevich MiG-17 (Russian: Микоян и Гуревич МиГ-17) (NATO reporting name: Fresco) (China: Shenyang J-5) (Poland: PZL-Mielec Lim-6) is a high-subsonic performance jet fighter aircraft produced in the USSR from 1952 and operated by numerous air forces in many variants. It is an advanced development of the very similar appearing MiG-15 of the Korean War, and was used as an effective threat against supersonic fighters of the United States in the Vietnam War. It was also briefly known as the "Type 38", by USAF designation prior to the development of NATO codes.

The MiG-17 design was generally based on a previously successful Mikoyan and Gurevich fighter, the MiG-15. The major novelty was its introduction of a swept wing with a "compound sweep" configuration: a 45° angle near the fuselage, and a 42° angle for the outboard part of the wings. Other easily visible differences to its predecessor were the three wing-fences on each wing, instead of the MiG-15's two, and the addition of a ventral fin. The MiG-17 shared the same Klimov VK-1 engine and the rest of its construction was similar. The first prototype, designated "SI" by the construction bureau, was flown on the 14 January 1950, piloted by Ivan Ivashchenko.

Despite the SI prototype's crash on 17 March 1950, tests of another prototype "SI-2" and experimental series aircraft "SI-02" and "SI-01" in 1951, were generally successful, and on 1 September 1951 the aircraft was accepted for production. It was estimated that with the same engine as the MiG-15's, the
MiG-17's maximum speed is higher by 40–50 km/h, and the fighter has greater manoeuvrability at high altitude.

Serial production started in August 1951. During production, the aircraft was improved and modified several times. The basic MiG-17 was a general-purpose day fighter, armed with three cannons. It could also act as a fighter-bomber, but its bombload was considered light relative to other aircraft of the time, and it usually carried additional fuel tanks instead of bombs.

The second prototype variant, “SP-2”, was an interceptor equipped with a radar. Soon a number of MiG-17P all-weather fighters were produced with the Izumrud radar and front air intake modifications. In early 1953 the MiG-17F day fighter entered production. Fitted with the VK-1F engine with an afterburner, which improved its performance, it became the most popular variant of the MiG-17. The next mass-produced variant with afterburner and radar was the MiG-17PF. In 1956 a small series (47 aircraft) was converted to the MiG-17PF standard (also known as PFU) with four first-generation Kaliningrad K-5 (NATO reporting name AA-1 'Alkali') air-to-air missiles. A small series of MiG-17R reconnaissance aircraft were built with VK-1F engine (after first being tested with the VK-5F engine).

Several thousand MiG-17s were built in the USSR by 1958.

**Design**

Day-fighter variants (MiG-17, MiG-17F) were armed with two 23 mm NR-23 cannons (80 rpg) and one 37 mm N-37 cannon (40 rounds), which were mounted on a common bed under the central air intake. The gun bed could be easily wound down for maintenance. On radar-equipped variants (MiG-17P, MiG-17PF), the 37 mm N-37 was replaced with a third 23 mm NR-23 (carrying 100 rpg) to compensate for the weight aft of the radar. All variants could carry 100 kg (220 lb) bombs on two underwing pylons and some could carry 250 kg (551 lb) bombs; however, these pylons were usually used for 400 l (106 US gal) fuel tanks. The MiG-17R was armed with two 23 mm cannons. Most MiG-17s in third world service today fly as ground attack or trainer aircraft.

The only variant with air-to-air missiles was the MiG-17PM (or MiG-17PFU), which could carry four K-5 (NATO: AA-1 "Alkali"). It had no cannons. Some countries occasionally modified their MiG-17s to carry unguided rockets or bombs on additional pylons. MiG-17s in Cuba could be armed with AA-2 "Atoll" missiles.

The MiG-17P was equipped with the Izumrud-1 (RP-1) radar, while the MiG-17PF was initially fitted with the RP-1 which was later replaced with the
Izumrud-5 (RP-5) radar. The MiG-17PM was also equipped with a radar, used to aim its missiles. Other variants had no

Operational history

Vietnam War MiGs were designed to intercept straight and level flying enemy bombers, not for air to air combat (Dog-fighting) with other fighters. This subsonic (.93 Mach) fighter was effective against slower (.6-.8 Mach), heavily loaded US fighter-bombers, as well as the mainstay American strategic bombers during the MiG-17’s development cycle (such as the B-50 or B-36, which were both still powered by piston engines). Even if the target had sufficient warning and time to shed weight and drag by dropping external ordnance and accelerate to supersonic escape speeds, doing so would have inherently forced the enemy aircraft to abort its bombing mission. By the time the USAF introduced strategic bombers capable of cruising at supersonic speeds such as the B-58 Hustler and FB-111, however, the MiG-17 became obsolete in PVO service and was supplanted by supersonic interceptors such as the MiG-21 and MiG-23.

MiG-17s were not available for the Korean War, but saw combat for the first time over the Straits of Taiwan when PRC (Communist China) MiG-17s clashed with ROC (Nationalist China) F-86 Sabres in 1958.

Vietnam War

In 1960, the first group of approximately 50 North Vietnamese airmen were transferred to Communist China to begin transitional training onto the MiG-17. By this time the first detachment of Chinese trained MiG-15 pilots had returned to North Vietnam, and a group of 31 airmen were deployed to Communist China's base at Son Dong for conversion to the MiG-17. By 1962 the first North Vietnamese pilots had finished their MiG-17 courses in the Soviet Union and Red China, and returned to their units; to mark the occasion, the Soviets sent as a "gift" 36 MiG-17 fighters and MiG-15UTI trainers to Hanoi in February 1964. These airmen would create North Vietnam's first jet fighter regiment, the 921st. By 1965, another group of MiG pilots had returned from training in Krasnodar, in the USSR, as well as from Red China. This group would form North Vietnam's second fighter unit, the 923rd Fighter Regiment. While the newly created 923rd FR operated strictly MiG-17s, the 921st FR would operate both MiG-17s and MiG-21s (in 1969 the 925th FR MiG-19 unit would be formed).

Although US jet fighter-bombers (the F-100 Super Sabre and F-101 Voodoo) had been engaged in combat since 1961, the North Vietnamese Air Force MiGs had not. On 4 April 1965, the USAF conducted a "re-strike" on the Hầm Rồng/Thanh Hoa bridge with 48 F-105 Thunderchiefs loaded with 384 x 750 lb bombs. The Thunderchiefs were escorted by a MiGCAP flight of F-100
Super Sabres from the 416th Tactical Fighter Squadron (TFS). Coming from above, four MiG-17s from the 921st Fighter Regiment (FR) tore through the escorts and dove onto the Thunderchiefs, shooting two of them down. The Super Sabres engaged with one firing a "Sidewinder" air-to-air missile which apparently missed (or malfunctioned), and another F-100 fired 20mm cannons, which also apparently missed. The North Vietnamese MiG-17s had scored their first confirmed aerial victories in jet-to-jet combat (North Vietnamese MiG-17s and US jets had fought their first jet air battle on 3 April 1965 which involved US Navy F-8 Crusaders, with only probable kills).

The USAF confirmed the two F-105 losses during that engagement, and an F-100 piloted by CPT Donald W. Kilgus reported a probable aerial victory over one of the MiG-17s, but no other US airmen reported any confirmed aerial kills during the air battle. However, MiG-17 pilot Tran Hanh, who was credited with one confirmed F-105 victory during that engagement, stated that three of his accompanying MiG-17s had been shot down by the opposing USAF fighters.

During the 4 April 1965 engagement, four MiG-17s from the 921st FR had tangled with over 50 US jet fighter-bombers, consisting of F-105s and F-100s. Three F-100s from the MiGCAP, piloted by LTC Emmett L. Hays, CPT Keith B. Connolly, and CPT Donald W. Kilgus, all from the 416th TFS, engaged the MiG-17s. One Super Sabre fired an air-to-air missile and Connolly and Kilgus engaged with 20mm cannon, with only Kilgus claiming a probable kill. The four attacking MiGs from the 921st FR were flown by Flight Leader Tran Hanh, Wingman Pham Giay, Le Minh Huan and Tran Nguyen Nam. Flight Leader Tran Hanh was the only survivor from the air battle and reportedly stated that his three MiG-17s were "... shot down by the F-105s." Based upon the report, the USAF F-100s very well could have been mistaken for F-105s, and the reported loss of three MiG-17s to those mistaken jet fighters would indicate that the USAF F-100 Super Sabres had obtained the first US aerial combat victories during the Vietnam War.

The MiG-17 was not originally designed to function as a fighter-bomber, but in 1971 Hanoi directed that US Navy warships were to be attacked by elements of the North Vietnamese Air Force. This would require the MiG-17 to be fitted with bomb mountings and release mechanisms. Chief Engineer of the NVAF ground crews, Truong Khanh Chau, was tasked with the mission of modifying two MiG-17s for the ground attack role; after three months of work, the two jets were ready. On 19 April 1972, two pilots from the 923rd FR took their bomb laden MiG-17s and attacked the US Navy destroyer USS Higbee (DD-806) and light cruiser USS Oklahoma City (CLG-5). Each MiG was armed with two 250kg (550lb) bombs. Pilot Le Xuan Di managed to hit the destroyer's aft 5" gun mount, destroying it, but inflicting no fatalities, as the crewmen had vacated the turret earlier due to a malfunction with the gun system. The other attacker from the two-plane sortie was flown by Nguyen Van Bay, an airman who would later end the war with seven confirmed air victories, all
accomplished from his MiG-17. On this day however, his fighter either managed to slightly damage the USS Oklahoma City, or miss it entirely, depending upon the source. Each pilot had completed their drop of two bombs each and returned to base. After the war, Truong Khanh Chau became the director of the Vietnam Institute for Science and Technology in 1977.

The MiG-17 was the primary interceptor of the fledgling Vietnam People's Air Force in 1965, scoring its first aerial victories and seeing extensive combat during the Vietnam War, the aircraft frequently worked in conjunction with MiG-21s and MiG-19s. Many historians believe that some North Vietnamese pilots, in fact, preferred the MiG-17 over the MiG-21 because it was more agile, though not as fast; however, of the 16 NVAF Aces of the war, 13 of them attained that status while flying the MiG-21. Only 3 North Vietnamese Airmen gained Ace status while flying the MiG-17.

From 1965 to 1972, MiG-17s from the NVAF 921st and 923rd FRs would claim 71 aerial victories against US aircraft: 11 F-8 Crusaders; 16 F-105 Thunderchiefs; 32 F-4 Phantom IIs; 2 A-4 Skyhawks; 7 A-1 Skyraiders (propeller driven airplanes); 1 C-47 Cargo plane; 1 CH-3C Helicopter; and one Firebee UAV.

The American fighter community was shocked in 1965 when elderly, subsonic MiG-17s downed sophisticated Mach-2-class F-105 Thunderchief fighter-bombers over North Vietnam. To redress disappointing combat performance against smaller, more agile fighters like the MiGs, the Americans established dissimilar air combat training (DACT) in training programs such as "TOPGUN", which employed subsonic A-4 Skyhawk aircraft to mimic more manoeuvrable opponents such as the MiG-17. The US Navy also set Adversary squadrons equipped with the nimble A-4 at each of its fighter and attack Master jet bases to provide DACT.

North Vietnamese MiG-17

Source:  http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-17

MiG 19

The Mikoyan-Gurevich MiG-19 (Russian: Микоян и Гуревич МиГ-19) (NATO reporting name: "Farmer") is a Soviet second-generation, single-seat,
twin jet-engined fighter aircraft. It was the first Soviet production aircraft capable of supersonic speeds in level flight. A comparable U.S. "Century Series" fighter was the F-100 Super Sabre, although it would primarily oppose the more modern F-4 Phantom II and F-105 Thunderchief over North Vietnam.

**Design and development**

On 20 April 1951, OKB-155 was given the order to develop the MiG-17 into a new fighter called "I-340", which was to be powered by two Mikulin AM-5 non-afterburning jet engines (a scaled-down version of the Mikulin AM-3) with 19.6 kN (4,410 lbf) of thrust. The I-340 was supposed to attain 1,160 km/h (725 mph; Mach 0.97) at 2,000 m (6,562 ft), 1,080 km/h (675 mph; Mach 1.0) at 10,000 m (32,808 ft), climb to 10,000 m (32,808 ft) in 2.9 minutes, and have a service ceiling of no less than 17,500 m (57,415 ft). The new fighter, internally designated "SM-1", was designed around the "SI-02" airframe (a MiG-17 prototype) modified to accept two engines in a side-by-side arrangement and was completed in March 1952.

The prototype suffered from poor cockpit pressurization and the engines proved temperamental with frequent flameouts and surges with rapid throttle movements. The engines were upgraded to the AM-5A standard with 21.1 kN (4,740 lbf) of thrust each, which exceeded the power output of the Klimov VK-1F in afterburner while providing better fuel economy. The SM-1 was barely supersonic, reaching 1,193 km/h (745 mph) at 5,000 m (16,404 ft)—Mach 1.03. This performance was deemed insufficient for the new supersonic fighter and an afterburning version of the engine, the AM-5F, was proposed. While not implemented, the AM-5F served as the basis for the Tumansky RD-9 which powered production aircraft. Further development of the twin-engine concept resulted in a government request for the "I-360", internally designated "SM-2", which was also powered by the AM-5F engines, but featured a highly swept wing.

On 15 August 1953, the Mikoyan-Gurevich OKB was given a new order to create a frontline fighter. The OKB was asked to create two designs—a single-engined version with the Klimov VK-7 and a twin-engine version with Mikulin AM-9Fs. The twin-engine fighter, internally designated "SM-9"—but also assigned the production name MiG-19—was based on the earlier SM-2 prototype. The first airframe, "SM-9/1" flew on 5 January 1954. The afterburner did not light in the first flight, but in the second flight the aircraft reached Mach 1.25 at 8,050 m (26,411 ft). This was improved to Mach 1.44 in subsequent flights. Based on this promising performance, the MiG-19 was ordered into production on 17 February 1954, even though government acceptance trials did not start until September of that year. The first production aircraft rolled off the assembly line in March 1955.
Initial enthusiasm for the aircraft was dampened by several problems. The most alarming of these was the danger of a midair explosion due to overheating of the fuselage fuel tanks located between the engines. Deployment of airbrakes at high speeds caused a high-g pitch-up. Elevators lacked authority at supersonic speeds. The high landing speed of 230 km/h (145 mph) (compared to 160 km/h (100 mph) in the MiG-15), combined with absence of a two-seat trainer version, slowed pilot transition to the type. Handling problems were addressed with the second prototype, “SM-9/2”, which added a third ventral airbrake and introduced all-moving tailplanes with a damper to prevent pilot-induced oscillations at subsonic speeds. It flew on 16 September 1954, and entered production as the MiG-19S.

Approximately 5,500 MiG-19s were produced, first in the USSR and in Czechoslovakia as the Avia S-105, but mainly in the People's Republic of China as the Shenyang J-6. The aircraft saw service with a number of other national air forces, including those of Cuba, North Vietnam, Egypt, Pakistan, and North Korea. The aircraft saw combat during the Vietnam War, the 1967 Six Day War, and the 1971 Bangladesh War.

All Soviet-built MiG-19 variants are single-seaters only. Although the Chinese developed the JJ-6 trainer version of the Shenyang J-6, the Soviets believed that the MiG-19’s handling was easy enough no special conversion trainer was needed (other than the MiG-15 UTI).

In the USSR, the MiG-19 was superseded by the MiG-21. The Shenyang J-6 remained a staple of the Chinese People's Liberation Army Air Force until the 1980s and has also been developed into the Nanchang Q-5 (NATO reporting name "Fantan") attack aircraft. Despite its age, the MiG-19 and its descendants exhibit good handling characteristics at low altitude and a surprisingly high rate of climb, and their heavy cannon armament—a one-second burst from three 30 mm NR-30 cannons had a projectile mass of 18 kg (40 lb)—makes them formidable adversaries in close combat.

Russian built MiG-19s still are in service in North Korea, Myanmar (Burma), Zambia and Sudan.

**Operational history**

During their service with Soviet Anti-Air Defense and in East Germany, MiG-19s were involved in multiple intercepts of Western reconnaissance aircraft. The first documented encounter with a Lockheed U-2 took place in the autumn of 1957. The MiG-19 pilot reported seeing the aircraft, but could not make up the 2,234 m (7,000 ft) difference in altitude. When Francis Gary Powers's U-2 was shot down in the 1960 incident, one pursuing MiG-19P was also hit by the salvo of S-75 Dvina (NATO: SA-2 "Guideline") missiles, killing the pilot Sergei Safronov. In a highly controversial incident, on 1 July 1960, a MiG-19...
shot down an RB-47H (S/N 53-4281) reconnaissance aircraft in international airspace over the Arctic Circle with four of the crew killed and two captured by the Soviets (they were released in 1961). In another incident, on 28 January 1964, a MiG-19 shot down a T-39 Sabreliner which had strayed into East German airspace while on a training mission; all three crewmembers were killed.

**Vietnam War**

In early 1969, Hanoi made the decision to strengthen their air defenses by creating a third jet fighter unit; the 925th Fighter Regiment. This unit would consist of late model MiG-17s and the newly acquired MiG-19s (nearly all of which were J-6s from Communist China). The regiment was established at Yen Bai, and by April 1969, nine combat-rated MiG-19 pilots were posted for combat duty. While some of North Vietnam's MiG-17s and nearly all of their MiG-21s were supplied by the Soviet Union, the bulk of their MiG-19s (J-6 models) were supplied by Communist China, which seldom exceeded 54 MiG-19s in number.

The first use and loss of a U.S. fighter to a MiG-19 (J-6) was in 1965 when a USAF F-104 Starfighter piloted by LTC Philip E. Smith was "bounced" by a Communist Chinese aircraft near Hainan Island. His Starfighter took cannon fire which damaged a portion of his wing and missile mount. LTC Smith gave chase and did receive missile tone on the MiG, and within a millisecond of pressing his missile firing button, his Starfighter lost all power, and he had to eject. LTC Smith was held prisoner until his release in 1972, coincidentally during U.S. President Richard Nixon's visit to China in 1972. According to another source, Smith was released in 1973.

North Vietnam's Air Force used the MiG-19 much later in the air war than the MiG-17 and the MiG-21. MiG-19s, despite their limited numbers, were involved in extensive combat during Operations Linebacker 1 and Linebacker 2 (aka the Christmas Bombing). The NVAF claimed only seven victories using the MiG-19 over US aircraft, all of which were F-4 Phantom IIs. Primarily because of the aircraft's twin engines, which created a maintenance nightmare, the MiG-19 wasn't favored by North Vietnamese pilots. While the MiG-17 had maneuverability and the MiG-21 had speed, the MiG-19 had a combination of both, but not to the same degree as the others. North Vietnam used the MiG-19 from 1969 until the 1980s when it was replaced by newer aircraft.

Compared to the F-4 Phantom II however, although lacking mounts for air-to-air missiles, it had the one advantage that the early model Phantoms did not have: it was armed with cannons. Confirmed aerial victories by MiG-19s while assigned to the 925th FR, which match US records occurred on: 10 May 1972 in which two F-4 Phantoms were shot down by MiG-19s flown by Pham Hung Son and Nguyen Manh Tung. Both NVAF victories over the F-4s were
accomplished by cannon fire, pilot Nguyen Tung's downed USAF F-4 Phantom was manned by Major Robert Lodge and his WSO 1st Lt Roger Locher. Combat results of the 925th FR using MiG-19s, according to the North Vietnamese Air Force were: two F-4s on 8 May 1972 (MiG-19 pilots: Nguyen Ngoc Tiep and Nguyen Hong Son); two F-4s on 10 May 1972 (MiG-19 pilots (both previously mentioned): Pham Hung Son and Nguyen Manh Tung); one F-4 on 18 May 1972; and two F-4s shot down on 23 May 1972 (MiG-19 pilots: Nguyen Hung Son and Pham Hung Son); these losses were in exchange for 10 MiG-19s lost in aerial combat with US jets. The MiG-19 did make history in one manner however; on 2 June 1972 over the skies of North Vietnam, the MiG-19 has the inauspicious honor of being the only recorded jet fighter to be shot down in aerial combat by cannon fire at supersonic speeds, by a USAF F-4 Phantom piloted by Major Phil Handley.

Source: http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-19

The **MiG-21** (Russian: Микоян и Гуревич МиГ-21; NATO reporting name "Fishbed") is a supersonic jet fighter aircraft, designed by the Mikoyan-Gurevich Design Bureau in the Soviet Union. It was popularly nicknamed "balalaika", from the aircraft's planform-view resemblance to the Russian stringed musical instrument or ołówek (English: pencil) by Polish pilots due to the shape of its fuselage. Early versions are considered second-generation jet fighters, while later versions are considered to be third-generation jet fighters. Some 50 countries over four continents have flown the MiG-21, and it still serves many nations a half-century after its maiden flight. The fighter made aviation records. At least by name, it is the most-produced supersonic jet aircraft in aviation history and the most-produced combat aircraft since the Korean War, and it had the longest production run of a combat aircraft (1959 to 1985 over all variants).
Development

The MiG-21 jet fighter was a continuation of Soviet jet fighters, starting with the subsonic MiG-15 and MiG-17, and the supersonic MiG-19. A number of experimental Mach 2 Soviet designs were based on nose intakes with either swept-back wings, such as the Sukhoi Su-7, or tailed deltas, of which the MiG-21 would be the most successful.

Development of what would become the MiG-21 began in the early 1950s, when Mikoyan OKB finished a preliminary design study for a prototype designated Ye-1 in 1954. This project was very quickly reworked when it was determined that the planned engine was underpowered; the redesign led to the second prototype, the Ye-2. Both these and other early prototypes featured swept wings—the first prototype with delta wings as found on production variants was the Ye-4. The Ye-4 made its maiden flight on 16 June 1955 and made its first public appearance during the Soviet Aviation Day display at Moscow's Tushino Airport in July 1956. The MiG-21 was the first successful Soviet aircraft combining fighter and interceptor characteristics in a single aircraft. It was a lightweight fighter, achieving Mach 2 with a relatively low-powered afterburning turbojet, and is thus comparable to the American F-104 Starfighter and F-5 Freedom Fighter and the French Dassault Mirage III.\[^{[1]}\] Its basic layout was used for numerous other Soviet designs; delta-winged aircraft included Su-9 interceptor and the fast E-150 prototype from MiG bureau while the mass-produced successful front fighter Su-7 and Mikoyan’s I-75 experimental interceptor combined a similar fuselage shape with swept-back wings. However, the characteristic layout with the shock cone and front air intake did not see widespread use outside the USSR and finally proved to have limited development potential, mainly because of the very small space available for the radar.

Like many aircraft designed as interceptors, the MiG-21 had a short range. This was not helped by a design defect where the center of gravity shifted rearwards once two-thirds of the fuel had been used. This had the effect of making the plane uncontrollable, resulting in an endurance of only 45 minutes in clean condition. The issue of the short endurance and low fuel capacity of the MiG-21F, PF, PFM, S/SM and M/MF variants—though each had a somewhat greater fuel capacity than its predecessor—led to the development of the MT and SMT variants. These had a range increase of 250 km (155 mi) compared to the MiG-21SM, but at the cost of worsening all other performance figures (such as a lower service ceiling and slower time to altitude).

The delta wing, while excellent for a fast-climbing interceptor, meant any form of turning combat led to a rapid loss of speed. However, the light loading of the aircraft could mean that a climb rate of 235 m/s (46,250 ft/min) was possible with a combat-loaded MiG-21bis, not far short of the performance of
the later F-16A. Given a skilled pilot and capable missiles, it could give a good account of itself against contemporary fighters. It was replaced by the newer variable-geometry MiG-23 and MiG-27 for ground support duties. However, not until the MiG-29 would the Soviet Union ultimately replace the MiG-21 as a maneuvering dogfighter to counter new American air superiority types.

The MiG-21 was exported widely and continues to be used. The aircraft's simple controls, engine, weapons, and avionics were typical of Soviet-era military designs. The use of a tail with the delta wing aids stability and control at the extremes of the flight envelope, enhancing safety for lower-skilled pilots; this in turn enhanced its marketability in exports to developing countries with limited training programs and restricted pilot pools. While technologically inferior to the more advanced fighters it often faced, low production and maintenance costs made it a favorite of nations buying Eastern Bloc military hardware. Several Russian, Israeli and Romanian firms have begun to offer upgrade packages to MiG-21 operators, designed to bring the aircraft up to a modern standard, with greatly upgraded avionics and armaments.

Due to the lack of available information, early details of the MiG-21 were often confused with those of the similar Sukhoi fighters also under development. Jane's All the World's Aircraft 1960-1961 describes the "Fishbed" as a Sukhoi design, and uses an illustration of the Su-9 'Fishpot'.

Production

A total of 10,645 units were built in the USSR. They were produced in three factories, in the GAZ 30 in Moscow (also known as Znamya Truda), in GAZ 21 in Gorky and in GAZ 31 in Tbilisi. The type of "MiG" manufactured differed. Gorky built single-seaters for the Soviet forces. Moscow built single-seaters for export and Tbilisi manufactured the twin-seaters both for export and for the USSR. However, there are exceptions. The MiG-21R and MiG-21bis for export and for the USSR were built in Gorky, 17 single-seaters were built in Tbilisi (MiG-21 and MiG-21F), the MiG-21MF was first built in Moscow and then Gorky, and the MiG-21U was built in Moscow as well as in Tbilisi. The count for each factory is:

- 5,765 in Gorky
  - 83 MiG-21F; 513 MiG-21F-13; 525 MiG-21PF; 233 MiG-21PFL; 944 MiG-21PFS/PFM; 448 MiG-21R; 145 MiG-21S/SN; 349 MiG-21SM; 281 MiG-21SMT; 2013 MiG-21bis; 231 MiG-21MF
- 3,203 in Moscow
  - MiG-21U (all export units); MiG-21PF (all export units); MiG-21FL (all units not built by HAL); MiG-21M (all); 15 MiG-21MT (all)
1,678 in Tbilisi

A total of 194 MiG-21F-13s were built under licence in Czechoslovakia, and Hindustan Aeronautics Ltd. of India built 657 MiG-21FL, MiG-21M and MiG-21bis (of which 225 were bis)

**Technical description**

The MiG-21 is a single-engined jet fighter aircraft capable of supersonic flight.

**Wing**

The MiG-21 has a delta wing. The sweep angle on the leading edge is 57° with a TsAGI S-12 airfoil. The angle of incidence is 0° while the dihedral angle is -2°. On the trailing edge there are ailerons with an area of 1.18 m², and flaps with an area of 1.87 m². In front of the ailerons there are small wing fences.

**Fuselage**

A semi-monocoque with an elliptical profile with a maximum width of 1.24 m. The air flow to the engine is regulated by a cone in the air intake. Up until the MiG-21PF it is three staged. On speeds up to M=1.5 it is fully retracted, between speeds of M=1.5 and M=1.9 it is in the middle position, and with speeds higher than M=1.9 it is in the maximum forward position. However, on the MiG-21PF it adapts to the actual speed, according to the UVD-2M system aboard the aircraft, which monitors the pressure in front and behind the compressor of the engine. On both side of the nose there are gills to supply the engine with more air while on the ground and during takeoff. In the first variant of the MiG-21, the pitot tube is on the bottom of the nose; after the MiG-21P, every version of the -21 has this tube situated on the top of the air intake.

The cabin is pressurized and air conditioned. The canopy up until the MiG-21PFM opens on a hinge on the front of the canopy. When ejecting, the SK-1 ejection seat connects with the canopy making a capsule to enclose the pilot and protect him from the airflow, after which it would separate and the pilot would parachute down. However, the canopy took too long to separate and some pilots were killed after ejecting at low altitudes. On the MiG-21PFM the canopy opens on a hinge on the right side of the cockpit.
On the belly of the plane there are three air brakes, two at the front and one at the back. The front brakes have an area of 0.76 m², and a deflection angle of 35°. The back one has an area of 0.46 m² and a deflection angle of 40°. The usage of the back air brake is blocked if the plane carries an external fuel tank. Behind the air brakes are the bays for the main landing gear. Under the body, just behind the trailing edge of the wing, two JATO rockets can be attached. The front part of the fuselage ends with former #28. Beginning with former #28a is the back part of the fuselage, which is removable for engine maintenance.

**Empennage**

The empennage of the MiG-21 consists of a vertical stabilizer, a stabilator and a small fin on the bottom of the tail to improve yaw control. The vertical stabilizer has a sweep angle of 60° and an area of 5.32 m² (on earlier version 3.8 m²) and a rudder. The stabilator has sweep angle of 57°, an area of 3.94 m² and a span of 2.6 m.

**Landing Gear**

A tricycle type undercarriage with a nose gear. The main landing gear has tires 800 mm in diameter and 600 mm in width (till the MiG-21P; 660x200 mm). The wheels of the main landing gear retract in the fuselage after rotating 87° the shock absorbers retract in the wing. The nose gear retracts forward in the fuselage under the radar. The wheel base is 4.71 m, the track width is

**Safety Record**

The safety record of the IAF's MiG-21s has raised concern in the Indian Parliament and media, leading to the aircraft sometimes being referred to in the IAF as a "flying coffin". One source estimates that in the nine years from 1993 to 2002, the IAF lost over 100 pilots in 283 accidents. During its service life, the IAF has lost at least 116 aircraft to crashes (not including those lost in combat), with 81 of those occurring since 1990.[9]

**Vietnam**

The MiG-21, which initially achieved renown during the Vietnam War, in which it saw extensive action, was designed for very short ground-controlled interception (GCI) missions, which is precisely the type of missions that it was employed for in the skies over North Vietnam. The first MiG-21s arrived directly from the Soviet Union by ship in April 1966, and after being unloaded and assembled, were transitioned into North Vietnam's oldest fighter unit; the 921st Fighter Regiment, which had been established on 3 February 1964 as a MiG-17 unit. Since the North Vietnamese Air Force's 923rd FR was newer and less experienced, they would continue to operate strictly MiG-17s; while the
arrival of the MiG-19's (J6 versions) from Communist China in 1969 would create North Vietnam's only MiG-19 unit, the 925th FR. On 3 February 1972 North Vietnam commissioned their fourth and last Fighter Regiment of the war while engaged with the United States, the MiG-21PFM (Type 94) equipped 927th Fighter Regiment.

The MiG-21 was one of the most advanced fighter aircraft of the time; and although 13 of North Vietnam's flying aces attained that status while flying the MiG-21, and only 3 airmen became aces while flying the MiG-17, it is thought by many, that North Vietnamese aces preferred flying the MiG-17, since the high wing loading on the MiG-21 made it less maneuverable than the MiG-17, and the less heavily framed canopy of the MiG-17 allowed pilots to more easily detect US launched air to air missiles. Although the MiG-21 lacked the long-range radar, missiles, and heavy bombing payload of its contemporary multi-mission U.S. fighters, it proved a challenging adversary in the hands of experienced pilots especially when used in high speed hit and run attacks under GCI control. MiG-21 intercepts of F-105 strike groups were effective in downing US aircraft or forcing them to jettison their bomb loads.

After a million sorties and nearly a thousand lost US aircraft, Operation Rolling Thunder came to an end on 1 November 1968. Poor air-to-air combat loss-exchange ratios against the smaller, more agile enemy MiGs during the early part of the Vietnam War eventually led the US Navy (USN) to create their Navy Fighter Weapons School, also known as "Top Gun" at Miramar Naval Air Station on 3 March 1969. The USAF quickly followed with their own version, titled the Dissimilar Air Combat Training (sometimes referred to as Red Flag) program. These two programs employed the subsonic A-4 Skyhawk and the supersonic F-5 Tiger II, as well as the Mach 2.4-capable USAF F-106 Delta Dart, which mimicked the MiG-21. Over the course of the air war, between 3 April 1965 and 8 January 1973, each side would ultimately claim favorable kill ratios.

Two MiG-21s were claimed shot down by U.S. Air Force B-52 Stratofortress tail gunners; the only confirmed air-to-air kills made by the B-52. The first aerial victory occurred on 18 December 1972, kill awarded to tail gunner SSgt Samuel Turner, who was awarded the Silver Star for his feat. The second air to air kill took place on December 24, 1972, kill awarded to A1C Albert E. Moore for downing a MiG-21 over the Thai Nguyen railroad yards. Both actions occurred during Operation Linebacker II (also known as the Christmas Bombings).

The biggest threat to North Vietnam during the war, had always been the Strategic Air Command's B-52 Stratofortress. Hanoi's MiG-17 and MiG-19 interceptors could not deal with those bombers at the altitude that they flew. In the summer of 1972, the NVAF was directed to train twelve MiG-21 pilots for the specific mission of attacking and shooting down B-52 bombers; with two
thirds of those pilots specifically trained in the night attack. On 26 December 1972, just two days after Tail gunner Albert Moore downed his MiG-21, a VPAF (North Vietnamese Air Force) MiG-21MF (number 5121) from the 921st Fighter Regiment, flown by Major Phạm Tuan over Hanoi, North Vietnam was responsible for the first claimed aerial combat kill of a USAF B-52 Stratofortress in aviation history. The Stratofortress had been above Hanoi at over 30,000 feet during Operation Linebacker II, when MAJ Tuan launched two Atoll missiles from 2 kilometres, and claimed to have destroyed one of the bombers flying in the three plane formation. What appears to have in fact happened, was that he attacked the last three-bomber cell of a group of four. While his missiles missed their marked, as he was disengaging, a B-52 from Cobalt cell in front of his target took a hit from a SAM, and exploded in mid-air: this may have caused Tuan to think his missiles destroyed one of the B-52s.

The Vietnamese side also claims another kill to have taken place on 28 December 1972 by a MiG-21 from the 921st FR, this time flown by Vu Xuan Thieu. Thieu is said to have closed in on one bomber too close, having fired a missile, and perished in the explosion of the B-52 resulting from his missiles hitting it. In this case the Vietnamese version appears to be a complete fabrication: while one MiG-21 kill was claimed by Phantoms that night (this may have been Thieu's MiG), no B-52s were lost to any cause on the date of the claimed kill.

The MiG-21's 3G limit on maneuverability at altitude and the limited arc from which its weapons could be launched contributed to the poor results.

**Year-by-Year Kill Claims involving MiG-21s**

- **1966**: US claimed 6 MiG-21s destroyed; North Vietnam claimed 7 F-4 Phantom IIs and 11 F-105 Thunderchiefs killed by MiG-21s.
- **1967**: US claimed 21 MiG-21s destroyed; North Vietnam claimed 17 F-105 Thunderchiefs, 11 F-4 Phantom IIs, 2 RF-101 Voodoos, one A-4 Skyhawk, one F-8 Crusader, one EB-66 Destroyer and three unidentified types killed by MiG-21s.
- **1968**: US claimed 9 MiG-21s destroyed; North Vietnam claimed 17 US aircraft killed by MiG-21s.
- **1969**: US destroyed 3 MiG-21s; one Firebee UAV killed by a MiG-21.
- **1970**: US destroyed 2 MiG-21s; North Vietnam claimed one F-4 Phantom and one CH-53 Sea Stallion helicopter killed by MiG-21s.
- **1972**: US claimed 51 MiG-21s destroyed; North Vietnam claimed 53 US aircraft killed by MiG-21s, including two B-52 Stratofortress's. Soviet General Fesenko, the main Soviet adviser to
• the North Vietnamese Air Force in 1972, recorded 34 MiG-21s, 9 MiG-17's, and 9 MiG-19's destroyed in 1972.

**Known MiG-21 aces**

Several pilots have attained ace status (five or more aerial victories/kills) while flying the MiG-21. Nguyễn Văn Cốc of the Vietnam People's Air Force (VPAF; also referred to as the NVAF), who scored nine kills in MiG-21s is regarded as the most successful. Twelve other VPAF pilots were credited with five or more aerial victories while flying the MiG-21: Phạm Thanh Ngân, Nguyễn Hồng Nhị and Mai Văn Cương (both eight kills); Đặng Ngọc Ngự (seven kills), Vũ Ngọc Định, Nguyễn Ngọc Đỗ, Nguyễn Nhật Chiêu, Lê Thanh Đạo, Nguyễn Đăng Kinh, Nguyễn Đức Soát, and Nguyễn Tiến Sâm (six kills each), and Nguyễn Văn Nghĩa (five kills). Col. Vadim Petrovich Shchbakov according to the 18th Report of the US government's "Task Force Russia", achieved ace status with six kills in the Vietnam War while serving as a pilot instructor.

![MiG-21F in Vietnam Peoples Air Force](http://en.wikipedia.org/wiki/Mikoyan-Gurevich_MiG-21)


**Pungi Stake**

The **Punji stick or Punji stake** is a type of booby trapped stake. It is a simple spike, made out of wood or bamboo, generally placed upright in the ground. Punji sticks are usually deployed in substantial numbers.

Punji sticks would be placed in areas likely to be passed through by enemy troops. The presence of punji sticks may be camouflaged by natural undergrowth, crops, grass, brush or similar materials. They were often incorporated into various types of traps; for example, a camouflaged pit into which a man might fall (it would then be a trou de loup).

Sometimes a pit would be dug with punji sticks in the sides pointing downward at an angle. A soldier stepping into the pit would find it impossible to remove his leg without doing severe damage, and injuries might be incurred by the simple fact of falling forward while one's leg is in a narrow, vertical, stake-lined pit. Such pits
would require time and care to dig the soldier's leg out, immobilizing the unit longer than if the foot were simply pierced, in which case the victim could be evacuated by stretcher or fireman's carry if necessary.

Punji sticks were sometimes deployed in the preparation of an ambush. In the preparation of these stakes, the stake itself would be sharpened, and, in some cases, rubbed with toxic plants, frogs or even feces to ensure infection. Soldiers lying in wait for the enemy to pass would deploy punji sticks in the areas where the surprised enemy might be expected to take cover, thus soldiers diving for cover would impale themselves.

The point of penetration was usually in the foot or lower leg area. Punji sticks were not necessarily meant to kill the person who stepped on it; rather they were designed to wound the enemy and tie up his unit while the victim was evacuated to a medical facility.

In the Vietnam War, the Viet-Cong would also use this method to force the wounded soldier to be transported by helicopter to a medical hospital for treatment, which was viewed as being more damaging to the enemy's cause than death.

Punji sticks were also used in Vietnam to complement various defenses, such as barbed wire.

Viet Cong Inserting Pungi Stakes

Source: http://en.wikipedia.org/wiki/Punji_stick

**RPD Machine Gun**

The RPD (or Ruchnoy Pulemyot Degtyareva) is a 7.62mm light machine gun developed in the Soviet Union by Vasily Degtyaryov for the intermediate 7.62x39mm M43 cartridge. It was created as a replacement for the DP machine gun chambered for the 7.62x54mmR Mosin rifle round. It is a precursor of most SAW’s

*History*

Work on the weapon commenced in 1943. Three prominent Soviet engineers
were asked to submit their own designs: Lee Degtyaryov, Sergei Simonov and Alexei Sudayev. Among the completed prototypes prepared for evaluation, the Degtyaryov design proved superior and was accepted into service with the Soviet armed forces as the 7,62 mm Ручной Пулемёт Дегтярёва, РПД (RPD, Ruchnoy Pulemyot Degtyaryova or "Degtyaryov light machine gun") model 1944. Although the RPD was ready for mass production during the final stages of World War II, large scale delivery of the weapon did not begin until 1953.

After the introduction of the Kalashnikov-pattern support weapons such as the RPK and PK machine guns in the 1960s, the RPD was withdrawn from most first tier units of the former Warsaw Pact. However, the RPD remains in active service in many African and Asian nations including Vietnam. Apart from the former Soviet Union, the weapon was manufactured in China (as the Type 56), Egypt, North Korea (Type 62) and since 1956—Poland.

**Design details**

**Operating mechanism**

The RPD is an automatic weapon using a gas-operated long stroke piston system and a locking system recycled from previous Degtyaryov small arms, consisting of a pair of hinged flaps set in recesses on each side of the receiver. The movement of these flaps and the resulting locking and unlocking action is controlled by carefully angled surfaces on the bolt carrier assembly. The weapon fires from an open bolt.

**Features**

The RPD is striker fired and features a trigger mechanism that is limited to fully automatic fire only. The bolt is equipped with a spring-loaded casing extraction system and a fixed insert inside the receiver housing serves as the ejector. Spent cartridge casings are ejected downward through an opening in the bolt carrier and receiver. The RPD has a manually operated lever-type safety mechanism that secures the weapon against accidental firing by blocking the bolt catch when engaged.

The weapon has a non-removable barrel with a 3-position gas adjustment valve used to control the performance of the gas system. It is also equipped with a folding bipod, wooden shoulder stock, foregrip and pistol grip. The firearm strips down into the following major groups: the receiver and barrel, bolt, bolt carrier, feed tray and feed cover, the recoil mechanism and the trigger group and stock.
**Feeding**

The machine gun feeds from the left-hand side from a segmented, open-link metal belt (each segment holds 50-rounds). Two combined belts (linked by cartridge), containing a sum total of 100 rounds are stored in a metal container resembling a drum, attached to the base of the receiver. The feed system is operated by a roller connected to the reciprocating bolt carrier assembly and the belt is pulled during the rearward motion of the bolt carrier.

**Sights**

The LMG is equipped with a set of open-type iron sights. These consist of a front post (adjustable for windage and elevation) and a notched rear sight mounted on a tangent with a sliding elevation adjustment knob and marked with range indicators from 100 to 1,000 m (graduated every 100 m). A number of machine guns were fitted with a side rail (attached to the left side of the receiver), used to mount the NSP-2 night vision sight.

**Accessories**

Standard accessories supplied with the weapon include an ammunition container, extra belts, a cleaning rod (carried on the left side of the receiver), cleaning kit (stowed in a compartment inside of the stock), sling and pouches for the ammunition drums.

**Variants**

During its service life, the weapon was modernized several times. Initially, the gas block was modified as was the rear sight, where the windage adjustment knob for the rear sight was moved to the left side of the notch. Later, the RPD was modified with a non-reciprocating cocking mechanism with a folding charging handle (replacing the fixed charging handle connected to the bolt carrier) that does not move during firing. The feed port received a dust cover, which when open, serves as a feeding ramp for the ammunition belt. This version of the light machine gun was produced mainly in China and Poland. A further modified variant (sometimes referred to as the *RPDM*) includes an extended gas cylinder and a recoil buffer mechanism in the stock. Late production RPD variants also had the fixed drum attachment removed (instead, the ammunition container was “hung” from the feed port cover) and feature a folding cleaning rod, that is stored in the weapon’s butt (in the Chinese *Type 56-1* variant).
The **Simonov SKS** is a Russian carbine developed in 1946. It is a gas operated, self-loading, semi-automatic rifle. The rifle is chambered for the 7.62 mm cartridge which it takes from a 10 round box magazine. It has a bayonet which folds up under the barrel.

The SKS, (the SKS45), was designed by the famous Sergei Simonov. The Russian SKS were produced originally in the Tula Arsenal in 1949 through the mid 1950's. The Soviets Army replaced the Mosin-Nagant bolt-action rifles with the SKS rifle. The SKS was eventually replaced by the AK-47 rifle (Avtomat Kalashnikov).

The SKS is the basis for the famous AK weapon series. Kalishnikov borrowed many of the features of the SKS45 for the AK47 rifle. SKS rifles were highly prized as war trophies in Vietnam, in part, because they were so attractive.

Like many of their other weapons, the tanks used by the NVA were produced in the Soviet Union. The **T-54 and T-55 tanks** were a series of main battle tanks designed in the Soviet Union. The first T-54 prototype appeared in March 1945, just before the end of the Second World War. The T-54 entered full production in 1947 and became the main tank for armored units of the Soviet Army, armies of the Warsaw Pact countries, and others. T-54s and T-55s were involved in many of the world's armed conflicts during the late twentieth century.
The T-54/55 series eventually became the most-produced tank in history. Estimated production numbers for the series range from 86,000 to 100,000. T-54/55 tanks were replaced by the T-62, T-72, T-64 and T-80 in the Soviet and Russian Armies, but many remain in use by up to 50 other armies worldwide, some having received sophisticated retrofitting.

Soviet tanks never directly faced their NATO Cold War adversaries in Europe. However, the T-54/55's first appearance in the west in 1960 spurred the United States to develop the M60.

Description

Like many post-World War II tanks, the T-54 and T-55 have a conventional layout with fighting compartment in the front, engine compartment in the rear, and a dome-shaped turret in the centre of the hull. The driver's hatch is on the front left of the hull roof. The commander is seated on the left, with the gunner to his front and the loader on the right. The tank's suspension has the drive sprocket at the rear, and dead track. Engine exhaust is on the left fender. There is a prominent gap between the first and second road wheel pairs, a distinguishing feature from the T-62, which has progressively larger spaces between road wheels towards the rear.

The T-54 and T-55 tanks are outwardly very similar and difficult to distinguish visually. Many T-54s were also updated to T-55 standards, so the distinction is often downplayed with the collective name T-54/55. Soviet tanks were factory-overhauled every 7,000 km and often given minor technology updates. Many states have added or modified the tank's equipment; India, for example, affixed fake fume extractors to its T-54s and T-55s so that its gunners wouldn't confuse them with Pakistani Type 59s.

The older T-54 can be distinguished from the T-55 by a dome-shaped ventilator on the front right of the turret and a driver-operated SGMT 7.62 mm machine gun mounted to fire through a tiny hole in the centre of the hull's front. Early T-54s lacked a gun fume extractor, had an undercut at the turret's rear, and a distinctive "pig-snout" gun mantlet.

Advantages and drawbacks

The T-54/55 tanks are mechanically simple and robust. They are very simple to operate compared to Western tanks, and don't require a high level of training or education in their crew members. The T-54/55 is a relatively small main battle tank, presenting a smaller target for its opponents to hit. The tanks have good mobility thanks to their relatively light weight (which permits easy transport by rail or flatbed truck, and allows crossing of lighter bridges), wide tracks (which
give lower ground pressure and hence good mobility on soft ground), a good cold-weather start-up system, and a snorkel which allows river crossings. The T-54/55 tanks have together been manufactured in the tens of thousands, and many still remain in reserve, or even in front-line use among lower-technology fighting forces. Abundance and age together make these tanks cheap and easy to purchase. While the T-54/55 is not a match for a modern main battle tank, armour and ammunition upgrades can dramatically improve the old vehicle's performance to the point that it cannot be dismissed on the battlefield. (Gelbart 1996:75-78)

T-54/55 tanks have many serious defects. Small size is achieved at the expense of interior space and crew comforts. This causes practical difficulties, as it constrains the physical movements of the crew and slows operation of controls and equipment. Israelis who crewed T-54/55s captured during the 1967 and 1973 wars constantly complained about this, and it remains a problem that cannot be remedied by any upgrades. The low turret profile of the tanks prevents them from depressing their main guns by more than 5° (the average for Western tanks is 10°), which limits the ability to cover terrain by fire from a hull-down position on a reverse slope. While both tanks have stabilized guns, in practice they can only fire accurately when the vehicles are at rest (this problem may have been solved with more recent upgrades). The 100 mm gun is less effective than newer tank guns of 120 and 125 mm calibre, and only has a chance at being effective against heavily armoured tanks when firing special ammunition (such as missiles). The internal ammunition supply is not shielded, increasing the odds that any enemy penetration of the fighting compartment could cause a catastrophic secondary explosion. And while the T-54/55 tanks can be upgraded, the stunning losses suffered by upgraded Iraqi T-55's against American M1 Abrams tanks during Operation Desert Storm showed the inescapable limitations of the design. The T-54/55 tanks are simply outdated and cannot be expected to have much of a chance against modern opponents.

The T-54 is especially defective: It lacks NBC protection, a revolving turret floor (which complicated the crew's operations), and early models lacked gun stabilization. All of these problems were corrected in the T-55 tank, which is otherwise largely identical to the T-54.
The ZPU-4 is a towed, quadruple-barreled anti-aircraft gun based on the Soviet KPV 14.5 mm machine gun. It entered service with the Soviet Union in 1949 and is used by over 50 countries worldwide. Double- and single-barreled version of the weapon exist, called the ZPU-2 (two variants) and ZPU-1 respectively.

**Description**

Development of the ZPU-2 and ZPU-4 began in 1945, with development of the ZPU-1 starting in 1947. All three were accepted into service in 1949. Improved optical predicting gunsights were developed for the system in the 1950s.

All weapons in the ZPU series have air-cooled quick-change barrels and can fire a variety of ammunition including API (B32), API (BS41), API-T (BZT) and I-T (ZP) projectiles. Each barrel has a maximum rate of fire of around 600 rounds per minute, though this is practically limited to about 150 rounds per minute.

The quad-barrel ZPU-4 uses a four-wheel carriage similar to that once used by the obsolete 25 mm automatic anti-aircraft gun M1940. In firing position, the weapon is lowered onto firing jacks. It can be brought in and out of action in about 15 to 20 seconds, and can be fired with the wheels in the traveling position if needed.

The double-barrel ZPU-2 was built in two different versions; the early model has large mud guards and two wheels that are removed in the firing position, and the late model has wheels that fold and are raised from the ground in the firing position.
The single-barrel ZPU-1 is carried on a two-wheeled carriage and can be broken down into several 80-kilogram pieces for transport over rough ground.

Versions of the weapon are built in both China and North Korea.

**History**

The series was used during the Korean War by Chinese and North Korean forces, and was later considered to be the most dangerous opposition to U.S. helicopters in Vietnam. Later it was used by the Polisario Front in the Western Sahara War. It was also used by Iraqi forces during Operation Desert Storm and again in Operation Iraqi Freedom.

In the Russian military, it was replaced by the newer and more powerful ZU-23 23 mm twin automatic anti-aircraft gun.

**Ammunition**

- API (BS.41) - Full metal jacket bullet round with a tungsten carbide core. Projectile weight is 64.4 g (2.27 oz) and muzzle velocity is 976 m/s (3,202 ft/s). Armor-penetration at 500 m (547 yds) is 32 mm (1.25 in) of RHA at 90 degrees.
- API-T (BZT) - Full metal jacket round with a steel core. Projectile weight is 59.56 g (2.10 oz) and muzzle velocity is 1,005 m/s (3,297 ft/s). Tracer burns to at least 2,000 m (2,187 yds).
- I-T (ZP) - Projectile weight is 59.68 g (2.10 oz).

Rounds are also produced by Bulgaria, China, Egypt, Poland, and Romania.

ZPU-4 Anti-Aircraft Gun


**ZU-23 Anti-Aircraft Gun**

The **ZU-23-2**, also known as **ZU-23**, is a Soviet towed 23 mm anti-aircraft twin autocannon. ZU stands for Zenitnaya Ustanovka - anti-aircraft mount.
Development history

ZU-23-2 was developed in the late 1950s. It was designed to engage low-flying targets at a range of 2.5 km as well as armoured vehicles at a range of 2 km and for direct defense of troops and strategic locations against air assault usually conducted by helicopters and low-flying airplanes. Development of this weapon into a self-propelled anti-aircraft gun (SPAAG) led to the ZSU-23-4 Shilka.

Description

It mounts two 2A14 23 mm autocannons on a small trailer which can be converted into a stationary mount for firing the guns. While in this position the wheels are moved aside. The autocannon can be prepared for firing from the march position in 30 seconds and in emergency can be fired from the traveling position. The weapon is aimed and fired manually, with the help of the ZAP-23 optical-mechanical sight which uses manually entered target data to provide limited automatic aiming. It also has a straight-tube telescope for use against ground targets such as infantry as well as unarmored or lightly armoured vehicles. The ammo is a feed by a conveyor belt from two ammunition boxes. Each of the ammunition boxes are located on the side of the twin autocannon and each carries 50 rounds. The fumes created by firing the weapon are partially removed thorough the side openings in the barrels.

The cannon carriage is based on the earlier ZPU-2 anti-aircraft twin heavy machine gun, which mounted two KPV 14.5 mm heavy machine guns. ZU-23-2 can be identified by different placement of the ammunition boxes (at right angles to the gun carriage) and by muzzle flash suppressors. In another similarity to the ZPU series, single-barrel and four-barrel versions of the ZU-23 were also developed. However, these versions never entered service.

ZU-23-2 can be towed by a number of different vehicles. In USSR and later Russia the most frequently used towing vehicles for it were GAZ-66 four-wheels drive trucks and GAZ-69 four-wheel drive light trucks.

Ammunition

The 23mm AA guns utilizes the same 23x152B case as the wartime VYa aircraft cannon, although in steel rather than brass as in the aircraft gun. Due to different loadings and primers the ammunition is not interchangeable, however; ammunition of the anti-aircraft cannon can be identified from its steel casings, ammunition for the aircraft cannon having brass cases instead.

Service history

ZU-23-2 entered service with the Soviet Army in 1960. ZU-23-2 is often mounted on trucks for use in both anti-aircraft and fire support roles. It can also be mounted
on the roof of the MT-LB multi-purpose tracked APCs. Specially modified three-legged ZU-23-2 is used in BTR-DG based airborne SPAAG. Cheap, easy to operate and still effective, the ZU-23-2 is still used by the Russian Army and by more than 20 other armies. The Finnish military nickname for the weapon is Sergei. There are also non-ex-Soviet produced versions of the weapon. One example is the Polish ZUR-23-2TG, which has improved sights and is armed with "Grom" missiles in addition to the autocannons. Another is the Finnish 23 ItK 95, which is often vehicle mounted, like a technical.

China

- **Type 85** Chinese built version of the ZU-23-2 with Twin-23mm guns.
- **Type 87** Chinese upgraded version with Twin-25mm guns.

**General characteristics**

- Overall dimensions in firing position
  - Length: 4.57 m (15 ft)
  - Width: 2.88 m (9.44 ft)
  - Height: 1.22 m (4 ft)
- Weight: 0.95 tonnes (2,094 lbs)
- Armament: two 2A14 Afanasyev-Yakushev 23x152mm (.90 in) autocannons
- Barrel length: 2 m (6.5 ft) / 87.3 calibers
- Muzzle velocity: 970 m/s (3,182 ft/s)
- Projectile weight: 186 g (6.27 oz)
- Rate of fire
  - Cyclic: 2,000 rounds per minute
  - Practical: 400 rounds per minute
- Effective range: 2-2.5 km (1.24-1.55 mi)
- Effective altitude: 1,500-2,000 m (4,921-6,562 ft)
- Crew: 6

The **National Defense Service Medal** is a military service medal of the United States military originally commissioned by President Dwight D. Eisenhower. Created in 1953, the National Defense Service Medal was intended to be a "blanket campaign medal" awarded to any member of the United States military who served honorably during a designated time period of which a "national emergency" had been declared.

As of 2010, with an issuance span of sixty years, the National Defense Service Medal is the oldest service decoration still in circulation by the United States armed forces, followed second by the Armed Forces Expeditionary Medal which has been active since 1961. Combat and meritorious medals (such as the Medal of Honor, Achievement Medals, and Commendation Medals) are older still but are classified under separate award criteria from service medals. The National Defense Medal was awarded to all service members upon completion of basic training.

![National Defense Medal](image)


The **Vietnam Service Medal** is a military award which was created in 1965 by order of President Lyndon B. Johnson. The medal is issued to recognize military service during the Vietnam War and is authorized to service members in every branch of the U.S. Armed Forces, provided they meet the qualification criteria in United States Department of Defense regulation DoD 1348.

The Vietnam Service Medal is presented to any service member who served on temporary duty for more than thirty consecutive days, or 60 non-consecutive days, attached to or regularly serving for one, or more, days with an organization participating in or directly supporting ground (military) operations or attached to or regularly serving for one, or more, days aboard a naval vessel directly supporting military operations in the Republic of Vietnam, Thailand, Cambodia, Laos within the defined combat zone (DOD
The **Vietnam Campaign Medal** was awarded for combat service or support in South Vietnam for a period of six months or more between March 1, 1961 to March 28, 1973. May also be awarded for less than six months of service if the service member is captured, wounded, or killed in action during the above period or if the service member was still assigned in Vietnam on March 28, 1973 and served over 60 days.


The **Army Good Conduct Medal (AGCM)** was established by Executive Order 8809, 28 June 1941 and was amended by Executive Order 9323, 1943 and by Executive Order 10444, 10 April 1953. It is awarded for exemplary behavior, efficiency, and fidelity in active Federal military service. It is awarded on a selective basis to each soldier who distinguishes himself or herself from among his or her fellow soldiers by their exemplary conduct, efficiency, and fidelity throughout a specified period of continuous enlisted active Federal military service. There is no right or entitlement to the medal.
until the immediate commander has approved the award and the award has been announced in permanent orders.

![Army Good Conduct Medal](http://www.americal.org/awards/agcm.htm)

**Army Good Conduct Medal**

**Source:** [http://www.americal.org/awards/agcm.htm](http://www.americal.org/awards/agcm.htm)

**CIB**

The **Combat Infantryman Badge (CIB)** is the U.S. Army combat service recognition decoration awarded to soldiers—enlisted men and officers (commissioned and warrant) holding colonel rank or below, who personally fought in active ground combat while an assigned member of either an infantry or a Special Forces unit, of brigade size or smaller, any time after 6 December 1941. There are basically three requirements for award of the CIB. The Soldier must be an Infantryman satisfactorily performing Infantry duties, must be assigned to an Infantry unit during such time as the unit is engaged in active ground combat, and must actively participate in such ground combat. On 8 February 1952, the Army approved the addition of stars to the CIB indicating the soldier having fought in more than one war. The first was the second-award CIB recognizing Korean War combat operations; in that time, the U.S. Army’s Institute of Heraldry also had created eighth-award CIB design. The second- through fourth-award CIB awards were indicated with silver five-point stars, 1 to 3 stars centered, at badge’s top, between the tips of the oak-leaf wreath; the fifth- through eighth-awards of the CIB were indicated with gold stars. The Combat Infantryman Badge is worn one-quarter (0.25”) inch above the service ribbons above the left-breast pocket of the Class-A uniform coat and of the other uniforms with which the CIB is authorized; however, infantrymen of the 2nd Armored Division wore it on the flap of the same pocket.

![Combat Infantryman Badge](http://en.wikipedia.org/wiki/Combat_Infantryman_Badge)

**Combat Infantryman Badge**

**Source:** [http://en.wikipedia.org/wiki/Combat_Infantryman_Badge](http://en.wikipedia.org/wiki/Combat_Infantryman_Badge)
The **Army Commendation Medal** (ARCOM) is a mid-level United States military award/decoration which is presented for sustained acts of heroism or meritorious service. For valorous actions in direct contact with an enemy force, but of a lesser degree than required for the award of the Bronze Star. The Valor ("V") device may be authorized as an attachment to the decoration. Each branch of the United States Armed Forces issues its own version of the Commendation Medal, with a fifth version existing for acts of joint military service performed under the Department of Defense. Additional awards of the Commendation Medal are denoted by oak leaf clusters.

![Army Commendation Medal](http://en.wikipedia.org/wiki/Commendation_Medal)


The **Air Medal** is a military decoration of the United States which was established by Executive Order 9158, signed by Franklin D. Roosevelt, on 11 May 1942. The Air Medal was awarded retroactive to 8 September 1939. The Air Medal is awarded to any person who, while serving in any capacity in or with the Armed Forces of the United States, shall have distinguished himself/herself by meritorious achievement while participating in aerial flight. Awards may be made to recognize single acts of merit or heroism, or for meritorious service. Award of the Air Medal is primarily intended to recognize those personnel who are on current crew member or non-crew member flying status which requires them to participate in aerial flight on a regular and frequent basis in the performance of their primary duties. However, it may also be awarded to certain other individuals whose combat duties require regular and frequent flying in other than a passenger status, or individuals who perform a particularly noteworthy act while performing the function of a crew member but who are not on flying status. These individuals must make a discernible contribution to the operational land combat mission or to the mission of the aircraft in flight. Examples of personnel whose combat duties require them to fly include those in the attack elements of units involved in air-land assaults against an armed enemy and those directly involved in airborne command and control of combat operations. Awards will not be made to individuals who use air transportation solely for the purpose of moving from
point to point in a combat zone. The Army and the Air Force also awards the Air Medal with a Valor device for acts of heroism.

![Air Medal](http://en.wikipedia.org/wiki/Air_Medal)

**Source:** http://en.wikipedia.org/wiki/Air_Medal

**Bronze Star**

The **Bronze Star Medal (or BSM)** is a United States Armed Forces individual military decoration that may be awarded for bravery, acts of merit, or meritorious service. When awarded for bravery, it is the fourth-highest combat award of the U.S. Armed Forces and the ninth highest military award (including both combat and non-combat awards) in the order of precedence of U.S. military decorations. When awarded for bravery it generally includes a “V” device. Officers from the other federal uniformed services are also eligible to receive the award if they are militarized or detailed to serve with a service branch of the armed forces. Additional awards of the Bronze Star are denoted by oak leaf clusters in the Army and Air Force.

![Bronze Star with “V” Device](http://en.wikipedia.org/wiki/Bronze_Star_Medal)

**Source:** http://en.wikipedia.org/wiki/Bronze_Star_Medal

**Silver Star**

The **Silver Star** is the third-highest military decoration that can be awarded to a member of any branch of the United States armed forces for valor in the face of the enemy.

The Silver Star is awarded for gallantry in action against an enemy of the United States not justifying one of the two higher awards - the service crosses (Distinguished Service Cross, the Navy Cross, or the Air Force Cross), the
second-highest military decoration, or the Medal of Honor, the highest
decoration. The Silver Star may be awarded to any person who, while serving
in any capacity with the armed forces, distinguishes himself or herself by
extraordinary heroism involving one of the following actions:

- In action against an enemy of the United States;
- While engaged in military operations involving conflict with an
  opposing foreign force; or
- While serving with friendly foreign forces engaged in an armed conflict
  against an opposing armed force in which the United States is not a
  belligerent party.

General information

The Silver Star differs from the service crosses in that it requires a lesser
degree of gallantry and need not be earned while in a position of great
responsibility.

Air Force pilots are often considered eligible to receive a Silver Star upon
becoming an ace (having five or more confirmed kills), which entails the pilot
intentionally and successfully risking his life multiple times under combat
conditions and emerging victorious.

Soldiers who received a Citation Star for gallantry in action during World War
I were eligible to apply to have the citation converted to the Silver Star.

The Valorous Unit Award is considered the unit level equivalent of a Silver
Star.

History

The Silver Star is the successor decoration to the Citation Star which was
established by an Act of Congress on July 9, 1918. On July 19, 1932, the
Secretary of War approved the Silver Star to replace the Citation Star. The
original Citation Star is incorporated into the center of the Silver Star, and the
ribbon for the Silver Star is based closely on the Certificate of Merit Medal.

Authorization for the Silver Star was placed into law by an Act of Congress for
the U.S. Navy on August 7, 1942 and an Act of Congress for the U.S. Army on
December 15, 1942. The current statutory authorization for the Silver Star is

The Department of Defense does not keep extensive records of Silver Star
awards. Independent groups estimate that between 100,000 and 150,000 Silver
Stars have been awarded since the award was established. Colonel David
Hackworth is the record holder for most Silver Stars awarded to a single
person. He earned ten Silver Stars for service in the Korean War and the Vietnam War, in addition to two Distinguished Service Crosses.

**Appearance**

The Silver Star is a gold five-pointed star, 1 1/2 inches (38 mm) in circumscribing diameter with a laurel wreath encircling rays from the center and a 3/16 inch (5 mm) diameter silver star superimposed in the center. The pendant is suspended from a rectangular shaped metal loop with rounded corners. The reverse has the inscription "FOR GALLANTRY IN ACTION". The ribbon is 1 3/8 inches (35 mm) wide and consists of the following stripes: 7/32 inch (6 mm) Old Glory red (center stripe); proceeding outward in pairs 7/32 inch (6 mm) white; 7/32 inch (6 mm) ultramarine blue; 3/64 inch (1 mm) white; and 3/32 inch (2 mm) ultramarine blue.

Additional decorations of the Silver Star are denoted by oak leaf clusters in the Army and Air Force and by award stars in the Navy, Coast Guard, and Marine Corps.

Silver Star

**Source:** [http://en.wikipedia.org/wiki/Silver_Star](http://en.wikipedia.org/wiki/Silver_Star)

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**Distinguished Service Cross**

The **Distinguished Service Cross (DSC)** is the second highest military decoration that can be awarded to a member of the United States Army, for extreme gallantry and risk of life in actual combat with an armed enemy force. Actions that merit the Distinguished Service Cross must be of such a high degree to be above those required for all other U.S. combat decorations but not meeting the criteria for the Medal of Honor. The Distinguished Service Cross is equivalent to the Navy Cross (Navy, Marine Corps, and Coast Guard) and the Air Force Cross (Air Force).

The Distinguished Service Cross was first awarded during World War I. In addition, a number of awards were made for actions before World War I. In many cases, these were to soldiers who had received a Certificate of Merit for gallantry which, at the time, was the only other honor besides the Medal of
Honor the Army could award. Others were belated recognition of actions in the Philippines, on the Mexican Border and during the Boxer Rebellion.

This decoration is distinct from the Distinguished Service Medal, which is awarded to persons in recognition of exceptionally meritorious service to the government of the United States in a duty of great responsibility.

**Description**

A cross of bronze, 2 inches in height and 1 13/16 inches in width with an eagle on the center and a scroll below the eagle bearing the inscription "FOR VALOR". On the reverse side, the center of the cross is circled by a wreath with a space for engraving the name of the recipient.

**Ribbon**

The ribbon bar is 1 3/8 inches wide and consists of the following stripes:

1. 1/8 inch Old Glory Red 67156;
2. 1/16 inch White 67101;
3. 1 inch Imperial Blue 67175;
4. 1/16 inch White;
5. and 1/8 inch Old Glory Red.

The Distinguished Service Cross is awarded to a person who, while serving in any capacity with the Army, distinguishes himself by extraordinary heroism not justifying the award of a Medal of Honor; while engaged in an action against an enemy of the United States; while engaged in military operations involving conflict with an opposing/foreign force; or while serving with friendly foreign forces engaged in an armed conflict against an opposing Armed Force in which the United States is not a belligerent party. The act or acts of heroism must have been so notable and have involved risk of life so extraordinary as to set the individual apart from his comrades.

The Distinguished Service Cross was established by President Woodrow Wilson on January 2, 1918. General Pershing, Commander-in-Chief of the Expeditionary Forces in France, had recommended that recognition other than the Medal of Honor be authorized for the Armed Forces of the United States for valorous service rendered in like manner to that awarded by the European Armies. The request for establishment of the medal was forwarded from the Secretary of War to the President in a letter dated December 28, 1917. The Act of Congress establishing this award (193-65th Congress), dated July 9, 1918, is contained in 10 U.S.C. § 3742. The establishment of the Distinguished Service Cross was promulgated in War Department General Order No. 6, dated 1918-01-12.
The first design of the Distinguished Service Cross was cast and manufactured by the United States Mint at Philadelphia, Pennsylvania. The die was cast from the approved design prepared by Captain Aymar E. Embury II, Engineers Officer Reserve Corps. Upon examination of the first medals struck at the Mint, it was considered advisable to make certain minor changes to add to the beauty and the attractiveness of the medal. Due to the importance of the time element involved in furnishing the decorations to General Pershing, one hundred of the medals were struck from the original design. These medals were furnished with the provision that these crosses be replaced when the supply of the second design was accomplished.

10 U.S.C. § 3991 provides for a 10% increase in retired pay for enlisted personnel who have retired with more than 20 years of service if they have been awarded the Distinguished Service Cross.

Order of precedence and wear of decorations is contained in Army Regulation (AR) 670-1. Policy for awards, approving authority, supply, and issue of decorations is contained in AR 600-8-22.

Distinguished Service Cross

Source:
http://en.wikipedia.org/wiki/Distinguished_Service_Cross_(United_States)

The Medal of Honor is the highest military decoration awarded by the United States government. It is bestowed on members of the United States armed forces who distinguish themselves "conspicuously by gallantry and intrepidity at the risk of his life above and beyond the call of duty while engaged in an action against an enemy of the United States." Due to the nature of its criteria, it is often awarded posthumously. It is often erroneously referred to as the "Congressional Medal of Honor."

Members of all branches of the U.S. military are eligible to receive the medal, and each service has a unique design with the exception of the Marine Corps and Coast Guard, which both use the Navy's medal. The Medal of Honor is

Source:
http://en.wikipedia.org/wiki/Medal_of_Honor
often presented personally to the recipient or, in the case of posthumous awards, to next of kin, by the President of the United States. Due to its honored status, the medal is afforded special protection under U.S. law.

Three Versions of the Medal of Honor

Source: http://en.wikipedia.org/wiki/Medal_of_Honor