



### Searchlight Generator

- Power for the 150cm Flakscheinwerfer (Flak Searchlight) was provided by a 24-kilowatt (200amps @ 110volts) generator mounted on a special 4 - wheeled trailer
- An 6 cylinder BMW 51 horsepower, gasoline engine was primarily used.
- One generator was used for each searchlight.



### Field kitchen

- Große Feldküche Hf.13W, and was a two-wheeled field kitchen
- Early models had wooden wheels as they were towed by horses. This is a later model with steel wheels meant to be towed by a motor vehicle.
- The center of which housed a 200 liter pot. That stew-cooking vessel was double-bottomed, with a layer of glycerin between the inner and outer pot to prevent scorching and to aid in heat preservation. To the left of the pot was a 90 liter coffee maker, which dispensed from a tap.

- The pot could also be used simply for heating water. (Hot water was often needed to dilute the stew produced in the big pot, a stew that often turned quite thick when it was kept in a heated state.
- Fire doors for each of these appliances were on the rear for the stoking of coal or firewood. With the wagon was also carried a Meat Grinder, a Coffee Grinder, Kitchen Utensils plus the Food provisions for one day.
- A single "Große Feldküche Hf. 13" could feed some 125 to 225 men.

# Liberation



## M8 Greyhound

- The first M8 Light Armored Car (aka Greyhound) rolled off the Ford assembly line in March of 1943.
- They first saw combat in September of 1943 when the Allied landed at Salerno, Italy
- The M8 replaced the M3A1 Scout Car and was used for reconnaissance missions that called for speed and agility.
- An M8 from Patton's 3rd Army was the first vehicle to reach the gates of the Mauthausen-Gusen concentration Camp.

## German Rail car (Coming soon)

# War in the Pacific



**M29 Weasel**

- Light weight with wide tracks, designed to cross snow, sand or mud
- Originally design for the use in the snow in Norway for a Special Forces mission that was canceled
- Heavily used in Okinawa when heavy rains caused trucks and tanks to be mired down. M29's could bring food and ammo to the troops and evacuate the wounded
- Standard M29s were semi-amphibious, but with a very low freeboard. A M29C Water Weasel version was produced with fore and aft buoyancy cells and twin rudders



**M3 Anti Tank Gun**

- Was the primary US Anti Tank gun at the beginning of the war
- By Mid 1943, the 37mm gun was completely obsolete against German Armor, but still effective against the lighter Japanese armored vehicles



## Daimler MK. II Armored Car

- The Daimler Armored Car was a British design used for armed reconnaissance and liaison purposes. The Mk. II included an improved turret, improved radiator, and new driver's escape hatch.
- The Daimler Armored Car Mk. I first saw service in North Africa in 1942 and continued to be used throughout Europe. A few Daimlers, both the Mk. I and Mk. II, served in the Asiatic theater with the 16th Light Cavalry British Indian Army armored car regiment in the re-conquest of Burma from the Japanese.
- Post-war, the Daimler Armored Cars – Mk. I and Mk. II were used in the Korean War and remained in service with British territorial units until the 1960's.
- **The Daimler Mk. II on display in the American Heritage Museum is one of two in the United States.**

## Type 4 HO-RO - Self Propelled Gun



- The Type 4 Ho-Ro was a self-propelled 150mm gun that saw limited service with the Imperial Japanese Army in the Pacific War. Japanese engineers based the Type 4 Ho-Ro on the German "Grille" (German for "Cricket") using the chassis from Type 97 Japanese tanks. The Type 4 Ho-Ro was rushed into service and typically deployed in batteries of four, that saw combat as part of the 2nd Tank Division during the Philippines

campaign. The remaining units were deployed to Okinawa for island defense, but were quickly decimated by American artillery during the Battle of Okinawa.

- This Ho-Ro saw its last action at the Battle of Luzon near Clark Airfield in the Philippines, January 1945. It was under command of an Independent Gun Company alongside the Japanese 8th Infantry Division with additional support by the Japanese 2nd Tank Division with units of Chi-Ha Kai medium tanks. The battle was short-lived with the crew abandoning the cannon and forced to retreat into the forest.
- Even though the Type 4 Ho-Ro was designed as an offensive weapon, because of its late introduction in the war, it was forced to become a defensive one. In the end, its limited quantity and outdated design led many Type 4s to be destroyed by Allied artillery.
- The Type 4 was never mass-produced. **As a result, only 12 Type 4 Ho-Ro's were made. This Type 4 Ho-Ro was captured at Luzon and is the only example that remains in the world.**
- **This Type 4 HO-RO is on long term loan from the National Museum of the U.S. Marine Corps**



**LVT(a)-4**

- The Landing Vehicle, Tracked (LVT) is an amphibious warfare vehicle and amphibious landing craft, introduced by the United States Navy. The United States Marine Corps, United States Army, and Canadian and British armies used several LVT models during World War II.
- Originally intended solely as cargo carriers for ship to shore operations, they evolved into assault troop and fire support vehicles. The types were known as amphtrack, "amtrak", "amtrac", "alligator" or "gator."
- In the amphibious assault on Tarawa in late 1943, the LVTs were first used for amphibious assault in order to negotiate the barrier reef and arrive to the most heavily defended beaches the Americans ever met in the Pacific. The supporting naval bombardment lifted and the Marines started their attack from the lagoon at 0900, thirty minutes later than expected, but found the tide had not risen enough to allow their shallow draft Higgins boats to clear the reef. Only the tracked LVTswere able to get across.
- **Amazingly, the LVT(A)-4 at the American Heritage Museum is the only one on public display in the US.**



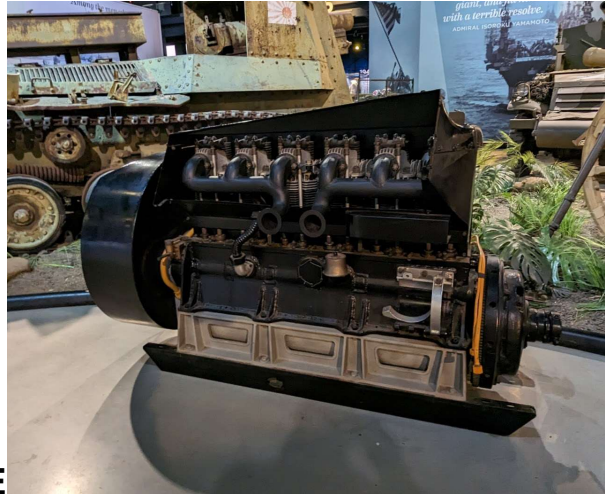
**M3 anti tank gun**

- The M3 37mm Anti-Tank Gun was the primary gun for U.S. forces when the United States entered WWII.
- The 37mm first saw action against the Japanese in the Philippines in December, 1941. In October 1942, the USMC used them with great success against Japanese armored units in Guadalcanal.
- In Europe, by mid-1943, the 37mm gun was completely obsolete against German armor. But, in the Pacific, the 37mm was still found to be effective against weaker Japanese armor and continued in service there until the end of the war.



**Type 91 10cm Japanese Cannon**

- The Type 91 105mm towed howitzer was a Japanese version of the French Model 1913 "Schneider" of WWI
- The Type 91 was the first used by the Japanese Kwantung Army during the September 1931 invasion of Manchuria.
- The Osaka Arsenal built 1,200 Type 91 guns.
- The Type 91 saw extensive combat action in China and through the entire Pacific War, including on Iwo Jima and Okinawa.



## JAPANESE TYPE 95 TANK ENGINE

- 120 hp (89.5 kW) Mitsubishi A6120VDe air-cooled 6-cylinder diesel engine
- This appears to be a replacement engine that was never installed.

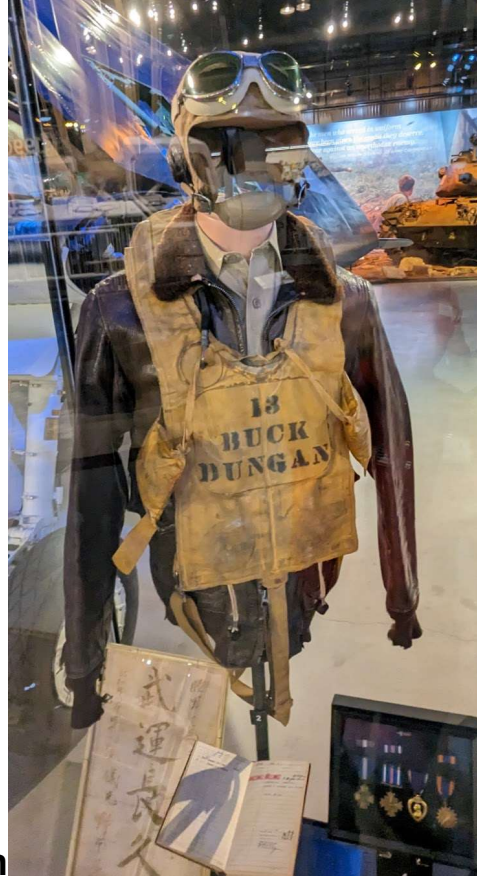


## F6A Hellcat Fighter

- The history of the Hellcat aircraft is closely tied to the development of night fighting capabilities by the US Navy (USN) during World War II. In the early 1940s, the USN faced a challenge from Japanese air attacks that they had no effective defense against. Naval officer Evan "Pete" Aurand, previously a pilot of dive-bombers, was determined to transition into flying fighters. He was assigned to work on building a night fighting aircraft to protect the fleet. This led to the development of the Hellcat as a night fighter, a new type of plane for the US Navy.
- Aurand collaborated with scientists at the Massachusetts Institute of Technology (MIT) to enhance the Hellcat's effectiveness as a night fighter. The VF(N)-76 squadron became one of the pioneering units to use the new radar and navigation tools. These efforts were secretive and pivotal, and Aurand was honored with the Distinguished Service Medal for his contributions.
- Specific F6F-3 Hellcats were modified for night fighting, with changes including radar pods and new instrument panels. These modified F6F-3N Hellcats were designed to use

radar to locate targets. They were flown by pilots who relied on the radar scope to navigate, ultimately locating target aircraft visually at close range.

- In January 1944, a particular F6F-3N Hellcat, numbered 41476, was accepted by the USN and delivered to VF(N)-76 at Quonset Point. The squadron's pilots discovered that each aircraft had a unique radar system. The squadron's Hellcats were dispatched to the Pacific Fleet, assigned to various aircraft carriers and participating in campaigns like the Battle of Philippine Sea and attacks on Iwo Jima. VF(N)-76 emerged as a successful night fighter squadron, achieving numerous victories.
- In September 1944, Hellcat 41476 was assigned to VFN-101, later transferred to CASU-27, which maintained night fighters for training. Subsequent assignments included VF(N)-91, VF-52, and VF-3. As new F6F-5N Hellcats were introduced, the older F6F-3N models were replaced.
- Hellcat 41476 eventually became a training airframe, with Captain Walt Ohlrich later restoring it to flying condition for airshows. The aircraft played a significant role in showcasing Navy and Marine aviation history until it was grounded due to bureaucratic concerns. It was displayed at various museums, including the USMC Museum and the Evergreen Museum.
- Currently, Hellcat 41476 has been meticulously restored to its original condition, symbolizing the legacy of USN night fighting. Paired with the F4U-5N Corsair, it represents an important link to the past, shedding light on the history of WWII Naval Aviation and the role of night fighters.



### **LCDR Fred “Buck”Dungan**

- LCDR Fred “Buck” Dungan served as a fighter pilot with VF(N)-76, the Night Fighter squadron that the American Heritage Museums Grumman F6F-3N Hellcat was flying with in the Pacific Theater during WWII
- On April 19, 1944 Dungan intercepted and chased a Japanese Mitsubishi G4M “Betty” Bomber down to 2000 feet and destroyed it.
- The sole surviving crewman of the bomber was captured and brought to the USS Yorktown, Dungan ship. In accordance with the Samurai code, The Japanese aviator congratulated him on his victory and presented him with the Japanese Oath Paper that was carried aboard the aircraft.
- On a mission on July 4th, 1944, Dungan and wingman John Dear found themselves in a vicious battle with 10 Japanese Nakajima A6M2-N “Rufe” aircraft, a floatplane version of the “Zero” fighter. Dungan downed four aircraft and Dear tallied up three.
- During the battle, Dungan was hit with a 7.7mm round and was badly wounded. Barely conscious and bleeding profusely, he miraculously managed to land back on his carrier at night.
- During the same flight they also managed to sink a Japanese destroyer.
- The actions of that day earned Dungan the Navy Cross, the second highest award for the Navy. By the end of the war , Dungan was an ace with seven victories.

# Korea



**M26A1 Pershing**

- Development began in spring of 1942 as the T26 as a new medium tank with increased firepower and protection than the M4 Sherman
- Production was ordered in Aug 1944 and started in Nov 1944.
- Early in Dec 1944, 20 vehicles were proposed to be sent to Europe for field testing. The Army was not interested in testing them in battle and preferred they be tested in the US
- Mid December 1944 the Army changed their minds when the Germans launched an offensive known as the Battle of the Bulge. German Tiger and Panther tanks took a heavy toll on the lighter M4 Sherman.
- The first 20 T26E3 arrived in Jan 1945 and assigned to the 3rd and 10th Armored Divisions
- They saw limited tank on tank action, most notably was the Panther in Cologne fight caught on video and written about in the book Spearhead.
- Renamed the M26 heavy tank in March of 1945 and given the nickname :General Pershing"
- 2,212 were built when production stopped in Oct 1945
- After the war, the 90mm gun was upgraded with a bore evacuator and a new single baffle muzzle brake.
- The M26 saw heavy action in Korea and was retired after the conflict.

Our Vehicle

- MVTF acquired from a collector who had a number of derelict M26's and M26A1's. They were slated to become range targets and rescued.
- MVTF need to cut away many damaged parts during the restoration



### **M39 Armored Utility Vehicle**

- While only a few M39s saw combat in WWII, these armored utility vehicles became a workhorse for the U.S. Army in the Korean War.
- Built by Buick, the M39 was refitted for Korea to transport and supply troops, carry ammunition, and save lives as a medevac ambulance.
- The M39's thin armor and open top left the crew vulnerable to enemy fire. At the battle of Imjin River, troops in the African American 999th Armored Field Artillery Battalion used their M39s to break through a bloody ambush. While not designated for heavy combat, Battery B relied upon the vehicles .50 caliber machine guns to inflict heavy casualties and survive.



### **M4A3(76) HVSS Sherman**

- The M4A3(76)w HVSS Sherman was a medium tank built and used by the U.S. during WWII and in the Korean War. The M4A3(76)w entered service in late December, 1944 and was used until 1958.

- The M4A3(76)w HVSS or M4A3E8, commonly referred to as the “Easy 8”, was equipped with a 76mm gun which had more penetrating power than the 75mm gun originally equipping the M4 series.
- It was also equipped with “wet storage” ammunition racks for the 76mm shells. Wet storage consisted of racks and bins surrounded by water to help limit ammunition fires in the event of an enemy round penetrating the tank.
- Another major upgrade for deployment in Korea was the use of wider tracks and improved suspension for better mobility in mud and snow.
- Why does this Sherman have a wild “Tiger” paint scheme? Normally, machines of war, especially tanks, are covered with camouflage. Most often, they are painted colors similar to the landscape in which they will be operating, or have branches and foliage added to break up their silhouette. The paint scheme on this tank is quite the opposite. It is even more incredible to learn that this type of Sherman tank, sporting its wild paint scheme, rode into combat! It was part of a little known military plan. In 1950, somewhere deep in the Psychological Warfare Department of the US Army, an astute soldier realized that 1950/1951 was, according to the Chinese Zodiac calendar, the year of the Tiger. In late 1950, with North Korea leaning on China to provide soldiers, word went out to tank crews all over Korea to paint tiger faces on their tanks. The idea was that “superstitious” Chinese would not shoot at these tanks for fear of bad luck, or, perhaps, that they would hesitate long enough for the tankers to get the first shot off.
- At the American Heritage Museum, our M4A3 76(W) HVSS (or, M4A3E8/“Easy Eight”) is painted exactly like the 5th Regimental Combat Team, 4th platoon’s TK-45 that fought around Ichon in January of 1951. Perhaps because the 5th RCT was known as the “Bobcats,” their TK-45 (and likely, a few other tanks in the platoon) got the most frightening and complete tiger scheme of them all! It is not known how effective the paint schemes were and difficult to find accounts from either side that address its success. After about a month, for unknown reasons, the Tiger on TK-45 was painted over and the rest, as they say, is history. (As a side note, by the time the tanks were actually deployed into combat in March 1951, the Chinese New Year had passed, and it was the Year of the Rabbit.)



## M2 Half-track

- Used heavily in both WWII and Korea and by more than 20 countries
- The thin armor provided minimal protection for the troops and was dubbed the “Purple Heart Boxes” due to the open top and thin armor
- Designed by the White Motor Company of Cleveland

- Built by White Motor and Diebold Safe and Lock Company
- Over 50,000 were produced
- Based on the M3 scout car
- The barrel shaped object on the the front bumper is a “unditching roller”
- Crew of 2 and 7 passengers



### **M7B2 PRIEST**

- The M7 Priest tank, with its 105mm Howitzer cannon, played an important combat role across North Africa, Europe and the Pacific during WWII. It was given the official service name 105 mm Self Propelled Gun, Priest by the British Army, due to the pulpit-like machine gun ring, and following on from the Bishop and the contemporary Deacon self-propelled guns.
- M7 Priests remained in use during the Korean War, where their flexibility, compared to towed artillery units, led the U.S. Army on the path to converting fully to self-propelled howitzers.
- Israel acquired a number of M7 Priests during the 1960s and employed them in the Six-Day War, the War of Attrition and the Yom Kippur War. In the last conflict, three M7 units, the 822nd, 827th and 829th Battalions in the IDF Northern Command, supported the occupation of the Golan Heights.

# Vietnam



**M48A3**

- This tank was built approximately 1955
- The M48 Patton is an American first generation main battle tank (MBT) introduced in February 1951, being designated as the 90mm Gun Tank: M48. It was designed as a replacement for the M26 Pershing, M4 Sherman variants and M46 Pattons used in the Korean War, and as the successor to the M47 Patton. Nearly 12,000 M48s were built, mainly by Chrysler and American Locomotive Company, from 1952 to 1961. The M48 underwent many design modifications and improvements during its production life. This led to a wide variety of suspension systems, cupola styles, power packs, fenders and other details among individual tanks. The early designs, up to the M48A2C, were powered by a gasoline engine.
- The M48A3 and A5 versions used a diesel engine, however gasoline engine versions were still in use in the US Army National Guard through 1968 and through 1975 by many West German Army units. The A3 model introduced the diesel engine, countering the earlier versions' characteristic of catching fire. Because many M48A3 tanks were conversions from earlier models, many characteristics varied among individual examples of this type. M48A3 tanks could have either three or five support rollers on each side and might have either the early or later type headlight assemblies, some retained their earlier cupola styles.
- Numerous examples of the M48 saw combat use in various Arab–Israeli conflicts and the Vietnam War. Beginning in 1959, most American M48A1s and A2s were upgraded to the M48A3 model.
- The M48 was originally designed to fight massive tank battles against the Soviets. The M48 saw extensive action with the US military during the Vietnam War. Over 600 Pattons would be deployed with US forces during that war. The initial M48s first landed with the US Marine 1st and 3rd Tank Battalions in 1965, with the 5th Marine Tank Battalion later becoming a back-up/reinforcement unit. The M48s performed admirably in Vietnam in the infantry-support, bunker busting and mine sweeping role. However, there

were few actual tank versus tank battles. One was between the US 1-69th Armor and PT-76 light amphibious tanks of the NVA 202nd Armored Regiment at Ben Het Camp in March 1969. The M48s provided adequate protection for its crew from small arms, mines, and rocket-propelled grenades. South Vietnamese M48s and M41s fought in the 1975 Spring Offensive.

- Later in the Vietnam War the M48s proved to play an important role as mine sweeper. At that time, mine sweeping was done by soldiers walking slowly over the dirt shoulders of the highway with hand-held mine detectors. During this slow process, convoys would build up into a dangerously-inviting target for the enemy, especially their guerrillas and partisans. As a result, a faster method was improvised, the "Thunder Run", in which one M48 lined up on each side of the road, with one track on the dirt shoulder and the other track on the asphalt, and then with all guns firing, they raced to a designated position miles away. If the M48s made it without striking a mine, the road was clear and the convoys could proceed. In most cases, an M48 that struck a land mine in these operations only lost a road wheel or two in the explosion; seldom was there any hull damage that would be considered a catastrophic kill.
- The M48s were also used in the Indo-Pakistani wars, Middle East and Africa conflicts.
- **This M48 was donated to the Museum by the US Marine Corp**



**PT-76B**

- Built in Russia in 1959
- Acquired by MVTF in Jan 1994 from England
- The PT-76 is a Soviet amphibious light tank that was introduced in the early 1950s and soon became the standard reconnaissance tank of the Soviet Army and the other Warsaw Pact armed forces. It was widely exported to other friendly states, like India, Iraq, Syria, North Korea and North Vietnam. Overall, some 25 countries used the PT-76. 76 stands for the caliber of the main armament: the 76.2 mm D-56T series rifled tank gun.
- The PT-76 is used in the reconnaissance and fire-support roles. Its chassis served as the basis for a number of other vehicle designs, many of them amphibious, including the

BTR-50 armored personnel carrier, the ZSU-23-4 self-propelled antiaircraft gun, the ASU-85 airborne self-propelled gun and the 2K12 Kub anti-aircraft missile launch vehicle.

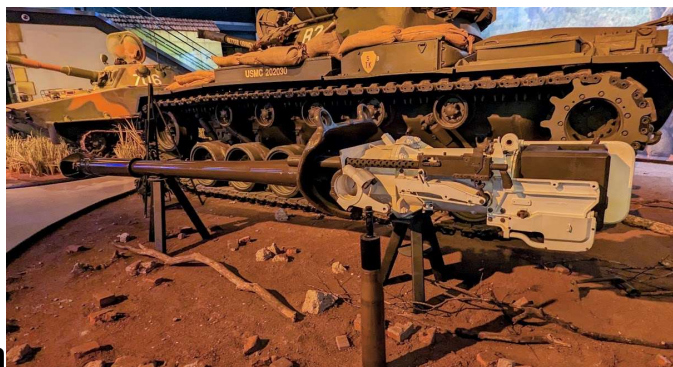
- About 5,000 PT-76s were built during the vehicle's lifetime, of which some 2,000 were exported. Over 25 countries employed the vehicle, including Afghanistan, Albania, Angola, China, Congo, Cuba, Egypt, Finland, Guinea, Hungary, India, Indonesia, Iraq, Laos, Madagascar, Mozambique, North Korea, Pakistan, Poland, North Vietnam, and Yugoslavia.
- Aside from its reconnaissance role, it is also used for crossing water obstacles in the first wave of an attack and for artillery support during the establishment of a beachhead or river banks. Soviet PT-76s along with T-54s, T-55s, and Chinese Type 59s, Type 62 tanks formed the bulk of the People's Army of Vietnam armored forces.
- The first successful action of NVA armor in Vietnam was against the Lang Vei Special Forces camp on February 6th, 1968 (they had already been used in the preceding Battle of Ban Houei Sane. Thirteen PT-76s, of the NVA 202nd Armored Regiment spearheaded an assault against approximately 24 Green Berets, 500 Vietnamese irregulars and 350 Laotian Royal soldiers. The defenders fought back with their 106 mm M40 recoilless rifle, and ineffectively with M72 LAWs (one-shot disposable 66 mm Light Anti-Tank Weapon). The Lang Vei camp was overrun, with the PT-76s using their turret-mounted spotlight-equipped heavy machine guns to shoot down any irregulars who panicked and ran out of the underground bunkers. A few survivors broke out and were airlifted to safety.
- The first tank-to-tank engagement occurred in mid-1968 when a US reconnaissance airplane observed a PT-76 being washed by its crew in the Bến Hải River in the DMZ (17th Parallel). The Forward Air Control pilot radioed the tank's position to a nearby M48 Patton tank unit of the US 3rd Marine Tank Battalion. With the FAC adjusting fire, the Patton fired three 90 mm rounds, obtaining a hit with the third round. The tank crew abandoned their vehicle. Shortly afterwards, some returning F-4 Phantom jet fighter bombers, with ordnance to expend, observed the PT-76 and bombed the remainder of the vehicle.
- The Battle of Ben Het was the only NVA–US Army tank battle during the course of the Vietnam War, 10 North Vietnamese PT-76 faced American M48 Patton tanks. March 3, 1969, the Special Forces camp at Ben Het was attacked by the NVA 202nd Armored Regiment. The 202nd was given the task of destroying the camp's 175 mm self-propelled guns. One of the PT-76s had detonated a land mine, which not only alerted the camp, but also lit up the other PT-76s attacking the firebase. Flares had been sent up, thus exposing adversary tanks, but sighting in on muzzle flashes, one PT-76 scored a direct hit on the turret of a M48, killing two Patton crewmen and wounding two more. A second Patton, using the same technique, destroyed a PT-76 with their second shot.
- The PT-76 was involved in a landmark incident in armored warfare, in being the first victim of the BGM-71 TOW missile (Tube-launched, Optically tracked, Wire-guided). On April 24, 1972, the US special experimental 1st Combat Aerial TOW Team arrived in Vietnam. It consisted of two UH-1B helicopters mounting the new BGM-71 TOW anti-

tank missile. On May 9, NVA armored units attacked the Ranger camp at Ben Het; the TOW team destroyed 3 PT-76s and broke up the attack



### **M41 WALKER BULLDOG**

- The M41 Walker Bulldog, officially 76-mm Gun Tank, M41, was an American light tank developed for armed reconnaissance purposes. It was produced by Cadillac between 1951 and 1954 and marketed successfully to the United States Army as a replacement for its aging fleet of World War II vintage M24 Chaffee tanks
- Walker Bulldog after the late General Walton Walker, who was killed in a Jeep accident in 1950. The M41 was the first postwar American light tank to see worldwide service, and was exported in considerable numbers by the United States, particularly to Asia.
- During the Vietnam War the M41 proved extremely popular with South Vietnamese tank crews, who were generally of smaller stature than their American counterparts and did not experience the same discomfort operating within the tank's limited interior space. ARVN M41s undertook their first combat deployment less than a year later, and played an instrumental role in crushing the 1966 Buddhist Uprising.



**90MM T119 Gun**

- Prototype 90mm Gun T119
- Used on the T42 tank, only 6 produced and used for testing only
- After minor changes, became the 90mm Gun M36
- The M36 Gun was standard on the M47 Patton tank
- **Only 6 in total built in 1952**



### Hanoi Hilton

- Displayed open Feb 2023
- Made from actual bricks, cell doors, beds and restrains from the actual Hỏa Lò Prison in Hanoi nicknamed the Hanoi Hilton
- The Hoa Lo prison in Hanoi, was built by the French between 1886 and 1901 during Vietnam's time as part of French Indochina. It was known as MAison Centrale. The French called the prison *Maison Centrale*, 'Central House', which is still the designation of prisons for dangerous or long sentence detainees in France
- Intended to hold Vietnamese political prisoners, it was marked by torture and executions.
- After the Battle of Dien Bien Phu and the 1954 Geneva Accords, it came under the authority of the Democratic Republic of Vietnam.
- It served as a revolutionary education center, and retained historical significance after the French left.
- During the Vietnam War, US POWs suffered harsh conditions in the prison that they sarcastically dubbed "Hanoi Hilton".
- In 1967 a new section was added and called "Little Vegas". This section housed American POWs, many injured upon capture.
- The prison was used to interrogate and torture captured servicemen, despite the Geneva Convention.
- Released prisoners exposed the systematic abuse.
- The prison was mostly demolished in the mid-1990's



### **ZPU-4 anti-aircraft gun**

- During the Vietnam war, the ZPU-4 anti-aircraft gun posed a deadly threat to the American pilots and crews of low-flying aircraft and helicopters
- Each of the four KPVT heavy machine gun fires at a rate of 600 RPM
- Developed by the Soviet Union in 1949, the ZPU-4 saw heavy use in the Korean War and in Vietnam

# Cold War



**East German T72M**

- The T-72 is a family of Soviet main battle tanks that first entered production in 1971. The Russian T-72 main battle tank was produced at the Malyshev HMB Plant, based in Kharkov, Ukraine and at UKBM Nizhny Tagil, Russian Federation and produced under license in a number of countries. The T-72 first entered production in 1972 and an estimated 50,000 have been built. It was widely exported and saw service in 40 countries and in numerous conflicts.
- The T-72 was the most common tank used by the Warsaw Pact from the 1970s until the collapse of the Soviet Union in 1991. The T-72 has been exported to Algeria, Bulgaria, Cuba, the Czech Republic, Slovakia, Finland, Hungary, India, Iran, Libya, Myanmar, North Korea, Poland, Romania, Syria and Yugoslavia.
- The tank is fitted with a 125mm D-81 smoothbore gun, a 7.62mm co-axial machine gun and a 12.7mm air defense machine gun mounted on the commander's cupola. The T-72S carries 45 rounds of 125mm ammunition, 22 rounds of which are carried on an automatic loading carousel. The T-72M is an export version, similar to T-72A but with simple steel armor. Also built in Poland and former Czechoslovakia.
- Various versions of the T-72 have been in production for decades, and the specifications for its armor have changed considerably. Original T-72 tanks had homogeneous cast steel armor incorporating spaced armor technology and were moderately well protected by the standards of the early 1970s. In 1979, the Soviets began building T-72 modifications with composite armor similar to the T-64 composite armor, in the front of

the turret and the front of the hull. Late in the 1980s, T-72 tanks in Soviet inventory (and many of those elsewhere in the world as well) were fitted with reactive armor tiles.

- Laser rangefinders have appeared in T-72 tanks since 1978; earlier examples were equipped with parallax optical rangefinders, which could not be used for distances under 1,000 meters (1,100 yd). Some export versions of the T-72 lacked the laser rangefinder until 1985 or sometimes only the squadron and platoon commander tanks (version K) received them. After 1985, all newly made T-72s came with reactive armor as standard, the more powerful 840 bhp (630 kW) V-84 engine and an upgraded design main gun, which can fire guided anti-tank missiles from the barrel. With these developments, the T-72 eventually became almost as powerful as the more expensive T-80 tank, but few of these late variants reached the economically ailing Warsaw Pact allies and foreign customers before the Soviet bloc fell apart in 1990.
- The T-72 is extremely lightweight, at forty-one tons, and very small compared to Western main battle tanks. The T-72 has a nuclear, biological, and chemical (NBC) protection system. The inside of both hull and turret is lined with a synthetic fabric made of boron compound, meant to reduce the penetrating radiation from neutron bomb explosions. The crew is supplied clean air via an air filter system. The modernized T-72M1 featured an additional .63" of high hardness steel appliqué armor on the glacis plate, which produced an increase of 1.7" in line of sight thickness. It was also the first export variant with composite armor in the turret, containing ceramic rods sometimes called "sandbar armor".



**M60A1**

- The M60 was America's primary tank through the last decades of the Cold War. For three decades, the M60 was the workhorse of the US Army, USMC, NATO's and Allied or affiliated nations to the western block around the world. Interestingly, the M60 mostly owes its existence to a singular event, the capture of Soviet T-54A, driven onto the British Embassy gardens at Budapest during the 1956 Hungarian revolution. It was recovered and sent to NATO's top brass and experts to be reverse engineered. With the

influence of the T-54 using an improved version of the M48 Patton, the M60 was equipped with a bigger gun and updated engine.

- Over 15,000 examples were built by Chrysler and the Detroit Arsenal Tank Plant from 1961 to 1987.
- Though too late to serve in Vietnam, Israeli versions of the M60 fought in the 1973 Yom Kippur War and 1982 Lebanon War. M60A1 tanks, similar to this one, fought in U.S. Marine units in Grenada and Beirut in 1983, and Iranian forces used M60s in the Iran-Iraq War from 1980 to 1988. During Desert Storm, U.S. Marine M60s fought against Soviet-built Iraqi tanks, destroying over 100 with the loss of only one M60. In 1961, one of the first M60A1s delivered to Iran was acquired by the USSR and studied extensively. The information learned helped influence the design of the Soviet T-62 tank.
- The M60 was the last American tank using solid rolled homogeneous armor (RHA). There is 6 inches of armor on the front glacis and mantlet. Despite the added weight of the engine, armor and new gun, the tank was only two tons heavier, at 50.7 tons versus 48.5 tons of the M48A1. The driver sat in the middle of the flat portion after the glacis slope and had three day periscopes. The central one would be replaced by an infrared vision device. He had an escape hatch under the hull, in case of an evacuation if the gun would block the upper hatch. His own access to the turret was restricted, as the turret needed to be turned backward.
- The turret had a clamshell shape, similar to the one on the M48, but it was changed in 1963 to the distinctive “needle nose” design of the M60A1, which made for a narrower front cross-section, minimizing the surface offered to enemy fire. This allowed optimizing the layout of the combat compartment, as this turret was more elongated and significantly roomier, for the same central width.
- The firepower is provided by a bore evacuated 105 mm (4.1 in), 52 caliber M68 rifled tank gun derived from the British Royal Ordnance L7. A real improvement over the previous 90 mm (3.54 in), it gave almost twice the range, with much greater accuracy and far better muzzle velocity. It is characterized by its 1/3 down length placed bore evacuator with a specific eccentrically mounted extractor and an American vertical sliding breech block. Not only could the gun share standard NATO ammunition of the HE, Frag, AP, HEAT types, but it could be replaced by foreign-supplied models if needed in combat conditions, because of its full compatibility. It could fire at an average of 10 rounds per minute (maximum) with a well-trained crew.
- Due to an impressive service length span, the M60 and variants participated in some major conflicts and many operations. The most important such battle theater also saw the most number of M60 of many nations engaged, within the coalition forces in 1991 during Operation Desert Storm. During Operation Desert Storm in February 1991, USMC's M60A1 ERA rolled into Kuwait City after a fierce battle at the Kuwait Airport. Some 200 participated in the largest tank battle for an USMC unit since World War Two, dealing with Iraqi T-54/55, Type 69, and T-72 tanks, north of Khafji. This unit claimed nine dozen Iraqi tanks destroyed for a single M60A3 loss.
- At the same time, USAF 401st TFW (P) unit used M60s based in Doha AFB, Qatar, modified to deal with unexploded ordnance from tarmac runway and taxiway surfaces. Saudi, Egyptian and Omani forces also deployed their own M60s in this operation.



**M551 Sheridan**

- The M551 “Sheridan” AR/AAV (Armored Reconnaissance/Airborne Assault Vehicle) was a light tank developed by the United States and named after General Philip Sheridan, of American Civil War fame. It was designed to be landed by parachute and to be able to cross rivers. It was armed with the technically advanced but troublesome M81/M81 Modified/M81E1 152mm gun/launcher, which fired both conventional ammunition and the MGM-51 Shillelagh guided anti-tank missile.
- The M551 Sheridan entered service with the United States Army in 1967. At the urging of General Creighton Abrams, the U.S. Commander of Military Forces in South Vietnam at the time, the M551 was rushed into combat service in Vietnam in January 1969. Now retired from service, it saw extensive combat in the Vietnam War, and limited service in Operation Just Cause in Panama, and the Persian Gulf War in Kuwait.
- The Sheridan’s most unusual feature was its large M81 152-millimeter gun/missile system. Capable of firing enormous caseless shells more devastating to infantry than the 90- or 105-millimeter shells fired by Patton tanks at the time. Against armored threats at medium or long range, the gun could instead launch the newly developed MGM-151 Shillelagh antitank missile at targets up to two or three kilometers distant. It seemed like a brilliant solution to cramming heavy firepower into a lightweight vehicle. Each Sheridan carried nine Shillelaghs and twenty shells as standard, as well as .50 caliber and 7.62-millimeter machine guns mounted on the turret and hull.
- The Sheridan first served with the tank companies of Third Squadron of the Fourth Cavalry Regiment and the Eleventh “Black Horse” Armored Cavalry Regiment (ACR), replacing heavier and slower M48 Patton tanks. The Sheridans unconventional armament created some quirks in operation. The Sheridan’s light frame often leaped upwards into the air with each shot from its heavy main gun, potentially causing chest injuries to the commander if he was peering over the hatch, and also often scrambling the missile system’s electronics. This, combined with a ponderous partially automated loading system, reduced the gun’s rate of fire to around two rounds per minute.
- The Sheridan’s greatest shortcoming in the field lay in survivability. The M551’s armor was not intended to repel anything heavier than a heavy machine gun round, so the tanks were highly vulnerable to the land mines and rocket-propelled grenades. Adding to

the danger, the Sheridan's store of caseless 152-millimeter shells was prone to detonating catastrophically when the vehicle was penetrated.

- In 1989, eight to ten Sheridans of the Third Battalion of the Seventy-Third Armored were used in the first and only parachute drop of U.S. tanks into combat by C-130 transports onto Torrijos/Tocumen Airfield during the invasion of Panama. Four more M551s had already been secretly air landed into Panama before the commencement of hostilities, where they were used to breach the La Comandancia strong point with their heavy shells.
- A year later, fifty-one Sheridans were scrambled into Saudi Arabia along with the rest of the Eighty-Second Airborne Division as part of Operation Desert Shield, reinforcing a "thin line in the sand" of American light infantry. It was hoped these would be sufficient to dissuade Saddam Hussein from invading Saudi Arabia with his massive armored formations. The Sheridan did eventually see action in the Gulf War, firing around a half-dozen missiles at Iraqi bunkers and destroying a single Type 59 tank. These were the only Shillelaghs ever used in combat out of more than eighty-eight thousand built. The Sheridan lasted several more years in U.S. service as part of the Eighty-Second Airborne's rapid reaction force, but was ultimately retired in 1996.



**Berlin Wall**

- Following WWII, the Allies divided Berlin and Germany. The eastern part was governed by Communists, while the rest was democratic. East Germans immediately fled to West Germany in droves – 3.5 million in 16 years. To stem this exodus, the Communists built a 12 foot high concrete barrier with barb wire at the top that spanned all of Berlin.
- The wall worked. After its construction in 1961, an estimated 100,000 people attempted to escape. Only 5,000 were successful, while more than 100 were gunned down. The 27 mile portion of the Berlin Wall that divides the city into East and West Berlin was made up of two walls separated by an area known as the "Death Strip."
- The East German General Secretary, Erich Honecker famously said "The Wall will be standing in 50 and even 100 years, if the reasons for it are not removed." U.S. President Ronald Regan shared his opinion with the world on June of 1987 when he stood in front of the Brandenburg Gate in West Berlin and said "...Mr. Gorbachev, tear down this wall."

- On November 9th, 1989, the Wall was torn down, citizens joyfully celebrated the end of this symbol of oppression.
- The section of the Berlin wall currently on display in the Cold War exhibit is from the Potsdamer Platz section.

## Berlin wall Uniforms



**Left to Right**

### **East German Border Guard**

This summer dress uniform of the East German “Grenztruppen” (Border Troops) was worn near the Brandenburg Gate, which was the demarcation line between East and West Berlin. Due to the many foreign visitors to this area they wanted to present a smart appearance. He is equipped with Soviet designed AK-47

### **East German Tank Platoon Leaders Uniform**

This black, close fitting Tanker's uniform was issued to the German Tankcrews in 1985, lasting until the dissolution of the East German Army.

Due to the extremely small confines of their Soviet designed tanks, no additional equipment was worn within the vehicle. Each uniform had a pocket for a Makarov pistol and ammunition for personal defense

### **American Tank Platoon Sergeants uniform**

This Combat Vehicle Crewman's (CVC) uniform was issued to US Tankers in the late 1980's to protect its wearer from flash fires within the tank. It is made of flame retardant Nomex and contains a built-in extraction system used to evacuate wounded crewmen from vehicles. He is

wearing the standard M25A1 protective mask in its carrier, a CVC helmet and a .45 caliber pistol in a shoulder holster for personal defense.

# Gulf War



**ZSU-23-4M Shilka**

- The Shilka's excellent radar-guided system and four accurate 23mm auto cannons made this weapon highly effective at shooting down low-flying aircraft
- First appeared in the 1960's and despite being considered obsolete during the Gulf War in 1990, was still highly effective.
- Used by 45 countries in 24 wars, most recently in the war between Russia and Ukraine



**2S1 GVOZDIKA (Carnation)**

- Formally the property of the Iraqi Army
- Captured by the US Marines in 1991 and sent to the US for evaluation
- Acquired by the MVTF in Sept 2000.
- Vehicle had damage to the engine, electrical system, road wheels and armament
- Radio and other equipment was missing.
- Vehicle was restored to Soviet "Cold War" condition

- AHM repainted the 2S1 to it's as captured condition

#### History

- Beginning traces back to the early 1960's
- Designed to match the American M109 Self-propelled 155mm howitzer, The M110 203mm howitzer and the British "Abbott" 105mm Self-propelled gun
- Unlike the American and British guns, it's 122mm could be used in a direct fire role.
- Production began in 1970 and is still in service
- The vehicle can float and would be propelled through water by it's tracks
- Vehicle carried 40 rounds of 122mm ammo



#### **MAZ-543 LAUNCHER**

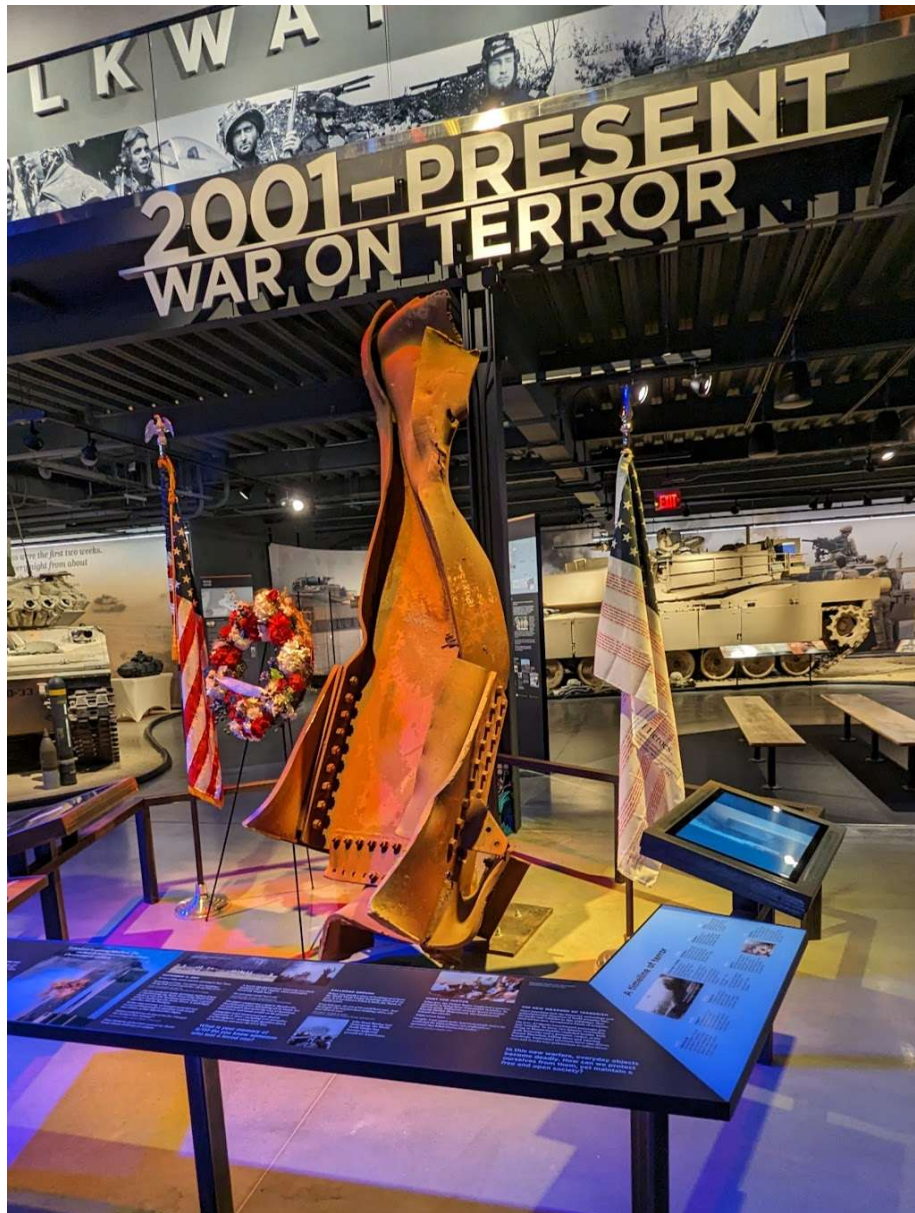
- The R17 Elbrus, or SCUD B, as it is known by its' NATO designation. was based on Nazi Germany's revolutionary V-2 rocket that rained down on London during WWII.
- Scud is the name of a series of tactical ballistic missiles developed by the Soviet Union during the Cold War. It was exported widely to both Second and Third World countries. The term comes from the NATO reporting name attached to the missile by Western intelligence agencies. The Russian names for the missile are the R-11 (the first version), and the R-17 (later R-300) Elbrus (later developments).
- The guidance system, active only during the boosted phase, uses three gyroscopes, that give it a Circular error probable (CEP) of 450 m. A nuclear warhead was designed for the R-17, with a selectable yield, from 5 to 70 kilotons. However it could also carry a chemical warhead, containing 555 kg of viscous VX; a conventional weapon, with a single high explosive warhead; or a series of fragmentation payloads, using either high explosive, anti-tank or anti-runway munitions.
- The new MAZ-543 vehicle was officially designated 9P117 Uragan, and its Russian crews nicknamed it Kashalot (sperm whale), because of its size. The eight-wheeled MAZ-543 has a loaded weight of 37,400 kg, a road speed of 55 km/h and a range of 650 km. It can carry out the launch sequence autonomously, but this is usually directed from a separate command vehicle. The missile is raised to a vertical position by means of hydraulically powered cranes, which usually takes four minutes, while the total sequence lasts about one hour.



**T54/55**

- The Russian T-54/55 is the most produced tank in military history. More than 100,000 were manufactured as it served as the primary battle tank for the Soviet Union into the 1970s.
- The first T-54 prototype was completed at Nizhny Tagil by the end of 1945. The T-54 eventually became the main tank for armored units of the Soviet Army, armies of the Warsaw Pact countries, and many others.
- The T-54/55 tanks are mechanically simple and robust. They are very simple to operate compared to Western tanks, and do not require a high level of training or education in their crew members.
- The tank was fitted with the new V-55 12-cylinder 4-stroke one-chamber 38.88 liter water-cooled diesel engine developing 581 hp. The engine was to be started pneumatically with the use of an AK-150S charger and an electric starter. This eliminated the need for the tank to carry a tank filled with air.
- The T-54/55 and the T-62 were the two most common tanks in Soviet inventory—in the mid-1970s the two tank types together comprised approximately 85% of the Soviet Army's tanks.
- Since the beginning of 1980, they began to be replaced by modern T-62 and T-64 tanks. However reports of T-55's being brought back into service by Russia to fight in Ukraine have been reported due to the high loss of more modern tanks

# War on terror





### **Major Heather Penny's flight gear**

This is the flight gear worn by Major Heather (Lucky) Penny (Then Lt.) during her mission to intercept the aircraft later identified as United Flight 93 on September 11th, 2001. Major Penny was flying a F-16 Falcon with the Washington DC Air National Guard. Much of the flight gear was also used during her two combat tours in Iraq.



### **M1A1 Abrams**

- The M1A1 Abrams is a main battle tank designed and built by the United States during the Cold War. Development of the M1 Abrams series of tanks began in the early 1970's. The initial M1 Abrams was equipped with a 105mm gun and advanced "Chobham" armor. Chobham armor is a mix of metal plates, ceramic blocks, and open space that

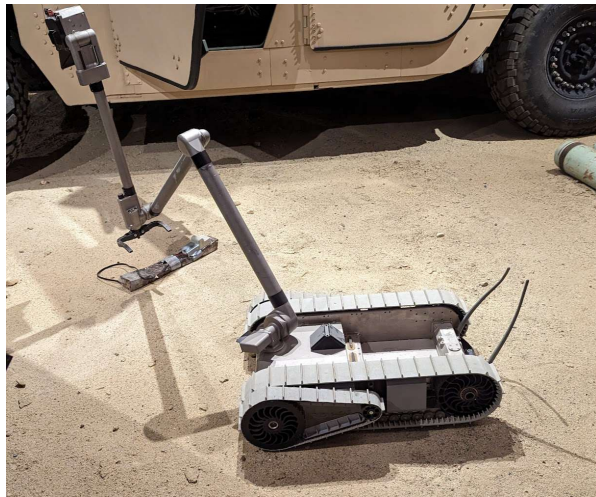
can defeat armor piercing weapons. Production of the M1 began in 1979 and ended in 1985.

- The M1A1 began production in 1986. An up-gunned and up-armored version of the M1, it's main armament is the M256 120mm smoothbore gun, which was originally developed by Rheinmetall for the West German Leopard 2 main battle tank. The armor layout was upgraded with the inclusion of depleted uranium and other classified materials.
- The M1A1 first saw combat in Operation Desert Storm in January 1991, where Iraqi armor consisting of Soviet built T-54/55, T-62, and T-72 tanks proved no match. The M1A1 was able to engage targets beyond 2,500 meters which was significantly greater than the range of the Iraqi tank guns.
- In 2003, the M1A1 was the primary U.S. tank used during the U.S. invasion of Iraq where again they helped to overrun the Iraqi defenses. During the insurgency that followed the invasion, the Abrams was used extensively in urban combat by U.S. forces and later, by U.S. supported Iraqi forces.
- This M1A1 Abrams was attached to A Co., 2<sup>nd</sup> Tank Battalion, United States Marine Corps. On August 3, 2006 while patrolling outside of Fallujah, Iraq, it was struck by an IED(Improvised Explosive Device). The IED caused damage to the right side of the vehicle. Shrapnel from the explosion fatally wounded the tank commander George Ulloa. The surviving crew – Travis Marcum (gunner), Nick Johns (loader) and Nathan Hall (driver) came to the American Heritage Museum with Mike Kadlub (platoon Sargent) and Erick Pfafflin (White 1 tank just behind White 2) to talk about that fateful day on August 3rd, 2006. A compelling and emotional interview was captured during a reunion at the Museum and is on display next to their tank.
- **This M1A1 Abrams is on loan from the National Museum of the United States Marine Corps and is the only modern M1A1 on public display in the world.**



**Talon**

- Robot became a vital life saving defensive tool as Iraqi insurgents deployed deadly Improvised Explosive Devices (IED)
- Rather than risk a soldier's life, a robot would be sent in to investigate and disarm the devices.
- The Talon was the first robot to be used in active combat in Iraq and Afghanistan, it was also used to search for victims in the aftermath of 9/11
- **This particular Talon was in combat in Afghanistan for 3 years and has safely disarmed hundreds if not thousands of IED's**



### **510 PackBot**

- Developed by iRobot, then spun off as Endeavor Robotic, the company was subsequently acquired by FLIR
- The 510 PackBOT relays real-time video, audio and other sensory data including chemical, biological and nerve agents, radiation levels, explosive traces and toxic industrial gasses while operators remain a safe distance away.
- A PackBot can be deployed in under two minutes, climb and descend stairs, navigate narrow passages and is submersible in up to 3 feet of water.
- PAckBots are widely used by military and law enforcement for bomb disposal, surveillance and reconnaissance, and HAZMAT situations.
- More than 4,500 are being used worldwide.



### **AM General M114 HMMVV (HUMVEE)**

- The High Mobility Multipurpose Wheeled Vehicle (HMMWV) better known as the Humvee is a family of four-wheel drive military utility vehicles.
- Originally, the Humvee had no armor protection like the Jeep before it.
- During the urban Battle of Mogadishu, vehicles and crews suffered considerable damage and losses due to the nature of urban combat.
- Starting in 1996, armor was added to better withstand small arm fire. A more powerful turbocharged engine , air conditioning and a strengthened suspension system was added to better deal with the increased weight from the armor.
- The onset of the Iraq War and the use of Improvised Explosive Devices (IED) showed that even the armored M114 was very vulnerable to those attacks.
- In 2007, the USMC started replacing the Humvees with Mine-Resistant, Ambush Protected (MRAP) vehicles that have significantly more protection for the crews. In 2012 the Army folded the USMC lead.