



Official Newsletter of the Michigan Company of Military Historians & Collectors

**February 13, 2017**

*“Only the dead have seen the end of war.”* **Unknown**

*“Over the Rhine, then, let us go. And good hunting to all on the other side.”* **Field Marshal Bernard Montgomery, March 23, 1945** on crossing the Rhine River

*“Nazi Party membership needs to be overlooked. Pride and face saving have no place in our national defense.”* **Major General Hugh Knerr, Director of Intelligence, Exploitation Division, USA ETO** commenting on the need to seize German scientists

*“There are many causes I would die for. There is not a single cause I would kill for.”*  
**Mahatma Gandhi**

Our February 13 speaker will be John Merritt, LCDR, USN (ret.), a 1985 graduate of the United States Naval Academy and former Naval Flight Officer. He will be discussing his time at the Naval Academy and his two tours in anti-submarine warfare.

***MEETINGS** take place the second Monday of every month at the **Downtown Holiday Inn** 310 Pearl Street NW at US-131, Grand Rapids, MI 49504 (616) 235-7611. Socializing begins at 6:00 (1800 hrs), dinner at 7:00 (1900 hrs), business meeting 7:15 (1915 hrs), and program at 8:00 (2000 hrs).*

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**Company Notes**

- ◆ **The Eisenhower interstate system requires that one mile in every five must be straight. These straight sections are usable as airstrips in times of war or other emergencies.**
- ◆ **Note new officers selected on the left.**
- ◆ **We will now meet at the Pearl Street Holiday Inn. This will be our permanent site unless notified otherwise.**
- ◆ **Long time member Carl Strom died February 7, 2017. Obit can be found in the *Grand Rapids Press*.**
- ◆ **Note—dues, still only \$35.**

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# 10 Books About The Civil War For The History Buff In All Of Us

If your idea of good reading involves stories about the Union and the Confederacy, then you'll want to add these page-turners to your bookshelf or Kindle. The HuffPost Partner Studio in conjunction with PBS presented the show *Mercy Street* to curate a list of the most interesting reads on the Civil War. Whether you prefer fiction, nonfiction, female heroines, or descriptions of historic battles, history lovers and bibliophiles alike will find something to love on this list.

## **The Colors of Courage: Gettysburg's Forgotten History: Immigrants, Women, and African Americans in the Civil War's Defining Battle by Margaret S. Creighton**

Much is made of the elite men who fought and died in the war, but there aren't as many comparable stories about minorities — namely women, immigrants, and African-Americans — whose lives were upended by the conflict. *The Colors of Courage* recounts the Battle of Gettysburg from the perspective of these groups, weaving together letters, diaries, and newspapers to create a compelling historical nonfiction narrative.

## **Upon the Altar of the Nation: A Moral History of the Civil War by Harry S. Stout**

The author, Yale professor Harry S. Stout, uses “the just war theory” — or the idea that why wars are fought can be justified through historical or theoretical examination — to evaluate the ethical and moral drivers of both the Union and the Confederacy. By examining periodicals, editorials, sermons,



and other historical documents, Stout illustrates how each side formed an ideology that justified its conduct and reasoning for war, even as the conflict grew bloodier and more gruesome.

## **Battle Cry of Freedom: The Civil War Era by James McPherson**

No Civil War reading list is complete without James McPherson's seminal work. In its 952 pages, you'll find a full-bodied history of the Civil War, recounting the key events that led to the historic conflict and the political and military

strategies, as well as notable figures and memorable battles that defined the war. What makes this unique book a must-read is McPherson's distinct narrative, which truly brings historical personas and events to life.

## **The Widow of the South by Robert Hicks**

This 2005 novel by Robert Hicks is based on the true story of Carrie McGavock, a Confederate woman who dedicated herself to honoring Civil War soldiers in death by caring for the graves of 1,481 of them buried at Carnton Plantation —also her backyard. In 1894, McGavock is approached by an

elderly soldier — and an important figure from her past — who asks if Carnton Plantation can one day be his final resting place. **The Widow of the South** is a story about more than just the war itself; it's also a tale of love, honor, and compassion.

### **The Killer Angels: A Novel of the Civil War by Michael Shaara**

Part of a trilogy, this Pulitzer Prize–winning novel by Michael Shaara about the Battle of Gettysburg uses the perspectives of five main characters to give readers insight into the moral underpinnings — and consequences — of the war. *The Killer Angels* is considered by many the preeminent fictional work on the Battle of Gettysburg. If your reading list is getting too long, you can always rent the four-hour film *Gettysburg*, which is based on the novel.

### **Gone With the Wind by Margaret Mitchell**

Taking place in the antebellum South, *Gone With the Wind* is recognized as the Great American Novel, despite criticism that it poorly represents and even romanticizes slavery. The Pulitzer Prize–winning novel, first published in 1936, focuses on the daughter of a wealthy plantation owner, Scarlett O'Hara, and details her coming of age during a time when the nation also experienced its own growing pains. In 1939, David O. Selznick made this renowned written work into one of the most popular movies ever made. In it, Vivien Leigh and Clark Gable star as Scarlett O'Hara and Rhett Butler, and their performances helped cement the two literary figures as perhaps the most famous star-crossed lovers since Romeo and Juliet.

### **Confederates in the Attic: Dispatches From the Unfinished Civil War by Tony Horwitz**

To capture how modern-day Americans view the Civil War, war correspondent Tony Horwitz traverses the South to find out why some Americans idealize the war and others view it as a stain on our history. From battle reenactments to arguments over the Confederate flag, Horwitz's 1998 book is still relevant and brings to light many of the issues that drove the war and that still, to some, are left unsettled today.

### **Incidents in the Life of a Slave Girl: Seven Years Concealed by Linda Brent**

In what's likely the most widely read historical work about the female slave experience, Harriet Ann Jacobs (under the pseudonym Linda Brent) unflinchingly details her personal story, sharing accounts of sexual abuse and the indignity of slavery. The book, first published in 1861, traces Jacobs' journey from a slave in North Carolina to the seven years she spent in hiding and her eventual escape to New York. Though there's debate about whether *Incidents* is fictional, it has become a staple on school reading lists for its depiction of slavery's cruelties from a female perspective.

### **Sick From Freedom: African-American Illness and Suffering During the Civil War and Reconstruction by James Downs**

The book's title literally describes what happened after slaves achieved emancipation — newly freed people became ill with diseases such as smallpox, cholera, and yellow fever. Using records from the Medical Division of the Freedmen's Bureau, the first government-run health care system, historian James Downs details how the dismantling of slavery created an unintended public health crisis. *Sick From Freedom* illustrates the often untold cost of liberation for many African-Americans and that this turning point in our nation's history left many victims in its wake long after the war was over.

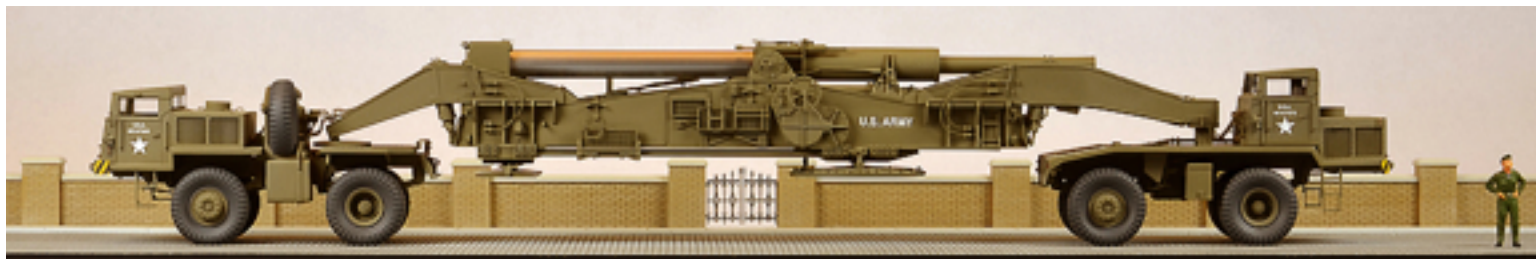
### **Liar, Temptress, Soldier, Spy: Four Women Undercover in the Civil War by Karen Abbott**

New York Times best-selling author Karen Abbott shares the story of how four unlikely women — an abolitionist, a farm girl, a widow, and a socialite — became spies during the Civil War. The women each used different undercover tactics, whether it was seduction or assuming the identity of a man, to share intelligence with the Confederacy or the Union. Frank Stringfellow, known as the most dangerous man in the Confederacy, was perhaps the most famous spy during this period, but Abbott's work shows he wasn't the only double agent.

*Want more? Can't get enough? Indulge in more Civil War drama by tuning in to season two of *Mercy Street* on PBS, starting January 22.*

# Early Tactical Nuclear Weapons

Throughout the Cold War, the Soviet Union served as the potential enemy to Europe. The US military was charged with the mission to counter the expected tank and infantry invasion coming across the divided German border. As a result, the United States Army was always interested in the largest, most powerful weapon on the battlefield and, at that time, this proved to be tactical nuclear weapons. The US had a number of atomic cannons in inventory - the "Atomic Annie's" were largely hidden and relocated as needed, their crews waiting for the order to fire. For the U.S. Army, prior to the refinement of tactical nuclear missiles, that meant developing an atomic artillery piece, known as



the Atomic Cannon. The size of these Annie units, their required tow vehicles and the numbers of men made them relatively difficult to realistically conceal - thusly easy to track and observe for Soviet elements. If the Soviets decided to invade Europe the Annie's would surely have been one of the first targets engaged.

In May of 1950, the Watervliet Arsenal began designing the gun for the U.S. Army. This heavy, mobile, long-range gun was developed to fire the W-9 15 kiloton atomic 280mm Projectile T124. By the spring of 1951, the first T131 gun was mounted on a Gun Carriage, and in October, 1952, three T131 guns were demonstrated to the public at Aberdeen Proving Ground. From 1951 to 1953, 20 guns were manufactured. The weight of the gun and carriage was 94,000 lbs/42,582 kg, (47 tons). The length of the gun carriage was 38'-5" or 11.71 meters. The gun could be emplaced and set up for firing in approximately 12 minutes, and returned to the traveling mode in approximately 15 minutes. The publicly-acknowledged maximum range of the 280mm gun was 20 miles, hitting within 20 yards or less of the desired target. An Army veteran assigned to M65s in Okinawa reported the actual maximum range was 35 miles.

In 1950, the Kenworth Motor Truck Company began the manufacture of the M249 4x4 Heavy Gun-Lifting Front Truck and the M250 4x4 Heavy Gun-Lifting Rear Truck, to transport the T131 Gun. From 1952 through 1953, 33 Front and 33 Rear Trucks were manufactured. Each truck was powered by a Continental AO-895-4 six-cylinder engine, with a maximum output of 375 hp and a top speed of 45 mph. The empty weight of the M249 Front Truck was 37,950 lbs/17,191 kg (19 tons); the empty weight of the M250 Rear Truck was 35,910 lbs/16,267 kg (18 tons).

The entire assembly of two trucks and one gun was designated the M65, although the unofficial, popular name given this machine was "Atomic Annie." Total weight of the M65 was 172,865 lbs/ 78,308 kg (86.4 tons). The two trucks were operated by two drivers, and the Front Truck driver could be given control of the brakes in both trucks. Communication between drivers was by a system of headset intercoms. Total length of the M65 was 85'-0"/26 meters, and width was 10'-0"/3.12 meters. The 20 M65s were deployed primarily in West Germany, with six units deployed in Okinawa. The M65s were operational from 1953 to 1963, when they were replaced due to the availability of nuclear shells for the simpler, cheaper, more operationally flexible 8" howitzers, as well as by the Army's new tactical nuclear-armed missiles such as Corporal, LaCrosse and Honest John. Most of the M65s were scrapped, although a few have been preserved as museum pieces, such as at The Armored Fighting



Vehicles Museum at the U.S. Army Aberdeen Proving Ground in Aberdeen, Maryland, and at The National Museum of Nuclear Science & History in Albuquerque, New Mexico.

On May 25, 1953, at 8:30 AM, the tenth of a series of eleven nuclear test firings during Operation UPGHOT-KNOTHOLE, T131 number 9 fired a W-9 15 kiloton warhead a distance of seven miles. The device detonated at an altitude of 524 feet above the target in Area 5 (known as "Frenchman Flat") on the Nevada Proving Ground. This was the only nuclear firing of the M65. The image at left is a movie frame recording that nuclear detonation.

In the general military mindset of the era, it was deemed necessary for more covert, squad-level nuclear weaponry for the US Army. In 1956 a small device was developed for a highly-trained infantry unit called the "Atomic Battle Group" (ABG) to be used for policing the border between East and West Germany. Called the "Davy Crockett", it was a 155mm caliber tactical nuclear recoilless gun. The launcher piece was developed at the Rock Island Arsenal and the

W54 warhead was developed at Los Alamos and the Atomic Energy Commission. The designers chose the name Davy Crockett after the American folk hero, woodsman and congressman who told the story that, being out of ammunition one day and coming upon a bear, he had to "grin the bear to death". The Soviet national animal was a bear so it seemed fitting for the men in Atomic Battle Group waiting for the Soviet "bear" to attack. Some confusion existed that the M-388 was a "recoilless rifle" meaning that the tube/barrel would have helical grooves forcing the round to spin as it was propelled out of the barrel. This "rifling" was used in rifles, pistols and even barrels as large as the massive Krupp K5 for accuracy at range. However, the M-388 has designed with a smooth heavy tube featuring no rifling - known as "smoothbore".



2. Unrolling LEDC

Between 1961 and 1971 the Atomic Battle Group's mission was the protection of Europe though fewer than 100 Davy Crockett weapons were ever deployed. The purpose of the Crockett was to stop the advance of enemy troops and tanks by the sheer power of its nuclear explosion, ultimately and immediately dispersing the effects of radiation at the explosion site. If this deterrent was necessary, the US Army calculated it would stop the enemy and give them 48 hours to counter the Soviet invasion with a conventional response.

Operation of the Davy Crockett was more or less conventional. First the propellant charge, wrapped in a thick paper case, was inserted into the launcher barrel from the muzzle end. Next, a

hollow metal cover was dropped in to cover the propellant. The end of the warhead was fitted into the top opening of the gun launcher allowing the warhead to extend somewhat outside of the tube opening. The metal case surrounding the propellant charge was perforated with dozens of holes to allow the propellant gases to escape when firing. Range was accomplished by specific selection of the propellant charge. The "recoilless" classification of the weapon simply implied that the gun did not feature the inherently violent backwards travel when fired as common to most any other guns (though some amount of recoil was present to be sure). The appropriate classification for the Davy Crockett 155mm system therefore was recoilless "launcher", "projector" or "gun".

Two distinct calibers of the gun were ultimately built: a smaller 120mm (XM-28/M-28) model with a range of 1.24 miles and a larger 155mm (XM-29/M-29) unit having a range of 2.49 miles. Both launchers fired the same XM-388 nuclear projectile. The warhead projectile XM-388 was bomb-shaped in the traditional sense with a round windshield nosecone and four stabilization fins along the back end. The entire projectile weighed 76 pounds and was 2 feet, 6 inches long with a diameter of 11 inches. The W54 warhead portion encased in the projectile weighed 51 pounds. The weapon had an automatic lethal radiation exposure radius of 10,000 rem out to 164 yards (150m) at the blast site and a delayed fatal dose of 600 rem within 150 yards (137.16m) of the blast center - of course this was all dependent on wind direction. The M-388 three-man crew would be exposed with this lethal dose - in effect making them expendable assets. A typical Davy Crockett detachment consisted of three personnel, all volunteers.

The original Davy Crockett concept envisioned an infantry squad carrying the launcher, tripod mount and warhead into battle and setting the launcher upon the freestanding mount, loading the weapon and engaging enemy units. Later, the concept was further developed to provide mounting the system on jeeps or tracked vehicles and this allowed the carrying of multiple warheads. When the crew was ready, an M101 "spotting" round would be fired from a small 37mm rifle attached underneath the Crockett launch tube (the rifle was added as standard issue only later). Depending on the spotting round's landing, the officer in charge figured the angle and timing calculations verified to within 100 feet of the target. Based on the advancing force positions, the officer would decide the height of burst by flipping a switch on the side of the warhead. The firing crew would also receive a significant radiation dose within the 1.7 mile blast radius so it was encouraged to fire the weapon from behind a hill and keep a head down during detonation. If a position's overrun seemed likely, some reports suggest that the unit in charge of the Davy Crockett was charged with destroying their system; - such was the secrecy of the technology at the time.

When fired, the Davy Crockett M-388 would soar from the launcher at 100 mph with an appropriately loud "bang" and produce a heavy cloud of white smoke arcing out towards the target. Once fired, the nuclear device could not be aborted en route. The 37mm spotter gun had a rifled barrel but the simple launcher's smoothbore design made for poor accuracy at range. Test shots were often hundreds of feet off the target mark. However, even a poorly located atomic blast was still deadly so the fault were negligible. The blast damage would be great and the radiation would make up for the inaccurate trajectory. The kill zone was 1/4 mile from the blast site, and within hours anyone within 500 feet would be dead.

In 1963 American President John F. Kennedy was reviewing the 3rd Armored Division at Hanau, West Germany and spotted the Davy Crockett on display and stopped to talk to the soldiers nearby. Kennedy asked about the accuracy of the weapon and was told of its destructive power. Later that year President Kennedy ordered the removal of all Davy Crockett's from Germany though they did remain in the United States Army inventory until 1971. In its place, nuclear-tipped artillery shells began deliveries in increasing numbers. *See <[theatomiccannon.com](http://theatomiccannon.com)> for more information and interesting videos.*

# Castle Bravo

On one end of the Bikini Atoll, on Enyu Island, 2,650 miles west of Hawaii, ten men waited inside a concrete bunker, facing an unknown fate. Nineteen miles across the lagoon the most powerful device in the history of the world was set to explode. It was March 1, 1954, and this was to be the first test of the newly developed hydrogen bomb. It had a predicted yield of 6 megatons, twice as much power as all the bombs dropped on Germany and Japan during WWII together, including both atomic bombs. By 1954 machines were being miniaturized at an astounding rate. Nuclear weapons in particular were getting smaller and more efficient. This new contrivance, code named Castle Bravo, was believed to have one thousand times the force of the Hiroshima bomb yet it weighed less than twice as much.

The bunker, code-named Station 70, was squat and rectangular, with blast-proof doors and three-foot thick concrete walls. Everything but the entrance was buried under ten feet of sand. A freestanding concrete-block seawall was placed at the water's edge to protect the men from a potentially massive tidal wave. Sixty miles out to sea was the Task Force Command ship, *USS Estes*. On board were U.S. Defense Department officials and the scientists running this secret operation. The men inside the bunker were members of the bomb's firing party, a team of six engineers, three Army technicians, and one nuclear scientist. Accompanying the *USS Estes* were more than ten thousand scientists, sailors, soldiers, airmen, and government officials spread out among fourteen seagoing vessels, forty-six aircraft, and two weather stations.

Castle Bravo was built according to the "Teller-Ulam" scheme—named for its co-designers, Edward Teller and Stanislaw Ulam—which meant, unlike the far less powerful atomic bomb, this hydrogen bomb had been designed to hold itself together for an extra hundred-millionth of a second, thereby allowing its hydrogen isotopes to fuse and create a chain reaction of nuclear energy, called fusion. Potentially producing an infinite amount of power or yield. One scientist remarked that there was a "one-in-a-million chance that, given how much hydrogen is in the earth's atmosphere, when Castle Bravo exploded, it could catch the earth's atmosphere on fire. Some scientists were extremely nervous. Some made bets about the end of the world.

One man forgot his goggles, so at 4:29 AM, while still dark, he had his back to the blast and watched the faces of the scientists watching the explosion. A flash of thermonuclear light, called the Teller light, flooded the sky with gamma radiation. The presence of x-rays made the unseen visible. In the flash of Teller light, the man watching the scientists could see their facial bones. He recalled "in front of me...they were skeletons. Their faces no longer appeared to be human faces. Just jawbones and eye sockets. Rows of teeth. Skulls." Out at sea the world's largest-ever nuclear fireball—nearly four-and-a-half miles in diameter and nine miles tall—lit up the sky. So intense was that fireball that Navy personnel manning a weather station 155 miles to the east watched, awestruck, as the dark sky remained alight for sixty seconds.

Aboard the *USS Estes* there was fear and terror. The mushroom cloud just kept on getting bigger. The scientists knew something was wrong. What was predicted to be a 6-megaton explosion had gone out of control. Castle Bravo was a 15-megaton explosion. No one had any idea the blast could be this big. The mushroom cloud should have been fifteen or twenty miles wide at this point. Instead it was forty. As the cloud kept on growing some of the scientists thought the atmosphere was catching on fire. One remarked "this is the end of the world." Within a minute of the explosion the top of the mushroom cloud reached fifty thousand feet. Its cap would eventually grow to measure seventy miles across. The stem was sucking millions of tons of pulverized coral up from the ocean into the atmosphere, where it was dispersed into the jet stream as radioactive dust. The remains would leave a footprint of fallout on every corner of the earth. An unexpected shift in the wind was sending

the intense fallout toward the Task Force and the inhabited atolls of Rongelap and Rongerik. Station 70 was now in its direct path.

Inside the bunker the firing party was silent. They could not see or feel the fireball. They missed the Teller light. All the ten men had to go by, to gauge what might be going on outside, was the violent electronic chatter on the equipment racks. After the detonation the sound was calculated to reach the bunker in forty-five seconds. After only ten seconds the bunker began to shudder and sway; something unexpected had happened. The bunker felt like it was moving, but it was anchored like a rock to the island. A technician walked to the single round porthole built into the blast door and looked outside. Station 70 was not under water nor had it moved from the island. But all the palm trees were on fire and dead birds littered the sand. The technician walked outside and turned on his Geiger counter, the needle spiked. He raced inside and the needle barely dropped. Everyone raced behind another interior block wall and called for an emergency evacuation. They were told it was too dangerous to send a helicopter and eventually the deadly radiation should subside. The bunker had been designed with a ten thousand factor of radiation shielding, whatever was going on inside Station 70, outside it was ten thousand times worse.

Eighty miles to the east a Japanese fishing trawler, fifteen miles outside of the Navy's restricted zone, was caught unaware of the test. They stood mesmerized on deck watching the sun rise in the west as a chalky material started falling from the sky. This was pulverized coral, made highly radioactive by the thermonuclear blast. By the time the fishermen reached Japan all were suffering from radiation poisoning; one died within six months and the rest died shortly thereafter. Castle Bravo was a weapon of unprecedented destruction. It was 250% more powerful than the force calculated by the scientists who had engineered it. In time Castle Bravo would become known as the worst radiological disaster in history. Radioactive contamination became so consequential and widespread that two days after the explosion the Navy evacuated all the atolls between seventy-five and three hundreds miles east of ground zero.

The Atomic Energy Commission ordered a news blackout on the aftereffects of the bomb and kept 2.7 billion of the world's inhabitants ignorant of the extensive fallout. Six more tests were planned for the Bikini test site and were announced as "weapons test." All other information was classified for this was the Cold War and secrecy reigned. On March 10 the Japanese fishing trawler reached port and the news of the radiation-poisoned fishermen was making international headlines. The AEC issued a terse statement saying that some individuals had been "unexpectedly" subjected to "some radiation during a routine atomic test in the Marshall Islands." On March 17 President Eisenhower was asked to shed some light on this mysterious, all-powerful weapon, a hydrogen bomb. "No, I wouldn't want to discuss that," he said, and he did not.

Later the President was to learn how horrifying the Castle Bravo bomb was, beyond most peoples' comprehension. He was shown a top secret map of the fallout pattern made by the bomb across the Marshall Islands. The scientists then superimposed that same fallout pattern onto a map of the east coast of the United States. If ground zero had been Washington, D.C., instead of the Bikini Atoll, every resident of the greater Washington-Baltimore area would now be dead. The entire population living there would have been killed by 5,000 roentgens of radiation exposure in mere minutes. Even in Philadelphia, 150 miles away, the majority of inhabitants would have been exposed to radiation levels that would have killed them within the hour. In New York City, 225 miles north, half of the population would have died by nightfall. All the way to the Canadian border, inhabitants would have been exposed to a 100 roentgens or more. Exposure to less than 10 roentgens leads to death within days for 50% of the population. Eisenhower had no intention of releasing this information to the public and the map would remain secret for decades. The Arms Race had begun and Mutually Assured Destruction (MAD) would soon become the strategy for the American military.



# How A Canadian Saved The World

On October 5, 1960, on only the third day of its 24 hour operation, the radars at J Site indicated a massive missile attack coming over the North Pole from Russia. Thirteen miles from Thule, Greenland was an USAF manned radar station. A nine building, self-sustaining complex, part of the United States' Ballistic Missile Early Warning System. Stretching from Alaska to Greenland a number of secret installations were built to detect and then warn our military of a Russian attack. This particular station never saw sunlight for four months and the temperature stayed around -40 degrees Fahrenheit. For the two hundred people who worked at J-site each day, the commute from Thule was called the coldest thirteen miles on wheels.

The workers were mostly radar technicians and maintenance crews who rode to the BMEWS site in a twelve-bus convoy that always traveled in a tight formation. If any bus were to fall behind, get stuck, or have engine failure, it would not take long for the passengers to freeze to death. In a phase-one blizzard, which was common, bus drivers battled 70 mile-per-hour winds and tried to maintain fifty feet of visibility. But if a phase-three blizzard hit, the worst kind of storm, with winds up to 120 miles per hour, visibility was reduced to inches, and the road turned into a giant snowdrift. Bus drivers had to slow down to a treacherous 10 mile per hour crawl. Driving any slower meant the bus engine could stall. Driving faster meant the bus driver might drive off the road into deep snow. In one phase-three blizzard, the commute that normally took thirty to forty minutes took thirteen hours. The anemometer (wind meter) pegged out at 165 miles per hour.

The outpost required 85 megawatts of electricity to provide full power to the radar, auxiliary equipment, lights and computers. That was enough wattage to power about 15,000 U.S. homes. Electricity was provided by oil-fired turbines on a Navy ship anchored in the bay. The heat generated by the power ship kept the water in the ship's permanent mooring thawed, even at minus forty degrees. Work there was 90% boredom and 10% panic. The panic was when something happened to the electricity, mainly water leaks. But this October morning showed an event that everyone dreaded.

Three thousands miles from J-site, deep inside Cheyenne Mountain, near Colorado Springs, Colorado was the North American Air Defense Command War Room. In this room was a freestanding, twelve-by-twelve-foot transparent plastic display board with a map of North America and Eurasia drawn on it. This map monitored the airspace for any ICBM's and incoming Soviet military aircraft. Above the map was an alarm-level indicator made up of five red lights. Nearby were Air Force technicians monitoring information from all the BMEWS sites. Suddenly the Level Three light flashed. Had the Level One light flashed, protocol required the Officer-in-charge (OIC) to assemble the battle staff and watch closely. A Level Two flashing light indicated a significant contact, be ready to move in seconds. Instead, the Alarm System sounded at Level Three. Procedure demanded the OIC to immediately contact the Joint Chiefs of Staff in Washington, the Chiefs of Staff Committee in Ottawa, and Strategic Air Command (SAC) headquarters in Omaha, Nebraska. A flashing Level Four light required the OIC to bring defense weaponry up, warn SAC to prepare its ICBM's for launching, get its bombers off the ground and turn loose the airborne alert force. Level Five was the endgame. It indicated 99.9% certainty that America was under a Russian ICBM attack.

With the Level Three Light flashing, Colonel Robert L. Gould waited to connect with NORAD's Commander in Chief, General Laurence Kuter, when the alarm suddenly went to Level Four, seconds later Level Five started flashing. Gould quickly found out that Kuter was unavailable, flying somewhere over South Dakota. Instead, he was put in touch with NORAD's deputy commander, Canadian Air Marshal Charles Roy Slemon. By now, also on the line was NORAD's chief of intelligence, Air Force brigadier general Harris B. Hull. The Canadian's first question was "where is Khrushchev?" Hull quickly replied, "in New York City." There was a moments pause.

Slemon asked if there were any intelligence indications that would tend to confirm the radar reports of an ICBM attack. Hull replied in the negative. What conversation transpired next is still classified. To Slemon it seemed extremely unlikely that the Soviets would strike North America when Premier Khrushchev was at the United Nations in New York City, even if rogue generals were staging a putsch. But Slemon also believed that an attack could not be ruled out entirely and that it was time to get the BMEWS J-site on the phone.

The technicians at J-site who received data from the radar saw very strange returns. A radar echo from an incoming ICBM took one-eighth of a second to receive. These radar returns were seventy-five seconds long! How could anything be that far away? But whatever was coming over the horizon, according to the computers, there were literally thousands of them. At J-site, the environment was everything, and someone thought of looking outside. There, coming over the horizon, over Norway, was a huge rising moon. Nothing had malfunctioned. The radar was simply more powerful than anyone had anticipated. Its range was thought to be only 3000 miles, instead it was 250,000 miles. The computers had not been programmed to express that kind of distance and instead divided 3000 miles into the precise distance to the moon and reported the distance left over—2200 miles—as range.

This was a defining moment in the history of weapons development and the future of man and machine. A computer had reported that a thousand-strong Soviet ICBM attack was underway. And a human, a Canadian Air Marshal, used his judgement to intervene and overrule. At J-site, technicians programmed the computer to reject echo from the moon. Thankfully Curtis LeMay was not around.

## The Journey of an ICBM

The path of a nuclear-armed ICBM launched from Russia and targeting Washington, D.C., has three stages: boost, midcourse and terminal. The initial boost stage takes 300 seconds—five minutes. This includes time for the rocket to fire up, head skyward, and reach cruising altitude. The second stage, midcourse, lasts about 1,200 seconds—twenty minutes. This represents the time to travel to its reentry point. The final or terminal stage lasts 100 seconds—1.6 minutes, when the warhead reenters the earth's atmosphere till it hits its target. Sixteen hundred seconds, total time. Stopping one missile is not impossible, but destroying many and still survive an environmental disaster, not possible. For years we believed more missiles and bigger warheads were the answer, now it seems that we were thinking too big and ignoring what a small group of determined individuals can accomplish.

## Items of Interest

Benjamin Busch, former Open Mess Speaker, has informed us of a newly created website dedicated to much forgotten WW1 histories, <[www.worldwar1centennial.org](http://www.worldwar1centennial.org)>. Ben has a piece from Dust to Dust excerpted this week and it follows up a revisiting the same place in Iraq in 2013. <<http://www.worldwar1centennial.org/index.php/articles-posts/1701-benjamin-busch-a-u-s-marine-discovers-british-wwi-cemetery-during-iraq-war-excerpt-from-dust-to-dust.html>>. MCMH&C members with works centered on WW1 are welcome to contribute to the site.

Member Jay Stone would like us to be aware of a website devoted to Napoleon, <[napoleon.org](http://napoleon.org)>. If you click on the link to the Waterloo/Edinburgh Castle and then click again on the link there will be a story on the life of Sgt. Charles Ewart of the Scots Greys. You may find it interesting. Ewart captured an eagle of the 45th *Infanterie de ligne* at Waterloo. It was a very heralded event in British military annuals. Reading his story one can only be astounded by the capriciousness of war.

