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The Impact Ordnance has on Warfare and Civilization

Jade Schmitt
jschmit6@uwyo.edu

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Establishing Fear Through Ordnance

Jade Schmitt

The Impact Ordnance has on Warfare and Civilization

College of Arts and Science

Criminal Justice

Advisors: McMaster, K. & Hand, M.

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Abstract

The United States has been in conflict with a degree of wars since its establishment in 1776. Throughout time there has been a growing power for more weapons, technology, and intelligence to keep us ahead of all our enemies. The United States Ordnance Corps continues to develop weapons that change the warfare tactics and strategies used against America's enemies. When the development of new ordnance is authorized on the battlefield, there are new ways to execute these products. From the Revolutionary War to present War on Terrorism, there are direct correlations to how each war's ordnance and developments have influenced the outcome. Rifles, artillery, aviation, atomic bombs, and improvised explosive devices (IED) have changed the way the American Army has performed on the battlefield. The change in war has been from conventional to insurgent in such a short time. Who will we fight in the future, and, what will that fight look like? Aside from the strategic and tactical advancements of ordnance, the development of ordnance has dictated civilization. The more advanced ordnance becomes, the stricter laws and policies are passed to ensure they are not used to incinerated the Earth 8x over. How does the fear of ordnance dictate the behaviors of society? The research conducted in this paper illuminates the advancements of certain ordnances that helped change and shape the American Wars. It also verifies that ordnance improvements have shaped fear in our society.

Keywords: civilization, ordnance, strategic, tactics, warfare

INTRODUCTION

Friedrich von Bernhardi once said, “The inevitableness, the idealism, and the blessing of war, as an indispensable and stimulating law of development, must be repeatedly emphasized.” The existence of civilization would not thrive without war. Civilization stems from order, laws, and tradition. When there are conflicting views that disrupts one's civilization, retaliation seems to be the only way in restoring it. The differences in views are the reason for wanting to fight, but the fear of war is related to the type of ordnance one has and how it is used. The technological advancements have changed the world since the Civil War through the War on Terrorism. The policies enacted to ensure that certain countries do not get their hands on certain weapons demonstrate how strong of a role fear plays. Ordnance has changed the rules of war, and continues to strike fear in society. The future of ordnance has evolved from muskets to technological advanced drones. The advancements carried through each era of war changes tactics and strategies. Ordnance directly impacts our society by casting fear on citizens.

When looking at the American culture one believes that they are free to do as they wish in relation to the Constitution; however, within the fine prints of that prestigious document come restrictions. Those restrictions are based on society's fear of demolition. Whether those fears stem from too much power in the hands of one individual, country, or a foreign country. There are policies that dictate how the world should exist and go about business without disturbing others. The idea of holding too much power in one's hands is received by how valid the threat is. Throughout history, the strategies and tactics of warfare have been altered by the development of new weapon systems. Rifles, artillery, aviation, atomic bombs, and improvised explosive devices (IED) have changed the way the American Army has performed on the battlefield. The United

States has continued to be in conflict to a degree since the early establishment in 1776. Within the following centuries, multiple wars have occurred that changed civilization. The advancements of weapons and warfare directly impact our society with fear, and leave us questioning the future.

ESTABLISHMENT OF THE UNITED STATES ARMY ORDNANCE CORPS

Ordnance has evolved in the last 200 years from the Civil War to present. This evolution has changed the scope of war and tactics used. The Ordnance Corps is one of the oldest branches in the United States Army. Ordnance has a continued mission to supply weapons, ammunition, combat vehicles, and maintenance tools and equipment for all military personnel. The development of the duties and responsibilities of the profession can go back as far as 1629 when Master Gunner of Ordnance, Samuel Sharpe, was appointed (Rubis). The earliest recording of Ordnance was not from Samuel Sharpe, but was the establishment of the branch on May 14, 1812. From the establishment to present time, ordnance continues to play a huge role in the overall success of American war history.

Sixteen years after the branch was implemented in the United States Army, a permanent Surveyor of Ordnance was built in Massachusetts Bay Colony (Rubis). The responsibility of the ordnance personnel was to deliver powder and ammunition to selected towns. He was also responsible for recovering weapons from militia members, receiving payment from personnel that lost weapons, and provide periodic reports on: purchase of arms, powder and shot (Rubis). This new logistical support provided local militias with a new depth on sustained operations. This was the beginning of the new system that would carryout through history. It is not only

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important to engineer new weapons, but to also retain full accountability and training of what the military has.

The biggest development in the Ordnance Corps was tested during the American Revolution. General George Washington, commander of the Continental Army, appointed Ezekiel Cheever to provide Ordnance support to his army in the field in July 1775 (Rubis). After a few years, this implemented system was in full swing. All the field armies had the support of ordnance personnel traveling alongside them. Ordnance had finally made its mark in providing a proactive measure in the overall success of each combat mission.

The Ordnance Corps is a very important branch within the United States Army. They provide logistical support to combat teams by ensuring the front line elements get ammunition, maintenance, and any other tool. The Ordnance Corps has to be adaptive and flexible to the demands of war. It is the corps job to provide the best advancements in ordnance to defeat the enemy. They continue to adopt new ways of protecting their soldiers in combat branches, as well as, keeping up with the new advancements of the enemies. Ordnance soldiers continue to grow in the field of disarming explosives, while keeping our country safe. The support of the Ordnance Corps keeps the combat arms efficient and maneuverable.

CIVIL WAR ERA 1861-1900

The Civil War between the North (Union) and South (Confederacy) armies is one of the first challenges the Ordnance Corps faced. The Ordnance Department was equipped with 90 million pounds of lead, 13 million pounds of artillery projectiles, and 26 million pounds of powder for 1 million Union soldiers (Rubis). Between the increase of supplies and personnel, the

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Ordnance Department of the Army expanded from 1,000 to 9,000 civilian staff members by the end of the war. Most of the civilians who made up these jobs were female. Despite these advancements in personnel, the numbers of official staffing remained low. Based on the Industrial Era and race for new weapons with different size cartridges for each rifle, the Ordnance struggled with keeping up with the rapid changes in ammunition. There was no standardization during the Civil War, which made it difficult to resupply. Technological advancements were further developed by rifles, bullets, and artillery because of the general population's involvement in the war. This involvement shows how ordnance impacted warfare's tactics and strategies. Through multiple improvements during the war, there was a great shift from a Napoleonic to modern tactics. These advancements heavily influenced the execution of warfare.

Rifles

One of the first advancements in ordnance was the rifle. During the Civil War, the M1855 rifled-musket was the first leap in technology and durability (Rubis, 2011). This rifle became the example of all rifles during this war. The rifle allowed for better accuracy and range. The new more advanced musket, the Springfield rifle, allowed for an effective range of 500-600 yards (Coggins, 1990). At battle ranges, the rifle was less accurate with a 200-300 yard range; however, the likelihood of hitting anything smaller than a mass of troops in formation was unlikely. Also, the accuracy of the rifle had a high trajectory, which would likely shoot over the enemies heads in close quarters. Lastly, the rate of fire for an experienced shooter would be three shots a minute (Coggins, 1990). Although, this rifle still had some errors that were later solved by Captain Claude-Etienne Minie. The M1855 would often jam after continuous firing and was

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slow to reload. These problems were solved with a better ammunition design called the Minie-ball (Rubis, 2011). This rifle was used for Napoleonic tactics. Soldiers would line up in a line, aim, point, and shoot. This rifle did not allow for much cover or concealment. It was not necessary, because the rifle was not completely accurate and the bullet did not cause much damage; however, the Minie-Ball was the bullet that changed the lethality of the weapon.

The Minie-ball was the first bullet design to go against a sphere shape. The Minie-ball was designed as a conical-shaped bullet (Coggins, 1990). This bullet design allowed for a hollow body with a sharp pointed tip. This design caused a greater amount of tear to human flesh when hit, which was detrimental to battle since medical advancements would not catch up with ordnance for decades (Coggins, 1990). This allowed the bullet to spiral through the barrel of a rifle at a greater velocity. This relation between the rifle and Minie-ball allowed the M1855 rifled-musket to shoot 4-5 times further than the previous smoothbore musket (Rubis, 2011). This precision in technological advancements had changed the tactics of warfare.

These advancements changed the effects on infantry tactics. Soldiers did not have to wait to see the 'white in their enemies' eyes' anymore (Rubis, 2011). Instead, the focus shifted to infantry tactics and strategies. The rifle allowed for discussion on how a Soldier is to conduct oneself in battle with different variables of firepower. The study of firepower consisted to look at the variable of weather, foliage, and the enemy. The basic soldier skills were not so simple anymore. They were beginning to become more flexible on the battlefield that they had to consider other elements, such as artillery and cavalry. The new development of ordnance can change the entire operations on the battlefield.

The cavalry went on to use one the best rifles the Civil War soldiers were armed with. The sharps breech-loading rifle was used by mounted troops (Coggins, 1990). The Sharps were

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better than the muzzle-loaders because of the rate of fire. The rate of fire was estimated to be three times as great. Also, the breech-loading rifle allowed soldiers to continue to fire while undercover. The muzzle-loader could be loaded while in the prone position, but it was likely that they would expose themselves to enemy fire by doing so. By allowing soldiers to load in cover, changed the warfare from open-ranks to a modern tactic. The army began to realize that bullets hurt and the possibility of cover and concealment.

Another breechloader was the Spencer. The Spencer was the most sought out rifle during the war. The government had purchased over 12,000 rifles and more than 94,000 carbines. The rifle was highly liked for its eight shots. Seven bullets were stationary in the magazine and one in the chamber. The shots were rapidly shot in relation to the rate the lever could work. Another great improvement of the Spencer was the inclusion of the detonator and the charge. This went away with caps and disc, while the "...case rendered the cartridge waterproof (Coggins, 1990, p. 35)." This played a huge advantage in the weaponry during the Civil War, because if the powder was wet, there was no way to fire a bullet. Lastly, the great advancement of the Spencer was its ability to be useless to the enemy. When the supplies of captured cartridges gave out, the guns were useless. There was no way for the South to manufacture these specific cartridges for a Spencer rifle (Coggins, 1990). Based on these rifles, the shift from a Napoleonic tactic was swiftly outdated and replaced with trench and fort warfare. The rifles in the Civil War played a tremendous role in the outcome of each battle. The advancements have changed warfare tactics that continue to be modeled after today; however, it was not just the rifle that played a role in the war, the machine gun was a very vital and sought after piece of equipment.

Machine Guns

Despite the firepower behind a machine gun, they were not highly utilized in battle. They were heavy, which made it difficult to maneuver and had flaws when overheated due to rapid firing (Coggins, 1990). The best machine gun that had an effect on the war was the Gatling model of 1862. According to Coggins, (1990) the Gatling gun "...had six barrels which were revolved by a crank. Six cam-operated bolts alternately wedged, fired, and dropped chambers (p. 45)." This gun allowed shooting five to seven bullets at a high velocity and rate of fire. The U.S. Ordnance did not adopt the Gatling gun, but General Butler bought twelve of these models, which would be utilized at Petersburg. This rapid fire could take down an entire line of troops. One incident of using this gun made the opponent stress the importance of cover and concealment. It changed tactics in that trench and fort warfare was necessary in straying away from mass casualties.

Artillery

The Civil War Era brought many remarkable changes and improvements to arms. One of the greatest advancements was developing a better system of artillery. The most popular use of artillery equipment was the small Howitzers and huge siege guns ("Artillery"). The battle at Gettysburg had only field cannons and Howitzers. These weapons shared a big part in the catastrophic death toll of the battle. These specific weapons were used, because of the capabilities to be mobile. Anytime a high-power weapon can be maneuverable, the battlefield changes drastically.

Artillery equipment proved to be one of the most desirable weapons for an enemy to seize. An efficient crew was able "to load, aim and fire twice in one minute (Artillery)." It was

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also heard that under the chaos of battle, a crew was able to fire four times in one minute. These cannons proved to be most valuable to seize after or during an attack. In fact, attacking infantry batteries made them their prime targets. If the opponent were trying to pull out, assaulting infantry would kill their horses, forcing them to abandon their cannon. Another strategy was if the cannon crew were close to being captured, the crew would shoot their own horses to prevent the enemy from seizing the cannon (“Artillery”). At this time, horses were a huge part of the overall success of the campaign. Showing that they were willing to shoot one of their main assets, demonstrates how important the cannons were.

One of the most notorious battles during the Civil War was Gettysburg. Gettysburg demonstrated the necessity and strength of artillery. The Union forces fired over 33,000 cannon rounds during the three days with their 362 cannons (“Artillery”). The Confederate forces fired 22,000 rounds with 272 cannons. In total over 55,000 artillery rounds were shot within three days at Gettysburg. This is remarkable, because during those days, the Union had expended 34% of their supply, while the Confederate forces had expended over 50% of their supply. The death toll at the battle showed how catastrophic the artillery really was.

The 12-Pounder (Napoleon) was the most common cannon to be used. In fact, it “comprised of 40% of the cannons used at Gettysburg (Artillery).” The twelve-pounders were muzzle loaded by a crew of six men, but transported, weighing 2,600 pounds, by six horses. This proved to be difficult to transport, but was too crucial to the operations to be left behind. This cannon was capable of firing four canisters per minute. This proved to be a very efficient weapon towards the infantry by targeting massed troops under 400 yards. Union artillery proved the devastating effects of this cannon against Pickett’s assault on July 3rd. The cannon was very

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accurate and highly charged with black powder (“Artillery”). This cannon was highly used, but it was not the most deadly.

The Whitworth Rifle Cannon was greatly used in battle from a further range. The Whitworth Rifle was the “forerunner of modern artillery (“Artillery”).” The artillery was breech-loaded, instead of muzzle loaded. The range of the artillery was up to five miles, in comparison to 1700 yards of the twelve-pounder. These guns were “never available in sufficient numbers to the South”, but the “Union had never employed them in great numbers (“Artillery”).” This cannon allowed for range to be introduced to tactics.

One of the most highly recognized and requested cannon was the 3-Inch Ordnance Rifle. The Ordnance was a “muzzle-loader with a range of two miles (“Artillery”).” Its ammunition chest carried fifty rounds, which made it highly requested in battle. The gun was valued for its weight and range. The 820 pound barrel allowed for the gun to become the “exclusive weapons of the fast moving Horse Artillery.” The Ordnance cannon was the beginning of a highly mobile and effective range gun that would shape the use of artillery in battle.

The strongest and most remarkable piece of equipment developed during the Civil War was the 15-inch Rodman cannon. This cannon was utilized to protect cities and the coastline. This equipment was one of the first introductions of a high power, high velocity, and highly deadly piece of ordnance. Thomas J. Rodman invented a massive cannon that would break history and change tactics (Masich, 2015). This cannon hurtled a 10,080-pound shell from its barrel at a distance more than 1,700 feet per second. This cannon had outshined the Minie ball that was previously mentioned in the rifles category. This cannon had such a great velocity that it would rattle windows as it was thrown 3 ½ miles away. At the time, Ordnance Department Lieutenant Thomas J. Rodman’s, ship-killing cannon was recognized as being the largest gun

made during the Civil War (Masich, 2015). However, the design of the cannon would come after a great tragedy.

Lieutenant Rodman was called to investigate the destruction of a cannon that killed six people and injured 20 (Masich, 2015). After he investigated the cannon, he discovered the default in the large caliber gun. Masich (2015) states that “Rodman recognized that wrought-iron and bronze weapons could not withstand the high stresses demanded of Columbiads—America’s largest class of guns, introduced by Colonel George Bomford in 1811 for seacoast defense—and warship cannons (p. 49).” The large-caliber guns made of wrought iron and bronze had a reputation of blowing up (Masich, 2015). Unfortunately, through trial and error, Rodman formed a new design that proved to function consistent and without a reputation of blowing up.

After theorizing on what would make the cannon more efficient and safer to use, Rodman had a plan. He discovered that the fault was not with the iron itself but within the casting process. The process of the casting was as follows: “...a newly cast cannon cooled in its mold, it hardened from the outside, until the molten core finally set up. The gun was then laboriously bored to the desired caliber and finished on the outside (Masich, 2015, p. 49).” He discovered that the raised rings, reinforces, were suppose to strengthen the weapon. He speculated that the air-cooling made the guns harder and denser on the outside, but left the center soft and weak. This discovery drew up his theory to cool the casting from the inside out. The guns were casted hollow then he would pour molten metal into a mold that was surrounded by a hollow iron core. Within this casting was an iron pipe that allowed for air and cold water to pump through to keep the inside cool. Rodman’s final design was the elimination of any reinforces, which led to the smooth “soda bottle” shape (Masich, 2015). This design was developed in 1847, but was not

ordered from the Ordnance Department until 1860. This design had a huge impact on the Civil War.

The cannon was a great asset for the Ordnance Department. The Army began ordering cannons between 8-16 foot-long-barrels weighing nearly 50,000 pounds (Masich, 2015). Cannons were utilized throughout the war and played a huge role in blasting the enemy into submission. The role of a cannon was to protect cities and conduct defensive operations on the seacoast. Cannons would destroy a ship off the coastline with a single shot up to five miles away. This technology allowed for offensive operations to occur from a distance (Masich, 2015). The Civil War era was all about the advancements of technology's ability to fight the enemy from a further distance.

Effects on Tactics and Strategies

The Civil War is highly recognized by historians as being the first step to modern warfare. This movement to modern warfare was casted from total war, which is war that spilled over into attacks on civilians and non-combatants (Griffith, 1989). The technological advancements during this period showed a new transition of strategies from Napoleonic to modern. The advancements of equipment were moving much faster than the leadership. Officer and Army Generals made incompetent decisions based on old tactics. The introduction of single-shot rifles, cannons, machine guns, and various other factors erased past tactics and strategies. The Civil War was an empty book that had to be written one battle at a time.

There was a visible change to the battlefield. The transition from lining troops across from each other and shooting was no longer an option. The Civil War had many changes throughout the era, but the influence was trench warfare. The firepower introduced in the war

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from the rifled musket shifted tactics from frontal assault to tactical entrenchment (Hagerman, 1975) The artillery would now be strategically placed as support to help defend the fortified field positions. The Union had the advantage of being the first to entrench their positions while the Confederates were still conducting frontal assaults. The rifles they were given now shot further and with more power that caused immense casualties (Hagerman, 1975). The cover and concealment of the Unions fortified positions cost them fewer deaths than the South. The Civil War era had immense growth in weapon systems; however, the advancements were ahead of tactics and strategic that leadership failed. It took many lives and an entirely new tactics manual to end the war. Not long after the war, the United States finds itself in another conflict.

WORLD WAR I ERA 1900-1920

Within the short time between the Civil War and World War One the advancements in technology were tremendous. The war changed from a frontier fight to a mechanized battle. Horses were no longer the biggest asset, tanks and aerial support held all the power. The opportunities the industrial era brought to war efforts were seen in the making of tanks and aircrafts. World War One was an era for imagination and innovation. The modern production methods allowed for the United States to create powerful and destructive weapons. The tank and aerial warfare were critical in the advancements of war efforts.

Tanks

In 1916 the Americans heard for the first time about the tank. The French had created a steel, destructive, powerful, behemoth defensive tool (Demers, 2015). The tank was created in

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the efforts of breaking down trench defenses. The United States were behind in creating their own tank, but began working with the allies' tanks. Once the United States got involved in 1917, it was not long before the Army converted twenty-seven caterpillar tractors into "land dreadnaught tanks." The tanks were very unreliable during the first battle; however, the first strategy of the tank was intimidation. The tank sunk the morale of the German Army, which catalyzed the involvement from other countries to race for the best ordnance.

The United States was part of the race, and showed great interest in developing their equipment. The Army ordnance officials announced that they had multiple projects undergoing. Their attempts were developing armored motor cars with two revolving turrets mounted with machine guns, armored machine gun-equipped motorcycles, and individual armor for the men of the ranks (Demers, 2015). The tank created an entirely new tactic for ordnance officials in the placement of weapons and their maneuverability.

The United States involvement with tanks in World War One established the Tank Corps. The Tank Corps consisted of individuals with college degrees and engineering backgrounds (Demers, 2015). The corps created the first forty-five ton tank named America. Aside from the heavy tank, the Army created two fast tanks. One was a female – armed with only machine guns, – and a male – armored with small cannons (Demers, 2015). Antal (2014) states, "Tanks provided the mobility, firepower and shock action to win tactical engagements, create and exploit operations maneuvers, and create strategic opportunities." The tanks would rush the battlefield with their weapons and would not be stopped. This allowed the opportunity to attack the enemy's trenches with small or no casualties. The tank in WWI allowed for mobile protected firepower; however, the tank had many problems that caused it to not be the 'war-winner' it was hoped for. The tank was mechanically unreliable and very difficult to sustain (Antal, 2014). The

tank would really become dominant with further technological advancements and time, which would come in World War II.

Aerial Support

Aviation is a critical tool used in war that has drastically changed tactics. The birth of the airplane was by the Wright brothers in the early 20th Century. The Wright brothers were not the first men to be in the air, but they created something much better than a balloon. They pioneered a “controlled flight in an aircraft operating under its own power (Hampton, 2014, p. 24).” The first use of aircraft in the war was for scouting and reconnaissance missions. The United States War Department had actually turned down the Wright brothers proposition of arming aircrafts on three occasions. The aircraft began as a tool for intelligence, but by the end of World War One the aircraft had shaped an entirely new battlefield.

The early military pilots were ill prepared. The pilots were either self-taught or had completed courses at civilian flying schools (Hampton, 2014). They knew the very basic maneuvers, understood very little theory, and had no gunnery training. The officers were expected to be able to read a map and then tossed in the rear cockpit. The only weapon training they had was how to shoot a gun and clear a jam.

Despite the lack of training, the aircraft gave the infantry and Cavalry an advantage to direct fires on the enemy. The mobility on the ground ended in 1914, the new means were founded in scouting enemy position, gathering intelligence, and taking the fight to the enemy. The Cavalry was usually called on to scout, but they could not position them through the “...spider web of trenches, hidden machine gun nests, and minefields (Hampton, 2014, p. 37).” Aircrafts and phallus-shaped balloons were used in scouting and directing fires. Soon enough,

the Army realized the aircraft had what the balloons lacked, mobility. The ceiling of an aircraft was 12,000 feet, this allowed for precision in directing fires and locating the infantry. “Whoever controlled the sky had the edge on the ground (Hampton, 2014, p. 38).” The times were evolving and the importance of aircraft was becoming very apparent.

Even though the pilots were not trained to have weapons in flight, they became very creative in their tactics. Pilots from both sides would “...shoot flare guns and pistols, and sometimes even threw bricks at each other. Grenades and grapnels were towed behind aircraft in absurd attempts to bring the enemy down (Hampton, 2014, p. 49).” With the increased attention to control the sky, planes were largely lost to “...pistols and shotguns, bad weather, poor flying, and anti-aircraft fire (Hampton, 2014, p. 49).” The importance of reconnaissance grew in World War One, which is why the aircraft had largely changed tactics. While the aircraft was first used as a tool, it began to grow as a lethal weapon.

Hampton (2014) states, “So it was here, caught between the cavalry lance and the machine gun, that the age of the fighter pilot dawned (p. 50).” In October 1914, the idea of weapons being crafted on an airplane was set forth when a French observer “downed a German reconnaissance aircraft using a Hotchkiss machine gun (Hampton, 2014, p. 61).” The next day the Germans claimed that they had downed a French plane by “throwing a brick through its propeller (p. 61).” The creative ways that pilots came up with to destroy the enemy was due to early aircrafts being “frail, lightweight contraptions; not very maneuverable and relatively underpowered (p. 62).” The guns used on the aircraft had to be considered carefully on their mass. The main weapons used were the Browning, Maxim, Hotchkiss, and Lewis machine guns, proudly all made by the Americans.

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The machine guns attached to the aircrafts went through strict engineering to become safe and productive in the war. The Hotchkiss was an open-bolt design. The simple gun would fire a “twenty-five-round strip of 8mm ammunition. It was also air-cooled and weighed much less than water-cooled systems (Hampton, 2014, p 63).” The problem with the Hotchkiss was that it was difficult to synchronize the volley with the propeller arc. Meaning, the pilots were shooting up their own propellers.

The Maxim adjusted to these flaws and developed a machine gun that was closed-bolt. The Maxim was reliable and very tough (Hampton, 2014). The closed-bolt system made is easier to synchronize. The machine gun was highly used and influenced the Lewis gun. The Lewis gun was highly used by the Allies after 1915. By removing the heavy cooling jacket the Lewis became relatively light. The Lewis had a forty-seven-round capacity, with a drum that could be replaced in flight (Hampton, 2014). World War One was a new beginning in experimenting with new weaponry ideas on aerial support tactics.

The idea of mounting weapons on the aircraft was not a new idea, but it was a difficult task to accomplish. The pilots had to aim the gun at the enemy while engaged in a dogfight. This was not always successful. There was no intercoms or headset for the two men in the cockpit to have effective communication. “So single-seat fighters with the guns aimed along the aircraft axis were the natural progression (Hampton, 2014, p. 68).” This natural progression was very problematic. The propeller was in the way. Roland Garros developed the deflector plate solution. He figured, “a prop rotating at 2,000 rpm would allow at least 10 percent of the gun’s bullets through (by reflecting off wooden plates on the propeller), which would be sufficient if the pilot got close enough (p. 68).” This invention was impractical. Aerodynamically unpredictable and

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could throw the propeller out of balance, the wedges showed an even further danger of ricochets and inefficient use of gun's limited ammunition supply (Hampton, 2014).

Anthony Fokker was the man that shaped the lethality and maneuverability of the fighter pilot. Fokker discovered how to “attach a small knob to the propeller, which struck a cam as it revolved. This cam was hooked up with the hammer of the machine gun, which automatically loaded itself. Thus as I slowly revolved the propeller, I found that the gun shot between the blades (Hampton, 2014, p. 70).” The combination of a maneuverable aircraft, lethal machine guns, and aggressive flyers, created the fighter pilot that would change warfare forever.

By the end of the war, the airplane was better understood and went through structural changes to make it much stronger and durable. Biplanes increased lift and wing load. Wings became thicker as the principle of lift was better understood. The thickness of the wings allowed greater strength, which allowed for the strength of violent maneuver. “Monocoque fuselage became commonplace: the external skin supported loads and was no longer merely a covering, thus streamlining the aircraft and making it much, much stronger (Hampton, 2014, p. 147).” This stronger airframe allowed for a powerful engine and heavier armament (Hampton, 2014). The few transformations of the aircraft truly built the future of the fighter aircraft. The stronger frames also developed the bomber aircraft. The developments with the airplane in World War One would highly represent the outcome in World War Two.

By the end of World War One aircrafts had the necessary infrastructure to carry a bomb. The year 1916 marks the sparring off between Britain and Germany for bombing (Knell, 2003, p. 112). Between 1916-1918, a total of 1,500 bombs had been dropped in northern Italy with a total weight of seventy-five tons (Knell, 2003). At this time, both of the factories in Germany and Britain had changed their designs specifically toward strategic bombing. The parameters for the

type of plane “called for the highest possible bomb load, the longest range, and good defenses against enemy fighter (Knell, 2003, p. 112).” There was no secret by the end of the Great War that air power was the key to winning any war.

WORLD WAR TWO ERA 1938-1945

WWI at the time was still fighting trench warfare, but with new advancements World War Two introduced ground combat. The aircraft shaped the battles that would be won in flight. Theorist says that the war would not have been won without the efforts of air power (Knell, 2003). World War Two showed an increase in aerial warfare. The aircrafts began night air raids on civilian and military personnel by dropping bombs from the sky. This advancement in bombers invented the race for deadlier and more destructive ordnance. In efforts to win the war, the race for the Atomic Bomb was in full swing. Civilians saw the destruction and the effects caused by war through the First World War. Based on the outcomes and productivity between both World Wars, civilians began taking necessary precautions. World War Two shows how ordnance effects civilians and government policies.

Aerial Bombing

The new advancements in World War One left a footprint in discovering new strategies leading into World War Two. Aerial bombings swarmed the world with fear. There were no rules in bombing civilians. The collateral damage of civilians, buildings, and culture influenced by air raids had changed civilization. The new development of bombs being used in air raids

enhanced fear, and changed civilians' daily life. They never felt safe, and millions of civilians suffered from the effects of war.

The air forces of World War Two waged strategic bomb attacks against enemy civilians. During this era, there was no revolution in air warfare. "The air war did not commence with an all-out strategic bomber offensive pitting the aerial strength of each contestant against vital centers of its enemy (Biddle, 2002 p. 233)." Instead aerial raids were targeted on the most dramatic and assertive interwar predictions. These efforts cost them their own bomber crews and enemy civilians. There was no script or rules on air raids during the war. Bomber pilots were authorized to bomb cities to destroy their means of transportation, airfields, and ammunition dumps (Biddle, 2002). These targets had tremendous effects on civilian deaths.

The threat of air war drastically changed the way civilians' prepared for war and how much they feared it. There was a great amount of anxiety civilians faced entering World War Two. They understood the possibility of air war, but did not comprehend the damage it would cause. With the possibility of war in 1938, citizens began planning ways they could be safe. During this time, the public was aware that one of the main strategies WWII was capable of utilizing was air. Architects and politicians began designing and building structures that could shield civilians from bombs (Page, 2015). The ideal structure of a building that could withstand a bomb was described as, "one of which the structure is a steel or reinforce concrete frame having light panel walls or large areas of glass and fully fire-resisting, provided its occupants can all be contained in a properly designed basement shelter, preferably of reinforced concrete (Page, 2015, p. 122)." The light walls and glass in the design would fall without crushing the individuals in the basement. Architects understood the importance to have protection entering the war with air raids.

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The rush to transform the structure of buildings was affected on, “how air power was fundamentally transforming government approaches to, and understandings of, the boundaries between war and peace, military and civilian (Page, 2015, p.123).” One can understand the anxiety and fear that civilians had entering the war. They were being introduced to a war where they were also the targets. This is where the fear of certain ordnances play in civilization.

The effect of air war on daily lives of civilian populations is best understood as fear. The populations were “...huddled in shelters in London’s underground network, crowded under railway bridges, in chalk caves, and elsewhere... (Page, 2015, p. 128).” This was the first war where civilians were impacted daily by bombs. This fear changed their society drastically. They no longer felt safe at night, walking the streets, or going to school. Alarms would swarm the streets almost every day, where they were expected to run to a shelter. Even then, these shelters weren’t always fully resistant to bombs. This particular ordnance had changed civilization during World War Two.

Race of the Atomic Bomb

The war in Europe and Japan continued to grow and progress longer than expected. With the conflict growing with the fear of the enemy never quitting, the race to create the atomic bomb grew. The first account of building the atomic bomb came with a letter wrote to President Franklin Roosevelt by Albert Einstein in 1939 (Gregg, 2015). Einstein’s letter warned the President about “extremely powerful bombs of a new type” being created in the near future and that the German Nazis were already engaged in the project. The Manhattan Project led to create the atomic bomb before all enemies. The atomic bomb was used more as a deterrence than it was for a weapon.

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The Manhattan Project was established in 1941, after the attack on Pear Harbor. The effect of the early bomb project was very minimal on the American side (Campbell & Radchenko, 2008). Roosevelt and his main foreign policy advisers had no idea about the implication of the political situation it might be used in or how successful the development of the bomb would be. In 1942, a year after the establishment of the project, Leslie Groves, head of the project, had only begun to organize the “nationwide effort to build a workable bomb; at this time he could not promise Washington any thing beyond a long-term and sustained scientific enterprise (Craig & Radchenko, 2008, p. 5).” By 1943 the government had managed to gather together America’s best scientists as well as scientists from across other nations, to create the bomb. They were transported to the remote and top-secret New Mexico location, where they would work under J. Robert Oppenheimer for the next thirty months (Craig & Radchenko, 2008). At this time, it was becoming apparent that a bomb was going to be feasible in World War Two.

The use of the atomic bomb to deter German troops seemed to be diminishing in use. Roosevelt discovered in 1942 that Hitler’s threat of creating an atomic bomb before the United States was diminishing (Craig & Radchenko, 2008). The Nazi invasion of Russia in December and January put an end to the German conquest of the Eurasian continent and forced them to focus their efforts on the Russian counterattack. This mistake by Hitler drained him of his men, money, and urgency of the German atomic program. With the Nazis focused on the Russian counterattack, this allowed for American and British air force to target German industrial targets, which included suspected atomic facilities. The atomic bomb was not needed to deter German troops; however, other countries began wanting an atomic bomb for themselves in order to retain great-power status after the war. Britain found they wanted to develop a bomb not to defer to the

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United States, but in fear that another country might soon possess the bomb. This caused great conflict between the United States and the British. Roosevelt held vital information from British ambassadors of establishing its own atomic project. Another problem was boiling between the Soviets and Britain. Campbell and Radchenko (2008), discuss, “in the space of twenty-four hours the American president learned of a British threat to extend the war if it could not secure U.S. cooperation for the purposes of obtaining its own atomic arsenal, and of a Soviet threat to reassess its war with Germany (p. 12).” This posed a threat to Roosevelt’s goal of defeating the Germans and winning greater status for the United States. Roosevelt handed over the information of the atomic bomb to Churchill, where they began their own project immediately. This information produced more atomic bombs with more nations carrying this weapon.

The fear of the atomic bomb was just beginning. In 1943, more than one nation had the blueprint of the atomic bomb and was rapidly working on it. A new issue emerged within the year on whether or not it would benefit the project to allow more nations in on the project to help collaborate, mainly the Soviet Union (Craig & Radchenko, 2008). Aside from the political fear of the project, many scientists came forward to voice their fear of the strength of the bomb. Scientists requested to put the bomb under some kind of international control following the war. Bohr, a leading physicist, believed that the United States, in order to establish international control of the new weapon, had to inform the Soviet Union of its strengths. However, Churchill and Roosevelt had a plan and unwritten agreement that Britain and the United States would be the only nation to hold the powers of the bomb. By the end of the war it was apparent that the Soviet Union and the United States were holding most of the power. The tension between Stalin and Roosevelt was caused by the mistrust and greediness to hold all power. Spies and scientist were hard to control in not sharing information with the Soviets. It was out of the control of

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Roosevelt to keep Britain and the United States as the only nations of knowing how to make an atomic bomb. The international policies failed, which led to the Cold War.

President Truman authorized the atomic bomb in 1945 against the Japanese army. This not only released a powerful bomb over Hiroshima and Nagasaki, but it created a strong fear over the entire world. With the authorization of President Truman and the Quebec agreement, two US B-29 bombers released an atomic bomb on the Japanese city of Hiroshima (Ham, 2011). This single bomb caused 80,000 casualties that included women and children. It was only three days later when the second bomb was dropped on Nagasaki causing 40,000 more death. Months after the bombing, roughly 100,000 more people died slowly due to the result of radiation poisoning. The reason it spread fear so rapidly was that the first western scientist, servicemen and journalist to arrive on scene recorded the reports of “charred landscape populated by burnt people, coughing up and urinating blood and waiting to die.” This picture of one bomb causing such disastrous outcome caused great concern and debate on the use of the weapon (Ham, 2011). The bomb is argued to have been ethical and not ethical. The bomb threatens all of existence of civilization. The atomic bomb was the brutal means to end the war, and deter war between the United States and the Soviet Union. This bomb ended the war, but has changed our culture, politics and social history (Craig & Radchenko, 2008). Most of our conflicts teeter on the fear of beginning a World War III atomic war.

COLD WAR ERA 1945-1991

There was extreme fear of the atomic bomb based on the mass casualty of more than 200,000 civilians and militants in just a few months. Based on the fear of the atomic bomb, new policies were in effect in handling the fear of trading secrets to fund and fuel other countries in

developing new technologies. Americans and civilians from across the world began digging bomb shelters in the back of their yards, hiding under desks at school, and fearing their government. “The history of the atomic bomb and the origins of the cold war pushed citizens to demand that the nation of the world band together and form the international government necessary to prevent another world war that should surely doom civilization (Campbell & Radchenko, 2008, p. 5).” The Cold War affected diplomatic and military policies. The fear of spreading more bombs throughout the world, espionage and spies became a threat and scarred the nation’s social order. This was another fear that was caused by the atomic, because citizens were turning each other in for conspiring with communist. The Cold War era is the true definition of how ordnance spreads fear in civilization.

Fear

The fear of the atomic bomb had some visual changes to citizens home. There were many additions to someone’s home that included a fallout shelter. With the advent of nuclear weapons, the bomb shelter went through some advancements post World War Two (Stratton, 1962). The first was that the protection of the shelter had to include protection from shock waves and falling debris, but also protection from radiation and atmospheric contamination. Based on these new advancements and lethality of the weapon, the shelter would have to be able to sustain living in for days and weeks, despite World War Two air raids. This new invention of a fallout shelter increased in demand after the panic from Hiroshima and Nagasaki.

The Cold War went on for more than 40 years; within that time there were multiple international issues that led the government to take steps in ordering citizens to protect themselves. The fallout shelter became one of those controversial discussions in how relevant

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they were in protecting citizens from an attack. One of the crisis that improved interests in the fallout shelter was the Cuban Missile Crisis. In 1963, there was a strong support for fallout shelters. The increase came from certain activities that increased the fear in the community, usually caused by the threat of ordnance (Levine & Modell, 1965). Based on the fear citizens had on being bombed, they began to take precautions in staying safe. This movement of fallout shelters shows the productive measure citizens were taking to fulfill the anxiety of being in the middle of an atomic war.

This fear not only spread to the new layouts of houses, but precautions mandatory drills at K-12 schools. In a 1951 Los Angeles newspaper, a report that Jefferson High begins Atomic Bomb Drills was the title of the paper. The school took precautionary measure if there was a threat. The students were to 1. Drop to their knees with back to the window with knees together. 2. Students would fold their arms on floor close to the knees. 3. Bury face in arms and close their eyes tightly. 4. Stay in this position for 10-second period. 5. At the end of the 10-second period they would follow the next instructions without questions an immediate take orders from the adults (“Jefferson High Begins Atomic Bomb Drills,” 1951). This era hold an abundance of fear surrounded around the atomic bomb. Kids were impacted; houses were impacted, even politics.

The idea of espionage happening within US borders caused great paranoia within civilization. Everyone was targeted as being guilty of conspiring with the Communist Party. No one could trust what he or she said and how it was perceived from another person. The race to be more powerful than the Soviets and the fear of Communism changed the way civilization functioned. The politicians’ devotion to cause “Free World” in America caused a national fetish with anti-Communism in the American popular culture (Whitfield, 1996). The media had a huge role in scarring Americans into submission. The television, “consistently hammered the theme of

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an enemy within, working to subvert the American Way of Life (Whitfield, 1996, p. vii).” These movies also justified that being a nark to officials on suspicious behaviors of their neighbors, family, and friends was the patriotic course of action. “The cultural assault on Communism unleashed a fear and loathing that weakened and even subdued traditional commitment to an open society and the Rule of Law (Whitfield, 1996, p. xii-xiii).” The Cold War exercised fear in citizen’s daily life. In 1949, President Truman announced that the Soviets had finally detonated their first atomic bomb. This was catastrophic in American society, because the American nuclear monopoly meant that Communisms could resort to disastrous violence (Whitfield, 1996). The conflict between Americans and Soviets continued for decades after World War Two.

The culture in America shifted to paranoia. No one could trust each other, and they were scared of an atomic war. Countless measures were taken in preparation for catastrophic measures. Fallout shelters, school drills, and turning on each other were all measures that citizens were involved in to justify fear with ease. The Cold War Era is an example of how irrational citizens act against the threat of a specific ordnance.

WAR ON TERRORISM 1992 - PRESENT

September 11, 2001 may be the most significant terrorist attack on Unites States soil since Pear Harbor in 1941. The significance of this attack is that it changed our involvement with host nations, as well as, changed the tactics and strategies of warfare. The United States military has shifted its focus from conventional warfare to an insurgency. This shift focuses on the host nations strengths and weaknesses. Militants are being trained to turn the weaknesses of these nations into strengths, rather than strictly concentrating on the enemy. The mission is to build

rapport with the nations, in order for them to support troop and operations conducted in their country. This has been a difficult task to change for the United States military both politically and physically. The War on Terrorism has showed the United States military new ways the enemy fights. The type of ordnance the enemy uses is not conventional anymore. We won the arms race coming out of the Cold War. The United States has the best weapon systems, but we are finding out how difficult it is to fight an enemy with no technology. The weapons, despite the technology difference, has the same lethality.

The enemy is also beginning to be more difficult to find. The enemy is difficult to spot in the crowd, because they blend in with other civilians. The biggest threat is that a terrorist could be anywhere, and no one will detect him or her until it is too late. The country is becoming randomly targeted, attacks directed on civilians, and harder to keep up with the enemy than before. The War on Terrorism has shaped a new warfare that continues to cause a great amount of fear in societies everywhere.

Improvised Explosive Device

The popular ordnance used by the present enemy, Al Qaeda and Islamic State of Iraq (ISIS), is the improvised explosive device (IED). These weapons are very lethal and difficult to detect. They are traps that are set up along roadsides, streets, and various other rural and urban locations. The threat is that they can be detonated in various ways, stepping on, remote activated, timers, and countless creative alternatives. The enemy does not always have to be present, which makes it difficult to detain who is responsible for the deaths of many soldiers and their own citizens. The accessibility of this ordnance to blend in crowds, airports, and heavily populated areas has changed security, but does not always raise awareness. Citizens are not always looking

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around or are trained to detect suspicious behavior. Citizens are very self-involved with their own electronics, space, and surroundings that they do not pick up on a backpack being left on the side of the road. This is what makes the IED a lethal weapon and the enemy a sufficient terrorist. This weapon is also very unorthodox in the way it is used. The War on Terrorism casts fear on society in an entirely new way.

The National Research Council (2007) defines the threat of “improvised explosive devices are used by terrorists to strike soft targets and by insurgents as weapons against a stronger enemy (p. 1).” The appeal that IEDs have is that they are easy to construct, inexpensive, easy to emplace, and achieves strategic and tactical results. The IED has two fundamental aspects in carrying a campaign: asymmetry and idiosyncratic nature. Another objective of the IED beyond casualties is to affect the psychology of the local population or populations. The IED causes fear, instability, or discomfort. This is has been proven true in the 9/11 attack and Boston Marathon. These two attacks are just on US soil, there is still fear caused from recent attacks in Europe that have affected security measures in America.

The IED follows a process in order to instill a threat. It usually goes: “obtaining bomb materials, recruiting people, constructing the device, selecting a target, delivering the device to its target, carrying out the attack, and disseminating information about the attack as propaganda (National Research Council, 2007, p. 2).” This chain of action is what continues to drive the threat of an IED in various locations around the world. This chain can make it difficult for the military and security forces to detect where and when an IED is in the process of becoming a threat. The terrorist and insurgents have access to materials and social media (National Research Council, 2007). They utilize materials that have been left over from the Russians. Their IED explosive materials are leftovers from the Russian invasion. If they were to use the conventional

ordnance, mortars, rockets, and etcetera properly, the motors would target militants and be propelled from artillery. The new utilization of the conventional ordnance in a nonconventional manner causes a threat to strategies and warfare of the American Army. Another new strategy that the enemy has used is recruiting American citizens from social media. There has been ISIS recruiting propaganda on social media in the US. These videos have actually worked in recruiting Americans to their cause. They have repeatedly shown that they are a threat to civilization. The enemy does not just attack military and exploit political issues, the enemy utilizes citizen's fears and interests in drawing attention to their cause.

New Philosophy on War

The War on Terrorism has been a controversy in politics since the beginning of the invasion of Iraq in 2003. The shifting in politics started with sending troops over to fight and win the war; it later changed into a nation-building strategy to help shape the Middle East into a functional civilization where all people are free. The Americans strategy in nation building is to build the state and develop an economy (Fukuyama, 2006). At the beginning of the invasion the United States Military failed in doing this. They invaded Iraq, defeated Saddam Hussein's army, and were successful; however, the underlying problems of this tactic caused failed states and weak governance. The second and third order of effect from the invasion caused long-term problems.

As the war continued the strategy to support these nations began to be a priority. Nation building plays an important role in diminishing fear by gaining allies. The thought is that when a state is weakened, the group that helps the country will gain their trust. The power is usually held by terrorist groups in this area, so by providing materials and logistics to the nation, they will

ultimately support Americans; winning their hearts and minds (Fukuyama, 2006). The more support we have overseas the more allies we can depend on in helping win the War on Terrorism.

The idea of nation building is to attempt to give all nations a chance to thrive. It places responsibility for the countries that go to war to help restore or develop. Nation building is categorized into two activities, reconstruct and development. Reconstruction is the restoration of a war-torn or damaged society to preconflict situation (Fukuyama, 2006). “The development approach is the creation of new institutions and the promotion of sustained economic growth, events that transform the society open-endedly into something that it has not been previously (Fukuyama, 2006, p. 5).” For example, Somalia, Afghanistan, and Iraq lacked infrastructure due to the United States led invasion. This inhibited to provide security or distribute state services. Based on the lack of infrastructure, the state had fallen into chaos and warlordism, and the government had to be created from scratch. This was an example of reconstruction and development happening simultaneously. This also is an example on how development serves as a critical element as it serves the “...ability to create and maintain self-sustaining indigenous institutions that permits outside powers to formulate an exit strategy (Fukuyama, 2006, p. 7).” There are serious effects in going to war with an unsustainable country and leaving without building support.

In order for the United States to be successful in nation building there is a full integration of civilian organization working with the military and host nation. “The integrations consist of political, military, economic, humanitarian, and other aspects of U.S. and international efforts (Fukuyama, 2006, p. 88).” There must be a strong public and international support for the operation. U.S. Presidents now address the public about operations since the incident in Somalia.

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Somalia's incident in October 1994, proved that when the public is not aware or do not understand the 'why' to the operation, they become resistant to support nation building. The military has made improvement to fulfill the new strategy of nation building. The military provides a mix of capabilities in this civil-military operation. The military recognizes the greater need is in building, than war fighting. The capabilities have emphasis on "...special capabilities, such as civil affairs, Special Forces, psychological operations, engineers, linguists, and military police (Fukuyama, 2006, p. 92)." These functions have served in building rapport to the Middle East.

There is a lot of improvement needed in making nation building successful. The strategies and tactics in this new philosophy are being written through trial and error. It is difficult to see the success of this idea when we are still threatened by groups who origins are from the nation we help. Attempting to get the public support and funding for these operations is difficult, but the best ideas come with time. Nation building is the key to eliminate fear. When we have built a nation that supports America's ideology, than we have eliminated one more enemy while gaining an ally. When we have gained an ally, we do not have to worry about the threat of their ordnance being used against us.

FUTURE

Over a century of warfare has been discussed, and throughout the century there have been multiple advancements in each conflict. Strategies and tactics will never cease to evolve, because of the everlasting conflicts the world creates. The future of warfare is going to be based on technological advancements. One of the biggest concerns the public has is the new technological

advancement the drone. The drone will play a role in dictating new strategies and tactics against our current enemies, North Korea, Russia, and Islamic State of Iraq (ISIS). The future fear in society will change drastically as new technology advances become the main threat.

The Decade of the Drone

Drones continue to be a heated debate on the legality and ethics of using the weapon against the enemy. The drone has been a key issue in regards to shaping new laws of war and changing the nature of global politics (Bergen & Rothenberg, 2015). The debate is structured around the lethal force that the drone has created. Pilots half way around the world, which challenges rules, norms, and moral understanding, use the drone remotely. The intent of the drone is to have precise strikes on enemy personnel, but yet it still manages to kill civilians. This piece of equipment opens up discussion on the premise of legitimacy, ethics, and legality of targeted killing (Bergen & Rothenberg, 2015). Fear is now defined as being targeted by a weapon that is controlled by someone halfway around the world. You never see the person who places you as a target and deaths become dehumanized.

Drone strikes have steadily increased in American military operations. This rapid increase under the Obama Administration has presented moral, legal, and strategic questions regarding the new technology being used outside of traditional war zones (Bergen & Rothenberg, 2015). These issues also present changing the nature of warfare. The weapon is designed to kill a specific target without collateral damage. However, in 2012, Rehman Malik, Pakistan's former interior minister, claimed that eighty-percent of casualties were civilians. This percentage angered the local population as they perceived it as, "...an illegal and irresponsible war on a sovereign country's territory (Bergen & Rothenberg, 2015, p. 13)." The drone campaign targets

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militant leaders; however, between 2003 and 2004, it was recorded that fifty-eight militants were killed. This is a significant number that disrupted the enemy, but it only accounted for two percent of all drone-related fatalities (Bergen & Rothenberg, 2015). This proves that drone campaign is willing to sacrifice civilian lives for very little progress in winning the war. It also shows how the drone makes more enemies with the host nation than it does in building rapport.

The drone campaign has a huge impact on civilians that makes them fear the technological advancements of the military. Bergen & Rothenberg (2015) states, “While it is difficult to calculate, there is strong evidence that psychological trauma, loss of livelihood, and rampant fear and suspicion related to drone use are severely detrimental to civilians (p. 43).” The attacks have disrupted the local populations, which led them to protests in anger. The problem with drones is that it crumbles the philosophy of nation building. It adds more fear in civilization, by taking the man out of the fight and making them collateral damage. A drone substitutes the responsibility of civilian casualties by using technology to kill our enemies. There is even fear in global politics on how the nation should utilize a drone (Bergen & Rothenberg, 2015). It seems that the United States has nothing to fear from the Middle East lacking these advantages, but what about Russia, North Korea, and other stable countries with drones. The damage we are doing in other countries with drones can easily happen on American soil.

The drone is the American weapon of the IED. We simply do not have to be present when it detonates or take full responsibility for the collateral damage. The drone is also a concern on how we will continue to fight in the future. What will the wars look like if we continue to fight enemies with low tech systems against our high tech systems? It also raises questions on how far are we willing to give up our liberties in order to feel safe? We already take precautions through TSA, Homeland Security, and the Patriot Act, which have decreased many

of our civil liberties. It is difficult to foresee what the future will look like, but it will be determined on the specifics of ordnance.

CONCLUSION

America's history in war is very diverse in both technological advancements and warfare. It sheds light on how a single conflict can deliver fear in each era. The past century has changed military tactics and strategies by developing the first efficient rifle, building an aircraft, utilizing the aircraft for combat, dropping an atomic bomb, living in fifty-years of fear, then going backwards by fighting an invisible enemy. All of these changes leave civilians questioning what the future of warfare will look like. The future may take boots off the ground, because a drone one man across the world can accomplish the same mission. Fighting a war gets difficult as the years advance. These advancements leave military leaders decades behind. The military is always faced with diverse situations that they are never prepared for. These concerns allow for mistakes and new philosophies. The United States invaded the Middle East, but did not have a vision on how it may affect that nation. Now the strategy is to back track, restore, and develop those nations. The strategies are to find ways to build allies, in hopes that they will not join terrorist organizations. This is something that the United States should have learned from previous World Wars, but instead we do not learn and place ourselves in more turmoil.

Each decade civilians are directly impacted by fear because of the advancements in ordnance. There is no doubt that each era of war the ordnance becomes more lethal. Civilians are always caught between the turmoil of becoming collateral damage. Current terrorist and American enemies understand the psychological breakdown of one's nation. That breakdown

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consists of instilling fear in citizens by attacking them in public places. These new tactics are becoming more and more personal to all citizens. There is no safe place to hide, no militant wearing a uniform to separate from civilians, and no rules. The enemies are ruthless, full of hatred, and willing to hurt anyone. The development of ordnance throughout history has impacted fear in civilization. Ordnance has been shown throughout this research to directly shape warfare. Ordnance has also impacted civilians and government policies with or without war. Lastly, despite the enemy's capabilities in technology, ordnance continues to shape the future of warfare.

“If we do not end war — war will end us. Everybody says that, millions of people believe it, and nobody does anything,” H.G. Wells.

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