

DEPARTMENT OF THE ARMY
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ATSS-BAR

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MEMORANDUM FOR Faculty Advisor, Group Room R09, ATTN: SGM Rogers, United States Army Sergeants Major Academy, Fort Bliss, Texas 79918

SUBJECT: Arctic Warfare

1. Thesis Statement. Arctic warfare tactics, techniques, and procedures has evolved and improved the way military forces conduct winter military operations.
2. Discussion. From the battles of the Revolutionary War, both World Wars, Korean War, to the current battle in Afghanistan are prime examples of arctic warfare. A unit must be highly trained mentally and physically to withstand the harsh conditions in an arctic environment.
3. Conclusion. Arctic warfare tactics, techniques, and procedures has evolved and improved the way military forces conduct winter military operations. We must stay committed to always improving our fighting force with the best equipment and training necessary to win the battle on their home front rather than ours. We must prepare our Soldiers mentally and physically for the harsh conditions and for success.
4. Haines Award. We request that the Haines Award Selection Board consider this paper for the General Haines Award for Excellence in research. *Writing Research Papers*, Tenth Edition by James D. Lester and James D. Lester Jr., is the guide used in the preparation of this research paper.

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SGM William Burt
SGM Tim Barton
SGM Cory Kroll

Running head: ARCTIC WARFARE

Arctic Warfare

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United States Army Sergeants Major Academy

Class # 58

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OUTLINE

Thesis: Arctic warfare tactics, techniques, and procedures has evolved and improved the way military forces conduct winter military operations.

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Abstract

Arctic warfare tactics, techniques, and procedures has evolved and improved the way military forces conduct winter military operations. These battles included small unit tactics, adaptability, initiative, survivability, and local knowledge. The winter conditions during the Revolutionary War affected the American Army. Germany with their allies numbering millions invades Russia. Initially the invasion is a huge success until the winter arrives. The Finland Army's arctic warfare training and tactics contributed to the defeat of a larger and better-equipped Russian Army during the Winter War. Arctic Warfare lessons learned showed failure of the U.S. Army by identifying shortfalls in equipping, operating and surviving during combat operations in an arctic environment.

Arctic Warfare

History of Arctic Warfare

Arctic warfare is armed conflict that occurs in a severe cold weather in icy terrain and usually on ice-covered bodies of water (Wikipedia, modified 29 August 2007). From the battles of the American Revolution, both World Wars, Korean War, to the current battle in Afghanistan are prime examples of arctic warfare. Arctic warfare is very dependent on equipment, tactics, and adaptation.

Impact

The environment can affect a Soldier's health and performance. The cold conditions can lower core body temperature, which can result in cold injuries and degraded performance. Cold weather conditions impair many aspects of normal military functions, which influence Soldier's health and performance. It can also increase disease and non-battle injury. The heavy clothing that you must wear in this type of an environment can restrict movement and equipment has the tendency for failing. As a result, travel is degraded and difficult either in vehicle or on foot.

Quebec Battle

The Weather as concealment

The American militia successfully used the harsh weather to conceal their movement. On 05 December 1775, the militia got lucky a snow fall began, which reached two to three feet deep. The American Army used the storm to move without the British noticing them. The Americans' moved towards their objective, the walled city of Quebec. The Soldiers moved in the winter snow with the temperature reaching sub-zero. On 10 December 1775, Montgomery began to place his artillery batteries to attack Quebec. He placed the batteries approximately 700 yards

away from the walls. However, Montgomery failed to take the freezing temperature into factor during the attack. The ground froze up and did not allow the Soldiers to dig trenches for fighting position. To give them cover, the Soldiers built cages filled with snow and filled with water. The cages froze up into a solid wall. Montgomery had to reevaluate the attack and his strategy.

The Lack of Fighting Equipment

Montgomery came to the conclusion that he lacked artillery, he could not breach the walls, and he could not make trenches due to the frozen ground. The biggest issue that he faced was, the men enlistment ended at the end of December and a resupply of ammunition was not coming. He decided to take Quebec by storm and attack the vulnerable section of the Lower Town. Montgomery waited for a snow fall to move his under a thousand men Army into attack position. On December 30, at 2:00 am, the storm Montgomery waited for began to fall. The snowfall gave the Americans the signal to move into their assault positions. During the attack the Storm turned into a blizzard. The march along the shoreline became difficult for Montgomery's force. The river froze up and formed huge accumulations of ice slabs which caused the men to detour against the rocky cliff. The men with the scaling ladders had the most difficult moving. The ladders kept getting caught on the sharp slabs of ice, snow covered rocks, or the steep slopes of the cliffs. The biggest issue became the blizzard blinding the men and the difficulty of seeing their way in the darkness. Montgomery and his men breached the walls and headed down the street. In the snowfall, Montgomery barely saw two outlines of buildings. He did not see any sentries and wondered if they fled. Montgomery signaled his force to charge ahead, he pulled his sword out, and ran forward approximately fifty yards. Montgomery began running with his men behind him. Suddenly, a bright yellow flash proceeded out of the front of a blockhouse. A

detonation of grape-shot hit Montgomery in the head and killed him instantly. The remainder of Montgomery's forces retreated and ended the attack. The poor leadership, lack of proper equipment and most importantly the shortage of well trained soldiers, possibly led to the ultimate failure of the Quebec battle.

Trenton Battle

On December 7, Washington managed to get his half clothed and half shoed men across the cold river of the Delaware. The opposing force outnumbered the Americans, were fed well and better equipped for the Battle of Trenton. Washington positioned his men and ordered his men to destroy all boats along the Delaware. On December 13, The British leaders assumed the Americans would head for winter quarters. Cornwallis thought the Americans were unable to either mount a winter assault or survive the winter as an effective Army.

Another issue facing Washington was the fact that the enlistment of his men ended on December 31. On top of that Washington faced logistical nightmares. His Soldiers were unpaid, had inadequate tents, not enough food, clothing, or blankets to survive winter operations. Washington's objective was to take the town of Trenton. The major objective was to destroy and capture the Hessian force in Trenton. The plan consisted of three separate river crossing of the freezing waters of the Delaware. The plan also included taken Princeton after the victory at Trenton.

The Crossing of the Delaware

On December 25, Washington's Army began preparing the crossing of the Delaware with the temperature around thirty degrees. By dark, the move across the Delaware began and the river had no lack of ice. The shore had solid ice, midstream contained floating ice, and ice

forming on the boats. To make matters worse it began snowing and sleeting, with hail driven by high winds. The plus side of the assault, the artillery guns were considered wet weather weapons. Washington's time table for the crossing the Delaware was seven hours, but the storm and river condition shattered the time table. The crossing took approximately twelve hours.

The Failed Ultimate Surprise

The delay in the crossing took away Washington surprise night attack on Trenton; instead Washington knew he would have to attack in the daytime. The march to Trenton had mental and physical effects on the Soldiers. They were hit by snow, sleet, and freezing rain. Those Soldiers without shoes found the weather and the road treacherous. The assault and tactics on Trenton was going as planned.

The initial strategy of Washington went as planned despite an eighteenth-century operation. Washington took a position on a hill to observe the battle, but the weather restricted him from seeing the end of town. The weather made both side miserable. The Americans covered their muskets with rags, blankets, or placed them under their coats to protect them from getting wet, but had no protection for their firing pans, flints, or touch-holes. During the battle the muskets got wet and the fighting was done by bayonet. At the end of the battle the Hessians and British troops were defeated by a ragtag Army that was barely alive, had lack of supplies and poor fighting equipment.

On December 26, Washington made the decision to re-cross the Delaware. The winter storm took toll on the Americans. The river and weather was colder than the first crossing of the Delaware. Three men died of hyperthermia re-crossing the river. Washington continued to march toward Princeton. However, many of the 5,000 militia were farmers and villagers, who had no

combat skills and untrained. What was the driven force that caused these ill trained, half clothes, and ill equipped men to fight? The answer is obvious a leader with a skill to lead under harsh conditions and an undying will for freedom.

The Supply line Distresses

Military Funding

The government found it difficult in supply Washington's Soldiers in their winter camp. The shortage of funds contributed to the Army finding it difficult in hiring wagons and horses for the supply line. The Army unable to hire wagons and horses, they turned to the nearby counties to assist them in securing wagons. However the wagon owners refused to support the Army due to not receiving pay for their wagon.

The shortage of funds resulted in not paying the expenses of teams supplying the lines. To provide the troops in the field, the government utilized to questioning methods to supply Washington's troops. A government report showed that wagon owners refused to provide transportation for the supplies, unless they receive a portion of the money paid at the time of pickup and the rest of the money after delivery. The government ordered the selling of portions of the supplies to settle up the cost of sending the rest of the supplies. The method used here ended up being abuse and Washington's Soldiers needed the supplies to survive the winter. To provide the Soldiers with supplies, Washington took a portion of the troops pay and used it to pay for the expense of getting flour and meat to the soldiers. But this only provided a short term solution to the problem.

Winter Supplying

Another issue that faced the supplying of the Soldiers was transportation. The owners of the

wagons charged excessive prices for transportation and did not work much too really earn their pay. The owners' emptied flour contains into empty carts to save room but in turn uncovered the flour to the elements. To assist the wagon on the soggy and icy roads the wagoners dumped the salt water off the meat and the meat went bad. The winter weather contributed more to the poor transportation. The roads would become so muddy that the wagons were unable to carry the heavy artillery through without getting stuck. As written earlier, another issue was the funds either not given to wagon owners or the owners stealing from the government. The long distant transport over roads allowed the chances of material being lost or material getting stolen. Many Army leaders would stop the transport wagons enroute to camps and take whatever supplies they needed.

The most important reason for the loss of material was the lack of controls over the transportation and not theft or leaders procuring material before the wagons reached the camps. Normal procedures for shipping material would to send small packages on the transporting wagons. The wagons would be sent out without guards placed on those wagons. This procedures cost time and the actual result of the material being lost. In many situations, the operator of the wagons would leave packages in different locations on the road and the material becoming procured by citizens. The Government seeing the major problems decided to place guards on wagons in future transportation. Another solution for transporting material required a documentation of deliverance from the post getting the material. This procedure got accepted and continued as a solution for loss or theft of shipments. However, wagoners continued to refuse transporting the material.

The Strategies in the Revolutionary War tactically succeeded or they tactically ended up a complete failure and cost the American force greatly. The Military unable to supply the troops with the proper clothing for winter warfare contributed to the Soldiers getting sick or dying of hyperthermia. However, these Soldiers fought bravely and won a few battle under extreme conditions for the cause of freedom and liberty. The lack of Soldiers had a minor effect on the American Army, but the enlistment numbers affected the way leaders planned their attacks on the British forces. The military did learn from the problems of winter warfare and supplying the American Soldiers. The military adopted new procedures, tactics, and policies in conducting Arctic Warfare. Let's examine another example of a battle in an arctic environment where training and adaptation showed in full force.

Finland and Russia During the Winter War

The Finland Army's arctic warfare training and tactics contributed to the defeat of a larger and better-equipped Russian Army during the Winter War. On 30 November, Soviet Armies totaling 460,000 troops began their advance towards the Finland border. This coordinated air and artillery bombardment was the beginning of "one of the least publicized and most costly campaigns in the annals of military history" (Maddock, 2007, p. 2). Boldly the Russians marched into what was to become an icy hell.

Background of Winter War

The Soviet Union signed a pact with Finland in 1932. In April 1938, the Soviet Union attempted negotiations with Finland and boost their mutual defense against Germany. The Soviets were concerned that another adversary would use Finland as a staging point for an attack

on mother Russia.

The Germans attacked Poland on 1 September 1939 and soon afterward, the Soviets invaded Poland from the east thus dividing the country of Finland. In the autumn of 1939, the Soviet Union demanded that Finland move its border 25 kilometers further from Leningrad. Of course, the Finns refused these demands. The Soviet's were already planning for offensive operations. On 26 November 1939, the Soviets perpetrated a bombing of a Russian village and then pointed the finger at Finland for killing fellow Russians. The Soviet's wanted an apology from Finland and requested that they move back from border. The Finns denied any fault for the perpetrated attack and stood their ground. The act of aggression by Finland was the excuse that the Soviets used to negate the previous non-aggression pact.

Conduct of War

The Winter War began on 30 November when Stalin ordered his Red Army into offensive operations against Finland. The Finns had not wanted war, but Russian demands for territorial cessions left the little country no choice but to protect its land on the battlefield. Supremely confident that the Red Army could subdue the outnumbered Finns in ten to twelve days, Stalin and his generals actually sought the war. On 30 November, Soviet Armies totaling 460,000 troops began their advance towards Finland and hopefully occupy the entire territory of by the end of the year.

Battle of Suomussalmi

Nowhere was the carnage more complete than at Suomussalmi. On 7 December, the evacuated town of Suomussalmi was set on fire while the Finnish forces set up defensive

positions. One Soviet rifle division advanced from the North (163rd) while another one (44th) advanced from the South. Engle and Paananen (1973) states:

The two Russian divisions were extremely powerful. Their combined manpower was 48,000 with 335 artillery pieces, more than 100 tanks. The Finnish defenders only totaled 17,000 men with 11 canons (p. 95).

The Finns devised a plan to cut the road that the 44th Division was advancing north on. They decided to use the strip of land between two frozen lakes for this maneuver. Because any Soviet attack across these lakes would trigger Finnish machine gun fire and casualties would just freeze in the snow. With the isthmus closed, the 44th Division sat paralyzed in bumper-to-bumper traffic. Fighting continued in the town of Suomussalmi where Finnish Soldiers used gasoline bombs against Soviet tanks and repulsed the attack. Finnish ski troops made wide circling flanking movements under the cover of the long night and usually caught the Russian columns by surprise. The Finns would also shoot Soviet Soldiers huddled around fires in the frigid weather. The Russians gave up further attempts to push the Fins westward and retreated to the town to wait for the approaching 44th Division. On 11 December, the Fins launched an offensive attack toward Suomussalmi and pushed the Russian bear eastward. This counteroffensive lasted seventeen days and the Fins destroyed segments of the enemy's column formations of their heavy equipment. The defeated Russians dropped their weapons and moved slowly across the ice to the Northeast resulting in the combat ineffectiveness of the 163rd Division and close to 5,000 men laid dead on the battlefield.

Once that phase was complete, the Finnish main force skied south over the ice to concentrate on the logged jammed 44th Division. Two Finnish battalions attacked the front of

the stalled Russian column. The Russians dug into defensive positions and allowed the Finns to reorganize and reconstitute their forces for the final blow. Four companies attacked the heavily manned and fortified Russian lead battalion, repeated this tactic for several days, and literally cut the lead battalion off from the remainder of the Russian forces. The fighting was hand to hand, where the Finns excelled and expertly used ski tactics to maneuver and attack the column and retreat for another later attack. The Finns kept the constant pressure and slowly moved their attacks further and further south of the stalled column.

The Russian men lost their will and spirit to fight, panicked, and ran. “It was later learned that Soviet troops had been without food (destruction of field kitchens) for five days in temperatures of 30 to 40 degrees below zero” (Engle and Paananen, 1973, p. 101). “The 44th was out of food, freezing and had nowhere to go except to sit and be slaughtered at will. Of the 44,000 only 5,000 made it back” (Maddock, 2007, p. 4). Trotter (1991) states:

No battle of the Winter War captured the public’s imagination like the Battle of Suomussalmi. The campaign continues to be taught in military academies as a classic, an example of what motivated, well led troops can do, with innovative and adaptive tactics, against even a much larger adversary (p. 150).

Outcome of Hostilities

The results of the Suomussalmi battle were staggering and made the Finnish ski Soldier a legend. The Soviet’s suffered great losses from the battle and lost face in their fighting ability. These warriors lacked arctic warfare experience and forest survival skills. The Soviet forces did not divide or conquer Finland. The country of Finland maintained her sovereignty and gained extensive international goodwill.

The Suomussalmi battle was only one of many during the Winter War. Stalin conceded and settled for an agreement and Finland retained her sovereignty. A stipulation in the Peace Agreement mandated Finland to cede 10% of her territory.

Adaptation and Tactics

The Finland's military forces were only 180,000 men strong but they were bold adversaries. They employed small unit surrounding tactics, white camouflaged ski troops and utilized their local knowledge of the forests and frozen tundra. The Finns were accustomed to the harsh conditions and used it to their advantage. They did not deploy themselves in conventional ways; they thought outside the box and inflicted on their enemy's morale at the same time. They targeted field kitchens and used sniper techniques while Soviet troops huddled around campfires. The Battle of Suomussalmi is an example how a small force, properly led and fighting in familiar terrain and weather, can defeat a numerically vastly superior enemy. Factors that contributed to the Finnish victory included higher mobility due to skis, flexible strategy and somewhat unorthodox doctrine, troops' equipment well suited for arctic warfare and finally the simplicity of the Finnish battle plans.

The Finland Army's arctic warfare training and tactics contributed to the defeat of a larger and better-equipped Russian Army during the Suomussalmi battle. The defeat enabled Finland to maintain her sovereignty and gained international respect and admiration. Their cities bombed, their supplies short, their casualties staggering, the Finns still delivered a terrible toll on their enemy. Against tanks, they pitted tiny groups of Soldiers armed with rifles and gasoline bombs. On the flanks, Finn ski Soldiers would hit and run and hit again. The Russian attack

stalled and deep winter came on. Now Red Soldiers died not only by fire, but also by freezing and starvation. They were able to adapt, be innovative, and use the tactics of a smaller mobile force to inflict serious damage and casualties to a heavier and superior force. It is evident why military academies teach and analyze the tactics of the Finnish Army during this military classic in arctic warfare.

German Invasion

German Army

On June 1941 Germany began its invasion of Russia. With their allies they numbered over 3 million and over 200 divisions. The invasion force consisted of twenty panzer divisions. The number of tanks per division was only two-third of what they normally are. The decrease was due to a slow production rate because of the war.

Needed to support the divisions were thousands of trucks to carry infantry Soldiers, and logistical supplies. The trucks numbered too few because the motorized infantry needed them also. A hundred thousand of horses assisted to transport ammunition and supplies. The German forces fell short from a full strength mechanized force. The German air force pulled in to support the operation. The Luftwaffe had been very successful in past campaigns. To participate in this operation put a huge strain on this battle hardened force. The production of new aircraft had slowed and could not keep pace with the losses. Hitler's Army did have quality Soldiers. No one doubted their battle hardened skills. They constantly trained and had top notch leadership. They had tasted victory after victory and did not lack confidence. They were in fact soldier on soldier thought to be the world's best.

Russian Army

On the other side of the fence you had the Russian Army (the Red Army). On paper a very formidable force, an Army with several million men and thousands of tanks. The winter war with Finland had proved disastrous the leadership and organization of the Red Army had failed. The Russian Army did try to improve the leadership problems with crash courses for their leadership. In 1939 Stalin disbanded his mechanized units.

After Hitler's success in Poland Stalin knew he had to reorganize his mech. Units. Hastily he tried to put these units back together. The units equipped with light-armored BT-7 tanks, which became an easy target and kill for the German anti-tank weapons. An improved tank the T-34 was at the beginning stages of production. This tank would not be available in large numbers for some time. Russian operational readiness for their mechanized was at 30%. Also in short supply ammunition and radios. The air force had issues to. The air force also had maintenance issues and lacked replacement parts. Pilots had poor training, flight schools were overfull. The cadre at the schools had lacked combat experience. Stalin had received intelligence on the invasion numerous times. He would not accept the warning of the invasion as legit.

Initial success for Germany

This at the outset of the invasion proved to be a fatal mistake. The German war machine with its allies rolled through the Russian front line with ease. The Germans had Soviets pushed back at least 50 miles on three fronts. This accomplished in only one day. The German Army in only five days penetrated 200 miles into Russia. They had moved one third of the way to Moscow.

Winter stalls the German war machine

Arctic weather

As the invasion progressed it also slowed, due to mud and rain initially. The supply lines thinned and could not keep up with the advancement. The progress slowed to 2 miles a day. Hitler ordered a halt so his units could regroup. The German Army had invaded with an Army group from the north, south, and center. Hitler decided to send his tanks (Panzer divisions) to Army Group Center for a push to Moscow. This operation would be called Operation Typhoon. Operation Typhoon, the push towards Moscow started on 2 October 1941.

From day one the weather started to worsen. On 31 October 1941 the operation received orders to halt so the German armies could regroup. This move benefited the Soviets, it gave them the opportunity to build new armies and bring in troops from the east. On 15 November the operation set back in motion. By this time 6 Soviet armies were in place to face the Germans. Soviet Siberian forces confronted the Germans on 22 November and defeated them. At about that time the winter blizzards came. The Germans had not properly prepared for this type of weather.

Luftwaffe grounded

German air superiority became neutralized by the freezing cold, the Luftwaffe grounded. Hitler had believed he would attain a rapid victory. His failure to prepare for winter weather became his demise. His new victory would be at hand before winter set in. By 27 November 1941, General Eduard Wagner the Quartermaster General for the German Army, reported that “We are at the end of our resources in both personnel and equipment. We are about to be confronted with dangers of deep winter” ([Wikipedia, modified 11 September 2006](#)).

Soldiers and Equipment

Both men and equipment had no assistance or relief in the near future. They became a prime

target for the Russians. The Germans had the most battle hardened and professional Soldiers in the world and the world knew it. The decision to attack the flanks and not hit the Germans head on became an easy one to make.

Russian comeback

The Russians counter-offensive became undoubtedly a huge success. From that point on the German Army and their allies retreated out of Russia. The German war machine put everything into its war with Russia. Maximum effort in Soldiers, equipment, and assets were put in this campaign. The end result turned out to be disastrous.

Russian victory

The arctic weather helped the Russians. They built a force back up to half a million Soldiers. Stalin ordered a counter offensive immediately. The Russian Army had gotten their wind back and they were on the move. German forces with their allies got pushed back over 200 hundred miles or 300 kilometers. In Stalingrad the tables turned again in favor of the Russian war machine. Germany's allies had gotten assigned to cover down on the flanks. They had taken a major toll due to the arctic weather.

German Casualties

The winter weather caused more German casualties than combat. Frostbite and disease became the number one killer of the German Soldier. The wounded and dead reached an unbelievable level 155,000 in 3 weeks of winter weather. The arctic weather wrecked havoc on the German armies' weapons and equipment. Units reported strength at 50% at best.

Failure to prepare for the arctic environment in Russia cost the German forces the War. Many believe the battle for Russia ended World War II. Hitler's failure to anticipate the arctic

weather in Russia cost him everything. Many interpret his mistake as not being prepared for the winter hardships as arrogance. The Germans had proven time after time they had one of the most powerful armies in the world. The arctic weather defeated the great German war machine.

Arctic Warfare Training

After World War II, the War Department decided that the American Soldier must be able to operate and conduct operations in any type of environment. The Soldier must be able to make the transition from a dry desert to winter so no tactical advantages are lost. We must retain combat efficiency in the face of sub-zero temperatures to maintain the decisive edge on the arctic battlefield (History of the Cold Weather Region 2003, p. 08).

Current US Army Training for the Arctic

Current U.S. Army training enforces training at all level. The Advanced Leader Individual Training (ALIT) is mandatory for all personnel assigned to an arctic unit. This training consists of a Go/No-Go evaluation for over one hundred tasks the individual Soldier must pass. The training takes a normal duty week that cumulates with sleeping in the ECWSS in a shelter tent with heat, to laying out in the elements. All personnel must accomplish this prior to any training-taking place in the winter months. The Cold Weather Leaders Course curriculum teaches the first line supervisor to the platoon leader traits the leadership needed to ensure their Soldiers receive the proper training during ALIT. This course pushes these leaders to the edge and the failure rate doubled in the last few years since the new curriculum became the standard. The Command and Staff Course (CSOC) involves leadership of a unit, which gives them a crash course for the senior leaders to give them an overall perception of the standard to operate in the arctic environment (Cold Weather Operations Manual, 2006, p. 25).

Planning considerations for movement over frozen terrain

The more time a unit fights the terrain and its elements leaves less time to focus on the enemy at hand. Units must take into consideration the effects the arctic may have on their personnel and their equipment. Proper risk management gives the unit conducting arctic operations an excellent means of identifying a risk and ways to mitigate the risk at hand. Leaders must use this tool to be successful in any operation and the arctic environment will usually render a high on the risk assessment matrix. Prior planning for movement over frozen or icy terrain must not be taken lightly. Units must have recovery assets along with a solid MEDEVAC plan. Majority of the movement conducted in the mountainous regions of Afghanistan comes in the form of air insertion. After completing the insertion the rest will be done on foot carrying anywhere from eighty to one hundred pounds of equipment. During Operation Anaconda infantry platoons were not acclimated to the high altitude in which they were inserted into. This caused Soldiers to have shortness of breath, dizziness, decreased physical performance, and vomiting issues. This can increase non-battle casualties, which decreases the effectiveness of weapon systems and places a severe issue with the units' mobility. Soldiers need to ensure they consume the proper amount of water so they don't become dehydrated and eat at least three Cold Weather Rations that doubles the calorie intake from a normal Meal Ready to Eat. The only draw back from a cold weather ration is that it takes hot water to make the main meal (Observations in an Arctic Operations in Afghanistan, 2003, p. 06).

Medical Treatment

Extreme cold weather hampers the success of combat operations in the arctic. The treating of seriously injured in the extreme arctic can be very difficult. Medics must take into account the

risks of frostbite and hypothermia. Without proper treatment further injury is common among casualties in sub-zero weather. A huge challenge in the arctic is to give a patient an IV. Since the veins constrict in the cold temperatures, it makes establishing an IV very difficult. Once a casualty is stable, he must move to a warm area to receive further treatment after the medic who makes the initial assessment. In 2002, the military developed with an evacuation bag, which is lined with thirteen pounds of insulation to keep a casualty warm by using his body heat. This bag allows quick entry and exit as it has double zipper openings. One major concern for the battalion aid station is how to keep medical equipment and supplies from freezing. IV's and liquid medications will not work if they are in an ice form so this key-planning element that the medical platoon leader must take into account. The medications and equipment need storage in a warm area in the event they will be needed later.

Evacuation of a casualty in the Arctic

The primary means of evacuating a casualty is by the AEROMEDEVAC. Units must take into precaution the potential of "whiteout" conditions. Litter teams want to find a spot where the snow has hard packing and that's free of obstacles. Placing a casualty inside a UH-60 can be very challenging and mandates rehearsals at all training events. They must take into account that exposed skin will freeze in seconds and that the wind chill factor will increase due to the wind produced from the blades on the helicopter. The standard litters used today will not work in an arctic environment. If you need to move a casualty over deep snow you could further injure the casualty and could place yourself at risk for a cold weather injury. The Skedco litter is made from a special plastic that is durable and flexible. You can hoist the casualty out of dense terrain by a helicopter.

Effects on personnel and weapons

During numerous Operations in Afghanistan only a few units reported having problems with their weapon systems. First line supervisors must take into account that they need to re-zero their weapons in higher altitudes. After Action Report, cited most Soldiers were firing high at their targets due to the altitude in which they were fighting. Leadership needs to conduct thorough PCI/PCC on their respective Soldiers. The lethality of U.S. forces severely decreased in the mountainous regions of Afghanistan and gave the Taliban the upper hand in the first conventional engagements during the initial combat engagements

The United States forces overcame and adapted to the first arctic combat engagements since the Korean War. The standard dismounted platoon fights in an area where the environments and surroundings favor our enemy. Through a refined training plan, units scheduled for an OEF rotation are currently training for the arctic. The individual Soldier will make the difference on the battlefield as long as he trains with his team for the arctic.

The war in the frozen arctic is different today than in the previous wars. As an Army committed to caring, training, and having proper equipment will become a deciding factor as we take the fight to the Taliban. We must stay committed to always improving our fighting force with the best equipment necessary to win the battle on their home front rather than ours. Arctic Warfare lessons learned showed failure of the U.S. Army by identifying shortfalls in equipping, operating and surviving during combat operations in an arctic environment.

Conclusion

Arctic warfare tactics, techniques, and procedures has evolved and improved the way

military forces conduct winter military operations. From the battles of the American Revolution, both World Wars, Korean War, to the current battle in Afghanistan are prime examples of arctic warfare. Arctic warfare is very dependent on equipment, tactics, and adaptation. These battles included small unit tactics, adaptability, initiative, survivability, and local knowledge. Cold weather conditions impair many aspects of normal military functions, which influence Soldier's health and performance. It can also increase disease and non-battle injury. The Strategies in the Revolutionary War tactically succeeded or they tactically ended up a complete failure and cost the American force greatly. The Military was unable to supply the troops with the proper clothing for winter warfare which contributed to the Soldiers getting sick or dying of hyperthermia. The military did learn from the problems of winter warfare and supplying the American Soldiers. The Finland Army's arctic warfare training and tactics contributed to the defeat of a larger and better-equipped Russian Army during the Suomussalmi battle. The defeat enabled Finland to maintain her sovereignty and gained international respect and admiration. They were able to adapt, be innovative, and use the tactics of a smaller mobile force to inflict serious damage and casualties to a heavier and superior force. It is evident why military academies teach and analyze the tactics of the Finnish Army during this military classic in arctic warfare. Failure to prepare for the arctic environment in Russia cost the German forces the War. Many believe the battle for Russia ended World War II. Hitler's failure to anticipate the arctic weather in Russia cost him everything. We must stay committed to always improving our fighting force with the best equipment and training necessary to win the battle on their home front rather than ours. As a result, military forces have adapted and trained for arctic warfare battles. It is evident that the unit that conducts the most cold weather training will fare better

than their opponent. Who is to say that the next conflict that the United States engages in will not be in an arctic environment? Therefore, we must prepare our Soldiers mentally and physically for the harsh conditions and for success.

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