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EVOLUTION OF ENTRENCHMENTS DURING THE AMERICAN CIVIL WAR: A VISION FOR WORLD WAR I LEADERS

BY

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FOR THE COMMANDER

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7 May 91
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The American Civil War ushered in a new era in land warfare. In this war, mass armies first experienced the widespread impact of industrial technology. The response of the Civil War soldier and field commanders to the technology of the Industrial Revolution shaped tactical and strategic organization into new forms. If it was, in fact, the first of the great modern wars, it stands before us an evolutionary monument. The devastating increase of fire power, brought on by the introduction and standardization of the muzzleloading rifle musket and the rifled artillery, doomed the open frontal assault and ushered in the entrenched battlefield. The defense would dominate the

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offense. No where was the superior power of the fortified defense better illustrated than at the Battle of Fredericksburg. There would occur an evolution in the employment of entrenchments during the Wilderness campaign, not only in a defensive posture, but also as an essential adjunct to the attack. Advanced technology in weaponry and the trench, due to the heightened fire power, would dominate the battlefields of the Civil War. They would continue to do so at least through the First World War. This study will attempt to illustrate the evolution of entrenchments during the Civil War Campaigns of Fredericksburg and The Wilderness. Tactical lessons learned from these campaigns would have visionary application to the battlefields of World War I. In conclusion, we will show the disregard for these lessons learned by the leaders of the World War.

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EVOLUTION OF ENTRENCHMENTS DURING THE AMERICAN CIVIL WAR: A VISION FOR WORLD WAR I LEADERS

AN INDIVIDUAL STUDY PROJECT

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The American Civil War ushered in a new era in land warfare. In this war, mass armies first experienced the widespread impact of industrial technology. The response of the Civil War soldier and field commanders to the technology of the Industrial Revolution shaped tactical and strategic organization into new forms. If it was, in fact, the first of the great modern wars, it stands before us an evolutionary monument. The devastating increase of fire power, brought on by the introduction and standardization of the muzzleloading rifle musket and the rifled artillery, doomed the open frontal assault and ushered in the entrenched battlefield. The defense would dominate the offense. No where was the superior power of the fortified defense better illustrated than at the Battle of Fredericksburg. There would occur an evolution in the employment of entrenchments during the Wilderness campaign, not only in a defensive posture, but also as an essential adjunct to the attack. Advanced technology in weaponry and the trench, due to the heightened fire power, would dominate the battlefields of the Civil War. They would continue to do so at least through the First World War. This study will attempt to illustrate the evolution of entrenchments during the Civil War Campaigns of Fredericksburg and The Wilderness. Tactical lessons learned from these campaigns would have visionary application to the battlefields of World War I. In conclusion, we will show the disregard for these lessons learned by the leaders of the World War.

Introduction

The study of the American Civil War has become increasingly popular over the past ten to fifteen years. Numerous historical and analytical accounts from books and periodicals to motion pictures, television mini-series and authentic battle reenactments give testimony to its resurgent popularity. Unfortunately, World War I has not received the same public interest as a great many Americans view that war as one of senseless slaughter. Perhaps more popular is the music written and performed during the war years than the war itself.

This study will not attempt to rehash accounts of the entire Civil War or First World War. It will briefly examine popular military thought, prior to and during the wars, as it is important to understand its influence upon the actions of its leaders. We will look at the weapons used and their influence on tactics. In so doing, we can illustrate and underscore the evolution of entrenchment and its importance to both the offense and defense. Finally, we will note the basic lessons learned from the Civil War as applicable to World War I and point out that they were ignored.

Endless and fascinating source material was available through the Military History Institute. It was indeed overwhelming. Personal site visits to the nearby battlefields of Fredericksburg, Wilderness and Spottsylvania

helped formulate a visual image of research material targeted to my area of interest.

The Influence of Military Strategists

No one man in the history of war has exerted a greater influence on the development of modern warfare than Napoleon Bonaparte. Napoleon's strategic maneuvers were designed to place the French armies in the best possible position, with the maximum possible force necessary to deliver battle.

Following the Napoleonic Wars, all of the major military powers established military schools for the professional education and the training of their officers. At West Point, the lessons learned and interpretations of these campaigns were absorbed into the curriculum and became the foundation of the teaching of strategy.[1] The most respected strategists emphasized the continuity between the old form of war and the new. They brought together the expertise of Napoleon and of Frederick, showing how the fundamental principles of strategy "timeless and unchanging" could be applied to future wars.[2]

Napoleonic warfare became a simple problem of maneuver. Threatening the enemy flanks and lines of communications, while safeguarding one's own, would ensure a superiority of strength at the decisive point on the battlefield. Jomini's theory of warfare, based on Napoleon's strategy, conforms to

the basic principles of "operating with the greatest possible force in a combined effort against the decisive point."[3] The decision of how to attack would depend upon the specific situation, but attack is essential; the initiative must not be left to the enemy. "Once committed the commander must inspire his troops to the greatest possible effort by his boldness and courage. If beaten the enemy must be pursued relentlessly."[4]

On the other hand, "... American tactical thought was not ill prepared for the changed conditions of warfare in the American Civil War as historians generally assume. Side by side with the prevailing emphasis placed on the primacy of the frontal assault, however, there existed in French and, through direct transfer, American military thought, a systematic qualification on its use."[5] Jomini devised an offensive strategy which rested upon the foundation of continued supremacy of the frontal assault, while at the same time, espoused the virtues of the tactical defensive. His reference to the merits of the tactical defensive is an indication of caution that prevailed in his generation of military thinkers. Translated to english in 1854, Jomini's Summary on the Art of War projects a qualified deference to the supremacy of the frontal assault. "The 'active defense' is treated with a respect only slightly below the offensive in priority."[6]

Perhaps the most prominent American military theorist was Dennis Hart Mahan. He was to play an essential role in shaping the minds of the soldiers who fought in the Civil War. Immediately upon graduation from West Point in 1824, he was commissioned in the Corps of Engineers and appointed to the faculty where he remained as Professor of Engineering and the Science of War until his death in 1870.

He studied the French tactical system which he felt to be unrealistic for the United States. In the event of war, America, unlike the professional army of France, would have to depend upon a civilian army held together by a small professional nucleus. Conscious of this, he rebelled against the callous disregard for life which he determined to be implicit in the use of the mass frontal assault. Guided by this principle he was to become an advocate of the active defense. "The chief object of entrenchments is to enable the assailed to meet the enemy with success, by first compelling him to approach under every disadvantage of position, and then, when he has been cut up, to assume the offensive, and drive him back at the point of the bayonet."[7]

Mahan believed frontal assaults, if executed properly, could carry entrenched positions. But untrained and undisciplined troops would be unlikely to execute such an assault successfully. He considered the alternative more likely to succeed with significantly fewer lives wasted.

American tactical theory and doctrine grew up along side

the traditional offensive doctrine during the 1830's and 1840's. There would scarcely be a Civil War officer who would not have been exposed to Mahan's teaching, textbooks and manuals. On the other hand, there was not an officer who fought the war who had not been exposed to the orthodoxy of the post-Revolutionary generation as well. Military orthodoxies have a tendency to linger. Yet, Mahan's intrusion on military thought and doctrine failed to win universal applause. The battlefields of the Civil War would ultimately decide the winner of this doctrinal debate.[8]

The First Seventeen Months

By July, 1861, 175,000 untrained volunteers had become two armies - the Armies of the Potomac and of Northern Virginia. Initially, both sides were armed primarily with obsolete smooth bore muskets with an effective range of about 200 yards. Consequently, volunteer soldiers on both sides were drilled in antiquated parade maneuvers to match the traditional arms. Soldiers spent much of their time on bayonet drills, largely borrowed from the French, which would soon prove out of date.[9] By 1862, government arsenals had standardized the rifle musket, a weapon that could stop an attacker at 200 to 250 yards, and kill up to 1,000 yards. A trained soldier could fire two or three

rounds a minute with deadly accuracy. The greatest disadvantage was that it was still a muzzle loader and none but a contortionist could load the weapon lying down. Still, the increased firepower it provided was good enough to begin alterations on the age old tactics of Frederick and Napoleon.

The evolution of tactics, during the Civil War or any time, is a result of scientific advances accompanied by developments in inventions and transportation. But military systems (and commanders) rely heavily on tradition - often unduly impressed with what worked well in the past. The evolution of fighting methods and weapons is too often opposed by tradition-loving officers. So it was that in the first year of the war we find the volunteer soldier beginning to be armed with the rifle musket but still being drilled in attack formations of European wars gone by.[10]

The rifle musket was soon to make its presence felt and inflict high casualties upon open infantry assault formations.

> "It enforced the following vital changes to the orthodox offensive tactics: (1) Stretched battle lines, (2) Obligated armies to form for combat much farther apart, (3) Reduced the density of men in the battle zone, (4) Made battles into fire fights with shock action decidedly subordinate. More importantly, it caused battles to become much longer in time and less decisive in outcome. And most importantly, it made the defense much more stronger than the offense."[11]

The principle reason for this last result was that "the new firepower literally drove men to throw up temporary earthworks."[12]

The Fredericksburg Campaign

Following the toe-to-toe battle at Antietam Creek in September, 1862 (where continuous use of open infantry tactics was the rule), the bloody outcome gave the advantage to the Army of the Potomac. The battle produced the single day's worst slaughter of the Civil War. If the North had followed up with successive blows, General Robert E. Lee may well have been defeated in detail. The ever-cautious Major General George B. McClellan, however, couldn't or wouldn't, do it. Consequently, three months later, these two armies again found themselves confronting one another on opposite sides of the Rappahannock River seventy-five miles south at Fredericksburg, Virginia. Major General Ambrose Burnside was now in command of the Union forces after President Lincoln had relieved McClellan for his continued snail-like approach in dealing with the Confederate Army. But, like his predecessor, Burnside adopted the old "On to Richmond" obsession and, after engaging Lee's army at Fredericksburg, planned for a final advance on the Confederate capitol.[13]

Perhaps the greatest lesson which should have been learned from Antietam was that the use of frontal assault tactics brought with it a tremendous loss of life. Lee had always favored the offense and believed victory could be achieved only through its employ. After Antietam he had no choice but to assume the defense. His army was ravaged, outnumbered and lacked crucial supplies and equipment. He moved south of Sharpsburg to the southern side of the Potomac where he found forage and subsistence for his ailing army. He felt that he still had the capability to check the movement of the Union Army on its drive into Virginia to Richmond.[14]

Lee believed the enemy would concentrate forces in the vicinity of Fredericksburg taking advantage of the railroad for resupply on the east side of the Rappahannock. He decided to slow their advance there as best he could and took up defensive positions on a series of hills overlooking the city and the river. "When the enemy crossed the Rappahannock, Lee felt that he was unable to oppose the crossing. For the Battle of Fredericksburg, he had no choice but to fight them from the tactical defense."[15] His assessment was that "the plain on which Fredericksburg stands is so completely commanded by the hills of Stafford (which the union artillery controlled) that no effectual opposition could be offered to the construction of bridges or the passage of the river without exposing our troops to

the destructive fire of his numerous batteries. Positions were, therefore, selected to oppose his advance after the crossing."[16]

As touched upon previously, tactical theory and doctrine, Mahan or pre-Mahan, called for an army when assuming a defensive posture to entrench its front as well as its flanks and rear. "But ... Lee, on assuming a tactical defense where doctrine called for fortification of his front, again failed to entrench."[17] Just as he had done only three short months before in Maryland. Why he failed to fortify his position will never be known for sure; perhaps he feared that if he showed strong fortifications (which he certainly had time to construct), the opposition would chose not to attack. Perhaps he felt entrenchments a hindrance to the possibility of conducting a counterattack where mobility would be key.

General Thomas J. "Stonewall" Jackson arrived at Fredericksburg only hours before the Union attack. He too, failed to fortify the position of his corps. Undoubtedly, this was due to his disdain for the fortified defense. He immediately recommended to Lee a frontal assault against positions established by the enemy who, in the meantime, had crossed the river and entrenched. General J.E.B. Stuart agreed with Jackson but Lee vetoed the option.[18] For whatever reasons, it is rather obvious that at this stage of the war the Confederate Army had more than a few commanders

that favored the assault against the virtues of the tactical defense.

General James Longstreet occupied the center of the Confederate line, arguably, the most favorable defensive terrain. He had failed to entrench at Antietam and perhaps had learned his lesson. On his own initiative, he gave the order for ditches, railroad cuts and stone walls to be occupied forward of Maryes Heights. These positions were strengthened by abatis and rifle entrenchments.[19] The Union Army mounted its main attack against these positions in Longstreet's sector of the line. William N. Meserve, a young Confederate private, described the assault in his personal diary.

> "A gradually ascending plain was before us, with adequate rebel force on its further side. To cross that plain required all the nerve that courage and discipline could supply. ...Approaching the enemy's works we came to a ridge which furnished efficient shelter for those who reached it. Indeed it was strange that so many got there at all. ...While crouching under that ridge one of the brigades received orders to advance. Futile command! On went the line only to melt and fall back in disorder. How could charging troops stand against a double line of infantry entrenched, and a line of artillery whose guns were so thick as they could be placed."[20]

Fourteen separate frontal assaults would be conducted that day in December, 1862; all of which failed. None would advance closer than a hundred yards of the stone wall. Lee watched the battle with Longstreet from a position overlooking the heights as the Union Army proved the

superiority of the entrenched defense over the frontal assault.

After the fighting stopped, Lee, for the first time in the war, gave the order to entrench. By the end of the following day, enthusiasm on both sides for the offense had declined as the armies looked at each other from entrenched positions across the frozen countryside. Passive trench warfare had arrived. For the next thirty-five days, the Confederate Army fortified the extent of its position. Burnside withdrew across the Rappahannock to winter quarters a few short miles to the north and fortified his defense with entrenchments.[21]

Brigadier General Gouverneur Warren, the Union Army engineer who would in a few months be enshrined as the hero at Gettysburg, described the Confederate defenses.

> "The enemy occupied in strong force the heights south of the Rappahannock River ... having continuous parapets throughout ... his troops being so disposed as to be readily concentrated on any threatened point. Interspersed along these lines of entrenchments were battery epaulements advantageously located for sweeping the hill slopes and bottom land, on which our troops would have to march to the assault, and which effectively protected the enemy's artillery from our own. Abatis, formed of fallen timber, and impassable swamps in places, still further strengthened his lines and reduced the number of assailable points. The crest of the main hills where the enemy had prepared to receive us, were from three-quarters to 1 1/2 miles from the margin of the river, but this margin was strongly guarded by men sheltered behind rifle pits, which guard and its cover were made quite formidable at every available crossing place. In fact, every little rise of ground that could shelter our advance was entrenched and prepared for us... ."[22]

"Perhaps the troops and their commanders realized that at Fredericksburg they had seen their military destiny unfurl. The balance in Civil War tactical organization had taken one of its most dramatic shifts toward the dominance of the entrenched defense."[23]

The Wilderness Campaign

Spring found the Union Army with a new commander, General U.S. Grant, now in charge of all forces east and west. The command had finally been unified. Prior to this, commands acted independently of one another. No longer would the enemy be afforded the opportunity to reinforce an engaged unit with another which was not. All possible assets would be concentrated against the Confederate Army in order to defeat it. Grant's strategy was simple enough. He called for the total defeat of Lee's army in the field. The "On to Richmond" campaigns waged by his predecessors were now history. If the Confederate Army was defeated, Richmond would fall in short order.

The Vicksburg Campaign of 1863 had made a believer of Grant regarding the value of fortifications and entrenchments. His unsuccessful assaults against the impregnable works surrounding Vicksburg left him with little choice but to lay siege to the city. Like his adversary, in

the first eighteen months of the war, Grant believed the fighting quality of his soldiers was adversely affected by habitual use of entrenchments. If speaking strictly of passive trench warfare, then his belief was true to a point. But, having experienced the survivability and effectiveness of outnumbered Confederate forces defensively entrenched at Vicksburg, and his inability to carry these positions by assault tactics, he began to change his opinion.

The Wilderness Campaign in the spring of 1864 would be the final test bed for trench warfare. The armies in the east would entrench one battlefield after another both in the attack and on the defense. The densely wooded countryside so familiar to Lee, would seriously affect the capability to maneuver and the command and control of units.

Although the individual soldier in the Army of the Potomac did not carry entrenching equipment on his person, the priority for availability of such equipment changed drastically. "In preparation for the 1864 campaign, Grant ordered one-half the wagons carrying entrenching tools placed at the head of the supply column of the leading division of each corps."[24]

It is generally thought that the lines of entrenchments for the armies in the east were laid out by engineer officers. This was probably true for the Union Army more so than the Confederates. The Confederate Army did not have an engineer corps formally established until the spring of

1863. Therefore, officers with some engineering backgrounds were detailed from the line as required. It is ironic, when considering the success of improvisation on the battlefield, that practical solutions to tactical problems were discovered by masses of citizen soldiers under the control of only a few professional soldiers.[25]

Infantry weapons had not changed significantly since 1863 except that the preponderance of them were now rifle muskets. The Union Army was almost entirely equipped with the Springfield rifle musket. The Confederate soldier commonly carried the Enfield, also a rifle musket, imported from England. Breech-loading repeating rifles (Henry, Spencer, and Remington) were available at the outbreak of the war. Factories were available to manufacture them. Yet the Union Army's Chief of Ordnance, Brigadier General James W. Ripley, fought against its adoption for general issue. He claimed they expended ammunition too quickly and that the men behind them became reckless and their actions undisciplined.

In retrospect, soldiers carrying muskets consistently forgot to put on percussion caps or dropped them in the excitement of the assault. Probably half of the muskets in battle were not discharged or failed to go off due to shear terror or carelessness.

Some historians hold that the war could have been shortened considerably had the repeating rifle been adopted

and held that the musket was unnecessary and unimaginative. Perhaps, but if tactics never caught up with the rifle musket and the slaughter was such that it was, what carnage might have resulted with the repeating rifle?[26]

By 1864, the rifle musket had increased artillery effective fire zones significantly. With smooth bores, the depth of the zone was about 100 yards.

> "... seeing that case shot was effective at 500 yards, and round shot (fire in ricochet) at 1,000 yards, given sufficient cannon, obviously the right thing to do was to rely upon artillery to blow the enemy's line to pieces, and then under cover of musket smoke to assault the fragments with the bayonet ... . But increase the effective zone eight fold, and case shot cannot be used; round shot still can be, but with diminishing accuracy. What the rifle did was to force a separation between the infantry and the artillery. While the former advanced, the latter, at about the eight hundred yard range, had to remain behind, and though the limitation was theoretically mitigated by the introduction of the rifled artillery, which increased the range threefold and accuracy almost out of reckoning, with a non-recoil mounting, it was generally impossible for field guns to support the attacking infantry by overhead fire."[27]

Prior to 1864, the typical assault formation was a succession of lines, containing two ranks each, with a prescribed distance of thirty two inches separating ranks. The lines varied in width and were dependent upon what level the attack was to be conducted (Brigade, Division, etc.). If there was a standard it was that of a brigade. Most of the time, individuals fired when ready. But the trained soldiers of a file worked together, one loading while the other one fired. Raked by fire from entrenched positions,

both sides realized the inevitable slaughter wrought by the traditional tactic of frontal assault.[28]

To prevent annihilation by assault, the Union Army devised a technique which might have been the forerunner to modern infantry fire and maneuver. "... (a) brigade of two regiments was advancing in a succession of lines. Under heavy fire the two lines lay down, the second forming on the left of the first. All the skirmishers plied the enemy with effective fire. When the foe's fire abated, the brigade rose again, rushed forward, absorbed the skirmishers, and again laid down and opened fire. Taking cover when the enemy's fusillade was hottest and dashing forward in slack periods, the brigade at length reached and carried the position with but slight loss."[29]

The final technique used was the formation of regiments in Napoleonic masses. Each regiment formed in five lines of two ranks, eighty-two men wide and ten deep if the regiment was at full strength. Used to maneuver through difficult terrain, without threat from artillery, these mass formations were used extensively in the battle at Spottsylvania Court House.[30] "Here 20,000 Union infantry in close order formed almost a solid rectangle."[31] The formation attacked the Confederate fortifications in grand style at the "Bloody Angle". Relying totally on shock effect, the massed formation lacked firepower. Only the first one or two soldiers in a column could fire. When it

came to receiving enemy fire, the entire formation was tremendously vulnerable, especially to cannon firing grape shot.[32]

From the onset in the Wilderness, there was a general acceptance of offensive entrenchment. Major General Winfield S. Hancock, upon taking up the initial Union attack position, entrenched his corps behind a series of three successive lines utilizing breastworks constructed of earth and felled timber.[33] His opponent, General A.P. Hill, although arriving on the scene before Hancock, failed to entrench his line. As a consequence, Hill's two divisions were battered and in a state of disarray due to the dense woods in which the battle was fought. His lines were hopelessly intermingled with the enemy who had dug hasty entrenchments even while under fire.

Waiting relief from Longstreet, Hill still did not entrench his jagged line. He finally took to the task a few hours before dawn but by then it was too late. His engineers feverishly trying to entrench the line were beaten off at dawn. The Union forces attacked and routed the unentrenched defenders. Only Longstreet's opportune arrival saved the remnants of Hill's corps and perhaps Lee's army from defeat. There would be no future failures on the part of either side to entrench following this engagement.

Wherever armies moved, whether attacking entrenched enemy defenses or in forming a new line of attack, the first

duty after repulse or halting was to create defensive fieldworks. Hasty barricades were constructed. The first rank took the weapons of the second and remained on the front line. The second rank scattered to collect rails, logs, rocks, anything that would stop a bullet.

The fortified line was not straight but varied its direction with salients and reentry points. A ditch was then dug with the earth thrown on the outside of the barricade. The ditch was deep enough so that the soldier, standing inside, had his head protected by the parapet. A fairly good position was constructed in a short amount of time with a step to stand on while firing, and a ditch to stand in while loading. If in the woods, fields of fire were cleared to the front. A formidable abatis was constructed by felling trees in the same direction (the bushy limbs all turning outward) trimming off the smaller branches and tangling the tops together. These would be almost impossible for an enemy to breech given the short range fire from the near by trench.

With time, these hasty positions were improved making them almost impregnable. Palisades were driven into the ground (stakes set with their sharpened points outward at forty-five degree angles) and spaced close enough together that a man was unable to pass through them. Over time, these fortifications were prepared in depth to typically three lines of defense.

Meanwhile, the skirmish line also fortified itself with a series of shallow slit trenches with parapets, dug in depth, forward of the main line of defense. Sharpshooters also played an important part in trench warfare. Hiding themselves in positions with excellent fields of fire, they dug one man pits (fox holes) with whatever tools they had. Primarily bayonets, tin cups and plates were used. Nothing short of an all out attack would dislodge them and rarely were many killed. These were the typical priorities given any unit either preparing to attack or assuming the defense.

Both armies considered it wisdom, not cowardice, to fight from behind breastworks and from entrenched positions. If a leader failed to give the order to entrench, there was no hesitation on the part of the individual soldier who immediately took the initiative. Where he used to take cover from the shape of the ground, he now realized that survival depended upon the fortification of his own position. No campaign in the war typified this better than the Wilderness.

With woods blazing from fires set by musket fire and the smoke so thick it was impossible to determine friend from foe, command and control was quickly lost. "After throwing up a hasty fortification, soldiers found themselves attacked from the flanks and the rear. To repulse the attacks, they jumped over the breastwork or parapet to the front or the outside and fired until the attack was

repulsed. They then jumped back over and repelled an attack from the real front. Thus they fought, looking for all the world like a line of toy monkeys which you have seen jumping over the end of a stick"[34] After the bloody battle, an entrenched stalemate developed.

Grant moved his army south to Spottsylvania in an attempt to cut Lee's lines of communication with Richmond. Lee, however, anticipated Grant's move and beat him there. He entrenched his entire army prior to the Union arrival. The Confederates, under cover of dense woods, emerged and occupied their entrenchments to meet the enemy advance. The Union advance was quickly halted and they retreated to prepare entrenchments. Lee likewise improved his horseshoe shaped defense tied in on either side with two natural river obstacles. "The line was far stronger than the (final) entrenched line in the Wilderness. It was exactly adapted to the numbers he had at his disposal; in order to turn the position, his adversary would have to cross one of the streams, and so divide his army giving him an opportunity of dealing with him in detail."[35]

"But the position had a weakness. It was necessary to include in the line an elevation in the open field from which the Federal artillery, if they occupied it, could command the Confederate positions."[36] Additionally, the position was uncharacteristicly susceptible to frontal

assault. Realizing this, the Confederates strongly fortified the position with huge logs, abatis and palisades.

The Union Army attacked, as described earlier, in mass formations supported by artillery from the aforementioned high ground. Lee, receiving erroneous information that Grant was moving to attack his flank, had relocated the artillery which supported the portion of the salient subsequently known as the "Bloody Angle". Devastating fighting took place that day. The Union forces succeeded in penetrating the position at the "Angle" but could not carry the salient. Lee had ordered the position held until entrenchments to the rear could be completed. The Confederates held and occupied the new position just before dawn the following day. Some of the most gruesome fighting of the war was brought to an end. But one important fact came out of this collision. Although there had grown a reluctance to assault heavily fortified positions, the tactic was not dead.[37]

One would think that Grant had learned his lesson by virtue of the losses sustained in the Wilderness and at Spottsylvania. But the fact of the matter was, the worst was yet to come. Once again Grant moved his army south to cut Lee off from Richmond. Once again Lee anticipated his move and beat him to familiar ground where he had previously fought the Seven Days Battle. Even though the outcome would be devastatingly regrettable to Grant, one of the most

impressive displays of offensive hasty entrenchment would be staged by the Union Army.

Through well placed artillery and ravaging infantry fire power behind strong fortifications, the outnumbered Confederate Army won its most decisive victory of the campaign. The Union Army was butchered over a short eight hour period. The soldiers in the first assault upon their repulse dug in to hold what precious little ground they gained. Successive assaulting forces followed suit until the final Union advance was within fifty feet of the Confederate defensive lines. The Union soldiers refused to go further.

Unique to trench warfare, in the end the Union Army would array themselves before the enemy in a series of zig-zag trenches affording them interlocking fire to the front and flanks. Although not new in terms of trench design, "prior use had been reserved in accordance with doctrine for siege operations."[38] Still, the Union Army lost ten men for every one Confederate casualty.

Colonel Theodore Lyman, aide de camp to Major General George G. Meade, summed up the nightmare climax to the Wilderness Campaign.

> "... all entrenching tools were ordered up and the lines were strengthened, and saps run out, so as to bring them still closer to the opposing ones. And there the two armies slept, almost within an easy stones-throw of each other; and the separating space ploughed by common shot and clotted with dead bodies that neither side dared to bury! I think nothing can give a greater idea of

deathless tenacity of purpose, than the picture of these two hosts, after a bloody and nearly continuous struggle of thirty days, lying down to sleep with their heads almost on each other's throats! Possibly it has no parallel in history."[39]

But fifty years later a remarkable parallel would be drawn to the words of Colonel Lyman which would defy imagination and belief.

World War I

The physical conditions and tactical employment of forces during the First World War stimulate both fascination and disbelief. All participants aspired to the traditional offensive doctrine which emphasized rapid mobility and mass maneuver. Tactical training prior to the outbreak reflected this.

During the first few months of the war, the impression given was that this was, indeed, to be a war of movement. The theory on both sides was that the enemy had to be engaged quickly, that one single battle of monumental proportion in terms of firepower, maneuver and moral superiority would result in total victory. It was to be a short war. In reality, the tragedy was that none of the leadership from any country considered what would happen if enemy defeat did not come in the opening round and one or the other chose to defend from entrenchments.[40]

It was the American Civil War that first showed what lay ahead. Prior to this time, trench warfare was synonymous with siege - and anathema to the European armies of the period. It should not have been surprising tc any army that the possibility of entrenchments could play a significant role. The French, British, and German armies had all sent observers to America in the early stages of the Civil War. There would not be a major battle waged which did not have a European observer. Some would actually participate. It became obvious that the traditional frontal attack would not succeed. It was easier to defend. If one dug entrenchments in order to reduce casualties, it was even easier. It was, however, decided that "the American Civil War had little to show about what might happen in Europe."[41]

The Europeans brushed aside lessons taught on the American continent and quickly became interested in their own Franco-Prussian conflict. This war was studied intensely by the French and lessons learned from their defeat would produce new doctrine. Above all, it was the aggressiveness of the Prussians which impressed them the most. They deduced that attack was the only means of forcing a favorable outcome.

The basis of this theory was the word "elan". This was the quality of morale and courage which they believed that the French soldier alone possessed. This, coupled with maximum artillery fire and a Napoleonic style maneuver,

would provide ultimate victory with the final slash of the bayonet.

The Germans also believed in the importance of artillery. From the lessons of the Russo-Japanese war, they drew the conclusion that heavy artillery and the machine gun was the answer to the infantry's problem.

The British, from recent experience in the Boer war, discarded their traditional parade ground tactics and adopted the technique of indirect artillery fire support controlled by forward observers. Like the others, however, phase two called for the constant pressure by the infantry lines until the enemy could be assaulted by the bayonet.[42]

So it began with the Germans attacking in mass according to the Schlieffen Plan only to meet the power of the defense at the fortress Liege. Meanwhile the French launched their attack in traditional garb of blue coats and red pants quickly to find that the power of the German artillery a formidable match for "elan". The French took 300,000 casualties.

Things, however, were not going well for the Germans countering the Russian offensive on the eastern front. Due to his recent victory in the west, General von Moltke sent a significant force east to assist. The French attacked the now weakened left flank of the German wheel and sent it reeling back, enveloping the enemy on three sides and pursuing them eastward.

On ground of their own choosing, the retreating Germans took up the defense. The Germans ...

> "could afford to sit tight and hold off any attacks that the Allies, particularly the French, would be obliged to launch. They were the ones who had to liberate their country from the invader; therefore let them break themselves upon a well-fortified German defensive line. So the Germans dug in, intending to remain right where they were. The Allies soon found that they were incapable of breaking through this line and they too began to create a permanent line of earthworks."[43]

The "Race to the Sea" was on.

For the next month opposing armies attempted to turn each other's flank with lateral maneuver northward. Neither side met with success. The result was opposing forces hopelessly stalemated in a trench system which ran in an unbroken line 475 miles from Switzerland to the North Sea.[44] For over three years the armies would live below ground and sustain over two million casualties.

There were two essential weapons employed by the infantryman in World War I. The first was the shovel which he used to build his battlefield home and to protect him from shrapnel of artillery fire. The second was the machine gun which made direct assaults on entrenchments suicidal. Yet, time and time again, each side unrelentlessly tested the other going "over the top" in the frontal assault.

The infantry soldier carried a bolt action repeating rifle capable of 15 rounds per minute and an effective range of 500 yards. But these were no match for the machine gun capable of delivering the fire power of 50 men.[41] Maneuver

The infantry soldier carried a bolt action repeating rifle capable of 15 rounds per minute and an effective range of 500 yards. But these were no match for the machine gun capable of delivering the fire power of 50 men.[41] Maneuver on the entrenched battlefield was largely impossible and since there was no alternative tactic, hundreds of thousands threw their lives away assaulting impregnable entrenchments over open ground.[45]

Hand grenades were sometimes effective against machine gun emplacements although getting within range was a major problem. Gas was also used to try and break the stalemate but soldiers rapidly learned how to live with it. Protected with moderately effective masks, if the soldier didn't panic, he quickly learned that wind and damp weather seriously hampered its effectiveness. Most carried bayonets which proved to be more effective for opening rations than deciding the outcome of the assault.

Artillery weapons at the beginning of the war were primarily the 75mm field gun or pieces modeled after it. The trench put an end to its effectiveness as it was designed to support maneuver forces. Heavy artillery pieces soon became the answer to combating entrenched forces.

But even if the armies had the big guns at the onset, they did not have the ammunition to effectively combat the entrenched enemy. Shrapnel was effective against troops in the open but had little effect and produced minimal damage

to trenches.[46] High explosive ammunition fired by heavy artillery became the answer. No longer was the infantry soldier safe in his trench as the heavy guns ripped his fortifications. The solution was to dig deeper in order to survive. So they did. Although artillery did not win the war, it has been estimated that fifty-eight percent of the casualties on both sides were inflicted by artillery fire.[47]

The basic aim on both sides quickly became breaking the stalemate which had developed. There had to be a way to breech the enemy line and restore the balance between offense and defense. "But in striving to achieve a significant break in the opposing line the commanders failed to develop any new tactics. They relied upon old-style frontal infantry assaults ... . They had completely misunderstood the new technology that had become the dominant force on the battlefield."[48]

"Though much was written about military affairs in the years preceding World War One, almost all of it consistently reveals a kind of military 'spiritualism', a continual stress upon human capabilities at the expense of the potential of material forces. ... Faith was in the man rather than the machine."[49] There was never the basic understanding that when an army chose to defend given the machine gun, rifle, and the trench, the advantage had to be with the defender. Still they clung to the belief that "elan" would carry the battle. But "a German machine gunner

Trenches, regardless who owned them, were designed according to the same basic pattern. The front of the trench was known as the "parapet" - usually ten feet high reinforced with sand bags. Since the trench was so deep, a fire step was built up along the forward wall on which the soldier stepped up to fire. The back wall, called the "parados", was usually revetted to guard against collapse with sand bags, timber, or inter-laced twigs or tree branches. Trench lines were laid out in irregular shapes to prevent an enemy, if a penetration was made, from raking the entire front line with machine gun or semi-automatic fire. From the air the trench lines looked like a series of battlements of a medieval castle.

Normally, both sides entrenched in depth with three lines of trenches. The front line, called the fire trench, was actually not the most forward defensive position. Protruding at right angles forward from the front line were a series of one or two man positions called saps. These were used as listening posts. Frequently, artillery craters were used as saps for expediency and fortified when time permitted.

The second line was the support trench followed by a third line called the reserve trench. In the parados of each line were huge holes or "dug-outs" which afforded the soldier protection from artillery bombardment and sleeping quarters. These were also found along zig-zag "traversing"

line were huge holes or "dug-outs" which afforded the soldier protection from artillery bombardment and sleeping quarters. These were also found along zig-zag "traversing" trenches which connected each of the three lines in depth. Company command posts and medical aide stations were located in dug-outs primarily in the second and third line trenches. Enemy heavy artillery would usually target these trenches so it was not unusual to find dug-outs thirty to forty feet in depth.[51]

One can imagine after occupying the same entrenchments for years that improvements made to these fortifications became fairly lavish. Electric lights, ventilation systems, panelled walls and plank floors became the norm.[52] But in the front line, conditions were nowhere near as good. Water drained into every hole, and mud was thick everywhere. Rats and lice infested everything. In some cases, men prayed for the order to "assault forward" in order to escape the horrid conditions in the trench.

Defensive tactics evolved through the years from preponderant strength placed forward in the fire trench to manning support trenches with sufficient fire power to resist and repel a break through with counterattacking forces. Machine guns were massed along the front line covering every inch of area between attacker and defender known as "no man's land". Hundreds of thousands of miles of barbed wire entanglements, employed in belts, protected the

front line trench from infantry attack. Hardly ever was the wire less than fifty yards in depth.[53] Masses of humanity were unleashed to die assaulting these positions. For four long years the results would be the same.

Lessons Learned

The Study of the Civil War campaigns of Fredericksburg and the Wilderness provided an insight for military leaders into the problems of modern warfare. But, in order to have gained an appreciation for the lessons taught, one must have studied the successes and failures of both armies in an attempt to formulate future doctrine and strategies.

Those Europeans who did study the Civil War, did so to primarily gain insight into the personalities of generalship. Additionally, they keyed on the aspects of the struggle which they believed had not been outdated such as the absolute importance of morale, leadership, logistics, and the mobilization of industry to support the war effort.[54]

The revolution in weaponry, tactics employed to combat significant increases of fire power, strength of the defense over the offense, and the effectiveness of the trench were brushed aside; convinced there was little applicability of these basics to professional armies on the European

battlefield. Only after World War I would it be realized that the American Civil War was actually its forerunner.

Striking parallels in military thought can be drawn when considering the early days of both wars. A significant number of Civil War generals received their stars based upon their lineage, political or financial accomplishments. While the Military Academy at West Point produced the professional military core of the Armies of the Potomac and Northern Virginia, students were schooled in traditional European doctrine drawn from accomplishments and writings of Frederick and Napoleon. In all but a few cases, the offensive power of maneuver in mass had decided the important wars in Europe.

The hierarchy of European military leadership at the turn of the 20th century was much the preserve of the aristocracy. Schooled in the lessons learned at Waterloo or before, they envisioned that man himself would be the desicive element in battle. They longed for the "charge". and revered the bayonet. Tactical preconceptions of Word War I were simple. The most effective military technique was the attack, the most useful weapon in the attack was the morale, the superior spirit and "elan" of the assaulting troops.

Recognizing that military thought in 1914 ran pretty true to that of 1862, it is understandable that military leaders at the turn of the century would be prone to repeat

mistakes made earlier if they did not learn from them. The first basic lesson which should have been extracted from four years of fighting on the American continent was that tactics were never effectively formulated to combat the technological advancement in weaponry.

The firepower unleashed by the individual infantry soldier armed with the rifle musket rendered the traditional offensive tactics of the frontal assault ineffective. The same was true at the beginning of World War I. The only difference was that the weapons of the infantryman had been significantly improved. Even after the introduction of the semi-automatic rifle and the machine gun, the tactics employed to defeat them remained the same. If anything, tactics regressed from those employed in 1864.

It is agreed that the final tactical goal in any war is to eventually and ultimately take the offensive. But prior to making the decision, consideration of enemy capability (the "E" in today's METT-T), his manpower, and particularly, his materiel strength, must be made. A successful attack would be improbable if the disparity between the materiel forces of an attacker and the defender was too great. The point is simple and obvious. But, because of this simplicity, or the absolute contempt for defense, it often went overlooked.

The capability of the very weapons with which they had armed themselves was completely ignored. Most importantly,

they failed to realize that when an army adopted a different role (when one attacked and one defended) there would be a tremendous difference in the effectiveness of the weapons.

> "If neither Grant nor Lee had fully comprehended the significance of firepower, (General Ferdinand) Foch and his disciples made the same mistake fifty years later, a fact which (J.F.C.) Fuller regards as 'the supreme tragedy of modern warfare.' Like (G.F.R.) Henderson, Fuller observed that mobility alone could counteract the overwhelming superiority of the defensive. The Civil War clearly demonstrated the futility of frontal attacks."[55]

The second lesson may arguably have been an extension of the first in that defense became dominant over the offense. The technology of weaponry did not, by itself, cause the abandonment of traditional offensive tactics. Certainly it was the effective employment of weaponry that ultimately sealed the fate of the frontal assault. Specifically, the strength of the weapons employed in an entrenched defense slammed the door in the face of assaulting infantry in the open.

It would inspire Colonel Theodore Lyman to remark "Put a man in a hole, and a good battery on a hill behind him, and he will beat off three times his number, even if he is not a very good soldier."[56] Or Colonel G.F.R. Henderson to note in 1886 that entrenchments at Fredericksburg provided "another proof that good infantry, sufficiently covered ... is, if unshaken by artillery and attacked in the front alone, absolutely invincible."[57] He encouraged study of the Wilderness Campaign as a premonition of conflicts to come

and cautioned his readers "that the importance of the spade is often overlooked in peace."[58]

The effectiveness of entrenchments has been illustrated beginning at Fredericksburg but the Wilderness Campaign exemplified the flexibility of trench warfare in its adaptability to the offense. Although massive losses were sustained by the Union Army at Cold Harbor, the employment of hasty entrenchments on the part of the attacker certainly should have been exploited in an attempt to develop doctrinal theory to combat heavily fortified defensive positions. The fact that Grant saw the hopelessness of continued assaults, when realizing entrenched stalemate had occurred at the Wilderness, Spottsylvania and Cold Harbor, should have aroused interest. The fact that he consistently chose to maneuver his army in attempting to attack Lee's flank, should have taught military leaders to seriously consider that this might have future application.

But the belief was that the First World War would be brief and that one crushing initial campaign would end it. The thought that an entrenched stalemate would develop on the battlefield was highly improbable. The fact that the entrenched battlefield developed more so by accident, with the failure of both armies' flanking movements northward, did not excuse the failure to plan for the worst case.

By the end of 1864, entrenchment had risen from the tactical level to the operational level. No plans were

formulated nor orders issued which did not include fortification by entrenchment. Yet, regardless of the number of European observers sent to report on and evaluate the conduct of the Civil War, none were successful in convincing their leadership of the importance of entrenchment.

Certainly, there are many other lessons which should have been learned over the fifty years between conflicts. But no others compare with the two cited in terms of operational impact.

As stated throughout this paper, the endless slaughter experienced in both wars reflected the unimaginative hesitancy of leadership to rid itself of antiquated principles in the conduct of war. The tragedy of this fact was perhaps better depicted by the First World War, in that a legacy had been left to the world by amateur armies in America but was ignored.

ENDNOTES

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14. Frank E. Vandiver, Mighty Stonewall, pp. 20-36.

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