**THE BIRTH OF MODERN WAR**

*How the 1860s Changed the Fields of Battle Forever*

By Ralph Peters

 The ten-year span that began with the American Civil War in 1861 and climaxed with a Prussian-led German army besieging Paris in 1870 changed warfare as profoundly as—and certainly more abruptly than—the introduction of steel blades or the development of gunpowder weapons. That decade dramatically altered strategic and operational mobility, military communications, killing power, the relative value of combat arms and the tactics for employing them, the composition of armies, logistics, and medical care for the wounded (while navies moved to steam-driven ironclads mounting long-range guns). A consideration of military leadership across the decade should teach us not to mock the inability of most generals to adjust to a disorienting environment, but to marvel at the few who managed to figure things out—despite the crushing weight of legacy thinking.

 The complexity of warfare exploded as the strategic pace accelerated. And one rarely noted determinant of victory may, in fact, have been the decisive factor: literacy. In the end, the armies with the soldiers who could read were the armies that were able to adapt--those of the United States and Prussia. (Indeed, our contemporary experience in attempting to professionalize Afghan troops underscores the degree to which literacy is the fundamental building block of military modernity.)

 As this epochal decade approached, Napoleon’s shadow clouded the thinking of even the most-able generals. Only outliers, such as Grant and von Moltke, escaped his thrall, while Napoleonic maxims, codified by Jomini and others, excused less-able leaders from thinking at all. The 1860s came as a series of thunderbolts, following the confused military actions of the previous decade. Even as steam power allowed for more rapid strategic concentration in the 1850s, European armies assembling in a theater of war had made no doctrinal advances since Waterloo. Indeed, the allied armies that landed in the Crimea marched more slowly than had the troops of either the Duke of Wellington or Napoleon. English rifles slaughtered Russian infantrymen, but English generals (and cholera) squandered English soldiers. And when the Piedmontese and French fought the Austrians in Italy in 1859, the battles of Magenta and Solferino were clumsy bloodbaths that convinced generals that very little had changed on the tactical battlefield. New rifles in the hands of poorly trained, unmotivated and ineptly led Austrian soldiers proved useless against superior leadership—resulting in a failure to appreciate the killing power of massed rifled weapons.

 Soon enough the race would be on to find generals who could think as fast as modern weapons could kill.

 The challenges for the tiny U.S. Army and its new Confederate States of America opponent in 1861 arose, in part, from the European way of war taught by the West Point faculty (a faculty as hidebound then as it is again today), but also as a result of the heady victory over Mexico that had blooded the young lieutenants and captains who soon would lead armies, corps and divisions in battle. While the U.S. Army’s “flying artillery” performed brilliantly against the Mexicans—inaugurating that branch’s technical leadership—and General Winfield Scott Hancock’s daring decision to cut his supply line as he marched on Mexico City would enable Grant to envision the climactic maneuver phase of his Vicksburg Campaign and Sherman to march from Atlanta to the sea, other lessons drawn from the Mexican War inhibited both Union and Confederate adaptation to changes in weaponry—with tragic results.

 The relatively short ranges of infantry engagements and the limited amount of artillery on the Mexican War’s battlefields still permitted successful frontal attacks and linear volley fire. Those would be precisely the wrong tactics for an age of rifled (and, soon, breach-loading, repeating) weapons. Some encounters were bloody enough, such as the gritty fighting at Molino del Rey, but they failed to alarm young officers giddy with victory.

 In Mexico, dashing deeds won through. In our Civil War, bravado would lead to butchery. In the decade and a half between Palo Alto and Antietam, the range, accuracy, reliability and sheer number of weapons, both individual arms and artillery, increased to a degree that expanded the deadly space between opposing lines by four or even five times. The problem, which leaders schooled in a tradition of linear battle arrangements dating back to the age of the Duke of Marlborough simply could not grasp, was how to cross that expanded kill zone and retain sufficient strength to defeat the enemy. Two years into a shockingly bloody war, even a brilliant tactical fighter, Robert E. Lee, would launch the Pickett-Pettigrew Charge at Gettysburg in the expectation that a sufficient mass of men with spirit could cross nearly a mile of open space while exposed to massed rifled weapons. We all know the results.

 Gettysburg was also the last Napoleonic battle in which a commander—George Gordon Meade—could stand on a “captain’s hill” and oversee the majority of his battlefield, while receiving reasonably prompt reports from less visible sectors. His lines ran just over three miles. In less than a year, by the late spring of 1864, battlefronts would sprawl to five, seven or ten miles—not counting flanking cavalry operations—and, by summer’s end, to dozens of miles in the siege of Petersburg and Richmond. That sprawl would raise the second great challenge of the modernizing battlefield: how to maintain tactical control on an ever-widening frontage stretching far beyond visual range and preserve unity of effort in the course of complex attacks.

 The initial revolution in military communications, thanks to the telegraph, at first affected only the strategic level, with news of victories and defeats often relayed the same day they occurred (if sometimes inaccurately). By the grim fighting in early June, 1864, at Cold Harbor, though, the Army of the Potomac had extended telegraph lines down to its corps headquarters—with a result that has repeated itself uncannily in our recent conflicts in Iraq and Afghanistan, when “breakthrough” communications means led generals to believe they could control combat from physically isolated, but electronically tethered headquarters. In one of his worst performances, the Union’s new general in chief, Ulysses S. Grant, did not even see the ground over which he ordered Meade to assault at Cold Harbor until the grand attack had failed disastrously. Even thereafter, Grant often shunned the front lines and relied on telegraphy—like many a general today, he could seem more concerned with communicating up the chain of command to Washington than downward to his troops.

 Still, the worst command-and-control problems arose at the tactical level on the fields of battle. As armies expanded wildly in size, flags, drums, bugle calls and shouted orders, if heard or seen at all, as often as not increased the confusion as intermingled units slipped out of control, frustrating plans and spoiling budding successes—with the Spotsylvania Mule Shoe fighting on May 12th, 1864, a prime example.

 The world’s armies would not find a reasonably reliable and practical solution to problems of tactical command and control during combat action for over a half-century, until the advent of tactical radios. That should not, however, obscure the revolutionary effect of the telegraph that allowed Grant, late in the war, to coordinate multi-army operations and administration on multiple fronts deployed over thousands of miles—while President Lincoln monitored his progress in “near-real time,” as today’s Mil-Speak would put it. Less than two decades before, news from the field would have taken weeks to arrive—or months, in the case of colonial powers.

 By May, 1864, at The Wilderness and Spotsylvania, Lee had finally come to appreciate modern killing power. His soldiers entrenched immediately and vigorously (Lee’s first great entrenching operation had been at Mine Run, the autumn before, where he fortified a line so well that Meade declined to waste his men’s lives by attacking it). This made the challenge to the Union’s generals even greater. Some still could not see beyond frontal attacks (Grant, a strategic genius and operational talent, was an unimaginative tactician, to put it gently).

 At Spotsylvania, then-Colonel Emory Upton, an intellectual upstart in his mid-twenties--got to put his thinking into practice. He had calculated that shock columns—rather than lines—still could penetrate entrenched defenses if they gained tactical surprise and were positioned to jump off where the kill-zone was at its narrowest. He further grasped that a fallacy on both sides had been the practice of stopping short of the enemy’s lines to exchange volleys, squandering forward impetus. Given a specially organized elite brigade, Upton did several things that were not in common practice: He ordered his men to hold their fire until they were *inside* the Rebel defenses; he led his subordinate commanders forward and briefed them on their individual tasks as they observed the objective of their assault; and he echeloned his shock columns, allotting clear, specific tasks to each. His May 10th, 1864, assault on the Confederate “Mule Shoe” line achieved a stunning tactical success, but skeptical superiors had failed to provide for an exploitation force. Upton’s remarkable breakthrough came to nothing. It would be repeated at the corps level two days later, though, with Winfield S. Hancock’s Union II Corps smashing through Lee’s lines—until that attack foundered on command-and-control problems in the face of determined counterattacks. Nonetheless, Upton, who would go on to become the Army’s greatest thinker and theorist of the Nineteenth Century, had already foreshadowed the storm techniques that the German Army, after staggering losses, would develop to break the stalemate of trench warfare a half-century later.

 For their part, the Confederate infantry repeatedly suffered devastating casualties when assaulting dismounted Union cavalry armed with magazine-fed rifles and carbines. In the opening phase of The Wilderness, the 5th New York Cavalry, a superb regiment that, instead of relying on its reputation as a fine saber-fighting outfit, had pioneered dismounted tactics, held off multiple Confederate brigades for up to five hours in a brilliant delaying action that saved a critical intersection for the slow-to-react Union army.

 Indeed, that gruesome month, from May 5th at The Wilderness through June 3rd at Cold Harbor, marked the demise of Napoleonic combat and the first maturity of industrial-age war.

 Nor was it only Napoleon whose legacy haunted the armies of the age: The influence of Frederick the Great was pernicious, too. In our Civil War, both sides sought to emulate Frederick’s famed oblique attacks—with disastrous results. Again, no general in the early years of the war, not even Lee, comprehended that oblique attacks with brigaded infantry had only worked because of the limited ranges of the weaponry of the Frederician period. The genius of the oblique attack was that, in addition to threatening to overlap flanks, it fixed defenders in place while holding a major proportion of the attacking force out of range as long as possible. With rifled weapons, however, all of the units in an oblique formation ended up in the killing zone simultaneously. The results were horrendous.

 While we might wrinkle our noses at such “folly,” it behooves us to recognize that the best generals were struggling to apply the applauded lessons of previous conflicts. That’s *always* the default position of generals confronted by baffling problems. Again, the past is prologue: The U.S. Army in the twenty-first century fell into the same pattern, binding itself to a counterinsurgency doctrine based on anomalous twentieth-century insurgencies that were irrelevant to this century’s religion-fueled fanaticism. Faced with the unknown, we did what we knew. Once again, the “best and brightest,” lacking useful insights and new ideas, turned to the most-reassuring lessons from yesteryear’s conflicts. Little changes on the human side: A George McClellan or a David Petraeus will always find favor with those yearning for a savior, no matter how bogus their promises of redemption.

 By the last year of our Civil War, the conflict, while still overwhelmingly conventional, had become asymmetrical in the sense that Lee still led an old-fashioned army that counted on fighting spirit and tactical skill, while Grant oversaw a network of truly modern armies that achieved invincible mass and were backed by a “military machine” that included vast stores of materiel, railroads that ran right to corps rear areas, the latest communications and even a system of medical evacuation and echeloned hospitals that constituted one of the greatest breakthroughs in military management (the European powers would not field comparable medical facilities until well into the Great War—and czarist Russia never did). Certainly, the Confederate infantry, man for man, remained notably superior to that of the Union—but that only prolonged Southern suffering.

 By late 1864, a distinctly American way of war had emerged: Superb, redundant logistics; the expectation that subordinates would show initiative; unprecedented support of the common soldier (although not every soldier over the generations would believe that); an emphasis on strategic mobility, operational maneuver and relentless tactical pounding; the aggressive and skillful use of artillery; organizational uniformity and interoperability; and the embrace of the latest technologies. Even “medevac” capabilities, however crude they seem to us today, were remarkably humane and well-organized for the time, with field surgeries, dedicated wagon trains to evacuate the wounded, holding hospitals in the operational rear, hospital ships to speed casualties to vast, fixed hospitals in the strategic rear, and a new emphasis on sanitation. Today, the U.S. Armed Forces continue the tradition of caring for our wounded with a dedication and level of resourcing unmatched by any other military.

 The single area in which both the Confederacy and the Union failed disgracefully was the care of prisoners of war once they reached fixed camps. But that’s another tale.

 As for the role of literacy teased above, the ability to read and write competently may have been the key “combat-multiplier” missed by historians studying our Civil War. While the United States in the 1860s was already the second-most-literate nation (after Prussia), educational opportunities had varied within the states that formed the Union and the Confederacy. All of the Union’s states had high literacy rates for white males, with a rate of ninety-nine per cent or higher in at least four states: Maine, Massachusetts, New Hampshire and Connecticut. In the South, at the lower end of the scale, the white-male literacy rate in North Carolina was only seventy-two men with elementary reading and writing skills out of every one hundred--and that from a lower population base. While an illiterate or semi-literate man of the hills or a low-country sharecropper could still make a superb infantryman in the 1860s, he was not going to perform well as a quartermaster, commissary, engineer or other staff functionary—or even as a first-sergeant (as inept Confederate record-keeping demonstrated).

 Indeed, by the closing year of the war, the Army of the Potomac in particular had developed a superb modern staff (the crossing of the James River in June, 1864, was a military feat that would remain unrivaled in Europe until the following century), but Lee’s staff was small, informal and inadequate, if brave and spirited. At the highest military levels (the “strategic rear” in modern parlance), Union administration vastly outshone that of the Confederacy. The War Department in Washington could promptly replace anything, from uniforms to cavalry mounts, for units sprawled half-way across a continent, while Richmond, despite full warehouses, could not (and would not) supply an army going hungry and barefoot so close to the capital that bureaucrats could hear the sound of its guns.

 Those who prefer to see war only in terms of gallant battlefield struggles may have difficulty with the idea, but those magnificent Southern infantrymen were defeated by clerks.

 The “damned Yankees” won with requisition forms.

 Military observers from all of the great European powers witnessed our Civil War from both sides of the lines. And they learned absolutely nothing. All of the lessons were there, from the phenomenal killing power of modern weapons and the criticality of entrenchments, to the challenges of tactical control on expanding battlefields. But instead of appreciating that Union and Confederate generals and colonels were struggling—increasingly successfully--to integrate an unprecedented range of technological developments, the Europeans wrote off the Americans as hopeless, inept amateurs (nor would their archaic view of officership have permitted the rise of brilliant non-professionals such as Francis Channing Barlow or John Brown Gordon—they missed the democratization of war, too).

 As a result, Cold Harbor would be repeated on a massive scale fifty years later on the Western Front and the Pickett-Pettigrew Charge at Gettysburg would be amplified horrifically on the Somme as lines of Allied infantry trotted into an inferno of machine guns, barbed wire and massed heavy artillery. The Siege of Petersburg, too, would play an encore on a gargantuan scale at Verdun.

 But if the Europeans refused to learn anything from the American experience, one power, Prussia, led by one military genius, Helmuth von Moltke, would force its own breakthrough into the modern age. If the era of modern warfare was inaugurated between the opening day of The Wilderness and the grand assault at Cold Harbor, the Austro-Prussian War of 1866 confirmed that there would be no going back to the old ways, and that no amount of valor would trump thorough organization, rigorous planning, sophisticated training and the militarization of the latest technologies.

 The turning-point battle for Europeans arrived on July 3rd, 1866, at the climax of a brilliant campaign (and on the third anniversary of the Pickett-Pettigrew Charge at Gettysburg). The Battle of Koeniggraetz, also known as Sadowa, was a clash not only of armies, but between the old and new ways of making war. Prussia’s peerless Chief of the General Staff, Helmuth von Moltke, was one of those rare men in history who immediately grasp the deeper implications of new technologies. In von Moltke’s case, he understood the potential for rapid mobilization and deployment offered by Prussia’s advanced rail net, telegraphic communications and sophisticated government bureaucracy. He also appreciated the value of Prussia’s primary infantry weapon, the breech-loading “needle gun,” with its rapid rate of fire, but Moltke’s greatest insight was that a thoroughly planned, lightning-swift attack (the forerunner of the *Blitzkrieg*) now could be staged that would wrong-foot an opponent from the start, keep him reeling, and allow a smaller nation with an efficient military to defeat a larger one.

 Von Moltke also grasped that, operationally, Napoleon’s preferred technique of seizing a central position between enemy armies and defeating them in detail had been turned on its head as armies swelled in size, threatening to overburden individual lines of communication, while the railroad, properly exploited, allowed converging armies to join together at the point of decision with previously unthinkable speed: The Napoleonic model had, literally, run out of time.

 With a well-executed strategy of convergence, a force of approximately 200,000 men, such as Prussia would deploy against the Austrian North Army in 1866, could deploy on three axes that, initially, were widely separated, allowing them to triple the number of roads along which they advanced: An army that on a single prime LOC might have stretched for a hundred kilometers could move in three compact elements of thirty kilometers or less (the smaller size of each force reducing the “accordion effect” that every man who has ever served in an infantry unit understands all too well). Indeed, a colleague remarked of von Moltke that he never planned a campaign without first consulting the Prussian railway timetables.

 Having cut his teeth on a four-year detail to train the Turkish army to European standards in the late 1830s, von Moltke never forget the lesson that even the most-perfect plan will not work perfectly (as training the Turks did not). And while the Prussian army produced superb officers and, especially, General Staff officers, a crown prince would inevitably head one army, another member of the royal family a second, and a general favored by the court a third. Von Moltke’s solution, building on the legacy established by Scharnhorst and Gneisenau, was to insure that field staffs were filled with highly competent officers who, if they could not guarantee the best results, would prevent the worst.

 As for the tactical level, the killing power of the Prussian *Nadelgewehr* had been demonstrated in a number of small engagements during the Danish War of 1864, when Austria and Prussia had fought side by side for the political Germanization of Schleswig-Holstein (an issue that would lead directly to the Austro-Prussian War of 1866). Austrian officers witnessed the rate of fire and accuracy of the rifle in the hands of Prussia’s well-trained soldiers, but questioned the implications for full-scale battles. And Vienna’s own poor excuse for a general staff convinced itself that breach-loading rifles would only waste ammunition, while Austria’s difficult-to-command polyglot army would continue to do its best work with the bayonet.

 No one, not even the Prussians, was fully prepared for the effect of the needle gun deployed army-wide.

 When his king finally authorized von Moltke to mobilize and go to war, he initially had to fight on two fronts: In the West, against the several German state allied with Austria, and, to the south, in Bohemia (today’s Czech Republic), against the main Austrian army (which would be joined by the Saxon army after Saxony’s lightning-swift occupation by the Prussians. The railroads were the strategic key, but Prussia also had several other “modern” advantages to compensate for its deficiency in numbers: It had a literate population, with a century-old requirement for at least eight years of schooling for all citizens (a policy introduced by Frederick the Great in 1763), complete with centralized teaching standards and universal exams. As a result, the Prussian soldier could absorb new concepts more rapidly than his foreign counterpart, while also capable of showing greater battlefield initiative. To top it off, the Prussian population was caught up in the vivid nationalism that had begun to sweep Europe. Von Moltke had as his instrument an army that not only *could* outfight its enemies, but enthusiastically *wanted* to outfight them.

 The Austrian army remained “old school,” and its leadership can be described in the words applied to the Bourbon dynasty of France and Naples: “They learned nothing, and they forgot nothing.” In Austria, the state itself was rotten, with the Habsburg dynasty entering its long twilight. In past centuries, a more compact state had been galvanized to great heroism by the unifying threat of Turkish invasions and religious warfare, and had fought well up to the Napoleonic era. But as Vienna’s empire expanded to the south, east and northeast, from Venetia and Croatia to Ruthenia and Galicia (well into today’s Ukraine), the threat of Islamic invasion disappeared and loyalty to the central state deteriorated. Illiterate recruits were drafted into an army that was, essentially, foreign then were led largely by German-speaking officers who rarely mastered the tongues of the men they commanded. At most, Austrian infantrymen fired a few training rounds per year, and maneuvers were theatrical pieces whose benchmark for achievement was getting a regiment to march respectably and show up roughly where it was meant to appear.

 Officership emphasized valor, but discouraged initiative. At the highest levels, the ability to intrigue at court and play cards well eclipsed military ability. Nor were rigorously trained staff officers available to ameliorate the blunders of commanders. General Ludwig Benedek, who would be entrusted with Austria’s main army (the North Army facing the Prussians) had performed reasonably well as a tactical commander in 1859 and, in an army starved for heroes, had seen his reputation soar out of any reasonable bounds. Fond of the easy living in Italy, where he “homesteaded” during the years of peace, the advent of war in 1866 saw him transferred abruptly to Bohemia, a theater of war of which he had little more than a schoolboy’s knowledge. Faced with the Prussian onslaught—always faster and more effective than he could credit—Benedek perfectly fit the clichéd description of “a deer caught in the headlights.”

 Benedek never exercised firm command of his army and never formulated a complete, coherent campaign plan. As with an unfortunate number of American generals today, he had been promoted above his level of competence—a good tactical fighter was expected to become a strategist overnight simply because he had drawn the assignment. Unsure of what the Prussians would do, Benedek marched and counter-marched in confusion, exhausting his troops even before the first shots were fired, and he left supplies of wire for field telegraphs untouched on the spools. At no point in the campaign did he fully understand where Prussia’s three converging armies were located and he often was mistaken about the location of his own corps on a given day. As for his subordinates, they fought their early battles not as part of a strategic design, but because the Prussians suddenly showed up.

 Austria’s greatest ally in the Koeniggraetz campaign didn’t come from its German partners, which were easily swept aside by smaller Prussian forces, but from the lack of infrastructure—the underdevelopment—the Prussians faced once they crossed the borders onto Austrian territory. Railroads and well-kept roadways delivered the Prussians to their jumping-off points, but the poor roads through the barrier mountains down to the plateaus and river valleys of Bohemia slowed the Prussian advance and played havoc with Prussian logistics (those convinced of the superiority of all things German should note that Prussian logistics were amateurish compared to those of the Union Army in our Civil War’s final years, and many a Prussian unit went hungry, thirsty and unattended by medical support—the latter always inadequate in Europe: Cholera would kill more Prussians than Austrian gunnery did).

 Still, the Prussians advanced with comparative rapidity and a series of bloody encounter battles saw dashing Austrian infantry brigades devastated by rapid, accurate Prussian rifle fire. Some Austrian units—particularly from the German-speaking homelands, but not only those—were wildly, almost hysterically brave, while others from the empire’s fringes disintegrated.

 As the Prussians converged, Benedek alternated between fits of resignation and impulsive activity. By the first days of July, partly through design but largely by accident, he finally concentrated his army—but with its back to the Elbe River and the outdated Koeniggraetz fortress on the opposite bank.

 Although it would end as a decisive Prussian victory, Koeniggraetz was a close-run affair in its opening hours. Moltke’s ability to coordinate his three armies broke down at the tactical level, and the weakest two, the Elbe Army and First Army, initiated the battle prematurely (the downside of encouraging initiative). For the first half of the day, the Prussians were outnumbered two to one (by the end of the day, over 450,000 combatants would crowd into eight square miles, twice the number Grant and Lee fielded at any time during the Overland Campaign and the largest number of soldiers on a European battlefield since Leipzig in 1813).

 The disparity in numbers was aggravated by the effectiveness of the one Austrian fighting arm that was relatively professional and modern, the artillery. Von Moltke had paid insufficient attention to his own gunners (an oversight he would soon correct) and, despite nonsense from some historians regarding the “redeeming” charges of the Austrian cavalry, even in the battle’s final hours, as Benedek’s outflanked army collapsed, only Austrian cannon saved that army from annihilation.

 First, though, the Prussians had to make headway against the massive enemy force. The first of the day’s significant collisions occurred in a hilly wooded area, the Svib Forest or Swiep Wald. A single Prussian infantry division—armed with needle guns—was able to assault, penetrate, drive back, delay against and, reinforced by a second division late in the day, decimate multiple Austrian corps. The slaughter on both sides was tremendous, as elite units engaged one another with determination, but the casualties in the forest were at least as disproportionate as those for the entire battle: Five Austrians killed, wounded or captured for every Prussian casualty.

 The lack of adequate staffs at all levels crippled the Austrians throughout the day. Unit reports were spotty and often wrong. Troops movements were uncoordinated and orders, when they arrived at all, were often contradictory or countermanded in mid-effort. Instead of relying on the best local defensive ground, Benedek had neglected much of it and abandoned other key terrain in the course of the battle—only to try to retake it with hopeless frontal assaults. As the Prussian Second Army, under the Crown Prince, began to arrive on the field and thrust into the Austrian right flank, more and more Austrian units simply dissolved at the first burst of enemy fire. The Prussian right flank, which had been bogged down, renewed the attack and punched into the Austrian left, while Benedek’s center came under renewed pressure.

 For the Austrians, defeat threatened to become irretrievable disaster. Senior officers were swept along in a sea of fleeing troops. Cavalry charges ordered to delay the Prussian advance disintegrated under converging artillery and rifle fire from the surrounding heights. Austrian batteries struggling to go into action were overwhelmed by mobs of their own troops. Panicked Austrian officers ordered the premature destruction of several tactical bridges in the army’s rear and soldiers drowned in the Elbe’s swift current. The Koeniggraetz fortress commandant closed his gates against the retreating troops. And the Austrian army was essentially leaderless.

 Von Moltke came close to realizing his dream of a *Kesselschlacht*, a cauldron battle in the style of Cannae. Exploiting the latest *civilian* technology, he had all but enveloped the Austrians at the operational level; now, he was close to a double-envelopment at the tactical level, an epochal victory.

 It didn’t quite work out. As with the Union Army at Spotsylvania, it proved impossible to maintain tactical control. Units were intermingled, and the men were exhausted (those of the Second Army had made a forced march to the battlefield, while all of the Prussians had been marching hard for days on inadequate rations—some with no food at all). Not least, the sheer mass of Austrian troops rendered movement difficult, where not impossible.

 But von Moltke had won the most-impressive battlefield victory on European soil since Austerlitz. Minor actions continued in the Italian theater of war (in the wake of the slovenly bloodbath at Custozza, where an Austrian army had trounced the Italians at great cost), as did formal hostilities in the north, but the name assigned to the conflict, the “Seven Weeks’ War,” indicates just how much the modern Prussian army had achieved.

 War was modern.

 And the pace of change would intensify. A mere four years later, when Prussia and its new German allies (Austria’s former clients) invaded France, the armies would be larger, the preparatory training even more intense and the Prussian artillery renewed with the latest steel, breach-loading cannon. For their part, the French would introduce the *mitrailleuse*, an early machine gun mounted on a light artillery carriage, with a sustained rate of fire of one-hundred rounds per minute. On the rare occasions when the French used it effectively, it was devastating, but the conservative French high command had fielded barely 200 of the weapons and, far worse, kept its existence so secret that many division and even corps commanders had no idea of what it was meant to do when it suddenly appeared in their sectors. Inept tactics, which viewed the mitrailleuse as an artillery weapon, rather than one to be integrated with the infantry, further undercut the breakthrough weapon’s utility.

 Still, the road to Paris was lined with more uniformed Prussian and German bodies than French, thanks to the killing power of French rifles wielded defensively, but the historical impetus, as well as military professionalism, favored von Moltke and his protégés. The classic envelopment at Metz, followed by the breathtaking encirclement and moral collapse of the French army at Sedan, set a standard for military art that would persist until the age of atomic weapons.

 The Franco-Prussian War would end with the collapse of the French monarchy; Paris besieged; the bloody Commune, a leftist revolution that foreshadowed the events of 1917-18 in Russia; extensive guerrilla warfare and harsh reprisals; and the unexpected unification of Germany.

 Not only war, but the world, had entered the modern age.

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