



Civil War veterans of 57th Massachusetts Infantry Regiment pose with Confederate General William Mahone on May 3, 1887, at crater caused by Union Soldiers exploding mine at Petersburg, Virginia (Library of Congress/William H. Tipton)

Flanking the Crater

By John K. DiEugenio and Aubry J. Eaton

The 2018 National Defense Strategy envisions a rapidly innovating joint force as fundamental to military dominance in the 21st century. In pursuit of this transformation, the strategy charges Service leadership to partner with private industry and academia to incorporate entrepreneurial management techniques into military organizations. This collaboration has

identified the Defense Department's need to provide operators with a platform to share their ideas directly with decisionmakers. In response, commanders have founded venues to hear directly from the tactical edge and established processes to personally sponsor promising ideas. However, emulating a "startup" mentality has unintentionally introduced the misper-

ception that middle management's resistance to change is the primary impediment to innovation. Commanders who bypass middle echelons to fast-track creative ideas risk alienating important sources of domain expertise. This article turns to history to demonstrate that, far from being the greatest roadblock, empowered mid-level leaders are critical to translating innovation success into military victory.

The Battle of the Crater in the U.S. Civil War stands out as an example of innovation success. The impetus for the battle arose out of an idea from the field to alter the battlespace by tunneling

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under the enemy's fortifications. Echoing the contemporary innovation process, the local commander quickly evaluated the idea's feasibility and leveraged his Soldiers' unique skillsets as civilian miners. A senior leader sponsored the idea, providing time, space, and resources to the innovators. Despite this momentum, the military staff system's perceived inability to recognize the potential of the project frustrated innovators and threatened the project's success.

These frustrations are familiar to modern innovators who express the need to bypass an organization's *frozen middle*, a phrase popularized in business theory to describe the apparent resistance of a company's middle management to implementing senior executives' initiatives.¹ Early research concluded that this echelon rejects change out of self-interest or ignorance, perpetuating misuse of this term.² However, contemporary management scholarship squarely addresses mid-level leadership's indispensable role in ensuring the success of strategic transformation.³ Missing from the literature is a demonstration that isolating these members risks military defeat.

The Union Army's experience in the Battle of the Crater illuminates the critical role of middle echelons in planning, communicating, and ultimately executing creative ideas. Commanders must first reject the term *frozen middle*. On the contrary, a far more accurate description of mid-level leaders is the *neglected middle*—individuals in an organization responsible for understanding, executing, and integrating an innovation into operations. This simple shift in language reflects a larger paradigm shift that empowers, rather than isolates, mid-level Servicemembers. The neglected middle's value is best realized when a commander includes its members early in the development of an innovation. Connecting these leaders with idea generators and sponsors allows the Armed Forces to fully realize the potential of military innovation. Achieving the 2018 National Defense Strategy's vision requires the creation of a Joint Innovation Framework and appointment of a lead integrator to the commander's staff.⁴

The Battle of the Crater

The need to integrate ideas from the tactical edge to increase lethality is not unique to the present day. Ulysses S. Grant, the commanding general of all Union Armies, felt a similar pain in June 1864. Grant understood the timeless imperative to translate innovation success into military victory. Entering the Civil War's fourth year, staggering battlefield casualties placed tremendous political pressure on President Abraham Lincoln to end the conflict with a negotiated settlement.⁵ The Northern press billed the impending election as a referendum on the war, and without tangible battlefield results the fates of both Lincoln and the Union Army remained uncertain.⁶ Five armies in the field operated in concert against Confederate forces near Atlanta, Mobile, the Shenandoah Valley, and Richmond. Lincoln and Grant understood that the Confederate Army of Northern Virginia, commanded by General Robert E. Lee, must be destroyed to end the war.⁷

Throughout the brutal Overland Campaign in the spring of 1864, Grant aggressively pursued battle with Lee. However, technical advances in field fortifications and the rifled musket's increased effective range amplified the tactical defense's advantage.⁸ At the Battle of Cold Harbor, Grant sustained 7,000 casualties in a single assault on Confederate earthworks.⁹ Facing mounting public criticism that labeled him as "Grant the Butcher," he executed a bold movement to outfox his opponent and fight a battle in the open field on his own terms.¹⁰

The Union advance targeted Petersburg due to its importance as a supply hub. Despite the Union Army of the Potomac's numerical superiority, the Confederate's desperate defense prevented Petersburg's fall. Consequently, the opposing forces constructed miles of trenches, resulting in a stalemate. Entrenched regiments suffered from daily bombardments, intense sniper fire, oppressive Virginia heat, and limited rations.¹¹ Frustrated across all levels of war, Grant faced immense strategic pressure to regain the initiative. Rather than launching a costly frontal assault as at Cold

Harbor, he empowered Soldiers in the Union Army to offer innovative solutions to break the siege.

At the nearest point between the opposing forces, an enlisted Soldier from the 48th Pennsylvania Infantry, whose name is lost to history, remarked, "We could blow that damned fort out of existence if we could run a mine shaft under it!"¹² Lieutenant Colonel Henry Pleasants, the regimental commander, overheard the statement and immediately understood the idea's power. Pleasants, a former mining engineer, commanded a regiment partially composed of prior coal miners from Schuylkill County, Pennsylvania.¹³ Pleasants gathered his staff officers and enlisted men to work through the mechanics of the mineshaft's construction.¹⁴ The regimental staff estimated they would need to dig a 500-foot tunnel to reach the Confederate lines. While mining enemy fortifications at short distance was common practice, the Union tunnel's length was well beyond all others attempted in military history.¹⁵ The proposed distance raised concerns about structural support and ventilation in the tunnel. Pleasants, however, was confident in the skills of his troops and pressed forward with the idea.¹⁶

Within hours, Pleasants honed the enlisted Soldier's idea into a feasible proposal to submit to his chain of command. General Ambrose E. Burnside, Pleasants' Corps commander, embraced the proposal and enthusiastically became the idea's senior sponsor.¹⁷ Burnside authorized Pleasants' regiment to dedicate time and space to the project.¹⁸ In addition, Burnside earned Grant's approval to allocate resources for the mine's construction, arguing that the mine's explosion, coupled with a follow-on attack, would yield a "more than even chance of success."¹⁹

Fresh from receiving senior sponsorship, Pleasants set his men to work solving problems at the tactical level. Pleasants appointed Sergeant Henry Reese as the mine boss to organize shift work for the project.²⁰ Demonstrating ingenuity, Pleasants ordered his regiment to modify their standard-issue entrenching tools to act as mining picks in the tight confines of the tunnel.²¹ To discretely



Major General Ambrose Burnside, 1st Rhode Island Infantry Regiment and General Staff U.S. Volunteers Infantry Regiment, in uniform, 1863 (Library of Congress/Mathew Brady)

remove dirt, the regiment modified their hard tack boxes with iron from pork barrels to carry away the spoil to a location out of view of Confederate pickets, thus preserving operational security.²² In addition, instead of waiting for the bureaucracy to provide timber, Pleasants' men dismantled an old bridge and earned Burnside's authorization to operate an abandoned sawmill in the Army's rear.²³ With the necessary materials to ensure the mine's stability, Pleasants next devised

an ingenious tunnel ventilation method utilizing the chimney effect to supply the miners with fresh air.²⁴ Although the Soldiers of the 48th Pennsylvania were organized, trained, and equipped to execute this innovation project at the regimental level, they required Corps support to ensure the mine's completion.

Support to Pleasants' regiment demonstrated the power of an energetic sponsor. In addition to championing the idea at headquarters, Burnside

provided direct assistance at the tactical level. He used his personal connections in Washington, DC, to obtain surveying instruments for Pleasants that were required to measure the distance to the Confederate positions accurately.²⁵ Allowing Pleasants to use the chimney effect to ventilate the mine, Burnside subsequently ordered campfires lit all along his Corps' front lines to prevent drawing Confederate attention to the mine's location.²⁶ Burnside's engagement with senior leaders and political colleagues ensured Pleasants' men had access to resources that would otherwise have been unattainable. Nevertheless, despite the momentum behind the mine's construction, Burnside unintentionally neglected the majority of his Corps.

Organizational seams emerged between the 48th Pennsylvania and Union Army engineers. For instance, the chief engineer of the Army of the Potomac was the author of the authoritative manual on military mining and countermining. Pleasants shut the engineer out from construction and did not consult his manual.²⁷ When word of the project spread among the Union Army's engineers, many were openly cynical. At first, the chief engineer of the Army of the Potomac, General John G. Barnard, praised the project as "exceptionable, so unprecedented."²⁸ He sent a list of questions to Pleasants concerning the likely impact of the mine.²⁹ Pleasants mistakenly perceived Barnard's interest as openly hostile. When the two met, Pleasants defended his tunnel design while stating that West Point cadets like Barnard forgot their surveying skills soon after graduation.³⁰ When Barnard requested recommendations on additional locations to mine, Pleasants curtly ended the interview stating, "I'll see you in hell first!"³¹ This meeting set the tone for the interactions between the innovators and the integrators in the Army of the Potomac. Burnside, unaware or unconcerned, did not offer to mediate the contentious relationship.

Another source of personal friction arose when Burnside removed Pleasants' regiment from their positions to focus on mining and filled the vacant

trenches with war-weary troops. The 48th Pennsylvania, proud of their charge to dig the longest mineshaft in military history, reaped benefits from their senior sponsorship.³² Burnside twice visited the mine with state governors, giving Pleasants' men an opportunity to showcase their historic efforts.³³ In addition, Burnside promised to reward Pleasants' men for their grueling labor with whiskey rations, drawn at the expense of other regiments.³⁴ Consequently, neighboring units chafed at Burnside's treatment of the 48th Pennsylvania. For more than a month, the bulk of Ninth Corps endured the squalor of trench warfare while they observed the 48th Pennsylvania operating from the relative safety of the mineshaft where the miners enjoyed the Corps' whiskey rations.

Further increasing the divide between the 48th Pennsylvania and the rest of the Corps, Burnside devised an attack plan with significant contributions from just one of his four division commanders.³⁵ Burnside excluded the three divisions because he feared their troops were exhausted from trench warfare and were likely to "take cover immediately once they were exposed to heavy fire."³⁶ His decision to exclude three quarters of his Corps from planning and training for the impending assault allowed few troops to understand the mine's purpose. In this atmosphere of uncertainty, cynical attitudes about the mine's potential spread across the Union lines. Seasoned engineers dismissed the mine as "claptrap and nonsense," while other brigade commanders concluded the "mine causes a good deal of talk and is generally laughed at."³⁷ Thus, Burnside inadvertently created a schism between the innovators digging the mine and the Soldiers charged with attacking the Confederate positions following the mine's explosion. Burnside further exacerbated the divide through the expectation that "the men who dug the shaft would not have to join the charge after the mine blew."³⁸ Simultaneously, Burnside estranged the divisional, brigade, and regimental commanders responsible for executing the attack orders they had little input crafting.

Despite rifts between innovators and operators, it is incumbent not only on senior leaders but also on commanders within the neglected middle to bridge gaps in innovation integration. Neglected middle leaders must voice their concerns to senior commanders early in the innovation integration process, while remaining open to new ideas. In the Union Army, Burnside's division commanders, despite their knowledge of the mine's progress, neither raised concerns to Burnside directly nor advocated for inclusion in devising attack plans to exploit the mine's demolition.³⁹ Senior commanders can manage the division between operators and innovators through the creation of innovation demonstrations, neglected middle representation during assault preparation, and a well-established feedback loop.

Neglected middle representation during the formulation of innovative operational concepts is essential to bridge the innovator-operator gap. If the neglected middle has a degree of input in the process, they are more likely to share ownership of the project's planning, as well as its ultimate outcome. At Petersburg, while Pleasants regularly represented innovators' concerns in Burnside's headquarters, there was no cohesive voice to represent the neglected middle. In the weeks before the battle, several regimental commanders—unaware of Burnside's plans—identified potential pitfalls for any operation in their sector. Divisional commanders, absent from planning at Corps Headquarters, were not able to articulate these concerns to Burnside. For example, a dense line of trees troubled commanders of an artillery battery assembled for Burnside's attack as the trees prevented their pieces from attaining a clear field of fire on the opposing Confederate batteries. Burnside dismissed their concerns and did not make sufficient provisions to clear the woods prior to the assault.⁴⁰ In addition to the artillery miscues, regimental commanders identified their own earthworks, consisting of 6-foot-deep trenches, sandbags, abatis, and *chevaux-de-frise* as major obstacles to any offensive maneuver.⁴¹ The Union Army failed to remove

these obstacles before the battle, thereby obstructing units' ability to maneuver cohesively and in mass.⁴² Thus, the tactical concerns of the neglected middle fell on deaf ears and jeopardized Burnside's grand assault. Without neglected middle representation at Burnside's headquarters, the innovators' considerations outweighed the operators' tactical concerns.

Neglected middle representation among senior decisionmakers also prevents friction from derailing innovation integration. To consistently respond with ingenuity to changing battlefield conditions, the neglected middle must share an understanding of the desired outcomes when integrating an innovation. Frequent communication of commander's intent provides subordinates with freedom of action to pursue opportunities and overcome obstacles. In today's military it is imperative that senior leaders expose the neglected middle to innovations before the tools become operational. At Petersburg, Burnside ordered just one of his four divisions, a fresh unit consisting of U.S. Colored Troops (USCT), to rehearse complex maneuvers for the mine attack.⁴³ Hours prior to the offensive, however, the commander of the Union Army of the Potomac, Major General George G. Meade, refused to authorize Burnside's use of the trained division of USCT to lead the attack. While Meade approved the mine's construction, he doubted the innovation's promised effects on the battlespace.⁴⁴ Subsequently, Meade feared the political repercussions from the possible Confederate slaughter of a USCT division.⁴⁵ Meade's order forced Burnside to insert an ill-prepared and battle-weary division to lead the assault. Burnside, reeling from Meade's directive, poorly articulated to his division commanders their orders for the follow-up attack.⁴⁶ Regimental officers pointedly complained, "little information filtered down the ranks as to the details of the plan, and most men knew little of what to expect."⁴⁷ In addition to this critical miscommunication, Burnside abdicated the selection of a replacement division to chance, asking his division commanders to draw lots for the assignment.⁴⁸ Those

in the neglected middle in Burnside's Corps were not only ignorant of the impending mine explosion, but also of their role in exploiting the tactical surprise for strategic value.

An innovation's success does not guarantee battlefield advantage. On the contrary, a successful innovation may increase the risk to operators with little conception of the tool's intended use. In the early morning hours of July 30, 1864, Pleasants' regiment successfully exploded the mine, blowing a mushroom cloud of dirt, debris, and approximately 300 Confederate Soldiers hundreds of feet into the air.⁴⁹ The mine's explosion left a crater where the Confederate trench lines once stood and sent stupefied Confederates scrambling for the rear, leaving their positions undefended.⁵⁰ As a result of miscommunication, however, Union engineers failed to provide axemen to clear Confederate obstacles or to level Union trenches prior to the attack. Follow-on Union waves began to clog the only covered ways, preventing rapid movement and impeding communications to Corps Headquarters.⁵¹ Burnside's neglected middle was thus unprepared to advance in the immediate aftermath of the mine's explosion.

After a delay, the first Union troops reached the crest of the crater untested and stared in awe at the sight. Rather than flanking the crater, as Burnside instructed, they began to pour into it.⁵² During this critical period, troops did not advance toward the ridge behind the Crater, which was in the rear of the entire Confederate line. The divisional commander, Brigadier General James Ledlie, remained behind the lines, where his staff observed him drinking rather than rallying his division.⁵³ Each neglected middle commander had a different conception of where the attack needed to go next. Many individual Soldiers simply assumed that their assignment was to hold the breach, rather than to capture the ridge. Lacking knowledge of the strategic goal of the innovation, the opportunity to march into Petersburg unopposed had escaped the Union's grasp. As these shortfalls compounded, Union forces experienced

effective fire from all directions. After the initial shock from the blast, General Lee rushed troops to the battle, and Confederate Brigadier General William Mahone organized forces for a counterattack. The advancing Confederates found Burnside's troops chaotically trapped in the crater and engaged "as if shooting fish in a barrel."⁵⁴ At a cost of 3,798 casualties (504 killed, 1,881 wounded, 1,413 missing or captured), the Union retreated from the crater. Grant described the battle as "the saddest affair I have witnessed in the war."⁵⁵

Conclusion and Recommendations

The Union Army's innovators demonstrated great competence and bravery in accomplishing their task. Their ingenuity created, in Grant's words, such an opportunity as "I have never seen and do not expect to have again" for the Army of the Potomac to defeat the Army of Northern Virginia.⁵⁶ To achieve victory, the Union Army needed to capitalize on its tactical surprise and rapidly flank the explosion's crater, occupying the heights beyond the Confederate positions. The Union Army did not meet these ends due to degraded mobility, ineffective fires, and inefficient mission command. Burnside failed to articulate a clear vision of how the innovation would affect the battlespace, sowing confusion among the attacking troops. There were many causes for the disaster at the crater, including poor command decisions at the Army, Corps, and Division levels. These command failures were compounded in the extreme because the isolation of mid-level leaders resulted in inadequate planning, miscommunication up and down the chain of command, and abysmal execution. Ultimately, Union forces were unable to concentrate decisive combat power to exploit the opportunity their innovators created.

The Union Army's defeat at the Battle of the Crater illustrates that successful innovations can lead to disaster if they are not effectively integrated into operations. While literature and operators conclude the biggest barrier to

innovation is the reluctance of mid-level leaders to adopt new ideas, this event in military history indicates the opposite is true. The neglected middle is integral to translating innovation success into military victory. A commander's end-state should not circumvent mid-level management, but rather incorporate the neglected middle as part of the team.

Change starts small. Reference to mid-level leaders as the frozen middle exacerbates personal friction. The term *neglected middle* is inherently temporary and consistently relative. Commanders should not accept that a Servicemember is resistant to change until they have made a sincere personal effort to understand their concerns. This shift in language encourages leaders to view integration functions such as finance or security as key members of the innovation team, rather than barriers or roadblocks. Commanders must also ensure they are creating a climate in which their mid-level leaders are open to new ideas. In 1864, the innovators, for various reasons, became alienated from the neglected middle, and from one another. Today, commanders can establish policies and processes to allow the military to deliberately include the neglected middle.

In order to integrate at the speed of relevance, mid-level leaders must be involved as soon as commanders identify an innovation as critical for the organization. Early inclusion allows members across the organization to understand why senior leaders are pursuing an innovation and how it will benefit their team. In 1864, early involvement of the neglected middle may have elevated the concerns of fires and mobility experts, thus increasing the lethality and organization of the Union Army's initial assault. Leveraging the neglected middle allows for the organization to achieve synchronized operations that fully exploit the opportunities an innovation provides.

Unlike their predecessors in the Civil War, modern commanders benefit from an established staff system, the joint planning process, and standard order formats.⁵⁷ However, the Armed Forces lack a joint framework, foundational methodology, and defined relationships

to address the unique challenges of innovation integration. A dedicated staff component would clarify liaison relationships and provide guidance to innovators and integrators alike. Professionalizing this function would introduce a common language and measures of performance for commanders to hold their innovation teams accountable for providing results on the battlefield. Staff members trained in entrepreneurial management techniques help the commander identify functions that require early representation on an innovation project. Integration as a staff function allows leaders to exercise mission command for innovations, providing intent while allowing subordinates flexibility in tactical execution.

Reflecting on the Union Army's failure at the Battle of the Crater, a Soldier aptly observed that the innovation was a "perfect success except that it did not succeed."⁵⁸ When commanders reward and resource experimentation but exclude middle leaders, the Armed Forces risk defeat. Rather, an organization must value mid-level leadership as critical to achieving results on the battlefield. To become a rapidly adapting joint force, the Department of Defense must establish a reliable framework for innovation that is driven by a lead integrator on the commander's staff. When commanders, the neglected middle, and the tactical edge operate in harmony, innovation attains operational relevance. These actions will magnify the strengths of the neglected middle and recognize the group as innovators themselves. With such a culture it will be second nature for joint warfighters to flank the crater, translating tactical opportunities into operational and strategic victories. JFQ

Notes

¹ Jonathan Byrnes, "Middle Management Excellence," *Harvard Business School Working Knowledge*, December 5, 2005.

² William Guth and Ian MacMillan, "Strategy Implementation Versus Middle Management Self-Interest," *Strategic Management Journal* 7, no. 4 (1986).

³ Eric Ries, *The Startup Way: How Modern Companies Use Entrepreneurial Management*

to *Transform Culture and Drive Long-Term Growth* (New York: Currency, 2017), 195.

⁴ This staff component would reside at the lowest formation capable of independent combined arms operations. During the Civil War it was the Corps; in modern times it is the Brigade Combat Team.

⁵ Doris Kearns Goodwin, *Team of Rivals: The Political Genius of Abraham Lincoln* (New York: Simon and Schuster, 2005), 648.

⁶ James M. McPherson and James K. Hogue, *Ordeal by Fire: The Civil War and Reconstruction*, 4th ed. (Boston: McGraw Hill Companies, Inc., 2010), 458.

⁷ Curtis S. King, William G. Robertson, and Steven E. Clay, *Staff Ride Handbook for the Overland Campaign, Virginia, 4 May to 15 June 1864: A Study in Operational-Level Command* (Fort Leavenworth, KS: Combat Studies Institute Press, 2009), 41; and Earl J. Hess, *The Rifle Musket in Civil War Combat: Reality and Myth* (Lawrence: University Press of Kansas, 2008), 7–8.

⁸ *Ibid.*, 20–21.

⁹ *Ibid.*, 85.

¹⁰ *Ibid.*, 86–87.

¹¹ John F. Schmutz, *The Battle of the Crater: A Complete History* (Jefferson, NC: McFarland and Company, Inc., 2009), 19–20.

¹² Bruce Catton, *A Stillness at Appomattox* (New York: Doubleday, 1953), 220.

¹³ Earl J. Hess, *Into the Crater: The Mine Attack at Petersburg* (Columbia: University of South Carolina Press, 2010), 2.

¹⁴ Schmutz, *The Battle of the Crater*, 52.

¹⁵ Jim Corrigan, *The 48th Pennsylvania in the Battle of the Crater: A Regiment of Coal Miners Who Tunneled under the Enemy* (Jefferson: McFarland and Company, Inc., 2006), 44.

¹⁶ Hess, *Into the Crater*, 2.

¹⁷ *Ibid.*, 53.

¹⁸ Corrigan, *The 48th Pennsylvania in the Battle of the Crater*, 22–24.

¹⁹ War Department, *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies*, ser. 1, vol. 40, pt. 2 (Washington, DC: Government Printing Office, 1892), 608.

²⁰ Hess, *Into the Crater*, 11.

²¹ In order to discreetly remove dirt, the miners built crates from their hard tack cracker boxes, reinforced with iron bands from the barrels that held their salted pork. See *The War of the Rebellion*, ser. 1, vol. 40, pt. 2, 397.

²² Hess, *Into the Crater*, 11.

²³ Corrigan, *The 48th Pennsylvania in the Battle of the Crater*, 39.

²⁴ The miners built a wooden duct that ran from the opening down the length of the mine. The troops dug a ventilation shaft upward and lit a fire underneath. When a canvas partition sealed the tunnel, the fire's chimney effect drew good air to the mine face. See *ibid.*, 36–37.

²⁵ Schmutz, *The Battle of the Crater*, 58.

²⁶ Hess, *Into the Crater*, 15.

²⁷ *Ibid.*

²⁸ *Ibid.*, 27.

²⁹ *The War of the Rebellion*, ser. 1, vol. 40, pt. 2, 611.

³⁰ Hess, *Into the Crater*, 27.

³¹ *Ibid.*, 27.

³² Richard Slotkin, *No Quarter: The Battle of the Crater, 1864* (New York: Random House, 2009), 33.

³³ Hess, *Into the Crater*, 29.

³⁴ *Ibid.*

³⁵ Schmutz, *The Battle of the Crater*, 90.

³⁶ *Ibid.*, 98.

³⁷ U.S. Senate, *Report of the Joint Committee on the Conduct of the War: Battle of Petersburg*, 38th Cong., 2nd sess. (Washington, DC: Government Printing Office, 1865), 113.

³⁸ Slotkin, *No Quarter*, 33.

³⁹ *Ibid.*, 73.

⁴⁰ Corrigan, *The 48th Pennsylvania in the Battle of the Crater*, 61.

⁴¹ Abatis consist of felled trees positioned with branches facing the enemy. A cheval-de-frise features a log with sharpened stakes inserted into all sides. See Catton, *A Stillness at Appomattox*, 202.

⁴² *Ibid.*, 245.

⁴³ Scholars have exhaustively analyzed the controversy around Burnside selecting a USCT division to lead the assault during the Battle of the Crater. See Richard Slotkin's *No Quarter*, 73, for the most wholesome analysis of the USCT controversy.

⁴⁴ Catton, *A Stillness at Appomattox*, 238.

⁴⁵ McPherson and Hogue, *Ordeal by Fire*, 461.

⁴⁶ Hess, *Into the Crater*, 62.

⁴⁷ *Ibid.*, 59.

⁴⁸ Catton, *A Stillness at Appomattox*, 239.

⁴⁹ *Ibid.*, 80.

⁵⁰ McPherson and Hogue, *Ordeal by Fire*, 461.

⁵¹ Catton, *A Stillness at Appomattox*, 244–246.

⁵² Schmutz, *The Battle of the Crater*, 152.

⁵³ Catton, *A Stillness at Appomattox*, 246.

⁵⁴ McPherson and Hogue, *Ordeal by Fire*, 461.

⁵⁵ Quoted in McPherson and Hogue, *Ordeal by Fire*, 462.

⁵⁶ Hess, *Into the Crater*, xi.

⁵⁷ King, Robertson, and Clay, *Staff Ride Handbook for the Overland Campaign, Virginia, 4 May to 15 June 1864*, 7.

⁵⁸ Quoted in Schmutz, *The Battle of the Crater*, 340.