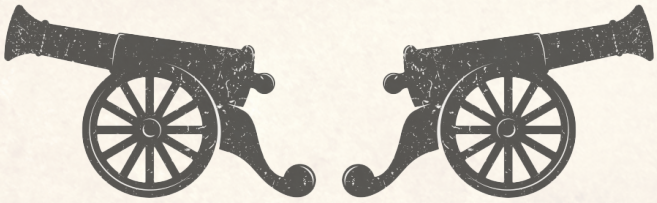
Historian's Corner



- Part 5 -

DOTMLPF Artillery Insights from the American Civil War: Matériel

An eight-part series by Dr. John Grenier, the FA Branch Historian

The plethora of new technologies that sprang from the Industrial Revolution of the nineteenth century has conditioned historians to see the American Civil War (ACW) as the first industrial war and a precursor to World War I (WWI). Matériel (the "M" in DOTMLPF) and technology are inseparable in historical analysis (there is an entire subfield of history known as the History of Technology, for example). Students of the ACW have therefore assumed that "new" (circa 1860) cannon and ammunition technologies produced the same effect on battles and the war's outcome that they usually attribute to rifled long arms, railroads and telegraphs. The entering argument, Dr. Earl Hess notes, is that rifled cannon "revolutionized combat because of its capability for long-distance firing, about 500 yards compared to the smoothbore's 100 yards," and rifled muskets (with volley ranges of 600 yards) rendered shorter-range smoothbore cannons "ineffective while confronting Infantry."

The evidence, however, suggests otherwise. Long-distance artillery fire tended to be ineffective, as the fuzes that ignited projectiles regularly failed, and neither side possessed the communication technologies necessary to command and control effective indirect fires. In addition to this, long-distance explosive ordnance produced relatively low levels of bursting power and splintering capacity, which made them of little use as anti-personnel rounds. The "fuze problem" in fact led to Field Artillery officers simply not bothering to put them in explosive shells; they regularly used explosive rounds as less effective—at least in terms of anti-personnel rounds—solid shot. In the era before recoilless mechanisms (which did not become common until the late 1890s), "working the guns was a laborious process," which meant that crews struggled to "stay on target" after pulling the lanyard. Creeping or rolling barrages, which required exquisite timing, coordination and absolute accuracy to prevent fratricide, were not common until WWI. Rifles and the railroads that could quickly move tens of thousands of Soldiers to a battlefield proved the dominant battlefield technology of the war.

Although junior FA officers were eager to use rifled cannons "as the latest improvement," senior officers remained committed to smoothbore guns because they offered a proven technology. Two weeks ago, we argued that the Army must fight hidebound thinking and prejudices, but we also need to remember that sometimes the "old ways" become the old ways because they work. According to Colonel Frank Huger, one of the most respected confederate artillery officers, rifle projectiles during the ACW generally "either burst…in the gun or else they do not go straight." Huger was especially disappointed with the Richmond (Virginia) Armory's 20-pound cast-iron (vice bronze) muzzleloading rifled Parrott guns, which were copies of the cannon that Robert Parrott, a former FA officer who resigned from the Army in the mid-1830s to become the superintendent of the West Point Iron and Cannon Foundry, first developed in 1860. Some artillerists nonetheless continued to debate the proper mix between smoothbore and rifled cannons in a FA regiment, much like how we discuss today the ratio of tube and rocket/missile artillery in our formations. Note that rockets made their appearance in the mid-nineteenth century, but their erratic trajectories made them almost useless. Huger "was out with the rifled guns" by the middle of the war, and he wanted smoothbores to account for four of the six guns in each confederate battery. Henry

Hunt, on the federal side, insisted that rifled cannons comprise, at a maximum, only 50% of the guns in the Union artillery arm. By late 1862, Robert E. Lee wanted only 12-pound Napoleon smoothbores for his artillery. He looked to abandon 4-pound, 6-pound and 24-pound smoothbores and rifled Parrott guns to "simplify our ammunition, [and] give us less metal to transport," he explained. Lee was particularly concerned with the "larger caliber, longer range and with more effective ammunition" guns, compared to the four and six pounders of the federal artillery arm. He became convinced that sturdy and highly reliable 12-pound Napoleons might offset those advantages. Dr. Hess explains in his book "continued reliance on the Napoleon was thoroughly grounded in pragmatic consideration, rather than symptomatic of widespread resistance to change."

Still, some artillerists prattled on about rifled cannons' advantages over smoothbore pieces in counter-battery fights. Infantry commanders—who directed the employment of FA assets on the battlefield—could not have cared less, and they directed artillerists to uniformly focus on supporting the Infantry, which meant Redlegs faced "absorbing" adversary counter-battery fires. General Winfield Scott Hancock, for example, ordered his Redlegs to ignore Lee's artillery at Gettysburg and to "save artillery rounds for punishing confederate Infantry at close distance [rather] than to waste it in long-distance counter-battery fire." While, as noted in an earlier entry in this series, rifled musket fire as much as artillery fire savaged George Pickett's division, Hancock's orders give us insight into why Redlegs devoted executing most of their fires at ranges within 50 yards. Long-distance firing, or at ranges beyond 100 yards, was comparatively rare because commanders insisted their artillerists hold their fires to punish the enemy's Infantry at close range after an initial few tries of long range produced little impact. "Evidence is overwhelming that officers and men alike did not use the weapon [cannons] for long-distance firing," Hess concludes.

Perhaps today's discussions about Multi-Domain Operations and long-range precision fires—the Army's number one modernization priority—might benefit from some historical context. The historical profession will caution us to be extremely wary of adopting technology for the sake of adopting technology. To mix metaphors, we should always curb our enthusiasm for the shiniest thing that draws our attention, and we must remain careful not to throw the baby out with the bath water when we assume that the newest technology will enable us to replace proven technology.

To be continued...