

Revolution in Military Affairs

Parallels of 18th and 19th century tactics and technologies to 21st century cyberspace operations

by LtCol Jamel Neville

While the cyberspace domain changes how today's global superpowers compete militarily, parallels and insights can be gleaned from the revolutions in military affairs over the past two centuries. In the late eighteenth century and throughout the nineteenth century, the French Revolution, Napoleonic Wars, and Industrial Revolution shifted the ways and means in which battles were fought and won between nation-states. The French Revolution demonstrated the value of the citizen soldier and national armies over episodic formations. This value, coupled with Napoleon's employment of non-traditional maneuver tactics

>LtCol Neville is a 1702 Cyberspace Officer.

and kinetic fires, made France a formidable threat within Europe during the Napoleonic Wars (1803–1815). The Royal Prussian Army's Field Marshal Helmut von Moltke further advanced maneuver warfare concepts through the establishment of the general staff, empowerment of subordinate commanders at the tactical level, and exploitation of the introduction of locomotive technology throughout the nineteenth century.

As the world transitioned from the Industrial Age to the Information Age throughout the twentieth century, the United States enjoyed a notable competitive advantage in the cyberspace domain following its invention of the Internet. However, over the past two decades, nation-states, to include Russia, China, Iran, and North Korea have expanded their cyberspace capabilities to be on par with the United States.

Nineteenth century military sea and land operations, French Army shortcomings and the successes of the Prussian Army provide joint and MAGTF commanders, operational planners, and cyberspace operations forces (cyber warriors) historical references for planning and directing cyberspace operations. While Napoleon's maneuver warfare tactics provided him with a competitive advantage, these successes were short-lived. Moltke's advancement of maneuver warfare concepts through reformations of the Prussian Army are worth noting. He placed a premium on training and education, optimized command and staff operations, and capitalized on the technological shifts of the Industrial Revolution. These reformations ultimately changed the character and nature of warfare well into the twentieth century.

Warfare has shifted from the deployments and maneuvering of large formations at the level of total war (e.g., World Wars I and II) to the persistent, multi-domain operations of today. From Russia's employment of cyberspace effects to enable "gray zone" operations and disinformation campaigns; to Iran's routine acts of cyberespionage;



Napoleon; (Painting by Jacques-Louis David, 1748-1825.)



Helmut von Moltke, the Elder. (Photo by A. Savin.)

and North Korean conducting sophisticated cyber-attacks over the past decade, U.S. adversaries are leveraging the cyberspace domain to increase their legitimacy on the world stage. Adversarial threats will continue to persist within cyberspace and become more complex. Joint and MAGTF commanders and operational planners must understand how to effectively employ cyber warriors against these threats, and integrate cyber capabilities to enable the lethality across multi-domain operations.

Napoleonic Wars

Throughout the late eighteenth and into the nineteenth century, nation-states primarily employed frontal attacking formations. Battles were fought in stages (e.g., artillery, following by infantry and cavalry, etc.). Napoleon annihilated European armies by employing non-traditional tactics to include light, maneuverable infantry formations to envelop opposing armies. Enabled with supporting combat arms (i.e., artillery), Napoleon massed the preponderance of his forces and fires against an opponent's center of gravity, at the time and place of his choosing.

While there are many advantages to Napoleon's maneuver and combined arms tactics for joint and MAGTF commanders and cyber warriors to reflect upon, it must also be noted that Napoleon's centralized command and control model resulted in his failure. "Napoleon insisted not only on one-man rule but also on one-man command, the operational core of his staff was never more than an organization for assembling information he required and for transmitting reports and orders," according to Peter Paret in "Napoleon and the Revolutionary War" in *Makers in Modern Strategy*.¹ Napoleon's centralized command and control model impeded his ability to wage war as nation-states' armies grew and became more geographically dispersed. The increase in force disposition—under a single commander—ultimately resulted in a series of French defeats by *coalitions* of European nations between 1808 and 1815. While Russia, China, Iran, and North Korea have increased their cyberspace capabilities, authoritarian states

lack the advantage of strong coalitions such as the United States and its Five Eye (FVEY [Australia, Canada, New Zealand, the United Kingdom, and the United States]), North Atlantic Treaty Organization (NATO), and Association of South East Asian Nations (ASEAN) partners. These relationships provide the joint or MAGTF commander the ability to potentially leverage additional authorities or resources required to effectively execute cyberspace operations.

... Napoleon's centralized command and control model resulted in his failure.

Moltke and the Royal Prussian Army General Staff

The Royal Prussia Army gleaned lessons and insights from the Napoleonic Wars and instituted a series of reforms to further mature the concept of maneuver warfare. These reforms included refining envelopment tactics and introducing the *mission command* model. The Prussian general staff was comprised of a group of officers who were empowered

to develop military operational plans, executed by subordinate commanders at the tactical level. "Moltke transformed the Prussian general staff into a unique instrument combining flexibility and initiative at the local level with conformity to a common operational doctrine and to the intentions of the high command," according to Gunther Rothenberg.² The mission command model enabled Prussian tactical commanders to make decisions at their level, which yielded better operational outcomes.

Being selected to serve on the Prussian general staff represented a great accomplishment, for it was staffed with the most highly qualified officers. Moltke further matured Napoleon's merit-based system by requiring all general staff members to complete professional military education. A disciple of Clausewitz and inspired by the tactics of Napoleon, Moltke sought and encouraged critical thinking and decision making. All officers completed *Kriegsakademie* (War College) prior to serving on the general staff and as a prerequisite for field command. He fostered a culture of life-long learning through a variety of continuous staff training and instruction. "[Moltke] schooled the [general staff] to think through the problem of attaining the end of strategy through the conduct of operations. He used this operational conduct as a level



Cyberspace operations are intelligence-driven. (Photo by SSgt Jacob D. Osborne.)



Cyber warriors should operate with an offensive mindset. (Photo by SSgt Jacob D. Osborne.)

for achieving the strategic goal,” according to Michael Krause.³

The Industrial Revolution birthed the train and railway system. The technology increased lines of communication and decreased the tyranny of distance in the land domain. While Napoleon’s principle of maximizing the preponderance of forces and fires at an opponents’ centers of gravity, the introduction of the locomotive enabled Moltke and the Prussian general staff to facilitate these conditions more rapidly and over greater distances. As noted by Paret,

[t]roops could be transported six times as fast as the armies of Napoleon had marched, and the fundamentals of all strategy—time and space—appeared in new light ... The speed of the mobilization and of the concentration of armies became an essential factor in strategic calculations.⁴

Rather than analyzing the locomotive capabilities in isolation, Moltke and the Prussian general staff creatively integrated its capabilities to further enhance existing military capabilities (i.e., forces and fires) and plans to achieve Prussia’s strategic military aims. Joint and MAGTF commanders and cyber warriors should view and employ cyberspace capabilities in the same manner.

Creativity, foresight, and ingenuity are what set Moltke apart and gave the Prussian Army its competitive advantage throughout the nineteenth century. The result was an elite corps of Prussian Army planners, empowered to think critically and develop solutions in a decentralized manner. Commanders and staffs should glean from this principle by continuously working to bring cyber warriors’ collective intellectual capital to bear and exploring the art of the possible in the cyberspace domain. Cyber warriors should not only be highly trained technicians and critical thinkers, but their tradecraft must be intelligence-driven. Cyber warriors must understand *how* existing and emerging defensive and offensive cyberspace capabilities enable favorable operational and strategic outcomes. Moreover, given the joint interdependence and strategic impacts of cyberspace operations, cyber warriors should be able to effectively lead people, collaborate, and interoperate with multiple stakeholders.

Final thoughts

A key advantage that the United States has over authoritarian states is its fostering innovation and ideas for the greater good of society, such as the invention of the Internet. However, the

United States must not be naive or grow complacent as unprincipled global actors continue to leverage the Internet to undermine and threaten democracy and national security.

Cyber warriors should operate with an offensive mindset and persistently explore the *art of the possible* when planning and conducting cyberspace operations against adversarial threats. Joint and MAGTF commanders and operational planners must ensure cyber warriors are well-trained and empowered to innovate and develop cyber warfighting excellence. Innovative thinking increases within teams and organizations as leaders develop a culture of trust, empower people, and effectively manage talent. Cyber warriors must be challenged and given a sense of purpose to ensure the Joint Force remains postured to *fight and win* in the cyberspace domain. The study of Moltke and his development of the Prussian general staff is a noteworthy example.

Finally, commanders must realize that cyberspace operations are a *joint* fight with little to no separation between the tactical and strategic levels of military operations. Despite Napoleon’s dominance, he was ultimately defeated by a *coalition* of countries. The United States’ strategic partnerships with its FVEY, NATO, and ASEAN partners are key to enabling global offensive and defensive cyberspace operations in support of national security objectives.

Notes

1. Peter Paret, “Napoleon and the Revolutionary War,” *Makers of Modern Strategy*, (Princeton, NJ: Princeton University Press, 1986).
2. Gunther E. Rothenberg, “Moltke, Schlieffen and the Doctrine of Strategic Envelopment,” *Makers of Modern Strategy*, (Princeton, NJ: Princeton University Press, 1986), 301.
3. Michael D. Krause, “Moltke and the Origins of the Operational Level of War,” *Historical Perspectives of the Operational Art*, (Washington, DC: Center for Military History, 2005).
4. “Napoleon and the Revolutionary War.”

