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In air combat, "the merge" occurs when opposing aircraft meet and pass each other. Then they usually "mix it up." In a similar spirit, Air and Space Power Journal*'s "Merge" articles present contending ideas. Readers are free to join the intellectual battlespace. Please send comments to aspj@maxwell.af.mil.*

The Mutable Nature of War

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Carl von Clausewitz, the Prussian general and academic who died nearly two centuries ago, authored what many consider the most brilliant treatise ever written about war. Among other things, he discussed the nature of war, which he also referred to as the "essence," "culture," or "atmosphere of war." To Clausewitz, this nature was timeless and immutable. Time and again he referred to war as combat, fighting, and bloodshed. He wanted to make clear that war followed no easy paths, continually instructing his readers that combat and violence comprised the nature of war and that, for the individual soldier, war was hell:

> War is an act of force, and there is no logical limit to the application of that force. . . .
>
> . . . War is a pulsation of violence. . . .
>
> . . . It is inherent in the very concept of war that everything that occurs *must originally derive from combat* (emphasis in original). . . .
>
> War is the realm of physical exertion and suffering. . . .
>
> Danger, physical exertion, intelligence, and friction [are] the elements that coalesce to form the atmosphere of war. . . .
>
> Every engagement is a bloody and destructive test of physical and moral strength. . . .
>
> . . . It is always true that the character of battle, like its name, is slaughter [*Schlact*], and its price is blood.[1]

These are examples of the dozens of such statements made by Clausewitz to define his subject. His work is a relentless hammering of these ideas, and he denigrated individuals who believed that war could be won without the slaughter: "Kind-hearted people might of course think there was some ingenious way to disarm or defeat an enemy without too much bloodshed, and might imagine this is the true goal of the art of war. Pleasant as it sounds, it is a fallacy that must be exposed."[2] This thesis implies a fundamental reliance on the individual soldier and a consequent devaluation of technology: Clausewitz focused on morale and fighting spirit. This stance is perhaps understandable because the Napoleonic warfare that he witnessed and that forms the basis of his work was largely devoid of technological innovation. Although considered a "revolution in military affairs," warfare of the Napoleonic era differed little, technologically, from that of Frederick the Great a half century earlier. The brilliance of the Corsican lay in his organization, strategy, mobility, and audacity.[3]

The beliefs of Clausewitz regarding the nature of war have influenced many military historians, theorists, Soldiers, and Marines. For example, John A. Lynn cautions his readers not to "forget that the ultimate fact of military history is combat, actually fighting, with all its danger and its heavy costs."[4] Victor Davis Hanson echoes this

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view, writing that "military history must never stray from the tragic story of killing, which is ultimately found only in battle." To him, "wars are the sum of battles."[5] Another eminent military historian, Martin van Creveld, says much the same thing. Noting war's timelessness and immutable character, he writes, "In many ways it has remained essentially the same at all times and in [all] places." To van Creveld, the essence of war involves danger, risk, destructiveness, selflessness, hardship, and even exhilaration.[6] Importantly, however, not all military historians agree with the Prussian theorist. According to Basil H. Liddell Hart, a lifelong skeptic of Clausewitz, "The spirit cannot win battles when the body has been killed through failure to provide it with up-to-date weapons."[7]

The US Army supports the Clausewitzian view of war. Writing about that service's self-image, Adrian Lewis notes that the Army views "the primary instrument for the conduct of battles" as "a soldier armed with an individual weapon" and that "the principal mission of the Army" is to "fight the nation's wars by closing with the enemy and destroying his main Army in battle." Lewis concludes that, according to the Army, "man is the dominant instrument on the battlefield."[8] Although one of the Army's doctrine manuals noted the move towards more capable technology, it quickly dismissed such a trend: "Warfare remains a test of the soldier's will, courage, endurance, and skill. Freezing rain, muddied foxholes, blistering heat, physical exertion, and imminent danger will remain the domain of the soldier."[9] The current field manual dealing with counterinsurgency echoes this view, noting that war in the twenty-first century "retains many of the characteristics it has exhibited since ancient times," describing war as "a violent clash of interests" and positing the need "to generate enough violence" to achieve objectives.[10] America's other ground army takes a similar view.

The US Marine Corps' basic doctrine manual, Fleet Marine Force Manual 1, *Warfighting*, declares that "the basic nature of war is constant," defining this nature as "a violent clash between two hostile, independent, and irreconcilable wills, each trying to impose itself on the other." Referring to war as "organized violence," it cautions that some people would try to trick us into believing otherwise but that we shouldn't be deceived: "The violent essence of war will never change. Any study of war that neglects this characteristic is misleading and incomplete."[11]

Marine Corps generals have been inculcated in this belief, one retired lieutenant general arguing that "the fundamental nature of war hasn't changed, won't change, and, in fact, can't change. . . . Nothing has happened that's going to change the fundamental elements of war. The nature of war is immutable." Dismissive of technology that arguably has altered the nature of war, he says, "My experience has been that those who focus on the technology, the science, tend towards sloganeering." To him, new ideas and revolutionary doctrines of war such as network-centric warfare or information dominance are mere semantic sleight of hand: "You could fill a book with all of these slogans." Instead, the general insists that war is a "terrible, uncertain, chaotic, bloody business" and that anyone who even attempts to devise methods that will reduce or eliminate such calamities is "very shallow" and "fundamentally flawed." To him, boots on the ground represent the essence of war. He argues that if we had used more of them in Iraq at the beginning of Operation Iraqi Freedom, "you might have convinced a lot of people that the war was over at that time."[12] He is not the only Marine to feel strongly about throwing more human beings instead of machines at the problem. According to the current head of US Central Command, "There comes a point when a country puts young folks at risk because it becomes important for them to defend a certain way of life. . . . From a Marine point of view, we can't lose our honor by failing to put our own skin on the line."[13]

One can only hope that his or her own son or daughter never serves under the

likes of people such as the generals mentioned above, who believe that *their* "honor" requires placing the lives of American troops at needless risk. These historians and generals most seriously err in equating land warfare—specifically, conventional battle as once practiced—with war. This error reflects institutional bias and downplays the role of technology.

One of the most effective and ancient aspects of naval war is the blockade. A form of economic warfare not dependent on a bloody clash of armed men, this traditional weapon of sea warfare attempts to disrupt and strangle an enemy's commerce. All countries—and now nonstate actors as well—require money and resources with which to wage war. A blockade—as well as its close cousin the sanction—seeks to control the sea lines of communications, thereby reducing money and resources available to an adversary so that he can no longer prosecute the war effectively. One of the great naval theorists, Sir Julian Corbett, succinctly remarked that "the object of naval warfare is the control of communications, and not, as in land warfare, the conquest of territory. The difference is fundamental."[14] It is indeed.

Nations that possess a sizable fleet but a small army have often used the naval blockade as their preferred weapon. In World War I, for example, Britain led the Allied powers in establishing a starvation blockade against the Central Powers—Germany and Austria-Hungary. According to the British official history of this action, more than 800,000 German civilians died as a direct result of the blockade.[15] During the 1990s, sanctions imposed by the United Nations to pressure Saddam Hussein also produced such odious results in Iraq. These sanctions killed over one million Iraqi civilians—the majority of them women and children.[16] Coercive measures imposed on Haiti between 1991 and 1993 in an attempt to push out the military junta in power proved similarly horrific, devastating the Haitian economy: unemployment soared to 70 percent, inflation doubled, and gross domestic product dropped 15 percent. Moreover, 1,000 children died each month as a direct result of the legally levied sanctions.[17] Small wonder that two observers wrote a critical and cynical article on the matter titled "Sanctions of Mass Destruction."[18]

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This was war, and it was extremely deadly, but it involved no battles and no violent clashes of arms. If violence does occur during a blockade or the enforcement of sanctions, it generally takes place far out at sea or at a roadblock: the civilians, the real targets, die quietly and bloodlessly.

A similarly bloodless yet potentially devastating new method of war involves cyberspace. Adversaries can hack into computers, implant viruses and worms, shut down systems, or order bogus commands and actions. In May 2007, Estonia came under attack, presumably by Russia, and experienced problems with its computers in businesses, banks, telecommunications, the media, and the government. In August 2008, cyber attacks were launched against Georgia, again probably by Russia, at the same time Russian military forces invaded the country. The cyber assaults concentrated primarily on Georgia's ability to access the outside world via the Internet and media in order

to tell its side of the story in the military/political dispute.[19] In November 2008, assaulters struck Pentagon computers, seeking "remotely to take control of computers and rifle their files." In July 2009, a cyber barrage, presumably by North Korea, shut down tens of thousands of government and military computers in South Korea.[20] The Congressional Research Service and the Government Accountability Office have studied the issue on several occasions and posted repeated warnings that the US government is ill prepared to defend itself against a robust cyber attack. They note that the number of reported cyber incidents against the United States has more than tripled in recent years. Although admitting that "there has been no published report of a coordinated cyberattack [*sic*] launched against the critical infrastructure by a terrorist or terrorist group," they fear that hitherto unsophisticated terrorist attempts will lead to complacency. Both agencies are especially concerned about the danger of cyber attack posed by China and Iran.[21] One report sees China using coordinated cyber and kinetic strikes against a foe's networked information systems. The Chinese have adopted a formal strategy for this offensive system that they term "Integrated Network Electronic Warfare."[22]

Although massive cyber attacks against a nation have not yet occurred—with the possible exception of the Russian operations against Georgia—the above incidents reveal a probing approach and learning curve that bode ill for the future. Nightmare scenarios abound, and it is not difficult to imagine a situation in the near future when cyber attacks occur simultaneously with kinetic strikes in a major assault. The nature of such cyber offensives could include not only degradation of everyday services such as automated teller machines, traffic lights, and power grids, but also more serious assaults on the banking and financial systems, stock market, and air traffic control radars. It is logical to assume that military facilities such as air defense systems and command and control networks would also be targeted.

These cyber attacks would originate with individuals in shirt sleeves, perhaps civilians, sitting at computer terminals thousands of miles from the places that would feel the effects of their operations. These offensives would involve no risk and no bloodshed, yet they could wreak havoc on a nation's economy and way of life.

The notion of battle as the province of fear, anxiety, and exhaustion is outdated because technology has dramatically altered this archaic situation. Modern air warfare has proven remarkably bloodless for American Airmen. Since the Vietnam War ended, the US Air Force has flown hundreds of thousands of combat sorties yet has suffered only slight losses. Since 1973 the service has lost a total of 18 manned aircraft in combat (costing the lives of 20 crew members), an astoundingly low rate.[23] In most cases, modern air war as practiced by the United States and its close allies is not the realm of death, exhaustion, blood, and fear—at least not to the degree inherent in traditional forms of warfare.

Then there are the drones. In 2001 the United States put precision-guided missiles on remotely piloted aircraft (RPA) and launched them at high-ranking al-Qaeda officials in Afghanistan with stunning success.[24] Predators and Reapers launching Hellfire missiles are flown and commanded by pilots sitting as far distant from the battlefield as Creech AFB, Nevada.[25] Such strike missions have become commonplace. Military officers report for work at locations in the United States and, during a typical shift, fly RPA combat sorties halfway around the world. On many occasions, the RPA sensors locate, identify, and track terrorists and enemy combatants. Sometimes they fire missiles at those targets in order to destroy them. The drone pilots leave work and return home to their families without having experienced personal danger, risk, fear, physical exertion, overwhelming thirst, hunger, or exhaustion. And the drones themselves can be very courageous.

Do not misunderstand. I am no way denigrating the efforts or courage of either our valiant combat crew members or the drone pilots. It is a very *good thing* that they can practice war in a way that severely limits their exposure to death and casualties. That is as it should be. As one fighter pilot told me, "If you're in a fair fight, you didn't plan it properly." The role and *duty* of military planners from all services should involve doing everything in their power to plan operations that limit the exposure of American forces to danger. Deliberately risking the lives of America's sons and daughters is not honorable—it is criminal.

The nature of war is mutable. Warfare in the modern world remains deadly and destructive, but it need not be violent or bloody. The fundamental aspect of war in centuries past may have taken the form of sanguinary battles between infantrymen, but that is no longer necessarily the case. Traditional sea warfare, as well as present-day cyber operations, can become enormously deadly and destructive—but neither violent nor bloody. Technology also has helped ensure the remarkable effectiveness and efficiency of modern air warfare. Loss of aircraft and the lives of crew members has dropped exponentially over the past several decades. Moreover, this decline in casualties has been the rule not only for the United States but also for enemies on the receiving end of our air strikes.

Operations Desert Storm, Deliberate Force, Allied Force, Enduring Freedom, and Iraqi Freedom have produced a remarkably small civilian casualty toll due to air attack, given the bomb tonnage dropped. Indeed, Marc Garlasco of Human Rights Watch refers to airpower as "probably the most discriminating weapon that exists."[26] One report by that organization regarding the initial stages of Iraqi Freedom states that "the ground war caused the vast majority of the deaths," attributing, for example, 90 percent of all civilian casualties to ground-launched cluster-bomb munitions used at al-Hilla.[27]

Iraq Body Count (IBC), which provides an account of civilian casualties in Iraq, has determined that around 85,000 Iraqi civilians died as a result of the war, through 2008. Air strikes caused about 9,500 of these—11.2 percent of the total. Significantly, since 2005 the war has seen a decrease in both the number of civilian deaths and the percentage of deaths attributable to air attack—to 2.6 percent. In other words, IBC calculates that over 97 percent of the 60,922 Iraqi civilians killed since 2005 have fallen victim to ground warfare.[28] An examination of the war in Afghanistan yields comparable statistics. Specifically, a recent study shows that of the 152 casualties among women and children caused by coalition forces between January 2009 and March 2010, only nine (6 percent) were the result of air strikes. In fact, coalition traffic accidents claimed nearly three times that many women and children![29] Regrettably, the mass media often depict airpower as violent and graphic but consider a blockade nonviolent and bloodless—despite the number of people who actually die in both military actions. Tellingly, a RAND study refers to airpower, especially any associated collateral damage, as "mediagenic," noting that the more graphic medium of television is four times more likely than its print counterpart to report incidents of collateral damage.[30]

Can we always expect such dramatic effectiveness at such low cost? Of course not. But in facing any crisis, our leaders should take as their *entering premise* the goal of attaining such results. We are not condemned to suffer horrendous death, destruction, and "*Schlact*" in the conduct of military operations. Technology, especially as exemplified by modern air warfare, shows that we can aspire to a higher objective. The old canard that considers the nature of war immutable, that assumes it was the same for one of Alexander's hoplites as for a grunt in Afghanistan, is simply not true. War has changed, and so has its nature. ✪

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Notes

1. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 77, 87, 95, 101, 122, 231, 259.

2. Ibid., 75.

3. The best study of Napoleon and his methodology of war remains David G. Chandler's *The Campaigns of Napoleon* (New York: Macmillan, 1966).

4. John A. Lynn, *Battle: A History of Combat and Culture* (Boulder, CO: Westview Press, 2003), xv.

5. Victor Davis Hanson, *Carnage and Culture: Landmark Battles in the Rise of Western Power* (New York: Doubleday, 2001), 7.

6. Martin van Creveld, *The Culture of War* (New York: Presidio Press, 2008), xv and chap. 6, "The Joy of Combat."

7. Basil H. Liddell Hart, *Thoughts on War* (London: Faber and Faber, 1944), 158.

8. Adrian R. Lewis, *The American Culture of War: The History of U.S. Military Force from World War II to Operation Iraqi Freedom* (New York: Routledge, 2007), 40.

9. Field Manual (FM) 100-5, *Operations*, June 1993, 1-2.

10. FM 3-24 / Marine Corps Warfighting Publication 3-33.5, *Counterinsurgency*, December 2006, 1-1.

11. Fleet Marine Force Manual 1, *Warfighting*, 6 March 1989, chap. 1, "The Nature of War," specifically, 13, 3, 11.

12. "The Immutable Nature of War" [interview with Lt Gen Paul Van Riper], *NOVA*, 17 December 2003, http://www.pbs.org/wgbh/nova/wartech/nature.html.

13. "Panel Touts Robots' Future Combat Role," *Virginian-Pilot*, 28 January 2009, 13, http://www.military.com/news/article/panel-touts-robots-future-combat-role.html?ESRC = topstories.RSS.

14. Julian S. Corbett, *Some Principles of Maritime Strategy* (Annapolis, MD: Naval Institute Press, 1988), 94.

15. A. C. Bell, *A History of the Blockade of Germany and of the Countries Associated with Her in the Great War, Austria-Hungary, Bulgaria, and Turkey, 1914–1918* (London: Her Majesty's Stationery Office, 1937), 672. See also Lt Louis Guichard, *The Naval Blockade, 1914–1918*, trans. and ed. Christopher R. Turner (New York: D. Appleton, 1930), 294. Guichard notes that the blockade remained in place for two years *after* the armistice to pressure the Germans into signing a peace treaty and making the required reparations payments.

16. UNICEF, *Child and Maternal Mortality Survey, 1999: Preliminary Report*, July 1999, 10; and Fourth Freedom Forum, *Morbidity and Mortality among Iraqi Children from 1990 through 1998: Assessing the Impact of the Gulf War and Economic Sanctions*, March 1999, 1, http://www.fourthfreedom.org/Applications/cms.php?page_id = 7.

17. David E. Weekman, "Sanctions: The Invisible Hand of Statecraft," *Strategic Review* 26 (Winter 1998): 40.

18. John Mueller and Karl Mueller, "Sanctions of Mass Destruction," *Foreign Affairs* 78, no. 3 (May/June 1999): 43–53.

19. Robert A. Miller and Daniel T. Kuehl, "Cyberspace and the 'First Battle' in 21st-Century War," *Defense Horizons*, no. 68 (September 2009): 3, http://www.ndu.edu/CTNSP/docUploaded/DH68.pdf.

20. Rebecca Grant, "The Cyber Menace," *Air Force Magazine* 92, no. 3 (March 2009): 24–25; and Siobhan Gorman and Evan Ramstad, "Cyber Blitz Hits U.S., Korea," *Wall Street Journal*, 9 July 2009, http://online.wsj.com/article/SB124701806176209691.html.

21. John Rollins and Clay Wilson, *Terrorist Capabilities for Cyberattack: Overview and Policy Issues*, CRS Report for Congress RL33123 (Washington, DC: Congressional Research Service, 22 January 2007), 1–4, 10–11, http://www.fas.org/sgp/crs/terror/RL33123.pdf; and *Homeland Security: DHS's Progress and Challenges in Key Areas of Maritime, Aviation, and Cybersecurity*, GAO-10-106 (Washington, DC: Government Accountability Office, 2 December 2009), 8, 18, http://www.gao.gov/new.items/d10106.pdf.

22. Bryan Krekel, *Capability of the People's Republic of China to Conduct Cyber Warfare and Computer Network Exploitation*, Prepared for the US-China Economic and Security Review Commission (McLean, VA: Northrop Grumman Corporation, 9 October 2009), 6, http://www.uscc.gov/researchpapers/2009/NorthropGrumman_PRC_Cyber_Paper_FINAL_Approved%20Report_16Oct2009.pdf.

23. Data derived from the *Gulf War Air Power Survey*, and various fact sheets from US Air Forces in Europe, US Air Forces Central, and Headquarters US Air Force. For example, the Air Force flew 37,567 combat sorties in Operation Desert Storm; 1,066 in Operation Deliberate Force; over 189,000 in Operations Northern and Southern Watch; 24,345 in Operation Enduring Freedom / Operation Iraqi Freedom during 2005; 38,026 in Enduring Freedom / Iraqi Freedom during 2008, and so forth.

24. The US Air Force began the program for arming Predator RPAs in 2000. The Central Intelligence Agency soon joined the effort. For the background, see *The 9/11 Commission Report: Final Report of the*

National Commission on Terrorist Attacks upon the United States (Washington, DC: US Government Printing Office, 22 July 2004), 210–13. For the Predator's effectiveness against terrorists, see Michael Evans, "Death from Above: How Predator Is Taking Its Toll on al-Qaeda," *Times*, 3 January 2009, http://www.timesonline.co.uk/tol/news/world/middle_east/article5435471.ece.

25. Predator/Reaper operations have dual control: teams in-theater launch and recover them, but bases in the United States control them during the flight itself.

26. Quoted in Charles J. Dunlap Jr., "Lawfare: A Decisive Element of 21st-Century Conflicts?," *Joint Force Quarterly* 54 (3rd Quarter 2009): 36, http://www.abanet.org/natsecurity/readings/LawfareDunlapJun09.pdf.

27. *Off Target: The Conduct of the War and Civilian Casualties in Iraq* (New York: Human Rights Watch, 2003), 13, http://www.hrw.org/sites/default/files/reports/usa1203.pdf.

28. The Iraq Body Count Web site contains a number of studies dealing with Iraqi civilian deaths. For the early period, see "A Dossier of Civilian Casualties, 2003–2005." IBC continues to update its figures at http://www.iraqbodycount.org.

29. Luke N. Condra et al., *The Effects of Civilian Casualties in Afghanistan and Iraq*, NBER Working Paper 16152 (Cambridge, MA: National Bureau of Economic Research, July 2010), 9–13, 34, http://www.nber.org/papers/w16152.pdf. Of note, insurgents caused 86 percent of the 4,077 civilian casualties that occurred during that period.

30. Eric V. Larson and Bogdan Savych, *Misfortunes of War: Press and Public Reactions to Civilian Deaths in Wartime* (Santa Monica, CA: RAND, 2006), xx, 2, http://www.rand.org/pubs/monographs/2006/RAND_MG441.pdf.