ADDRESSING AN audience at Trinity College in 1963, British historian Noble Frankland remarked, "People have preferred to feel rather than to know about strategic bombing." He was referring to the difference in opinions concerning the effectiveness of strategic bombing in World War II. For example, authors of The United States Strategic Bombing Survey (USSBS) maintained that Allied air attacks were decisive in winning the war in Western Europe. Using the same survey as evidence, J. F. C. Fuller pronounced the Combined Bomber Offensive a largely wasted operation. That these controversies continued to exist despite the voluminous data contained in the USSBS lends credence to Frankland's observation that the subject had been addressed on the emotional rather than on the cognitive level.
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Similar to the lack of agreement on the effectiveness of the Allied bombing offensive, there is no consensus as to the significance of the Gulf War air campaign. Central to the ongoing debate is whether Desert Storm heralds a revolution in warfare. In his book Storm over Iraq, US Air Force historian Dr Richard Hallion states that the war confirms “a major transformation in the nature of warfare: the dominance of air power.” Opposing this position, individuals like William S. Lind, author of The Maneuver Warfare Handbook, argue that the air campaign certainly damaged Iraq’s strategic infrastructure, but it did not decisively defeat the Iraqi army in Kuwait, a fact that discredits talk of revolution. Thus, Frankland’s comment also seems to apply to the current disagreements concerning the significance of the Gulf War bombing campaign.

The contradictory opinions discussed above offer testament to much “feeling” but little “knowing.” To reverse this situation and to examine Desert Storm on a cognitive level, one must first define what constitutes a revolution in warfare. This article establishes such a definition that can serve as a standard and then evaluates Operation Desert Storm against this standard. It concludes that the air campaign only represents a revolution if viewed as a single snapshot in time. However, such a view is fundamentally flawed since revolutions require validation over time and repetition. Most important, to prematurely judge Desert Storm as a revolution in warfare could leave the US military ill prepared to deal with twenty-first century threats.

**Strategy of Annihilation**

Perhaps the most logical method of establishing a standard for evaluating Operation Desert Storm is through the use of historical example. In the 1864–65 American Civil War campaign designed by Gen Ulysses S. Grant, one finds an example of warfare undergoing revolutionary change. As such, Grant’s operations can serve as a historical “Rosetta stone” that provides the key to deciphering the significance of Operation Desert Storm.

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The first step in comprehending how Grant changed the face of warfare is to understand the type of warfare that his campaign replaced. On 20 September 1792, the combined armies of French generals Charles Dumouriez and François Kellermann caused the Prussian army commanded by the Duke of Brunswick to withdraw from a battlefield near Valmy in northeastern France. French Marshal Ferdinand Foch noted the significance of the encounter, remarking that it ended the wars of the kings and launched a new era of nationalistic peoples wars. The man who emerged as the leading figure of this new era was, of course, Napoléon Bonaparte. By combining the nationalistic fervor generated by the French social revolution and his own genius, Napoléon created the strategy of annihilation, a paradigm of warfare that dominated military thinking for the next century.

Historian David G. Chandler, author of The Campaigns of Napoleon, summed up the French emperors approach to war by calling him “the proponent of the single knockout blow.” Elaborating on Chandler’s thought, J. F. C. Fuller noted that Napoléon generally achieved this annihilating punch by adhering to a single overarching principle—a concentrated superiority of force on the battlefield, particularly at the decisive point of attack. A look at the French army’s 1805 campaigns reveals the devastating effectiveness of this strategy. In that year, Napoléon gathered his corps, at the time quartered all over western Europe, and brought them together with perfect timing to surround the Austrian army at Ulm. After Austrian general Karl Mack capitulated, Napoléon dispersed his forces only to have them converge again and defeat the Austrians and Russians at Austerlitz.
Figure 1 depicts the Napoleonic strategy of annihilation and makes it apparent that Napoléon’s success resulted from his ability to manipulate the rudimentary elements of warfare: time, space, and mass. By combining these basic elements into a single point, Napoléon forced his enemies either to capitulate, as Mack did, or to face annihilation, as happened to the Austrian and Russian armies at Austerlitz. German military historian Hans Delbruck labeled this type of warfare, which has as its aim the decisive battle, the strategy of annihilation. Whether termed strategy of the single point or strategy of annihilation, the convergence of time, space, and mass into a single instance constitutes classical Napoleonic warfare.

Without question, this strategy of annihilation had an enduring impact on warfare. As Napoleonic historian Gunther E. Rothenberg points out, starting with the French Revolution in 1792 and ending with Napoléon’s defeat at Waterloo in 1815, more than 644 major battles took place. Certainly not all these clashes resulted in French victories; however, a common thread running through them all was an ever-growing adoption of the French method of battle.

For decades after his death, Napoléon’s concept of the decisive battle of annihilation continued to wield a heavy influence on military thinking. In the midnineteenth century, for example, Field Marshal Helmuth von Moltke used the new strategic mobility made possible by railroads to rapidly mass-mobilize Prussian forces and win decisive Napoleonic-type victories during the wars of German unification. Motivating Moltke was a belief that through such rapid concentrations he could elevate the principle of quick, decisive battle to a new and higher level.

Again, from these examples one sees that Napoléon’s genius lay in his ability to manipulate time, space, and mass—what can be thought of as the fundamental elements of warfare. However, had the battles of Ulm or Austerlitz been single occurrences, Napoléon’s operating concepts would have gone unnoticed. According to Carl von Clausewitz, an activity becomes susceptible to rational study only when it “deals primarily with the same things again and again—with the same ends and the same means...” This logic seems equally applicable to the study of revolution in warfare. That is, a type of warfare can only be proven as revolutionary after repetition over time. A look back at General Grant’s 1864–65 campaign confirms this conclusion.

**Strategy of Exhaustion**

In 1864 Grant observed that after three years of war the opposing forces, especially in the east, were in substantially the same positions they had occupied at the start of the war. Grant’s assessment of the situation came during a trip to Washington, D.C., where he received his third star and assumed command of all Union field armies. His promotion and subsequent reassignment represented a turning point in the struggle between classical Napoleonic and modern warfare. Grant understood that the Industrial Revolution had caused the modern battlefield to expand in length, breadth, and depth. Consequently, he realized that victory could no longer reside in one decisive action. Hence, instead of pursuing a strategy of annihilation, Grant conceived a strategy that would destroy the enemy by attriting his army and resources.

Thus the kind of campaign that General Grant had in mind was one that would be characterized by a series of battles—some fought sequentially, others by exhaustion simultaneously—that would be distributed across the entire theater of war. No one would likely be decisive, but the culmination of the effects of all would.

According to Grant, continuous hammering against the South’s military fortress would eventually, by exhaustion through attrition, force the Confederacy to capitulate.

In the spring of 1864, Grant planned a campaign composed of five operations to effect his strategy of exhaustion against the Confederacy. Gen George
Meade’s Army of the Potomac attacked Lee’s army in northern Virginia; Gen Benjamin F. Butler moved his forces by water up the James River to threaten Richmond and Lee’s lines of communications; Gen Franz Sigel was ordered to destroy food supplies and rail hubs in the fertile Shenandoah Valley; and Gen William T. Sherman was instructed to penetrate deep into the Confederacy and to destroy rail lines and supply centers at Atlanta, Augusta, Savannah, and Charleston. Grant planned an additional thrust at the South’s economic heart by ordering Gen Nathaniel P. Banks to seize Mobile and march inland to attack the economically vital areas of Montgomery and Selma, Alabama.

Although the ineptitude of several Northern generals caused some of Grant’s plans to go awry, his strategy of exhaustion ultimately proved successful. This success carried a significance beyond winning the war for the Union. His campaign design also recast the relationship of time, space, and mass. Figure 2 shows how these three basic elements were juxtaposed in Grant’s 1864–65 campaign. As the newly appointed Union commander understood, the Industrial Revolution had essentially formed entire nations into armed garrisons. This in turn greatly expanded the theater of war. As Grant correctly ascertained, attacking only an enemy’s army—essentially the Napoleonic method—would not cause a nation to surrender. Therefore, winning a modern war required a revolutionary new approach. After the Industrial Revolution, a successful attacker had to strike simultaneously and successively throughout a nation’s depth. Such a campaign of deep successive operations would severely attrit the enemy’s war-making capabilities, eventually causing his defeat.

As was the case with Napoleonic warfare, to fully appreciate the significance of the strategy of exhaustion requires looking at its enduring relevance over time. Events during the first half of the twentieth century provided the temporal test for the strategy first used by Grant. From the Russo-Polish War of 1920, influential Russian military intellectuals such as Michael Tukhachevsky developed firm beliefs on the necessity of using operational depth and sequential operations to win postindustrial age wars.

Also during this period, another Russian, A. A. Svechin, published Strategia in 1926, a treatise that further refined the Russian military concept of successive combat operations over time. Expressing thoughts that paralleled those of Grant half a century earlier, Svechin stated, “Great battles now in fact do not take place. Combat actions are broken down in time and space into a series of several combats. . . .” This strategy allowed the Red Army to draw the Wehrmacht into a series of successive operations that finally broke the German offensive on the outskirts of
In the western European theater of World War II, there were other campaigns that also affirmed Grant's strategy as the archetype for winning modern industrialized warfare. Just as the Union commander had orchestrated multiple operations against Confederate armies, Allied forces struck Axis forces in France and Italy. Concurrently, in a modern version of Sherman's deep raid against the South's economic resources and communications, Allied bombers delivered devastating blows against German industrial centers and rail hubs. World War II thus served as the test of time and repetition that fully validated the strategy of exhaustion as a true revolution in the ways wars are fought. Using Grant's campaign as a blueprint, one can now demonstrate why Desert Storm does not carry the same significance.

**Strategy of Paralysis**

Today mankind is experiencing the effects of a technology-based societal revolution. So proclaims Alvin Toffler in his future-oriented book The Third Wave. The changes associated with this new era are so profound that Toffler says that finding a name that encompasses them all is problematical. Terms like Space Age, Information Age, and Electronic Era come close, but overall seem to fail in capturing the ongoing changes in their entirety. Nevertheless, although third wave is difficult to describe, few persons today can argue its existence. Nor do many argue that, like the agrarian and industrial waves before it, this third wave is shattering social, political, and economic paradigms.

If history remains an accurate prognosticator, warfare will also change in this new era. If one thinks of the strategy of annihilation as a product of the agrarian age and the strategy of exhaustion as belonging to the industrial age, then it seems reasonable to assume that the third wave will spawn its own unique strategy. Individuals supporting Desert Storm as a revolution in warfare claim that this new strategy emerged during the Gulf War. As their logic goes, third-wave technological advances that produced stealth fighters and precision guided munitions also allowed coalition air forces to employ a new defeat mechanism against Saddam Hussein's military. The air attacks against Iraq led to defeat neither by annihilation nor exhaustion; instead, by using what has been coined parallel war, coalition aircraft "paralyzed" the Iraqis.

Figure 3 pictures parallel warfare and the strategy of paralysis. As one can see, the intent of parallel warfare is to reconfigure the basic elements of warfare by distributing mass along a time line that is narrow but a space continuum that is broad. This configuration allows mass to become concentrated in time but not in space. A brief review of the Desert Storm air campaign demonstrates that coalition air planners did succeed in using parallel air attacks to simultaneously strike throughout the length, breadth, and depth of Iraq.

"The third wave is shattering social, political, and economic paradigms."

For instance, during the first 24 hours of the war, coalition air forces carried out more strikes against Iraqi leadership, organizational elements, and fielded forces than the Eighth Air Force did against Germany in the entire year of 1943. Based on the lack of Iraqi response, air advocates legitimately maintain that these opening blows achieved paralysis. Throughout the remainder of the conflict, Saddam's forces offered no resistance other than some isolated tactical fights which, although intense to the combatants involved, proved operationally ineffective. The lopsidedness of the victory legitimized the strategy of paralysis and seemingly earmarked the air campaign as a notable event in the history of warfare. Pulitzer prize-winning author Rick Atkinson summarized the feelings of many airmen by saying, "In the twentieth century, only one sizable war had been decided by a single battle in a single day: the 1967 conflict between Israeli and Arab. Now there were two."
A revolution in warfare must cause more than a one-time reconfiguration between the relationships of time, space, and mass. This change must also prove enduring over time.

Actually, the scope of the Gulf War's first day went drastically beyond the Israeli Air Forces' (IAF) pre-emptive air strikes in the Six-Day War. In 1967 the IAF destroyed the Egyptian air force, giving Israel air superiority over the Sinai battlefield. With freedom of the skies assured, the IAF subordinated itself to Israeli Defense Force (IDF) ground forces. Then, while the IAF supplied close air support, highly mobile Israeli armored forces applied the killing blow, blasting through Egyptian defenses and eventually capturing the entire Sinai Peninsula. Proponents of the strategy of paralysis argue that, unlike the Six-Day War, the initial air strikes in Desert Storm accomplished much more than air superiority. Airpower for the first time administered the coup de main, the blow that brought on the enemy's defeat. 30

Since airpower provided the defeat mechanism in Desert Storm, airpower disciples assert that the victory unequivocally validates the strategy of paralysis and establishes the Gulf War as a revolutionary event in the history of warfare. 31 Actually, although Desert Storm may appear as a new era in warfare, reliance on a single sample makes this conclusion untenable. As proven by the historical analysis of Grant's campaign, a revolution in warfare must cause more than a one-time reconfiguration between the relationships of time, space, and mass. This change must also prove enduring over time.

Unless validated by repetition over time, a so-called revolution in warfare might just as likely be an aberration. In the Gulf War, this second criterion obviously remains unfulfilled, making it perilous to prematurely label the war as a revolution. However, Desert Storm advocates present a powerful counterargument to this reasoning. They contend that it is extremely dangerous in today's world to adopt a wait-and-see attitude toward the Gulf War victory. 32 To buttress this position, they cite the exponential rate at which third-wave change occurs. While the agrarian revolution took thousands of years to play itself out, the Industrial Revolution took only hundreds of years and the ongoing third wave may be complete in a few decades or less. 33 In this environment of rapid change, air proponents reason that the United States cannot afford the time required to validate new strategies of warfare. They maintain that changes in technology develop so rapidly that unless the US military plans proactively, new weapons will become obsolete even before they are fully fielded.

Drastic budget cutbacks further exacerbate these prob-

*In a modern version of Sherman's deep raid against the South's economic resources and communications, Allied bomber attacks delivered devastating blows against German industrial centers and rail hubs. Here, a formation of Eighth Air Force B-24 Liberators are en route to bomb Nazi targets.*
blems. Since only finite amounts of money exist for future military development, air enthusiasts say it is impossible for the United States to hedge its bet by developing a broad-based defense structure composed of equally robust air, sea, and land components. In this climate, they make the convenient and reassuring argument that the Desert Storm experience stands as a shining beacon to guide the US military as it navigates through an uncertain future.

To summarize, belief in the veracity of Desert Storm as a revolution in warfare lowers the risk associated with planning future military force structures. A quotation from Giulio Douhet’s Command of the Air helps explain why this is such a seductive thought:

Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the change occurs. In this period of rapid transition from one form to another, those who daringly take to the new road first will enjoy the incalculable advantages of the new means of war over the old. 34

If Desert Storm represents a new paradigm of warfare, the design of a force structure based on its outcome meshes nicely with Douhet’s prescription for managing change. However, despite the temptations to be proactive, Americans must not believe in a military revolution that has not been validated over time. Ample evidence exists today that suggests that the future harbors threats radically different from those posed by traditional nation-state entities. By examining these alternate threats, one discovers that Desert Storm’s guiding voice could quickly become a siren song, luring the American military onto the rocks of disaster.

Cultural Warfare

As outlined in the October 1993 Bottom-up Review, current defense policies will develop a US military force capable of fighting near-simultaneous wars against North Korea and a revitalized Iraq. However, in a recent article entitled “The Coming Anarchy,” noted journalist Robert D. Kaplan disputes the notion that these countries are America’s most dangerous future threats. Using West Africa as an example, Kaplan makes the case that a vast wave of anarchy is likely to cause drastic changes in the political character of the twenty-first century world. 35 He postulates that this surge of lawlessness could spawn a kind of cultural-based warfare “far more significant than any coup, rebel incursion, or episodic experiment in democracy.” 36

Kaplan argues that the anarchical implosion of vio-

lence will lead to a withering away of central govern-
ments in much of the future world. 37 In this type of world, international borders become largely meaningless as cultural entities such as ethnic clans, drug cartels, or religious sects replace traditional nation-state type governments. If Kaplan is correct, the United States could pay a bloody price for believing in the strategy of paralysis as the blueprint for winning future wars.

Against nonintegrated political units, the strategy of paralysis is largely irrelevant. One must remember that in Desert Storm the United States-led coalition found itself pitted against a highly organized political system bearing all the trappings of a modern nation-state. In Iraq, the military infrastructure, fielded forces, and command structures were tangible centers of gravity that airpower could effectively attack. These well-defined target arrays accentuated the US military’s advantage in technology and facilitated a quick, decisive victory with minimum casualties. However, a highly decentralized threat tends to mitigate the capabilities of American technology that carried the day in Desert Storm. In Somalia, for example, every clan warrior concealed in a doorway constituted a potential center of gravity. In such a situation, the strategy of paralysis is inapplicable.

Since the country possesses no coherent strategy to combat cultural conflict, many Americans, both civilian and military, suggest a neoisolationist posture. This attitude accounts for the nation’s extreme reluctance to become involved in situations such as the one in the former Yugoslavia. Yet many respected individuals like Kaplan convincingly depict a twenty-first century in which cultural confrontation will dominate continents and threaten today’s geopolitical status quo. Such a climate demands that the United States either develop an effective strategy to combat cultural conflict or abdicate its superpower status.

This threat to US livelihood highlights the dangers of accepting Desert Storm as a revolution in warfare. Believing that the Gulf War symbolizes a new war-fighting paradigm promotes a hazardous singularity of thought that can easily create within the US military a kind of collective cognitive dissonance. That is, defense planners risk becoming incapable of mentally envisioning any future scenario that contradicts the Desert Storm model. Already struggling with force drawdowns and budget cutbacks, the US military must not permit itself to become further handicapped by such mental ossification. Lacking resources, it must use robust intellectual debate as its best leverage against
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an uncertain future. Such free-flowing dialogue allows the military community to ponder a broad spectrum of military strategies. Dispelling the myth that an air-dominated, high-technology military revolution took place during the Gulf War will ensure that these vital discussions occur.

Conclusion

British military historian Sir Michael Howard once stated that whatever strategy a military adopts in times of peace will be to some degree wrong. Still, Howard says that a military organization must strive to select a course during an age of peace that is "not too wrong." According to many airpower proponents, Desert Storm represents a revolution in warfare and serves as a beacon to safely guide the American military through the current fog of peace. They therefore advocate pressing ahead with a strategy that mirrors the air-dominant Desert Storm model. This article, while acknowledging Desert Storm as a praiseworthy event, discredits the logic of labeling it a revolution. At this point, calling Desert Storm a revolution in warfare is an emotional reaction that advances a tentative hypothesis to the force of theorem without the proper verification provided by rigorous testing. Die-hard air enthusiasts will likely dismiss this argument, declaring that it is necessary to act now on the assumption that Desert Storm was a revolution. They will argue that change occurs so rapidly in today's information-based society that the United States must be proactive in incorporating the lessons of Desert Storm into its future defense plans. Actually, this view is dangerously myopic. Abundant evidence exists to suggest that the twenty-first century could be dominated by culturally based conflict. The strategy of paralysis is ineffective against such an amorphous threat. Therefore, creating a US military force that is overly dependent on a high-technology air arm would be, to use Howard's words, too wrong.

Notes

2. Ibid., 15.
6. Gunther E. Rothenberg, The Art of Warfare in
the Age of Napoleon (Bloomington, Ind.: Indiana University Press, 1978), 11.
7. Ibid.
9. Fuller, 49.
12. Rothenberg, 246.
13. Howard, War in European History, 100.
22. A. A. Svechin, Strategia (1926; reprint, Minneapolis, Minn.: East View Publications, 1992), 17.
23. Kipp, 95.
25. Ibid.
27. The phrase “quick, decisive victory with minimum casualties” is derived from the US Army’s capstone doctrinal manual Field Manual (FM) 100-5, Operations. It is a paraphrase of the ideas found in chapter 1, page 1-2, under the heading “The American View of War.”
28. This information was supplied to the author by Col John A. Warden III.
30. An alternative argument can be made that the air campaign only appeared decisive because of the limited objectives established for Operation Desert Storm. Had the objectives been unlimited, as Grant’s were, a much more robust ground war, one with successive operations, would have become necessary. In this case, a strategy of exhaustion would have been more evident and reflective of a second-wave war. Instead, it appeared a revolution took place when in fact the limited nature of the war made the objectives more easily attainable.
33. Toffler, 10.
36. Ibid., 49.
37. Ibid., 51.
39. Ibid.
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