CHAPTER 7

ADAPTABILITY: A NEW PRINCIPLE OF WAR

Lieutenant Colonel Brian Dickerson

Preparing for the future will require us to think differently and develop the kinds of forces and capabilities that can adapt quickly to new challenges and to unexpected circumstances. An ability to adapt will be critical in a world where surprise and uncertainty are the defining characteristics of our new security environment. A culture of change, flexibility, and adaptability is more important to transforming the military than simply having new hardware.

Secretary of Defense Donald H. Rumsfeld

“The ultimate goal of our military force is to accomplish the objectives directed by the National Command Authorities.”

Supporting the National Security Strategy and the National Military Strategy, these objectives delineate a spectrum of military operations from major war to military operations other than war. “Joint Vision 2020 (JV 2020)” provides a guide for the transformation of America’s Armed Forces in areas as diverse as experimentation, technologies, leadership, military education, operational concepts, and organizations.

It is clear that the United States aims at pursuing its global interests and responsibilities along a wide front. The U.S. military must win wars and contribute to peace. Its forces will routinely shape the international security environment. “The joint force, because of its flexibility and responsiveness, will remain the key to operational success in the future.” That future force will need to be integrated intellectually, operationally, organizationally, doctrinally, and technically.

“JV 2020” highlights the requirement for a force that can adapt to changes in the strategic environment, leverage new technologies, and confront potential enemies, who will eventually adapt to U.S. strengths and weaknesses. A key attribute of future American war-fighting competence, leadership, and attitude must be an ability to
deal with uncertainty and change, defining characteristic of future environments.

The organization of the American military, its individual services and the individual military members, does not change quickly or easily. But the confluence of transformation, the rise in the threat of terrorism, exponential rates of technological change, a complex and unknown future, adaptable and asymmetric threats, a continuing move towards jointness and diverse missions compel the U.S. military to reevaluate itself. Any of these external forces individually would have brought about significant new challenges in their wake. Together, their impact is significant. Dogmas and paradigms, from service culture to operational concepts, from weapon systems acquisition to organizations, from strategy to tactics demand a new look. Many areas will require modification to maximize capability and efficiency in a world of fiscal constraints. No sacred cows should escape reassessment, including the “Principles of War.” There are nine traditional principles of war: The Objective, The Offensive, Mass, Economy of Force, Maneuver, Unity of Command, Security, Surprise, and Simplicity. Nevertheless, the U.S. military should add one more—Adaptability.

This chapter will not examine the standing principles as appropriate, necessary, nor even correct. Instead, the current nine Joint principles form a base from which to depart. Thus, the chapter will seek to show that the principle of adaptability represents a valuable guide at the tactical, operational, and strategic levels of war and that its addition will aid the U.S. military across a wide spectrum of other activities. Finally, it will argue that the principle of adaptability could change the military’s strategic culture in a positive fashion.

Adaptability, in the past, has been a largely unacknowledged component of military effectiveness. It also has been a significant factor in the success of great military leaders. In the future environment, adaptability will become a more significant keystone to future military operations. It has affected in the past, and continues to affect, American doctrine, strategies, deliberate and contingency planning, the acquisition process, operational concepts, training, and much more.

An examination of the history of the principles of war and how
they have impacted military organizations, strategic culture, doctrine, and strategy provides the background. Next, this chapter will turn to a definition of adaptability and differentiate it from flexibility, which is a key component in the definition of “maneuver.” An examination of the major external forces acting upon the U.S. military, including transformation, will provide evidence as to why adaptability needs to be a principle of war. Finally, this chapter will provide a definition for adaptability.

HISTORY OF THE PRINCIPLES

Principle: 1. beginning, original or initial state; 2. that from which something takes its rise, originates or is derived; a source; the root; 3. a fundamental truth or proposition on which many others depend; 4. a comprehensive and fundamental law, doctrine, or assumption.

The Oxford English Dictionary, Second Edition

What are the principles of war? In short, they represent neither a recipe nor a checklist for success. One cannot use them in isolation, and they demand a healthy dose of historical perspective. They are, in essence, a theory of war, a model that attempts to bring some order to war’s chaos. However, they are much more than just a theory; they provide a bridge between theory and application. They “guide warfighting at the strategic, operational, and tactical levels” and are the “enduring bedrock of US military doctrine.” They are time-tested principles that guide the employment of forces and shape the way that U.S. armed forces think about the use and employment of military power. They are “guidelines that commanders can use to form and select a course of action.” The wisdom gained from study of the basic principles underscores that war is not a business for managers with checklists; it is the art of leaders. “The principles of war guide and instruct commanders as they combine the elements of combat power. The principles reflect the distillation of [Army] experience into a set of time-tested guidelines.” They are part and parcel to a unique American military strategic culture, which is the
lens through which the U.S. military sees the world, its adversaries, and itself. They are the foundations for the way the American military fights.

The search for comprehensive and fundamental laws to understand war are at least as old as Sun Tzu. In their current Joint form, they evolved from the 1921 U.S. Army Field Training Regulation No. 10-5. The modern U.S. military has come to accept the current principles of war, not as laws that guarantee victory, but as considerations for the actions involved in the application of military power.

There have been innumerable examinations, modifications, additions, and deletions over the years. Many of these changes are often associated with technological improvements. The constant examination of the relevance of these principles is a healthy and necessary activity, encourages intellectual discussion, and ensures that military organizations do not become bogged down in dogma. Air Marshal David Evans, Chief of the Air Staff, Royal Australian Air Force has noted; “[A]s with all other areas of conventional wisdom, of past values, past doctrine, the principles of war are to be questioned, to be tested and their continuing relevance verified.”

In their own ways, each of the great theorists of war has wrestled with the concept of principles. The U.S. principles of war in their present form have been the exception, versus the norm, in the history of principles. Other terms have been used in the past (law, rule, maxim, and axiom, to name a few) and have generally been long and drawn out rather than short aphorisms. However, the basic premise of “a comprehensive and fundamental law, doctrine, or assumption” is present in most of great theoretical works on war.

Dead Guys and Principles.

In the opening of his *The Art of War*, Sun Tzu states that “[W]ar is a matter of vital importance to the State; the province of life or death; the road to survival or ruin. Therefore, appraise it in terms of the five fundamental factors and make comparisons of the seven elements.” Sun Tzu recommended keeping only those generals who would follow his strategy and firing those who would not. He believed
he could predict winners and losers in any war on the basis of who followed his precepts.\textsuperscript{17} These five fundamental factors and seven elements became the basis for his version for the path to success in war.

During his writing of \textit{Arte della Guerra} (The Art of War), published in 1521, Niccolo Machiavelli discovered that there were certain fundamentals common and unchanging in previous writings on war. He included a set of general rules to guide a commander’s actions in his work.\textsuperscript{18} Many of the current nine principles can be seen in his rules and one in particular, implying the value of adaptability, suggests “nothing is of greater importance in time of war, than to know how to make the best use of a fair opportunity when it is offered.”\textsuperscript{19}

Historians most often associate the modern concept of principles of war with Antoine-Henri Jomini. The Swiss theorist argued that the principles were relatively few in number, but readily identifiable, and that these principles should guide a commander’s actions in war.\textsuperscript{20} In December 1807, he published a paper bringing together a list of ten paragraphs of “general truths whose application contributes to success in war.” John Algers argues that Jomini’s list represents the prototype of the modern principles of war.\textsuperscript{21}

Some commentators also associate Carl von Clausewitz with the modern concept of principles,\textsuperscript{22} but others point out that “he specifically rejected the notion that there could be any well-defined body of particular rules or principles that universally dictated one form of behavior rather than another.”\textsuperscript{23} Nonetheless, he did write a memorandum to the Prussian Crown Prince entitled \textit{The Most Important Principles for the Conduct of War}. Not surprisingly, he starts the memorandum with a qualifier:

These principles, though the result of long thought and continuous study of the history of war, have none the less been drawn up hastily, and thus will not stand severe criticism in regard to form. In addition, only the most important subjects have been picked from a great number, since a certain brevity was necessary. These principles, therefore, will not so much give complete instruction to Your Royal Highness, as they will stimulate and serve as a guide for your own reflections.\textsuperscript{24}
The memorandum does list general, offensive, and defensive principles. In spite of Clausewitz’s own warning, it is not difficult to find all nine of the modern principles of war in his memorandum and in *On War*. Again, one gains considerable insight when looking at how Clausewitz defines a principle. In fact, it is similar to how the modern U.S. military uses the term.\(^\text{25}\)

Principle is also a law for action, but not in its formal, definitive meaning; it represents only the spirit and the sense of the law; in cases where the diversity of the real world cannot be contained within the rigid form of law, the application of principle allows for a greater latitude of judgment. Cases to which principle cannot be applied must be settled by judgment; principle thus becomes essentially a support, or lodestar, to the man responsible for the action.\(^\text{26}\)

Clausewitz goes on to argue that principles are indispensable concepts for that portion of a theory of war that leads to positive doctrines.\(^\text{27}\)

**Modern Times and Principles.**

There have been a number of modern theorists and writers arguing both for and against the principles of war, in the 20th century. They include Marshal Foch, A.T. Mahan, B.H. Liddell Hart, J. F. C. Fuller, and Bernard Brodie. But, the first official U.S. acceptance of principles appeared in the 1921 U.S. Army Field Training Regulation 10-5. The list is surprisingly similar to the current official list over 80 years later (Table 1). Nevertheless, the list disappeared entirely from the next version of the Army’s regulations. Although not officially listed as principles, they were included in subsequent regulations, modified by additions and deletions, over the next 28 years. In 1949, the present list again appeared and has remained roughly the same through to today.
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<tr>
<th>1921 US Army Field Training Regulation 10-5</th>
<th>2002 Joint Publication 3-0</th>
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<tr>
<td>The Principle of the Objective</td>
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<td>The Principle of the Offensive</td>
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<td>The Principle of Mass</td>
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<td>The Principle of Economy of Force</td>
<td>Economy of Force</td>
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<td>The Principle of Movement</td>
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<td>The Principle of Surprise</td>
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<td>The Principle of Security</td>
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<td>The Principle of Simplicity</td>
<td>Simplicity</td>
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<td>The Principle of Cooperation</td>
<td>Unity of Command</td>
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**Table 1. U.S. Principles of War, 1921 versus 2002.**

Between 1921 and 1949, a debate among military theorists centered on the format, value, number, and absoluteness of a set of principles of war. The 1923 Field Training Regulation that deleted the principles, nonetheless, continued to refer to them. It did speak of the “concept” of principles.

While the fundamental principles of war are neither very numerous nor complex, their application may be difficult and must not be limited by set rules. Departure from prescribed methods is at times necessary. A thorough knowledge of the principles of war and their application enables the leader to decide when such departures should be made and determine what methods should bring success.

In 1934, Major E. S. Johnson of the U.S. Army Command and General Staff College noted “[T]he importance of evolving for our professional use a set of correct, simple, practical basic principles of war can hardly be exaggerated at this time. We live in a critical transitory stage. Great war seems to loom on the horizon—war perhaps much different, as to form and appearance, from our last
war.”\textsuperscript{30} Johnson also highlighted the “[J]ustification for principles of war as an inventory system . . . for the baggage of experience and professional study each warrior has.”\textsuperscript{31}

The debate over the past 80 years has been both healthy and necessary. Each of the U.S. services eventually accepted the same principles of war. The actual principles that each service lists have had minor variations over the last 3 decades. While there have been some differences in definitions, the current joint and service basic doctrine manuals each present the same nine principles.

**PRINCIPLES IMPACT ON THE U.S. MILITARY**

The principles of war guide warfighting at the strategic, operational, and tactical levels. They are the enduring bedrock of U.S. military doctrine.

*Joint Pub 3-0*

The influence of the principles of war on the American military is pervasive. Their effect is both obvious and subtle. The principles are obvious when officers talk about doctrine, plan operational campaigns, or execute tactical maneuvers. Their effects are not as readily apparent in discussions about strategy or envisioning future military forces. From the beginning to the end of an officer’s career, the principles are present through formal and informal education and training. The officer corps makes choices and influences decisions, which have significant impact in areas such as tactics and operations development, theater strategic and operational planning, envisioning future military capabilities and concepts, technological research and development, organizing the military, training warriors, educating leaders, identifying requirements, allocating resources, acquiring material, and much more.

**Principles and Strategic Culture.**

Sun Tzu commented, “Know the enemy and know yourself; in a hundred battles you will never be in peril.”\textsuperscript{32} To know itself, the American military must know the existence and impacts of strategic
culture. Strategic culture is complex. The nation’s geography, history, traditions, values, attitudes, patterns of behavior, habits, achievements, particular ways of adapting to the environment, and solving problems with respect to the threat or use of force are the ingredients of strategic culture. Each element combines to create or modify the American strategic culture. Strategic culture is the why, when, and how the nation and its military fight wars. It is a reflection of the nation’s moral and idealistic values, traditions of exploration, and attitudes toward technological solutions. The principles of war represent an important element in the American strategic culture. It is not easy to find something military that strategic culture, and through it the principles of war, do not influence in one form or another.

Military officers receive mission objectives. They formulate plans to accomplish those objectives. They use their experiences of past successes and failures, recommendations from others based on their experiences, their education, their professional background, service and joint doctrine, and the principles of war to develop plans. Each input can be clouded by strategic culture. The American strategic culture has a tendency to superimpose its values on other cultures. Americans assume the things important to them are important to others, and that the rest of the world sees the problems, solutions, and benefits in the same way. One commentator has noted that it is “dangerous for the West in general, and for Americans in particular, to believe that others view strategy and the nature and uses of force through an Anglo-American lens.”

The principles of war represent more than just the foundation of doctrine or a tie between theory and application. They are the lessons from past conflicts. They have become the foundation for how the American military employs force. They are an important part of the American strategic culture. Moreover, through strategic culture, the principles have become the basis, whether conscious or subconscious, for many of the decisions the American military makes. Strategic culture and the principles affect and will continue to influence the purchase of combat equipment. The military buys tanks, aircraft, and ships because they support the belief that these weapons are the most successful way to accomplish war as expressed
in the principles. Stealth aircraft, for example, embody the principles of maneuver, surprise, and maintaining the offensive.

Strategic culture and the principles even filter future operational concepts. “JV 2020” lists four operational concepts for the military; Dominant Maneuver, Precision Engagement, Focused Logistics, and Full Dimensional Protection; all support the overarching concept of Full Spectrum Dominance.36 The descriptions of these concepts contain numerous references to the principles of war. The operational concept of dominant maneuver uses “unmatched speed and agility in positioning and repositioning tailored forces from widely dispersed locations to achieve operational objectives quickly and decisively.”37 Within that relatively short statement are at least five of the principles of war; maneuver, surprise, security, objective, and offensive. Thus, the U.S. military sees the future (and everything else) through filters from the past.

**Principles and Strategy and Doctrine.**

The principles of war influence military strategy through filters developed by strategic culture and historical experience. In the introduction to *The Making of Strategy: Rulers, States, and War*, the authors describe the strategy process and “its constant adaptation to shifting conditions and circumstances in a world where chance, uncertainty, and ambiguity dominate.”38

Historical experience creates preconceptions about the nature of war and politics and may generate irresistible strategic imperatives. And ideology and culture shape the course of decision-makers and their societies in both conscious and unconscious ways. Not only may ideology and culture generate threats where a different perspective would see none, but their influence usually shapes perceptions about alternatives.39

The principles also influence doctrine. “Military doctrine presents fundamental principles that guide the employment of forces.”40 It represents an accumulation of knowledge, reflecting combat and training experiences, experimentation, and analysis of theory. It is basically a guide to the best way to prepare and employ U.S. military forces.41 The principles have provided the basics of joint
warfare and the foundation of joint and individual service doctrine. Clausewitz tells us that the nature of war is universal. But, the application of war is a cultural phenomenon and therefore heavily influenced by strategic culture. Geography, politics, historical context, and social norms all affect the application of force. The Roman empire and its warrior state, Mao Tse-Tung’s support of a guerrilla style of warfare, and the American dependence on power projection and technology, all reflect unique sets of circumstances and very different strategic cultures.

The historical basis of the principles of war supports the Clausewitzian ideal of developing theory, strategy, and doctrine by examining the historical record. Lieutenant Commander Dudley W. Knox, USN, identified the relationship between the principles of war and doctrine when he wrote in 1915 that “military doctrine are beliefs or teachings which have been reasoned from principles; that is they flow from principles as a source. They are intended to be general guides to the application (emphasis in original) of mutually accepted principles, and thus furnish a practical basis for coordination under the extremely difficult conditions governing contact between hostile forces.” He went on to discuss the increased number of possible solutions to situations involving the application of several different principles and doctrines, which implies the value of the concept of adaptability as a principle and as a means to avoid inflexibility and dogma.

Principles and Joint Warfare.

The Goldwater-Nichols Act mandates joint warfare. At the basic level, joint warfare is, or should be, one of the core competencies of the U.S. armed forces. Fighting the joint fight is the wave of the now and the future. Regardless of the nature of the battle or the composition of the force, the military will fight a joint fight . . . “the days of single service warfare are gone forever.” The nature of war has not changed. It is still an interaction between living, thinking, reacting humans. However, the increased quantity of information and the complexity of the battlefield place a greater weight on the value of adaptability.
War is a human undertaking that does not respond to deterministic rules. Indeed, the rapid advance of technology and the diversity of threats to national interests have accelerated and amplified the effects of the traditional obstacles to military operations of friction, chance, and uncertainty. The cumulative effect of these obstacles is often described as “the fog of war” and places a burden on the commander to remain responsive, versatile, and able to adjust in real time to seize opportunities and reduce vulnerabilities. This is the art of war.46

The principles’ influence on Joint warfare is crucial. They are universally accepted by all of the services. The principles provide a common starting point for warfighting discussions. They also form the launching platform for planning the military’s future. Table 2

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<td>Principles of War (JP 1-0 &amp; 3-0)</td>
<td>Principles for MOOTW (JP 3-0 &amp; 3-07)</td>
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Table 2. Evolving Joint Warfare and Crisis Resolution Fundamentals.49
depicts a common joint warfighting perspective approved by the Joint Requirements Oversight Council. These evolving fundamentals will guide the emerging American way of joint warfare and crisis resolution. They provide direction and are the continuity needed for future fighting force development. These thirteen ‘new’ aphorisms may eventually replace the current principles of war.

**DEFINITION OF ADAPTABILITY VERSUS FLEXIBILITY**

Adapt: 1. To fit (a person or thing to another, to or for a purpose), to suit or make suitable; 2. To alter or modify so as to fit for a new use. 3. To undergo modification so as to fit for a new use.

_The Oxford English Dictionary, Second Edition_

Flexible: 1. Capable of being bent, admitting of change in figure without breaking; yielding to pressure, pliable, pliant; 2. Willing or disposed to yield to influence or persuasion; capable of being guided, easily led, impressionable, manageable, tractable.

_The Oxford English Dictionary, Second Edition_

Adaptability is fundamentally different from flexibility. Flexibility is reactive or defensive by its nature. From the definition, flexible suggests bending, but not breaking, to an enemy or external force. However, the implication is that the enemy is driving the change. Conversely, adaptability has an active or offensive perception, which the U.S. Marines emphasize in their Fleet Marine Field Manual 1-0, *Leading Marines*.

Adaptability has long been our key to overcoming the effects of frictions and its components. Although it is synonymous with flexibility, adaptability also embraces the spirit of innovation. Marines constantly seek to adapt new tactics, organization, and procedures to the realities of the environment. Deficiencies in existing practices are identified, outdated structure discarded, and modifications made to maintain function and utility. The ability to adapt enables Marines to be comfortable within an
environment dominated by friction. Experience, common sense, and the critical application of judgment all help marine leaders persevere.  

Adaptability is associated with initiative, ingenuity, imagination, agility, and innovation. Lieutenant General Victor H. Krulak, USMC (Ret) once commented, “Most often, the ingredients of victory are initiative, resourcefulness, adroitness, and improvisation . . . another way of describing adaptability, long a way of life for Marines.” Adaptability implies multiplicity in uses for the basic framework of doctrine, equipment, or personnel all of which should be adaptable to multiple situations, threats, or environments. This is important considering the uncertainty of the future threat and environment, the expansion of missions, the long lead times for hardware development and the increasing expense of weapons systems.

WHY ADAPTABILITY? . . . WHY NOW? . . . WHAT HAS CHANGED?

Our challenge in this new century is a difficult one. It’s really to prepare to defend our nation against the unknown, the uncertain and what we have to understand will be the unexpected. That may seem on the face of it an impossible task, but it is not. But to accomplish it, we have to put aside the comfortable ways of thinking and planning, take risks and try new things so that we can prepare our forces to deter and defeat adversaries that have not yet emerged to challenges.

Secretary of Defense Donald H. Rumsfeld

The convergence of several factors now and in the near term stresses the need to include adaptability as a principle of war. First is the uncertainty of the future environment. Increasing operations tempo and diversity of missions, rapid and increasing rates of change in technologies, especially information technologies, and adaptable adversaries will blur future force requirements. Second
is the significant rise in the nature and scope of the terrorism threat. Last is transformation and the continuing move towards jointness.

**Uncertainty of the Future.**

[T]he focus . . . is the third element of our strategic approach—the need to prepare for an uncertain future.

U.S. Joint Chiefs of Staff, *Joint Vision 2020*

The future environment is a major element in determining the shape, size, and capabilities of the U.S. military. Three “Joint Vision 2020” factors guide the American military force-planning effort. First, the United States will continue to be globally engaged with various world and regional actors. Security and economic interests and political and social values will drive U.S. policy, while the military instrument will continue to remain a viable element of national power. There is no indication that war or the threat of war will cease to exist in the future. An ever-widening transportation and communications net and rapidly expanding information technologies will increase world interdependence and provide the inertia to continued globalization.

Next, the expanding availability of the Internet and other information technologies will tend to “level the playing field” with respect to access to new and developing technologies at relatively low costs. Globalization will spread access to a commercial industrial database. This will give potential adversaries access to much of the same technology as the U.S. military. Finally, America’s adversaries will modify their strategies and operational and tactical capabilities in an attempt to reduce U.S. technological advantages. Other state and nonstate actors will challenge current U.S. military dominance in a variety of innovative and asymmetric ways. They will not remain static in the face of American capabilities. They will adapt.

The future environment requires the current military to transform. A key challenge to successful transformation is the pace of technological change and its impact on the strategic environment. The U.S. military must “place a premium on our ability to foster innovation in our people and organizations across the entire range
of joint operations.” In the context of a military organization that is resistant to change, adaptability is the key to success in an uncertain future. Adaptability as a principle of war, and thus part of strategic culture, will link the American military’s current and future forces. Strong core capabilities derived from current force structure and legacy systems will continue to deter conflict and when that fails, win wars. Transformation will combine developing technologies with new doctrine and concepts implemented through new organizations that maximize the future American military’s capabilities. Adaptability is the bridge that will allow the U.S. military to modify existing core competencies to meet the future mid-term strategic realities.

The Rise in Terrorism.

In the few months it took to topple the Taliban regime, U.S. forces proved highly adaptable. They went to war in Afghanistan without an on-the-shelf plan in a very difficult environment. They showed ingenuity in tackling the challenges of operating half way around the world in some of the most forbidding terrain on the planet. And the fact that a key breakthrough at Mazar-i Sharif was secured by the first American cavalry charge of the 21st century merely underscores the point. This capacity for adaptation is a precious commodity. It will be essential not only in the ensuing phases of the war against terrorism but also in transforming the Armed Forces to cope with the very different challenges that will emerge in the future.

Secretary of Defense Donald H. Rumsfeld

The September 11, 2001, the attack on the United States changed the focus of the American government, people, and military. Terrorism is not new. Nevertheless, it has not been a driving factor in U.S. military planning or thought. Terrorism is a “tool of the weak,” with potential dramatic strategic effects. Yet, it is now a major feature in the future environment and is a major factor driving the requirement for adaptability in the military.

The Code of Federal Regulations defines terrorism as: “the unlawful use of force and violence against persons or property to
intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” Terrorism traces back to the Ancient Greek and Roman Republics. According to the U.S. Code’s definition, the assassination of Julius Caesar on the Ides of March in 44 B.C. was an act of terrorism. In the first century, Jewish religious nationalists known as The Zealots-Sicarii (dagger-wielders) “carried out terrorist attacks on Roman officials and Jews considered to be Roman collaborators.” For over 200 years between 1047 and 1296, the Hashishim (the Assassins) prosecuted a campaign of terrorism in northern Iran. And one of the best illustrations of the impact terrorism can have was the assassination of the Austrian Archduke Ferdinand in 1914, an act that precipitated the First World War and 4 years of carnage.

A modern view of future terrorism divides terrorists and their organizations into four different categories; individual terrorists, national liberation movements, state sponsored terrorists, and millenarian terrorists. The millenarian terrorist presents the greatest danger to the United States. The millenarian terrorist’s vision of the future does not include anything Americans would call civilization. They would be “willing to use any means of violence, including weapons of mass destruction” in the pursuit of those goals. Stealthy movements across international borders, secure operations, and extreme procedures against penetration from outsiders will characterize their organizations. They will plan and coordinate operations by combining old fashion couriers and new technology communications systems. Increasing globalization provides the cover from which they will operate. “But above all, the terrorist of the 21st century will prove adaptable to the environment in which they chose to fight.”

Such an opponent is not greatly affected by diplomacy or the traditional use of the military instrument of power. Nevertheless, the military will be called and must prevail in this war. This fight is for the survival of the United States and its ideals and freedoms. “The key is to adapt with changing times and a different enemy.” Adaptability, ingenuity, innovation, these must be the attributes of a military that will face and defeat terrorism.
Transformation.

One of the things that we don’t want to leave behind as we move toward tomorrow is the ability to think, the ability to adapt, the ability to do things that the Soviet Union was not able to do and is no more.

General Tom Franks

Transformation in the military is the most important reason to add adaptability to the principles of war. On the future battlefield, adaptability provides another guide to the conduct of war. As part of the strategic culture, it will allow the military to excel in the uncertain future. Transformation requires adaptability and innovation to get to the future. The Department of Defense defines transformation as:

a process of change that involves developing new operational concepts, experimenting to determine which ones work and which do not, and implementing those that do. Transformation deals with changes in the way military forces are organized, trained, and equipped; changes in the doctrine, tactics, techniques, and procedures that determine how they are employed; changes in the way they are led; and changes in the way they interact with one another to produce effects in battles and campaigns. The objective of the transformation process is to realize military capabilities that can deal effectively with the new demands of a changing security environment. Transformation involves preserving current U.S. strengths, meeting new threats and environments, and exploiting new opportunities. To some extent, transformation means accelerating the development and fielding of capabilities that we know we need. But it also means exploring capabilities that are less well understood, and correcting the course we are on, as necessary, to ensure that those needed new capabilities are realized.

Large organizations have a difficult time with major changes of direction. But for the American military, transformation is a basic requirement. In his 2002 report to the President and the Congress, Secretary Rumsfeld reported “transforming the U.S. Armed Forces is necessary because the challenges presented by this new century are vastly different from those of the last century.”

Transformation has three dimensions; conceptual, cultural,
and technological. Technology alone has never been the answer to transformation. It is only a small part of the answer. It represents an enabler that allows the military to explore new ways of fighting. Transformational gains in the U.S. military require changes in how war is conceptualized, in how the military is organized, and in its strategic culture. The attack on Mazar-e Sharif, Afghanistan provided the first cavalry attack of the 21st century and showed “that a revolution in military affairs is about more than building new high tech weapons . . . it’s also about new ways of thinking, and new ways of fighting.”

The most significant of the three dimensions of transformation is strategic culture. “Values and culture are a vital institutional counterweight to the innate conservatism of military hierarchies and the inertia of large bureaucracies.” For successful transformation, the most important cultural characteristic is adaptability. Identifying adaptability as a principle of war would provide impetus to change the American military strategic culture.

Four factors influence innovation and transformation; development of a balanced and operational realistic vision, bureaucratic acceptance, institutional processes for testing and refining concepts, and chance. Strategic culture can affect each of these factors. A strategic culture that encourages innovation and adaptation is essential to successful transformation. The culture must encourage leaders and subordinates to assess and reassess situations critically and adapt, if necessary, to the current circumstances. “Preparing for the future will require us to think differently and develop the kinds of forces and capabilities that can adapt quickly to new challenges and to unexpected circumstances. An ability to adapt will be critical in a world where surprise and uncertainty are the defining characteristics of our new security environment.”

**ADAPTABILITY IN WAR**

Its [war’s] violence is not of the kind that explodes in a single discharge, but is the effect of forces that do not always develop in exactly the same manner or to the same degree. At times they will expand sufficiently to overcome the resistance of inertia or friction; at others they are too weak to have any effect. War is a pulsation of violence, variable in strength and therefore variable.
in the speed with which it explodes and discharges its energy. War moves on its goal with varying speeds; but it always lasts long enough for influence to be exerted on the goal and of its own course to be changed in one way or another; long enough, in other words, to remain subject to the action of a superior intelligence.

Carl von Clausewitz, *On War*

Clausewitz refers to military warriors and leaders who not only must survive in the chaos of war but must also operate and accomplish missions successfully in accordance with the bigger picture. His concept is that the nature of war changes war itself, as it occurs, and that these changes are unpredictable. The events in war represent nonlinear interactions between living, thinking, and reacting humans. Clausewitz’s chance, fog, and friction combine to make war unpredictable and in a constant state of change. The continuous interaction and feedback process fundamental to war is itself an agent forcing uncertainty and change in the character of any war. In other words, war changes itself. Such an environment demands adaptability to account for unplanned, unpredictable, and unforeseeable opportunities and setbacks.

Fog, friction, and chance permeate the battlefield. The complexity found in war is a reflection of its nonlinear nature. Nonlinearity guarantees no two wars will ever be the same and that even within the same war, the structure may prove unstable. War is so complex that imperceptibly small events can lead to significant and massive changes in the system. The production of unchanging laws or principles can lead to defeat. “Adaptability is as important in doctrine as on the battlefield.”

In *War and Planning.*

Military planning has long known the value of adaptability. The U.S. Army anticipates that operations “never proceed exactly as planned” and places a premium on adaptability in plans. Using branches and sequels to account for contingencies, unanticipated events, opportunities, successes, failures, and stalemates, Army planning reflects the American military’s sense of the importance
of adaptability. B. H. Liddell Hart argued for adaptable plans, when he suggested “[T]o be practical, any plan must take account of the enemy’s power to frustrate it; the best chance of overcoming such obstruction is to have a plan that can be easily varied to fit the circumstances met; to keep such adaptability, while still keeping the initiative, the best way to operate is along a line which offers alternative objectives.” Field Marshal Helmuth Graf von Moltke described war’s complex environment and argued for commanders to use genius, experience, education, and adaptability.

The material and moral consequences of any larger encounter are, however, so far-reaching that through them a completely different situation is created, which then becomes the basis for new measures. No plan of operations can look with any certainty beyond the first meeting with the major forces of the enemy (emphasis added). The commander is compelled during the whole campaign to reach decisions on the basis of situations which cannot be predicted. All consecutive acts of war are, therefore, not executions of a premeditated plan, but spontaneous actions, directed by military tact. The problem is to grasp, in innumerable special cases, the actual situation which is covered by the mist of uncertainty, to appraise the facts correctly and to guess the unknown elements, to reach a decision quickly and then to carry it out forcefully and relentlessly . . . . It is obvious that theoretical knowledge will not suffice, but that here the qualities of mind and character come to a free, practical and artistic expression, although schooled by military training and led by experiences from military history or from life itself.

The campaign against Iraq’s ballistic missile forces during the Persian Gulf War provides a glimpse at how pre-war expectations did not match actual wartime conditions and how American military forces then adapted. The DESERT STORM air plan contained four key phases; the strategic air campaign, air supremacy in the Kuwaiti theater of operations, battlefield preparation, and support of the ground offensive. In August 1990, Central Command planners did not include Iraq’s ballistic missile capability in their target sets, but by December 1990, 13 SCUD facilities were on the strategic air campaign target list. Planners knew that some number of mobile launchers would escape destruction. The leaders and planners regarded the missiles “chiefly as nuisance weapons that might cause
political difficulties” and “as posing little tactical or operational threat to the Coalition.” 85 Their plan reduced the offensive threat by attacking “fixed launch sites, support bases, production facilities, potential hide sites, and support facilities for mobile launchers, but not the launchers themselves.”86 The planners mirror-imaged the Soviet employment doctrine on the Iraqi military. This resulted in over-confidence in their ability to find, fix, target, and destroy the ballistic missile threat. No one in Central Command “devised, before the war, a search-and-destroy scheme for dealing with them [mobile SCUD launchers].”87

SCUD launches into Israel and Saudi Arabia highlighted the failures in initial planning. Sorties dedicated to SCUD hunting increased, as planners adapted to the current realities. However, more telling than the increase in dedicated sorties was the scope of the overall search for a solution to a problem that would not be solved by the war’s end.88 The search for an answer included previously untried uses and combinations of American military power. Space-based assets, intelligence analysts, Patriot surface-to-air missiles, ATACMS, E-8 Joint STARS, F-15E, Tornado, F-16C, B-52, F-117, A-10, Tomahawks, and American and British SOF all contributed to attempts at solving the SCUD problem. While these efforts may have failed in a tactical sense, the continuous adaptation was strategically significant in that it kept Israel from engaging with its own military.89

In Policies and Strategies.

The interactions of conflict affect even the highest levels of war. The political aim and the strategies to attain that aim are not exempt from war’s effects. “It [the political aim] must adapt itself to its chosen means, a process which can radically change it.”90 Therefore, strategy must adapt if the political aim changes. History suggests that strategic assessment and re-assessment is a common theme in victory. Changes in the nature of the conflict caused by a thinking and reactive adversary drive strategic adaptation. Failure to adapt can be fatal. “The great failure of the generation of military leaders in World War I was their refusal (with notable exceptions) to adapt quickly to change.”91
In the Peloponnesian War, the Spartans adapted their strategic framework better than the Athenians over the course of the 30-year war. Eventually, the Spartans, a traditional land power, learned how to fight the Athenians, a traditional naval power, “on the sea well enough to win.” The Corinthians described the Athenians to the Spartans before the war as “swift, aggressive, and innovative.” However, in the end the “slow, traditional, unimaginative Spartans” were better able to adjust and adapt to the changes brought about by the course of the war.

The near fatal disasters of the Second Punic War 150 years later would precede the rise of the Roman Empire. Hannibal’s victories forced the Romans to adapt their strategic framework. A brutal warrior state, Roman warmaking was primarily one that went for the kill; it was ruthless and free of any competing political demands. A retreating, defensive, attrition strategy failed to fit that paradigm. Nevertheless, confronted with Hannibal’s operational military genius and his victories at Trebbia, Trasimene, and Cannae, that threatened the very existence of the Republic, Roman dictator Fabius modified Roman strategy. The adapted strategy refused battle and harassed the enemy’s army. It substituted “practical discretion for traditional valor and retreat before the enemy in order to avoid a fourth, possibly fatal defeat.” Rome was able to modify and adapt its previously successful military strategy to survive. A century later, Polybius would highlight one of the Romans’ strengths as the ability to adapt customs, weapons, and tactics to “emulate what they see is better done by others.”

In Operational Art.

One of the turning points and key battles of the American Civil War was the Vicksburg campaign. Union General Ulysses S. Grant adapted his operational plans to reflect the reality of the actual situation. The strategic context, battle failures and successes, terrain, logistics, resources, and the enemy’s actions and reactions all forced changes in his 6-month campaign. However, he always kept the strategic context of the campaign as a primary and unwavering factor in his plans.

Grant’s initial plan attacked along traditional lines of
communications from his bases in Tennessee south towards Vicksburg. He used railroads and roads to maintain lines of supply. The plan failed when Confederate cavalry attacked his supply depots and “demonstrated the impossibility of maintaining so long a line of road over which to draw supplies for an army moving in an enemy’s country.” Grant abandoned that line of attack. Next, he used the previous attack routes as a deception to support the primary attack from the Chickasaw Bayou. The plan called for the use of the Union controlled Mississippi River as the “line over which to draw supplies.” Although, the Mississippi River would provide Grant a secure line of supply, the Confederate defenses along the Vicksburg cliffs proved to be insurmountable obstacles to Union attacks. Again, Grant looked for another way.

Still using the Mississippi River as the primary route, Grant changed his plans. In an attempt to bypass the Chickasaw Bayou, his forces maneuvered through the secondary creeks, rivers, and bayous to arrive north of Vicksburg. This plan also failed. Continuing to look for a solution to the problem of defeating the Confederate forces, Grant modified his plans again. The resulting plan used an indirect approach and eventually led to victory.

Grant would adapt the final version of his campaign in May 1863. An amphibious landing near Grand Gulf established a beachhead south of Vicksburg, while major diversions held the enemy’s attention. Grant planned to use Grand Gulf as a base of supply. The west bank of the Mississippi River provided a secure, albeit long, supply route. A change in the status of Union forces finalized Grant’s last and most radical adaptation to his plan. In order to continue to maneuver and maintain pressure on the enemy, Grant decided to “cut loose from my base” and supply the entire Army off the land. This was a risky move since “it had not been demonstrated that an army could operate in an enemy’s territory depending upon the country for supplies.” Ultimately, this allowed Grant to position his army for the successful siege of Vicksburg.

ADAPTABILITY IN THE MILITARY

Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after they occur.

General Giulio Douhet
The American military values adaptability as a warfighting attribute. Throughout recorded history, theorists have argued for adaptability. Sun Tzu underlined the need for armies and leaders to adapt to the current environment: “As water has no constant form, there are in war no constant conditions. And as water shapes its flow in accordance with the ground, so an army manages its victory in accordance with the situation of the enemy.”

The U.S. Army values doctrine that is “rooted in time-tested principles but is forward-looking and adaptable to changing technologies, threats, and missions. Army doctrine is detailed enough to guide operations, yet flexible enough to allow commanders to exercise initiative when dealing with specific tactical and operational situations.” The Army recognizes

the ambiguous nature of the operational environment requires Army leaders who are self-aware and adaptive. Self-aware leaders understand their operational environment, can assess their own capabilities, determine their own strengths and weaknesses, and actively learn to overcome their weaknesses. Adaptive leaders must first be self-aware - then have the additional ability to recognize change in their operating environment, identify those changes, and learn how to adapt to succeed in their new environment.

The Army has successfully adapted to changing conditions, new technologies and emerging threats in the past. The American soldier’s ingenuity and innovation will continue to serve America during this period of transformation.

The U.S. Navy identifies five core competencies and four key attributes of its sea-based expeditionary force. The first on the list of competencies and attributes is adaptability. Naval forces are “capable of adapting to a variety of situations ... and can support the many challenges facing our theater Combatant Commanders.” Forward-deployed naval forces provide the nation with an organically supported, combined arms force that “can adapt at a moment’s notice to emergent needs.” Those forward deployed forces require exceptional leaders. The “unique and unforgiving nature of the sea has demanded that naval forces and their leaders have not only a clear sense of purpose and extensive levels of training, but the
flexibility to adapt to a changing enemy/environment in order to be victorious.”

The U.S. Marines are the epitome of adaptability. They even describe war as a “process of continuous mutual adaptation, of give and take, move and countermove.” They argue that success follows the ability to adapt, to proactively shape the environment as well as react to changing conditions. Proactive shaping includes the identification and creation of opportunities instead of “adhering insistently to predetermined plans.” They embrace what adaptability brings to the acknowledged chaos and uncertainty that characterize the battlefield. Marines believe that adaptability is a key to overcoming the effects of friction and its components and that the ability to adapt enables Marines to be comfortable in this environment.

“Flexibility is the key to air power” has been associated with the beliefs of the U.S. Air Force long before it became a separate service. It remains a tenet of air power today. The combat air forces organize themselves by Aerospace Expeditionary Forces. This adaptable concept allows the Air Force to provide tailor-made air power packages to fit the combatant commander’s requirements. The Air Force’s approach to transformation is through innovation and adaptation. Airmen “were born of change and it remains a part of their character.”

The Future Joint Force.

The future of the U.S. military is joint. The creation of the future joint force and the capabilities needed to achieve full spectrum dominance will require adaptation and flexibility. The transformation of the current force to a force more joint in nature will require common frames of reference for concepts, capabilities, requirements, modularization, and service unique core capabilities. The joint perspective envisions a future joint war fighting force able to use an “adaptive blend of attrition and maneuver warfare” in the ever-changing strategic and operational environments the American military will face. The joint force will combine adaptive service capabilities to accomplish assigned missions (see Figure 1).
This synergistic approach will apply the right force at the right time in the right place. These adaptive capabilities, leaders, warriors, and systems are foundational to the future joint force. “Having the ability to recognize, adapt and tailor the inherent ‘multi-use’ capabilities of the future joint force across the range of military operations will permit exploitation of those resources to resolve a crisis situation.”

An adaptive joint force will find it easier to integrate new technologies, overcome challenges from adapting adversaries, and succeed in the chaotic battlefield than today’s military. Information technology will continue to grow and be a major enabler of the future joint force. “During the last two decades of the twentieth century, previously unimaginable tools for handling and using information have become widespread . . . these tools bring great potential advantages, but they also bring a need for both cultural
adaptation and perhaps for more insightful leadership practices.”

The applicability and effectiveness of the U.S. military in future roles will depend on unique combinations of organizations, capabilities, equipment, and people. Adaptability in multiple situations comes from combining the core competencies of the services into a joint team. These teams will depend on “well-educated, motivated and competent people who can adapt to the many demands of future joint missions.” The crucial element in the future force will always be the people. “The emerging capabilities required for future joint operations calls for a new culture that emphasizes adaptability in its personnel.” This joint force will require a cultural change that openly emphasizes an expeditionary and joint team mindset. Individual energy, innovation, imagination, and diversity must merge with traditional military standards of motivation, discipline, dedication, integrity, teamwork, and professionalism. In the future environments “U.S. joint forces must be capable of adapting their warfighting capabilities to crisis resolution situations without loss of operational effectiveness.”

Developing and educating people who embrace adaptability and who can effectively apply the joint forces across the entire range of military operations is crucial, but the joint team will also require global power projection capabilities. The starting point will be expeditionary forces that are modular in nature. Joint Commanders must be able to tailor forces to the immediate needs of the mission. These service elements will have a common basis from which to operate—joint concepts, known capabilities, and integrated architectures. They will be able to immediately integrate into the joint command structure, provide operational and tactical competences to the fight, and do so regardless of the make up of the rest of the joint force.

Transformation to this future joint force will bring new challenges to all areas of the military. Dogmas, from individual service prejudices to joint “everybody must play” mentalities, from weapon systems acquisition to peacetime and wartime organizations, from strategy to tactics, should be examined and modified to maximize the benefits of transformation. The road to transformation and the future joint force is through adaptability. It is time to include adaptability in the principles of war where it will
positively influence American warfighting capability, future joint forces, and the military’s cultures.

PROPOSED JOINT DEFINITION

The following proposed joint definition for adaptability is presented in the format of the current Joint Publication 1, Joint Warfare of the Armed Forces of the United States for principles of war.\textsuperscript{128}

Adaptability

a. The purpose of adaptability is to actively endorse necessary altering or modifying combat operations, which aggressively find, force, and/or exploit opportunities, in reaction to localized conditions, at all levels on the battlefield.

b. Adaptability requires that military personnel at all levels understand the strategic, operational, and tactical objectives supporting the commander’s intent. Adaptability acknowledges the nature of war, characterized by chaos, volatility, violence, chance, friction, and fog, on achieving those goals. It encourages alteration and modification of planned actions in light of the current combat situations to accomplish the mission efficiently and effectively and support the commander’s intent. It is applicable to all other principles of war except the Objective. Adaptability represents ingenuity, resourcefulness, innovation, and imagination of an individual and the group. It is both mental and physical, as well as the mental ability to find, identify, and exploit non-linear patterns in the strategic, operational, or tactical environment. It depends on the physical ability to act upon those patterns or force new ones more rapidly than the enemy and to do this with only the forces and capabilities on hand. Adaptability is a culture, a state of mind, and a characteristic of the American joint fighting force.

CONCLUSION

The principles of war are an accepted tool to assist warfighters. They attempt to model those aspects of war the U.S. military
feels important to consider when planning for war or executing a campaign. The principles consciously and unconsciously influence the U.S. military establishment across a wide spectrum outside of war. These include, but are by no means limited to, visioning the future military, weapons development and acquisition, and education of American military leadership.

The military has always respected adaptability as a hallmark of its warriors.

There are numerous self-aware and adaptive leaders in our history—Lieutenant Colonel Hal Moore in the Ia Drang Valley; General of the Army Douglas MacArthur at Inchon; General Matthew Ridgeway taking command of Eighth Army in Korea; Major General William Sherman in the March to the Sea; and Lieutenant General Ulysses Grant’s relentless assault on the Army of Northern Virginia.¹²⁹

It has identified adaptability in axioms such as “no plan survives first contact with the enemy” and called it by other names such as “initiative” or “ingenuity.” The ability to take the commander’s intent and plans and then adapt them to the current situation and environment in order to accomplish the mission is one of the traits of U.S. military fighting men and women and is arguably a trademark of American culture.

The principles of war influence American military officers at every level of professional military education and throughout their careers. They represent the doctrinal foundations from which the American military builds unmatched global military capabilities in order to defend the nation, its people, and its interests. Incorporating adaptability in the principles will emphasize an attitude, mental ability, and physical characteristic that is already valued by all the military services.

Service and Joint writings (publications, manuals, memorandums, etc.) contain numerous references to the value of adaptability as a leadership and warrior attribute. They argue for the value of adaptability in the effective integration of joint, multinational, and interagency organizations. The goal then is a military, joint in nature, proficient in the application of power across the spectrum of conflict, educated in military history and doctrine,
well led with technologically advanced tools, and with the ability to adapt to the combatant commander’s unique requirements. With the continuing complexity of the battlefield, the blurring of lines between strategic, operational, and tactical events and outcomes, and the increased range of military operations, the adoption of adaptability as a principle of war represents an opportunity to influence the continuation of U.S. military dominance.

Adding adaptability to the principles of war will also encourage a strategic culture that allows exploration and experimentation. When combined with critical thinking, a solid historical foundation, and technical competence, adaptability will provide the continuing basis for a military able to meet and defeat any threat the United States will confront over the foreseeable future. It will create an environment in which “out of the box” thinking flourishes. Adaptability is an imperative when matched with the uncertainty of the future, diverse and adaptive threats, joint warfare, and the expanding use of the military. The U.S. military sees the value of adaptability in history, uses it in current operations, seeks it out, and encourages it. It is needed for the future warfighting force. Raise adaptability to its proper place, codify it and make it a principle of war.

ENDNOTES - CHAPTER 7


2. Ibid., p. 1.

3. Ibid., p. 2.

4. Ibid., p. 3.


6. Since the U.S. Air Force, Army, Navy, and Marines all accept not only the same nine Principles of War, but also the concept that there are principles as a concept, I will not question their acceptance. This does not mean that the current nine principles should not be examined and questioned, but just that it is beyond the scope of the issue in question. In fact, to maintain relevancy, the principles
should be the subject of continuous reassessment and, in particular, should be examined under the light of technology, its rapid changes, and the applicability of those new technologies on warfare. The nation’s enemies have already shown they are willing to adapt to U.S. strengths and weaknesses and then employ technology in innovative and asymmetric ways against the United States.

7. John Algers, *The Quest for Victory: The History of the Principles of War*, Westport, CT, 1982. Algers’ book provides a complete history of the principles of war. His exploration of their history starts with Sun Tzu and continues through the 1978 version of the U.S. Army Principles of War published in *FM 100-1*, September 29, 1978, and includes international versions of principles from various countries, friend, foe and neutral. He also includes a list of 68 different lists of principles covering over 2,500 years of warfare.


21. Ibid., pp. 21-23.

22. Ibid., p. 28.


25. U.S. Department of the Air Force, “Air Force Basic Doctrine,” p. 12. As an example, USAF Basic Doctrine says the principles “serve as valuable guides to evaluate potential courses of action. These principles . . . provide a basis for judgment in employing military forces. They are guides for planning, learning, evaluation, and actions and not to be used as absolutes.”


27. Ibid., p. 152.

28. Algers, *The Quest for Victory*, pp. 160-170. It is interesting to note that no other military in the world has the exact same set of Principles as the United States, not even its closest allies. Again, Algers’ book documents over 100 lists of principles from ancient to modern countries.


31. Ibid.

32. Sun Tzu, *The Art of War*, p. 84.


Williamson Murray, MacGregor Knox, and Alvin Bernstein, eds., New York, 1994, pp. 80-81.


37. Ibid., p. 20.


39. Ibid., p. 2.


42. Clausewitz, On War, pp. 170-174.


44. Ibid., pp. 50-51.


48. As noted earlier, Air Marshal David Evans said that the principles should always be questioned, tested, and have their relevance verified. If the current principles can no longer provide adequate guidance to our warriors on the battlefield, then they have lost their relevancy. These Joint Evolving Fundamentals represent the foundations of the new American beliefs in what succeeds in war or what we would call the principles of war.


52. Ibid.


57. Ibid., p. 3.


66. *Ibid*.


71. Dorn, *et al.*, “American Military Culture in the Twenty-First Century,” p. 49. Robert Killebrew, a CSIS conference participant, pointed out that because culture is, among other things, the accumulated experience of the service, it tends to reinforce existing ways of doing business.


81. Ibid. U.S. Navy, Marine and Air Force doctrine all have references to similar concepts.


85. Ibid., p. 43.

86. Ibid.

87. Ibid.

88. Ibid., p. 83. Approximately 1,500 strikes were flown against SCUD targets. Richard P. Hallion, *Storm Over Iraq: Air Power and the Gulf War*, Washington, DC, 1992, places the number at over 2,500 sorties flown against the same target set. This number does not paint an accurate picture since it includes sorties that were launched on SCUD search and destroy missions, and then after not finding any mobile launchers, dropped ordinance against validated secondary targets.


93. Ibid.


97. Ibid., p. 84.


100. Ulysses S. Grant, Personal Memoirs of U.S. Grant, 2nd ed., Cambridge, MA, 2001, p. 231. Grant talks of the strategic nature of the success or failure of the Vicksburg Campaign by saying:

At this time the North had become very much discouraged. Many strong Union men believed that the war must prove a failure. The elections of 1862 had gone against the party which was for the prosecution of the war to save the Union if it took the last man and the last dollar. Voluntary enlistments had ceased throughout the greater part of the north, and the draft had been resorted to to fill up our ranks. It was my judgment at the time that to make a backward movement as long as that from Vicksburg to Memphis, would be interpreted, by many of those yet full of hope for the preservation of the Union, as a defeat, and that the draft would be resisted, desertions ensue and the power to capture and punish deserters lost. There was nothing left to be done but to go forward to a decisive victory. (Emphasis in original.) This was in my mind from the moment I took command in person at Young’s Point.


106. Ibid., pp. 127.


108. Ibid., p. 32.


117. Ibid., pp. 80-81.


121. Ibid., p. 10.

122. Ibid.


126. Ibid., pp. 5-6.

127. The JROC Memorandum 022-03 uses the term “plug and play.”
