The RMA and Air Force Roles, Missions, and Doctrine

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"If you can discern the objective, if you can figure out what they want, then you can deny it to them. That's how you start to defeat an enemy."
— Tom Clancy, *Debt of Honor*

The latest techno-thriller from the master of the trade portrays a United States vulnerable to an attack aimed not at its key military installations, but rather at its Wall Street economic brain. The target is information, and by manipulating the data fed into the vast computer network of the American stock market, a foreign businessman triggers financial chaos and threatens economic ruin. As usual, Tom Clancy's work focuses on a current national security concern. *Debt of Honor* highlights "information warfare," a central feature of the "Revolution in Military Affairs," or RMA, that many defense analysts and military officers associate with the 1991 Persian Gulf War.

Those who acknowledge that Desert Storm marked a military revolution do not, however, agree on a standard interpretation of how warfare has changed. Indeed, the shade of one's uniform may color the view expressed. Most concur that the importance of information systems is a fundamental tenet of the RMA, and that the ability to control information gives a belligerent an inherent advantage over an adversary. The believers also tend to agree that technology provides the means to control information, which may then render current military systems, operations, and organizations obsolete.[1] Yet a key question remains unanswered: Will acknowledging the RMA—and taking steps to exploit it—increase the likelihood of victory in the next conflict? From the perspective of the United States Air Force, the answer is unclear. Indications are that an Air Force geared to the perceived RMA may, in certain situations, be ill-suited to accomplish basic air power roles and missions, which could in turn hamper its ability to achieve the fundamental mission of defending the United States "through control and exploitation of air and space."[2]

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For some of the Air Force's leading thinkers, Desert Storm marks a revolution in warfare that has vindicated Giulio Douhet and Billy Mitchell. Both men proclaimed that air power, directed against an enemy's vital centers, could wreck a nation's capability and will to fight, and that it could do so quicker and cheaper than surface forces. That hypothesis, unproven by events of World War II and subsequent conflicts, seemed to take on new life during the Gulf War. The author of a classic study of air campaign planning and chief architect of the air campaign plan used against Iraq is convinced that the use of air power during Desert Storm signaled the dawn of a new way of fighting. "The world has just witnessed a new kind of warfare—hyperwar," Colonel John Warden writes, "one that capitalizes on high technology, unprecedented accuracy, operational and strategic surprise through stealth, and the ability to bring all of an enemy's key operational and strategic nodes under near-simultaneous attack."[3] Warden categorizes stealth, precision guided munitions, and vast bomb penetrating power as "revolutionary developments . . . that we ignore at our peril."[4] He further notes that in hyperwar, air power is the supreme type of military force. Richard Hallion, Chief of the Office of Air Force History, agrees. "Today, air power is the dominant form of military power," Hallion observes. "Air power has clearly proven its ability not merely to be *decisive* in war . . . but to be the *determinant of victory* in war."[5]

Air power proponents claim that success in hyperwar stems from negating an opponent's ability to process information, an idea originally touted by retired Air Force Colonel John R. Boyd during the late 1970s. Boyd called for air power to disrupt an enemy's observation-orientation-decision-action (OODA) loop, which would produce psychological incapacitation and, ultimately, strategic paralysis. Colonel Warden contends that while a nation's ability to carry out its military strategy is sensitive to its decisionmaking process, paralysis of an opponent is more likely to result if enemy leadership can be severed from key instruments of power, such as organic essentials, infrastructure, population, and fielded military forces.[6] Nonetheless, both Boyd's and Warden's notions of paralyzing an enemy rely to a large degree on the availability of high-tech gadgetry to do the job, gadgetry that seemed to

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demonstrate in convincing fashion during the Gulf War its ability to throttle an enemy. Their notions also presume that the opponent is, in fact, vulnerable to paralysis from the air.

Desert Storm's crippling of Iraq has combined with current perceptions of the RMA to produce a tentative outline for a change in Air Force basic doctrine. That outline—which is formative at best—acknowledges the emphasis on information warfare portrayed by Alvin and Heidi Toffler in their consideration of war in the 21st century.[7] The Tofflers contend that the information age, with the computer as its fundamental instrument, has produced the weaponry that can achieve success with minimum doses of lethality, whether against the leadership targets advocated by Warden or the decision-making process emphasized by Boyd. The draft outline of the proposed doctrine manual highlights the perceived ability to achieve operational success by wrecking information systems. It notes that "warfare is normally associated with five mediums: air, land, sea, space, and information," and that the Air Force's six basic roles are "control, strike, mobility, information operations, force support, and force preparation."[8]

Although the proposed outline is extremely tentative—a rudimentary attempt to explain how an RMA might affect fundamental air power beliefs—the emphasis that it places on controlling information is revealing. The proposal defines information warfare as "any action to deny, exploit, corrupt, or destroy the enemy's information and its functions; protecting ourselves against those actions; and exploiting our own information operations."[9] The concept places information warfare on an equal level with air and space warfare, military operations other than war, and power projection.

The emphasis on information dominance also appears throughout the discussion of air power roles and missions. Aerospace control would henceforth include the missions of counterair, *counter information*, and counter space. The strike role, a derivation of the "force application" role in current doctrine, would add *command and control attack* to the more traditional missions of strategic attack, interdiction, and close air support. Information operations are new. They include surveillance, reconnaissance, intelligence, weather service, command and control, and navigation and positioning. Intelligence is further defined as "the product resulting from the collection, processing, integration, analysis, evaluation, and interpretation of available information concerning foreign countries or areas."[10]

The proposed emphasis on information warfare is a key difference between the air power roles and missions listed in the current Air Force basic doctrine manual and those presently being discussed in the new doctrinal outline.[11] Initially drafted before the Persian Gulf War, Air Force Manual 1-1 became official doctrine in March 1992 after multiple revisions. It identifies four basic roles for aerospace forces—aerospace control, force application,

force enhancement, and force support—and it elaborates on the missions that stem from each. Aerospace control's counterair mission and force enhancement's electronic combat mission both call for the degradation of enemy information systems. Force enhancement's surveillance and reconnaissance mission stresses information gathering. So, while current doctrine does not identify specific information dominance missions, neither does it neglect the importance of controlling information. It just does not highlight that task.

In contrast, the proposed new doctrine states that "the first consideration for the air commander is the necessity for information superiority,"[12] a bold assertion that may well disappear in subsequent drafts. Many airmen would contend that gaining control of the air is priority one; they would acknowledge that controlling information—destroying or jamming radar sites, disrupting communications, disseminating false data—may be inherent in achieving air superiority.

Does the absence of an emphasis on information warfare diminish the value of current Air Force doctrine? The possibility exists that AFM 1-1 may be more useful without specific references to information warfare and the RMA than it would be with them. American airmen have not ignored the importance of information dominance in the past, even though their doctrine has not always stressed those efforts. A new doctrine that places information dominance in neon lights might cause airmen to neglect other, more fundamental, tasks.

If the Tofflers are correct, and warfare has truly entered a Third Wave, then a doctrinal emphasis on information dominance would seem appropriate. If, conversely, a revolution in military affairs has not occurred, a revamping of Air Force doctrine at this time may be inappropriate. An argument can be made that the Gulf War's stealth, precision bombing, and bomb penetration technologies are simply evolutionary designs that greatly increase the probability of incapacitating Mitchell's vital centers in one fell swoop. "Evolutionary innovations, which offer improved means of accomplishing existing objectives, can be appliquéd onto the existing model of warfare, thereby minimizing dislocation and disruption to the organization, as well as to its sponsors and constituencies."[13] Moreover, a doctrinal restructuring may prove dangerous if it limits the Air Force's ability to perform the roles and missions called for in current doctrine.

The major determinant in choosing doctrine is the likelihood that so-called revolutionary technologies and Air Force roles may shape the outcome of a future conflict for the United States. Indeed, America may be vulnerable to attack from an enemy capable of waging information warfare. In Clancy's scenario, the 1s and 0s of Wall Street's investment cyberspace are manipulated to the benefit of foreigners. The American military may prove equally susceptible to an attack against its information systems. The Air Force in particular thrives on computers to generate an Air Tasking Order (ATO), the fundamental document used to conduct an air campaign. The ATO contains

aircraft call signs, bomb loads, target locations, times on target, aerial refueling information—in short, every bit of data needed to place bombs from a particular group of aircraft on a particular target at a specified time and to provide those aircraft with airborne protection to and from the target area. When the Navy's computer systems proved incapable of receiving ATO information during the Gulf War, a helicopter flew a copy of the thick document each morning from Central Air Forces Headquarters in Riyadh to a Navy command ship in the Persian Gulf that transmitted the data to Navy aircraft carriers. Eliminate—or alter—the ATO, and American air power would have a great deal of difficulty flying and fighting.

Destroying key command and control centers would also deny vital information to military units. Richard Hallion has observed that had the target been Washington, D.C., the damage inflicted in the initial 24 hours of the Desert Storm air attack against Baghdad would have equated to the destruction of *all* major military and civilian command, control, and communications centers in the Washington area.[14] That an information web links key American military and government facilities is not the issue here, however. American military planners and defense specialists may have projected comparable information systems upon future adversaries—much as American air planners in the 1930s presumed that Nazi Germany and Imperial Japan had an industrial web that mirrored American production methods. Planners also may have projected to today's potential adversaries America's ability to disrupt the information web.

Hallion cites a post-Desert Storm analysis that contends every developed nation has "a remarkably similar number of key targets (about 500) and aiming points (about 3000). The concentration of these targets," he declares, "is such to render these nations vulnerable to the same paralytic destruction that visited Iraq."[15] Yet few non-European nations possess the economic and military wherewithal of Iraq on the eve of the Gulf War. Iraq was relatively industrialized; 70 percent of its population was living in cities, and it contained many modern oil refineries.[16] The associated benefits of an oil glut provided it with sophisticated transportation and communication facilities. Oil money also enabled Saddam Hussein to purchase enough hardware to develop and maintain one of the world's top ten military organizations. In sum, Saddam Hussein's Iraq was an ideal target for an air force sporting stealth and precision-guided munitions with enormous penetrating power, and backed by an array of satellites.

Even though air power's "revolutionary" elements failed to pinpoint all of Saddam's nuclear plants, or to destroy a single mobile Scud missile launcher, air power probably *was* the determinant of victory in the Gulf War. The Iraqis were almost blind before the conflict began. They lacked satellites, AWACS, and JOINT STARS reconnaissance aircraft. Compared to the Allies,

they possessed meager amounts of information, and air power seriously degraded their ability to obtain more. While the application of air power did not entirely prevent the Iraqis from communicating, it did compel them to communicate in the most primitive manner—by messengers. Air power, and the information void it created, crippled the ability of Iraq to withstand the onslaught.

Other potential adversaries possess robust militaries on a scale with Iraq's force at the start of the Gulf War. Against the likes of Iran or North Korea, stealth and precision may prove extremely valuable. Combat against those countries would likely resemble another Desert Storm, although drawdown has cost the Air Force a significant number of the aircraft it possessed in 1991, and American forces are unlikely to receive the six-month grace period to prepare for war that Saddam Hussein provided. Nonetheless, Air Force technology tailored to current Air Force doctrine—and backed by adequate training—should suffice to stymie adversaries with large-scale, conventional-warfare-oriented, armor-and-mechanized-structured forces.

The next enemy, however, may not be as vulnerable as Iraq was to high-tech wizardry. Agrarian or semi-industrialized countries may be immune to an air campaign based on stealth and precision. In Somalia, American forces could do little to halt or intercept information exchanges among rebel groups that communicated via signal drums. Achieving information dominance over a cohesive enemy that is utterly committed to an ideal and that wages war without sophisticated equipment is a prickly prospect at best, as revealed by the trauma of America's war in Vietnam. The belligerents in Bosnia display a commitment equal to that of the Viet Cong and their North Vietnamese allies, while societies in Haiti and Rwanda resemble those of Somalia in terms of sophistication. The prospects remain high for continued American military involvement in locales like Somalia, Bosnia, Haiti, and Rwanda, where stealth and precision may not count for a great deal.

The real problem for Air Force planners is what to do about the long-range future. If the perceived RMA is in fact under way, it is likely in its nascent stages and could take 20 years to implement.[17] The key to the revolution, however, will not be technological change, but rather a change in the Air Force mind-set about how to organize and use the weapons at hand. The German concept of blitzkrieg did not depend on new technology; it succeeded because of the Germans' innovative method of combining existing technology in a new organizational structure.[18] A future restructuring may combine stealth and precision munitions in unique ways to accomplish air power's basic goals of destroying an adversary's war-fighting capability and his will to resist. Such an organizational shift, one that integrates current technology in an innovative fashion against hostile information systems, appears to have potential for success, provided that we face a comparably sophisticated opponent.

Unlike the Germans during the 1930s, who possessed the same basic technology as potential opponents France and Great Britain, Americans today face no "peer competitor." Certainly air planners must consider the possibility that one or more will emerge. Precision-guided munitions are available today throughout the world, although substantial training is necessary to guarantee their successful use. To use them with impunity requires stealth, an enormously expensive capability that currently only the United States can afford. Stealth's cost may come down, or a potential enemy may amass the capital necessary to acquire it. Yet those who would wage information warfare on the United States may not need high-tech weaponry. As Clancy's novel hints, a computer hacker might demolish information systems just as effectively as an F-117 pilot.

Although the reality of such a threat is undeniable, a dramatic change in air doctrine to confront it would likely be a mistake. The Air Force of the 1950s, faced with an apparent revolution in warfare, deemed the nuclear threat paramount and decreed that preparation for nuclear war would suffice for all other types of conflict.[19] Vietnam showed otherwise. A doctrine focused on information dominance could have similar unintended consequences.

That is not to say that the prospect of information warfare merits no response. The armed services could together assemble a "counter force" of information warfare experts, whose *raison d'être* would be to prevent an opponent from incapacitating American information systems, and to render inoperative those of a potential enemy. The force would have access to all American information systems, including satellite imagery, and could call upon the Air Force's stealth bombers, or the Navy's Tomahawk cruise missiles, or any part of the American military establishment to deliver precision attacks against an enemy's information complexes. If, indeed, warfare does now consist of five mediums, one of which is information, then a rationale exists to create a branch of the military devoted to information warfare, much as the Air Force exists to conduct military operations in the air.

The prospects for rapidly developing an information warfare force are remote, however, as evidenced by the Air Force's 30-year struggle for autonomy from the Army, and the fact that the Army, Navy, and Air Force still jointly control space operations. Given that the three services will likely tackle the problem of information warfare individually, a revamped Air Force doctrine that acknowledges the importance of information control is more than justified. Yet that doctrine should not place information warfare above all other Air Force roles and missions. Information warfare in its most basic form is non-lethal combat against machines. The basic though unofficial mission of the Air Force remains "to fly and *fight*," and fighting may well involve killing. Targets attacked belong to an *enemy*, not a peer competitor. Eliot A. Cohen, the director of the Gulf War Air Power Survey, concluded in a subsequent article that "the fantasy of the near-bloodless uses of force is . . . the most dangerous legacy of the Persian Gulf War."[20]

The Air Force's bread-and-butter missions remain strategic attack, interdiction, and close air support. When possible, the service will use precision munitions to accomplish those tasks, but smart bombs are not always appropriate, and, as the al-Firdos bunker episode revealed, precision is no guarantee against loss of life. Moreover, as Cohen points out, American air power has "a menacing and even mysterious military reputation . . . that it is in the American interest to retain."[21]

An Air Force focused on information dominance may lose its ability to wage war against "unsophisticated" opponents who are likely to challenge American interests in the next decade. Focusing on the perceived RMA tenet of information warfare also may lead air planners on a fruitless search for what Jeffrey Cooper labels "silver bullet" technology, promising total incapacitation of enemy information systems[22]—much as 1930s air planners searched for the master thread in the industrial web that would, if severed, destroy an enemy's war-making capability. The increased interplay of information systems in war will not negate the fact that war is an intrinsically human enterprise, subject to vagaries of chance, fog, and friction. Air Force doctrine must always reflect that fact.

NOTES

1. Overhead slides for briefing "The Revolution in Military Affairs: Challenges for Defense Intelligence," presented by Captain James R. FitzSimonds, US Navy, Secretary of Defense Office of Net Assessment.

2. Air Force mission statement announced by General Merrill A. McPeak, Chief of Staff of the Air Force, on 19 June 1992 at Maxwell AFB, Ala.

3. John A. Warden III, "Employing Air Power in the Twenty-first Century," in Richard H. Shultz, Jr., and Robert L. Pfaltzgraff, Jr., eds., *The Future of Air Power in the Aftermath of the Gulf War* (Maxwell AFB, Ala.: Air Univ. Press, 1992), pp. 79, 81.

4. Ibid.

5. Richard P. Hallion, *Storm Over Iraq: Air Power and the Gulf War* (Washington: Smithsonian Institution Press, 1992), p. 264. Original emphasis.

6. See Major David S. Fadok's thesis at the School of Advanced Airpower Studies, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis* (Maxwell AFB: Air Univ. Press, 1995), for a detailed analysis of the beliefs of two seminal Air Force thinkers.

7. Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (New York: Little, Brown and Company, 1993).

8. Air Force Doctrine Center, "Expanded Outline of Proposed AFDD 1: Basic Air and Space Doctrine of USAF," draft outline, February 1995, pp. 1-2.

9. Ibid., p. 5

10. Ibid., pp. 3-8.

11. Air Force Manual 1-1, Basic Doctrine, March 1992.

12. Air Force Doctrine Center, "Expanded Outline of Proposed AFDD 1," p. 6.

13. Jeffrey R. Cooper, *Another View of the Revolution in Military Affairs* (Carlisle Barracks, Pa.: US Army War College, 1994), pp. 25-26.

14. Hallion, pp. 266-67.

15. Ibid., p. 267.

16. Phebe Marr, *The Modern History of Iraq* (Boulder, Colo.: Westview Press, 1985), p. 270.

17. Cooper, p. 19.

18. Ibid., p. 26.

19. Air Force Manual 1-2, Basic Doctrine, 1 December 1959, p. 4.

20. Eliot A. Cohen, "The Mystique of U.S. Air Power," *Foreign Affairs*, 73 (January-February 1994), 121.

21. Ibid., p. 124.

22. Cooper, pp. 39-40.