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**TWO VIEWS OF THE REVOLUTION IN MILITARY AFFAIRS**

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## TWO VIEWS OF THE REVOLUTION IN MILITARY AFFAIRS

Under the Bush administration, the Department of Defense has adopted military transformation as a key element of the Defense Strategy. Deputy Secretary of Defense Wolfowitz recently remarked that DoD planned to invest over \$136 billion over the next five years in transformational technologies.<sup>1</sup> However, not everyone agrees that we are really in the midst of a technology driven revolution in military affairs (RMA) that requires this type of investment. Two books published in 2000 present opposite views on this key issue. Admiral Bill Owens argues in his book *Lifting the Fog of War* that technology presents an unequivocal opportunity to transform the U.S. military into an information based force, and that such a transformation is essential to U.S. national security. On the other hand, Michael O'Hanlon argues in his book *Technological Change and the Future of Warfare* that the likelihood of a short-term revolution in military affairs is less than most advocates believe, and that technology is not likely to transform warfare to the extent many argue. While both authors make strong arguments, neither is totally convincing. Synthesizing the strongest elements of the two suggest that DoD is generally on the right track. However, the key to success will lie less in smart investments in technology than in the ability of DOD to develop innovative warfighting concepts that fully exploit asymmetries in information technology across the spectrum of conflict.

Admiral Bill Owens, the Vice Chairman of the Joint Chiefs of Staff during the first Clinton administration, is a leading advocate of the RMA. His dismay at DoD's lack of progress in pursuing the RMA is evident throughout this book, and Admiral Owens clearly advocates that the U.S. should embrace the RMA as a strategic imperative. Done properly, he argues, the

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<sup>1</sup> Statement of Deputy Secretary of Defense Paul Wolfowitz before the Senate Armed Services Committee, 9 April 2002.

current revolution in information technology, especially the computer revolution, could transform the U.S. military into the lethal, effective and efficient armed force that the country will need to maintain military dominance well into the 21<sup>st</sup> century. By exploiting the nation's asymmetric advantage in computing, sensing, and communications technologies, a transformed military force could pierce the fog of war, minimize American casualties and win any conflict.

The foundation of his argument is that while the U.S. military is the pillar of U.S. strategic power, it is in danger of losing its position as the world's dominant military. The U.S. will face a complex set of future threats from countries such as China that will embrace the RMA whether U.S. leaders endorse it or not. "From China to Western Europe, nations we count as allies and adversaries alike are aware of the promises of military transformation using information-age technology to neutralize or offset the overwhelming military power of the United States."<sup>2</sup> He goes on to describe the U.S. military as "a topflight force that is running on empty."<sup>3</sup> While the ability of the military to execute its mission today is not questioned, Admiral Owens believes that the pace of operations over the past decade has straining readiness, and budget cuts have limited the ability of the military to modernize. Thus, the ability of the U.S. military to maintain its dominance over the next ten to fifteen years is in jeopardy.

Owens sees the Revolution in Military Affairs as the best way to maintain U.S. military dominance. According to Admiral Owens the RMA has already begun, and he cites DESERT STORM as the first manifestation of the RMA. The core of the current RMA is information technology - computer systems, global communications, advanced surveillance sensors, and satellites - all supporting an arsenal of future precision-guided weapons. However, Owens argues that new technology must be integrated with new organizations, operational concepts, and

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<sup>2</sup> Owens, 70-71.

military structures to complete the revolution. According to Admiral Owens, the current RMA will create an unmatched, powerful new synergy in joint military operations by tying the following characteristics and capabilities together using a “system of systems” approach:

- Battlespace Awareness resulting in Dominant Battlespace Knowledge: The commander’s overall comprehension of the enemy, his own forces and all other factors that influence the campaign will enable him to see the entirety of the battlespace.
- Command, Control, Computers, Communications and Intelligence (C4I): Serving as the central nervous system, C4I will allow the commander to communicate his battlespace awareness and decisions to the rest of his organization. This “integrated sight” is central to the RMA.
- Precision force use: The combination of Dominant Battlespace Knowledge and C4I will allow rapid, near perfect mission assignments to all elements of the joint force.

Finally, Admiral Owens argues that DoD has failed to implement the RMA because the Services have too much power and are pursuing the RMA in a piecemeal fashion. Owens calls this the “plague of parochialism.”<sup>4</sup> Because DoD has failed to develop a coherent decision making process, Admiral Owens recommends a radical restructure of DoD. Specifically, he advocates developing a unified command structure in which the CJCS, working directly for the Secretary of Defense, would assume more authority and individual Services would relinquish the power to set priorities or develop requirements for weapons systems, equipment or R&D. According to Admiral Owens, such drastic reorganization is essential for DoD to transform the U.S. military into a force “based on information gathering technology and precision weapons instead of overwhelming numbers of weapons and units. In this way, the U.S. can maintain and expand its military supremacy within budget constraints.”<sup>5</sup>

As an RMA skeptic and defender of the Clinton administration’s approach to transformation, Michael O’Hanlon argues that the likelihood of an RMA is less than most

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<sup>3</sup> Owens, 4.

<sup>4</sup> Owens, 156.

<sup>5</sup> Owens, 43.

advocates believe. Because the speed and scope of technological change is likely to be less than proponents of the RMA claim, he believes it is too soon to tell if we are truly on the cusp of an RMA, and certainly too soon to radically reshape the military along the lines Owens suggests.

O'Hanlon begins his book with a summary of the major arguments of RMA advocates, and notes that all of them are motivated by optimistic views of technological advancements in the next twenty years. Specifically, he cites the following claims made by RMA advocates:

- Computers and electronics will make possible major advances through better integration.
- Sensors will become radically more capable, making the battlefield transparent.
- Vehicles will become drastically lighter, more fuel efficient, faster, stealthier etc.
- New types of weapons, such as space systems and directed energy, will be widely deployed

Finally, O'Hanlon outlines the major conclusion that RMA advocates draw from their optimistic claims of technological progress, that if properly exploited the technological developments listed above will fundamentally change the conduct of warfare in the future.

O'Hanlon then attempts to systematically analyze the "RMA hypothesis" described above by assessing the potential for developments in technology in the next 20 years. Based on his assessment, O'Hanlon concludes that, while technology should make considerable contributions to warfare by 2020, there are also some fundamental limitations to how radically technology can revolutionize warfare. He agrees with the first assertion made by RMA advocates, about advancements in computers and electronics, but rejects the other three. According to O'Hanlon, an RMA will be slow in coming and driven by advancements in a narrow set of technologies - information, electronics, computers, miniaturization, robotics and advanced munitions.

O'Hanlon is skeptical that sensors will perform to the level RMA advocates predict by 2020, and believes they will not be able to detect every significant detail of the battlespace. Adversary tactics such as cover and concealment combined with direct attack by radio frequency weapons or high altitude nuclear detonations will challenge the ability of an integrated system of

systems to deliver “transparency” and “dominant battlespace knowledge.” In other areas he is even more skeptical. While he believes the capabilities of precision engagement are likely to improve significantly, he doubts that the weight and speed of most means of transportation will improve to the same degree. Thus, military capabilities in strategic mobility and battlefield ground maneuver will change only modestly, and O’Hanlon is very skeptical that the Joint Vision’s concepts of dominant maneuver and focused logistics are feasible by 2020.

A second major conclusion of O’Hanlon’s analysis is that some forms of warfare will be impacted to a much greater extent than others. The conduct of high intensity armed conflict will see fundamental changes as large, exposed armor formations and high value naval vessels become extremely vulnerable to attack. However, infantry combat, urban operations, peace operations and other forms of low intensity conflict are not likely to see the same degree of change despite our best efforts at technology based transformation.

In Summary, O’Hanlon concludes that the technological basis for a radical RMA is unsubstantiated. Significant increases in warfighting capability are likely to come only over the long term from “rapid evolution” in technology and doctrine, not an RMA. The U.S. military is capable of the type of evolutionary innovation needed to capitalize on the advantages that technology will provide. Radical changes within DoD are not needed and could potentially be counterproductive. Rather than a strategic imperative, O’Hanlon worries that aggressive pursuit of the RMA could hurt long term U.S. security interests by reducing funding for critical military engagement activities and other military priorities such as maintaining nuclear weapons and overseas bases. O’Hanlon recommends a go-slow approach to transformation emphasizing robust research, experimentation and prototyping.

## SYNTHESIZING THE VIEWS: A COMPARATIVE ANALYSIS

The two viewpoints presented above mark opposite ends of the RMA debate, and both authors present strong, but incomplete arguments. Admiral Owens presents a compelling case that current trends in technology could erode America's military superiority in the next 10-15 years, especially in consideration of China's emergence as a significant strategic competitor. There is also a strong consensus among other security analysts to support Admiral Owens' assessment in this area.<sup>6</sup> O'Hanlon's off-hand dismissal of potential future threats from countries like China, North Korea, Iraq and Iran is a significant shortfall in his argument. From the material reviewed, it seems that the U.S., like it or not, is in an "RMA race." The winners of this race are likely to enjoy significant military advantages over their competitors.

Admiral Owens also presents a compelling vision of the opportunities presented by the RMA. His focus on using information technology to integrate military operations in a more synergistic fashion is perhaps the strongest element of his book. Likewise, his realization that while technology is clearly the core of the RMA, it is in the arena of operational concepts and organizational changes that the RMA race will be won, is compelling.

However, beyond this point Admiral Owens' arguments for the RMA begin to falter. First, he presents no methodology for analyzing a myriad of potential technologies to determine which are critical to the RMA, which are of secondary importance, and which do not apply at all. His observation that information technology is creating dramatic changes in business and society is correct, but this does not necessarily prove the same will be true of military operations. Across the board, Admiral Owens fails to consider the possibilities that he might be wrong. He

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<sup>6</sup> A few examples of this consensus are: Sam J. Tangredi, "All Possible Wars? Toward a Consensus View of the Future Security Environment. 2001 – 2025." National Defense University, Institute for National Strategic Studies, McNair Paper 63, Nov 2000, 41-91; Steven Kosiak, Andrew Krepinevich, and Michael Vickers, "A Strategy for a Long Peace," 5-6; and "New World Coming: American Security in the 21<sup>st</sup> Century, Major Themes and Implications," Phase I report of the United States Commission on National Security/21<sup>st</sup> Century, Sept 15, 1999.

generally highlights the best-case scenario without giving proper consideration to the vulnerabilities of the very force he advocates.

Likewise, Admiral Owens' assertion that dominant battlespace knowledge will lead to near perfect mission tasking is questionable. As seen in Operation ALLIED FORCE, two competent commanders sharing the same knowledge base can still come to significantly different opinions about how to best proceed. It is highly unlikely that dominant battlespace knowledge would have mitigated the disagreements between Gen Clark and Gen Short. Questions of strategy and operational art are likely to remain difficult even in a transformed force.

Finally, while Admiral Owens correctly highlights the difficulties that Service parochialism present to instituting major changes, he does not consider the down side of the radical organizational changes he advocates. He fails to realize that such changes could squelch bottom-up innovation within the Services. Some of the U.S. military's most innovative concepts, such as Effects Based Operations and Network Centric Warfare, originated from the Services. Here again, his failure to evaluate the down side of his proposals or suggest any other alternative leaves the reader unpersuaded.<sup>7</sup>

Michael O'Hanlon's analysis begins to fill some of the gaps left open by Admiral Owens. First, it provides a solid organizational framework for evaluating the many emerging technologies that could impact the RMA. Such rigor in analysis is rare among RMA advocates, and if nothing else O'Hanlon's book should cause the proponents of the RMA to engage in a more detailed examination of their assertions about the progress and impact of technology.

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<sup>7</sup> For additional critical reviews, see the following: Ramond E. Franck Jr.'s, *Armed Forces and Society*, Fall 2001; Francis G. Hoffman, *Marine Corps Gazette*, Jul 2000; Peter W. Huggins, *Aerospace Power Journal*, Summer 2001 and Michael Schrage, *Technology Review*, May 2001.

However, even O'Hanlon's skeptical analysis seems to confirm the claims of RMA advocates that computers and information technology are the most likely genesis of an RMA.

A second and equally valuable aspect of O'Hanlon's book is that it provides a healthy sense of realism to counter the most extreme RMA assertions. By pointing out the potential for adversaries to counter new technologies using innovative tactics, technologies and operational concepts, O'Hanlon demonstrates the value of carefully examining and wargaming our RMA concepts against potential adversary reactions. DoD can move the RMA debate out of the arena of pure theory, which characterizes Admiral Owens book, to the realm of the doable by incorporating a strong "Red Team" element in wargaming and experimentation programs. The "Red Team" would be responsible for ensuring the tough questions posed by O'Hanlon are answered – what are the odds that the technology will really work in the allotted timeframe and what are the possible counters, both high and low tech, that will be available to our adversaries.

Finally, O'Hanlon does the RMA debate a great service by pointing out that technological advances will not be uniform across all conflict environments and modes of combat. If, as he suggests, the primary technological advances are most likely to be in the area of computers, communications and precision strike, then DoD is right to invest in these technologies and emphasize the development of new operational concepts and organizational structures to capitalize on these emerging capabilities.

However, O'Hanlon's work also has its limits. First, although he presents a credible framework for analysis he fails to muster the type of persuasive evidence needed to justify his conclusions. Most of his evidence is taken from open source popular journals, which hardly represent the authoritative answers DoD needs to support its transformation strategy. Even if he had more authoritative evidence, O'Hanlon's framework is over reliant on evaluating individual

technologies in isolation of other trends. For example, O'Hanlon gives too little credit to the ability of an integrated C4I system of systems to leverage modest advances in technology in other areas to produce a revolutionary new way of fighting.<sup>8</sup> Perhaps the best example of this type of transformational change was the blitzkrieg. Although the Germans possessed no significant technological edge over the French or British, the synergistic effect of better-integrated forces, particularly at the operational level of war, gave the Germans a transformational advantage. Likewise, Operation ENDURING FREEDOM showed the advantage of better C4I and new operational paradigms, even when applied to "legacy forces." Thus, even if there is likely to be only moderate improvements in the battlefield mobility of ground forces as O'Hanlon argues, this does not eliminate the possibility of a transformation in ground warfare, especially if revolutionary new capabilities in precision strike and C4I can be properly integrated into new maneuver warfare concepts.

## CONCLUSION

Synthesizing these two arguments leads to some initial conclusions. First and foremost, the bulk of the evidence indicates that the RMA, driven by changes in computers and information technology, is a reality. DoD is right to make transformation a central element of its Defense Strategy. Likewise, Secretary Rumsfeld's decision to focus on command and control, surveillance, and networking sensors to shooters is in line with what both Admiral Owens and Michael O'Hanlon recommend as the best technological investment to pursue the RMA.

However, the full implications of the RMA are likely to unfold only gradually over time. Developing new joint command and control structures built around a C4I system of systems, and

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<sup>8</sup> For additional critical reviews, see the following: Thomas Hamilton, *Armed Forces and Society*, Summer 2001; James R. Fitzsimonds, *Naval War College Review*, Winter 2001.

developing integrating joint operational concepts which fully exploit the advantages of these new C4I structures are likely to be the biggest payoffs in continuing the RMA. This should be DoD's focus in concept and technology development.

Staying grounded in reality throughout the process will require DoD to constantly look for evidence that it might be following the wrong path in the RMA. This places great importance on robust scientific R&D, and an experimentation process with significant "Red Team" capabilities. DoD should shy away from large experimental demonstrations such as MILLENIUM CHALLENGE, and focus its efforts on a wide variety of smaller experiments and prototype development. Likewise, due to the uncertainty as to the future path of the RMA, DoD should be developing a wide family of operational concepts to feed into the experimentation process. The current emphasis by Joint Forces Command on one integrating concept – Rapid Decisive Operations – is not the best approach. DoD should reorient Joint Experimentation towards developing end-to-end concepts for each key area identified in the new Defense Strategy - power projection into anti-access environments, denying sanctuary, space control, homeland defense, information operations and developing a common operational picture through a transformational C4I system of systems.

Synthesizing the strongest elements of the two arguments reviewed in this paper suggest that DoD is generally on the right track. However, the key to success will lie not so much in technology as it will in the development of innovative warfighting operational concepts that fully exploit technological asymmetries in information technologies. As such, developing a transformational joint C4I system at the operational level of war is likely to be the single biggest payoff for the U.S. military, and well worth the investment in terms of technology, concept development and joint experimentation.

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