

Dima P. Adamsky

American Strategic Culture and the US Revolution in Military Affairs



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American Strategic Culture and the US Revolution in Military Affairs

abstract

This monograph will trace the impact of American strategic culture on the approach of the US defense community to the revolution in military affairs (RMA). After the introduction, the discussion will be divided into three parts: the concept of revolutions in military affairs and theories of strategic culture will be discussed in the first part of this monograph; the second part will concentrate on the intellectual history of the American RMA; the general sources and the main traits of American strategic culture will be addressed in the third part; the conclusion will integrate the previous two parts, and will use the characteristics of American strategic culture to account for the conduct of the US defense community with regard to the RMA.

KEYWORDS: strategic culture, revolution in military affairs, Soviet military-technical revolution, US defense transformation, high-technology warfare

The RMA and the Cultural Approach to Security Studies

Revolution in Military Affairs

Revolution in military affairs is the term used for a radical military innovation in which new organizational structures together with novel force deployment methods, usually¹ but not always² driven by technology, change the conduct of warfare. Indeed, most military revolutions have arisen from technological advances. However, RMAs are driven by more than breakthroughs in technology, which in themselves do not guarantee successful innovation.

Technology only sets the parameters of the possible and creates the potential for military revolution. What indeed produces an actual innovation is the extent to which militaries recognize and exploit the opportunities inherent in new tools of war, through organizational structures and deployment of force. It was how people responded to technology that produced seismic shifts in warfare,

argues Max Boots, who has inquired into the nature of the military revolutions since 1500.³ While the technological component is

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- 1 For an overview of the RMA, see the *Project of Defense Alternatives* web site. The famous, initial, and the most widely used definition was offered by Andrew Krepinevich in "Cavalry to Computer: the pattern of Military Revolutions", *National Interest*, no. 37 (fall 1994). Some scholars simply define it as "a radical change in the conduct and character of war." Colin Gray, *Recognizing and Understanding Revolutionary Change in Warfare* (Carlisle: US Army War College, 2006), p. vi.
 - 2 For the impact of anthropological, demographic, natural, physiological and economic factors on the transformation of warfare, see: Azar Gat, *War in Human Civilization* (Oxford: Oxford UP, 2006), and Stephen Rosen, *War and Human Nature* (Princeton NJ.: Princeton UP, 2006).
 - 3 Max Boot, *War Made New: Technology, Warfare and the Course of History, 1500 to Today* (New York: Gotham Books, 2006), p. 10.

often an important initial condition, a true revolution depends on a confluence between weaponry, a concept of operations, organization and the vision of future war.⁴

Anyone who anticipates the RMA and transforms his military forces accordingly will significantly enhance military effectiveness.⁵ A delay, consequently, will have the reverse effect. Thus, the earlier defense experts recognize and understand the discontinuity in the nature of war, the better. For the most part RMAs have been recognized only after the fact.⁶ However there were cases in history when, early on, the significance of unfolding RMAs was recognized.⁷ The ability to diagnose and understand the discontinuity in the nature of war – the rapid change in ways and means of fighting – is probably the most critical aspect of defense management. Imagining the future enables defense managers to embark in real time on crafting what Stephen Rosen calls the “new theory of victory”.⁸

Since the early 1990s, the US and other world militaries have come to understand that the most dramatic revolution in warfare since the introduction of nuclear weapons is underway. In mechanical terms, the *information-technology revolution in military affairs* (IT-RMA) integrated long-range, precision-guided munitions, C4I (command, control, communications, computers and information) and RSTA (reconnaissance, surveillance, targeting acquisition) in a form that completely changed the combat environment and altered the way people think about the aims and methods of conventional warfare. In terms of basic capabilities, the IT-RMA entails the ability to strike with great accuracy, irrespective of range; the ability to penetrate defensive barriers using stealth technology and unmanned warfare; and the ability to move information rapidly across a joint battle network and exploit the effects of increased joint force integration.⁹

In terms of organizational structures and concepts of operations, classical patterns of advancing along fronts with discernible lines and

4 Earl H. Tilford, *The Revolutions in Military Affairs: Problems and Cautions* (Strategic Studies Institute, US Army War College, 1995), p. iii.

5 Richard Hundley, *Past Revolutions, Future Transformation: What can the history of revolutions in military affairs tell us about transforming the US Military?* (Santa Monica: RAND, 1999), p. 13.

6 Theodor W. Galdi, *Revolution in Military Affairs?* (CRS 951170F, 11 December 1995), p. 3.

7 Gray, *Recognizing and Understanding Revolutionary Change*, p. 3.

8 The term “new theory of victory” is borrowed from Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca: Cornell UP, 1994), p. 20.

9 Michael G. Vickers and Robert C. Martinage, *The Revolution in War* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2004), p. 7.

rear areas have disappeared; the number of platforms has become far less important than networks and communications; military planning, under the umbrella concept of “effect-based operations”, aims at defined effects rather than attrition of enemy forces or occupation of territory; instead of massive forces, precise fire is maneuvered; the sensor-to-shooter loops have been shortened considerably; the role of stand-off and airpower capabilities has increased at the expense of heavy ground formations; a far smaller, lighter and more mobile force can operate at a greater range and with greater precision and lethality than at any time before in human history.¹⁰

The roots of the IT-RMA can be traced to the mid-1970s, when the West capitalized on scientific-technological developments to neutralize the threat posed by Soviet second echelons. However, the cultivation of the technological seeds of the American RMA preceded the maturation of the conceptual ones. Although it was the US that was laying the technological groundwork for the RMA, Soviet, rather than American military theorists, were the first to argue that the new range of technological innovations constituted a fundamental discontinuity in the nature of war, which they dubbed the military-technical revolution. The Soviet military had a fuller comprehension of the revolutionary impact that the Air-Land Battle (ALB) and Follow-On Forces Attack (FOFA) arsenals would have on the future battlefield than did the US military.¹¹ About a decade later, this fundamental Soviet approach to the transformations in military affairs was analyzed, adapted and adopted by the US, and designated the RMA. In other words, the US developed technology and weaponry for about a decade without realizing their revolutionary implications. No attempt to re-conceptualize the existing paradigm about the nature of warfare in futuristic terms was made by the US in those years. Not until Andrew Marshall and his colleagues introduced the notion of the RMA did this conceptual innovation reach the consciousness of the American military and defense establishment.¹²

10 Eliot A. Cohen, “Change and Transformation in Military Affairs”, *Journal of Strategic Studies*, vol. 27, no. 3 (September 2004); Avi Kober, “Does the Iraq War Reflect a Phase Change in Warfare?” *Defense and Security Analyses*, vol. 21, no. 2 (2005): 121–142. For an overview of the RMA, see *Project of Defense Alternatives* web site.

11 Jeffrey McKittrick, “The Revolution in Military Affairs”, in *Battlefield of the Future: 21st Century Warfare Issues*, eds Barry R. Schneider and Lawrence E. Grinter (Maxwell AFB, Ala.: Air UP, September 1995).

12 Andrew W. Marshall, Director of Net Assessment, *Some Thoughts on Military Revolutions – Second Version* (Washington DC.: Office of the Secretary of Defense, 23 August 1993), p. 1.

The 1990 Gulf War offered for the first time a glimpse of the revolutionary potential embodied in these various combat capabilities provided by information technology. Nearly a decade later, in 1999, Allied operations in Kosovo reinforced the value of what is known as information warfare for future military campaigns. Operations in Afghanistan and Iraq in 2001 and 2003 provided additional evidence that a revolution in conventional warfare was well underway.¹³ Several scholars of strategic studies, most notably Stephen Biddle, seriously challenge this assumption.¹⁴ Although this is an important discussion, this monograph deliberately refrains from analyzing the question of whether the process described actually represents revolutionary discontinuity in modern warfare.

The Impact of Cultural Factors on Military Innovations

Scholars of revolutions in military affairs maintain that innovation depends as much upon developing or gaining access to the requisite technologies, as on restructuring concepts and organizations. In the last two processes social and cultural factors are critical. Consequently, a body of literature about the impact of cultural factors on military innovations provides the most relevant answers to the questions posed in this monograph.

Chronologically, “strategic culture” literature came in three waves.¹⁵ The first generation of scholarship emerged in the late 1970s to early 1980s and focused mainly on the link between national political and military cultures, and the strategic choices that countries made. The literature argued that a deeply rooted set of beliefs and a nation’s formative historical experiences create its distinct mode of strategic thinking and particular attitude toward security affairs. Scholars started to address differences in strategic behavior as products of different cultural contexts. The notion that different security communities might think in different ways about the same strategic

13 Vickers and Martinage, *The Revolution in War*, p. 14.

14 Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton UP 2004) and the special issue of the *Journal of Strategic Studies*, vol. 28, no. 3 (June 2005). Also see: Stephen Biddle, “Speed Kills? Reassessing the role of speed, precision, and situation awareness in the Fall of Saddam”, *Journal of Strategic Studies*, vol. 30, no. 1 (February 2008): 3–46.

15 Jeffrey S. Lantis, “Strategic Culture: from Clausewitz to Constructivism”, *Strategic Insights*, vol. IV, issue 10 (October 2005).

matters began to gain acceptance. Empirically, the literature concentrated mostly on the distinctive national styles in the superpowers' grand-strategy making and on the cultural roots of the nuclear doctrines of the USA and the USSR. The discussion about the cultural impact on national security policy was introduced to the International Relations (IR) under the rubric of "strategic culture".¹⁶

The second wave of literature came in the early 1990s. The proponents of the theory sought to prove through a variety of case studies that strategic culture constituted the milieu within which strategy was debated. They presented strategic culture as an independent determinate of security policy patterns and consequently as an independent variable for research. Scholars argued that if not ultimately driven by the parameters of strategic culture, national security policy had deep cultural underpinnings.¹⁷ The second wave is also famous for its methodological debates. The skeptics had asserted that the operational definition of strategic culture, as had been offered by theoretical pioneers of the first generation, was methodologically problematic. The critics claimed that analytical models of strategic culture were frequently tautological, because they did not provide a clear separation of dependent and independent variables. The literature of this period sought methodology for identifying distinctive national cultures, characters and styles and thus make the discipline less opaque, vague and simplistic.¹⁸

The third generation of scholarship is related to the mid-1990s and was brought on the wave of rising constructivism. Consequently, after having fallen into disfavor around the end of the Cold War, the-

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- 16 Works from the first generation include: Jack Snyder, *The Soviet Strategic Culture: Implications for Nuclear Options* (Santa Monica, Calif.: Rand Corporation, 1977); Ken Booth, *Strategy and Ethnocentrism* (New York: Holmes and Meier, 1981); Colin Gray, "National Style in Strategy: The American Example", *International Security*, vol. 6, no. 2 (fall 1981): 35–37; id., *The Geopolitics of Superpower* (Lexington, Kentucky: University Press of Kentucky, 1988), pp. 42–43; id., *War, Peace and Victory: Strategy and Statecraft for the Next Century*, (New York: Simon and Schuster, 1990); Carl Jacobson, *Strategic Power: USA/USSR* (New York: St. Martin's Press, 1990).
- 17 Yitzhak Klein, "A Theory of Strategic Culture", *Comparative Strategy*, vol. 10, no. 1 (1991): 3. See also Richard W. Wilson, *Compliance Ideologies: Rethinking Political Culture* (New York: Cambridge University Press, 1992); Charles A. Kupchan, *The Vulnerability of Empire* (Ithaca, New York: Cornell University Press, 1994).
- 18 The second generation's famous theoretical debate is an exchange between Iain Johnston and Colin Gray on the question of whether "strategic culture" is a cause or a context of behavior. Alastair Iain Johnston, "Thinking about Strategic Culture", *International Security*, vol. 19, no. 4 (spring 1995): 32–64; id., "Cultural realism and Strategy in Maoist China", in *The Culture of National Security: Norms and Identity in World Politics*, ed. Peter J. Katzenstein (Columbia, NY, Columbia University Press, 1996); Colin Gray, "Strategic Culture as Context: The First Generation of Theory Strikes Back", *Review of International Studies*, vol. 25 (1995).

oretical work on the cultural foundations of strategic behavior picked up again significantly. The constructivist research program, which emphasized the ideational construction of international politics, naturally became the intellectual ally of the proponents of strategic culture theories. Constructivists saw state identities and interests as socially constructed by knowledgeable practice. According to the scholars of constructivism, subjective normative beliefs about the world define actors, their situations, and the possibilities of action. Constructivist research devoted particular attention to identity formation, the organizational process, history, tradition, and culture, and provided a far more complex and nuanced picture of international security. It took researchers of security studies deeper within states, military organizations, and the process of producing new technology, to account for the role of culture and norms.¹⁹ Constructivism views culture as a synthesis of meaning that governs perceptions, communications, and actions, in both the short and long-term. Ideational meanings define the situation, articulate motives, and formulate a strategy for success.²⁰ Though the tendency to address the impact of domestic politics on foreign policy was already familiar to the academic world, constructivists were the first to frame it as a coherent paradigm to counterbalance the traditional neorealist approach to security studies. Constructivism laid the theoretical and methodological groundwork for scholars interested in a cultural approach to international security studies.²¹

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- 19 Alexander Wendt, "Anarchy is What States Make of It: The Social Construction of Power Politics", *International Organization*, vol. 46, no. 2 (spring 1992); id., "Constructing International Politics", *International Security*, vol. 20, no. 1 (1995); Peter J. Katzenstein, Robert O. Keohane, and Stephen Krasner, "International Organization and the Study of World Politics", *International Organization*, vol. 52, no. 4 (1998); Ted Hopf, "The Promise of Constructivism in International Relations", *International Security*, vol. 23, no. 1 (Summer 1998), p. 914; Jeffrey W. Legro, "Culture and Preferences in the International cooperation Two-Step", *American Political Science Review*, vol. 90, no. 1 (March 1996): 118–137.
- 20 Valerie M. Hudson, ed., *Culture and Foreign Policy* (Boulder, CO: Lynne Rienner Publishers, 1997).
- 21 Peter J. Katzenstein, ed., *The Culture of National Security: Norms and Identity in World Politics* (Columbia, NY: Columbia University Press, 1996); Jeffrey W. Legro, *Cooperation under Fire: Anglo-German Restraint during World War II* (Ithaca, NY: Cornell UP, 1995); Peter J. Katzenstein, *Cultural Norms and National Security: Police and Military in Postwar Japan* (Ithaca, NY: Cornell UP, 1996); Alastair Iain Johnston, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History* (Princeton, NJ: Princeton UP, 1995); Stephen Peter Rosen, *Societies and Military Power: India and its Armies* (Ithaca NY: Cornell University Press, 1996); Elizabeth Kier, *Imagining War: French and British Military Doctrine between the Wars* (Princeton, NJ: Princeton UP, 1997); Ken Booth and Russell Trood, eds, *Strategic Cultures in the Asia-Pacific Region* (London: Macmillan Press, 1999).

In the last decade, a growing interest in ideational explanations of states' strategic behavior resulted in numerous studies of a variety of empirical and theoretical topics. These works, conducted under the umbrella concept of "strategic culture", feature different levels of analysis, but all appeal to socially, culturally and ideationally independent variables to explain strategic and military behavior. A number of proponents of the cultural approach to IR sought to inquire into the ideational and cultural foundations of states' foreign and defense policy. They concentrated on the interrelation between norms, culture and strategic behavior and shared a theoretical assumption characterized by Colin Gray: "the security community is likely to think and behave in ways that are influenced by what it has taught itself about itself."²² Other scholars focus on domestic social structures to explain particular national styles in strategic affairs.²³ The renewed interest in organizational analysis in security studies led to an appreciation of the inter-state level and concretely to focusing on "figuring out the fighting organizations."²⁴ Scholars paid considerable attention to the linkage between the nature of the organization and the military innovation it produced.²⁵ Still at the intrastate level, certain scholars tended to concentrate less on the impact of organizational interests than on the influence ideas spread on generating military power. The constructivist approach attempts to understand how the cultural identities of specific nations shape military doctrines.²⁶ Attention was also paid to the intellectual dynamics and adaptive learning between

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- 22 Colin Gray, *Out of the Wilderness: Prime Time for Strategic Culture*, (Defense Threat Reduction Agency, 2006), p. 5; Ronald L. Jepperson, Peter J. Katzenstein, Alexander Wendt, "Norms, Identity and Culture in National Security", in Katzenstein ed., *The Culture of National Security*, pp. 54–55; Katzenstein, *Cultural Norms*, pp. 17–20; Theo Farrell, *The Norms of War: Cultural Beliefs and Modern Conflict* (London: Lynne Rienner Publishers, 2005); id. *The Sources of Military Change: Culture, Politics, Technology* (London: Lynne Rienner Publishers, 2002); id., "Transnational Norms and Military Development", *European Journal of International Relations*, (2002); "World Culture and Military Power", *Security Studies* (2005).
- 23 Stephen Peter Rosen, "Military Effectiveness: Why Society Matters", *International Security*, vol. 19, no. 4 (1995): 5–31; id. *Societies and Military Power*; Matthew Evangelista, *Innovation and Arms Race: How the United States and the Soviet Union Develop New Military Technologies* (Ithaca: Cornell University Press, 1988); Thomas U. Berger, *Cultures of Antimilitarism: National Security in Germany and Japan* (Baltimore, Maryland: Johns Hopkins UP, 1998); id., "From Sword to Chrysanthemum: Japan's Culture of Anti-militarism", *International Security*, vol. 17, no. 4 (spring 1993): 119–150; Thomas Banchoff, *The German Problem Transformed: Institutions, Politics, and Foreign Policy, 1945–1995* (Ann Arbor, Mich.: The University of Michigan Press, 1999). Michael Eisenstadt and Kenneth Pollack, "Armies of Snow and Armies of Sand: The Impact of Soviet Military Doctrine on Arab Militaries", in Goldman and Elliason.
- 24 Theo Farrell, "Figuring out Fighting Organizations: The New Organizational Analysis in Strategic Studies", *Journal of Strategic Studies*, vol. 19, no. 1 (1996): 122–135.

institutions from different states which influence the preferred paths of strategic behavior.²⁷

This monograph further elaborates on the most recent scholarly definition of “strategic culture”, which views it as a set of shared formal and informal beliefs, assumptions, and modes of behavior, derived from common experiences and accepted narratives (both oral and written), that shape collective identity and relationships to other groups, and which determine appropriate ends and means for achieving security objectives.²⁸

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- 25 Kimberly Martin Zisk, *Engaging the Enemy: organizational theory and Soviet Military Innovation* (Princeton NJ.: Princeton UP, 1993); Lergo, *Cooperation Under Fire*; Lynn Eden, *Whole World on Fire: Organizations, Knowledge and Nuclear Weapons Devastation* (Ithaca: Cornell UP, 2004); Deborah Avant, *Political Institutions and Military Change: Lessons from Peripheral Wars* (Ithaca: Cornell UP, 1994).
- 26 Elizabeth Kier, “Culture and Military Doctrine: France Between the Wars”, *International Security*, vol. 19, no. 4 (spring 1995): 65–93; for the cultural influences on doctrinal developments see id., *Imagining War: French and British Military Doctrine Between the Wars* (Princeton, N.J.: Princeton UP, 1997); Alastair I. Johnston, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History* (Princeton NJ.: Princeton UP, 1995); Thomas G. Mahnken, *Uncovering Ways of War: US Intelligence and Foreign Military Innovation, 1918–1941* (Ithaca, NY: Cornell UP 2002).
- 27 Goldman and Eliason, *Diffusion of Military Technology and Ideas*; Emily Goldman and Thomas Mahnken, *The Information Revolution in Military Affairs in Asia* (New York: Palgrave Macmillan, 2004)
- 28 Jeffrey Larsen, *Comparative Strategic Cultures Curriculum: Assessing Strategic Culture as a Methodological Approach to Understanding WMD Decision Making by States and Non States Actors* (Defense Threat Reduction Agency, 2006); for a comparison of all existing scholarly definitions of “strategic culture”, see Lawrence Sondhouse, *Strategic Cultures and Ways of War* (London: Routledge, 2006), pp. 123–125.

An American Revolution in Military Affairs

Technological, Doctrinal and Conceptual Preconditions of the American RMA

In the mid-1970s the US army became cognizant of the Soviet technique of the echelonment of forces combined with a high-speed offensive, and realized that in their current state, their defenses could not stand up to the challenge. The ALB and FOFA concepts grew out of this fear of Soviet conventional superiority afforded by the echelonment technique. The West sought a remedy and found it in emerging technologies. Since the mid-1970s, highly advanced technological achievements particularly in the field of microprocessors, computers, lasers and electronics, had enabled the production of “smart weapons” – an assortment of conventional munitions that were precision-guided to targets – even at a stand-off over the horizon ranges. The combination of range and accuracy resulted in a new warfare mission: to strike deep against enemy offensive follow-on forces. Developments in weapons technology and the evolution of thought about future war in Europe led to similar innovations in the US and NATO. Both ALB and FOFA rested on the premise that follow-on echelons of Soviet ground forces had to be slowed or stopped before arriving at the line of contact. Attacking the second echelons, disrupting their movement or destroying them, and degrading their command-and-control, became the overriding aim of US tactics and weapons development.²⁹

According to William Owens, a technological prequel to the American RMA should be associated with the Pentagon officials who began in the late 1970s to think about the application of technology in military affairs and to formulate the “offset strategy”.³⁰ Secretary of Defense Harold Brown’s main focus was to devise a program by which the US and NATO allies could use technological superiority to neutralize the

overwhelming advantage in the size of their conventional forces that the Soviet Union and its fellow Warsaw Pact members had over NATO forces in Europe.³¹ William Perry, Undersecretary of Defense for Research and Engineering, who was responsible for the development of the capabilities for the “offset option”, stated in 1978:

Precision-guided weapons, I believe, have the potential for revolutionizing warfare. More importantly, if we effectively exploit the lead we have in this field, we can greatly enhance our ability to deter war without having to compete tank for tank, missile for missile, with the Soviets. *We will effectively shift the competition to a technological area where we have a fundamental long term advantage* [my emphasis].³²

Although in retrospect, Perry claimed that the offset strategy was more than just a plan to exploit high technology for its own sake, the primary objective of the defense establishment was to use “high technology” to build better weaponry systems than those of the Soviet Union.³³

The offset strategy was pursued by five administrations during the 1970s and 1980s.³⁴ As Tomes indicates, the means of precision strike, intelligence and communication - the capabilities on which the concepts of the American RMA would later be built - matured technologically in various projects starting in the late 1970s of the Defense Advanced Research Project Agency (DARPA).³⁵ The DARPA allocated its budget to give qualitative advantages to American forces to offset the quantitative superiority the Soviet forces enjoyed in Europe.³⁶ Some

29 William E. Odom, *The Collapse of the Soviet Military* (New Haven, CT: Yale UP 1998), pp. 72–5; id. “Soviet Force Posture: Dilemmas and Directions”, *Problems of Communism* (June-August, 1985): 1–14; V.D. Sokolovskii, *Voenmaia strategiiia* (Moscow: Voenizdat, 1962); Richard Van Atta and Michael Lippitz, *Transformation and Transition: DARPA's Role in Fostering an Emerging Revolution in Military Affairs* (Alexandria, VA: IDA 2003), vol. 2, chs. 3–4; Richard Lock-Pullan, *US Intervention Policy and Army Innovation* (New York: Routledge 2006), ch. 4; id. “How to Rethink War: Conceptual Innovation and Air Land Battle Doctrine”, *Journal of Strategic Studies*, vol. 28, no. 4 (August 2005); Kimberly Marten Zisk, *Engaging the Enemy*, pp. 121–32.

30 William Owens, *Lifting the Fog Of War*, (New York: Straus and Giroux, 2000), pp. 81–82.

31 Robert Tomes, *Military Innovation and the Origins of the American Revolution in Military Affairs* (PhD dissertation submitted to the Department of Government and Politics, University of Maryland, 2004), pp. 200–208.

32 “The objective of our precision guided weapon systems to give us the following capabilities: to be able to see all high value targets on the battlefield at any time; to be able to make a direct hit on any targets we can see; and to be able to destroy any target we can hit.” In William Perry’s *Testimony to the US Senate Armed Services Committee, Hearing on DoD Appropriations for FY1977*, in Vickers and Martinage, *The Revolution in War*, pp. 8–9; also see: Owens, *Lifting the Fog Of War*, p. 81.

33 Ibid.

of the core technological focuses which shaped research, development and production efforts were: the families of land-, air-, and sea-launched precision-guided and stand-off weapons; command-and-control and automated reconnaissance and target acquisition projects; anti-armor weapons; navigation and guidance devices; stealth technology; unmanned aerial vehicles.³⁷ In 1978 DARPA integrated research and development of the above mentioned capabilities under one unified project entitled "Assault Breaker". Since the 1980s, the project had also become known as the "Smart Weapons Program". Robert Tomes convincingly defines this period of capabilities developing as the "formation" stage of the RMA.³⁸

It is important to state however, that DARPA projects were still far from any conceptual revolution. For the most part, the defense community treated the emerging capabilities as a multiplier of the effectiveness of the existing force, and did not deduce from them any revolutionary implications with regard to the concept of operations, organizational structures or the nature of war in general.³⁹ Without a deeper understanding of the operational and organizational consequences of the new weaponry, the mere existence of smart weapons and technologies would not produce the revolution in military affairs. Moreover, new weapons systems were produced in compliance with a very mechanical logic - to ensure that the United States was not left behind in the area of new technology.⁴⁰ It was not the futuristic vision of military thought that was the driving force behind the innovations, but a linear arms-race logic *vis-à-vis* the Soviet adversary. The offset strategy certainly reflected an

34 Owens, *Lifting the Fog Of War*, pp. 82–83. According to Perry, the post-Cold War advances in US military effectiveness were an outgrowth of this strategy. William J. Perry, *Preventive Defense: A New Security Strategy for America* (Washington, DC: Brookings Institute Press, 1999), pp. 179–180.

35 Tomes, *Military Innovation and the Origins ...*

36 Richard H. Van Atta, Seymour J. Deitchman, and Sidney G. Reed, *DARPA Technical Accomplishments, Volume III* (Alexandria, VA: Institute for Defense Analyses, 1991), p. II-14; Vickers and Martinage, *The Revolution in War*, p. 9.

37 Tomes, *Military Innovation and the Origins ...*, pp. 154–221; Van Atta and Lippitz, pp. 1–56; Vickers and Martinage, *The Revolution in War*, pp. 8–10; Barry Watts, *Six Decades of Guided Munitions and Battle Networks: Progress and Prospects* (Washington: CSBA, 2007).

38 Tomes, *Military Innovation and the Origins ...*, pp. 154–215, 225.

39 William Perry, "Desert Storm and Deterrence", *Foreign Affairs*, no. 70 (fall 1991): 66–82.

40 Paul Dickson, *Sputnik: The Shock of the Century* (New York: Walker and Company, 2001), p. 194; also see Richard Van Atta and Michael Lippitz, *Transformation and Transition: DARPA's Role in Fostering the Emerging Revolution in Military Affairs* (Alexandria VA: Institute for Defense Analysis, 2003) vol. 1, pp. 1–2. Columba Peoples, "Sputnik and 'skill thinking' revisited: technological determinism in American responses to the Soviet missile threat", *Cold War History*, vol. 8, issue 1 (February 2008), pp. 55–75.

American way of looking at the world and coping with its problems through its typical way of war. Seeking technological answers to the operational questions of the Central Front reflected a cultural affinity for science and technology. As in many other cases, the challenges to national interests were leveraged by technology.⁴¹

Although ALB laid down the technological and the doctrinal fundamentals of the future American RMA,⁴² its more important contribution, however, was probably the unprecedented introduction of the operational perspective to American military thought, or what Shimon Naveh defines as the emergence of “operational cognition”.⁴³ In his works on military history, John Erickson convincingly claims that the recognition of the operational level is a requirement in order to “think big” about war. To him, operational art is a means of accommodating technological change to produce new warfare concepts.⁴⁴ Consequently, the introduction of an operational perspective became the conceptual precondition for the American RMA.

There tends to be agreement among scholars that American receptivity to operational thinking in the late 1970s was promoted by the poor performance of the US army in Vietnam.⁴⁵ Not before the early 1980s, as Lock Pullan shows in his study, did the US armed forces start to make the conceptual leap over to the operation level of thinking, when they embarked on the ALB doctrine.⁴⁶ During this “reawakening of American military thought, the operational level of war became a key focus of study and an important consideration in defense planning”.⁴⁷ In addition to other sources of inspiration,⁴⁸ Soviet operational theories

41 Tomes, *Military Innovation and the Origins ...*, p. 323.

42 Ibid., pp. 242, 297 (chps. 4–5); Van Atta, Nunn, and Cook, pp. iv–41;

43 Naveh, *In Pursuit*.

44 It is an instrument for defining future requirements in mobility, firepower, command, communications, control, intelligence and target acquisitions. John Erickson, “The Significance of Operational Art and the Development of Deep Battle”, in John Gooch, *The Origins of Contemporary Doctrine* (Cambridge: Strategic and Combat Studies Institute, 1997), pp. 106–107.

45 Erickson, John, *Soviet Ground Forces: An Operational Assessment* (Boulder, CO: Westview, 1986); Lock-Pullan, *US Intervention Policy ...*; David Glantz, *The Evolution of Soviet Operational Art, 1927–1991* (London: Frank Cass, 1995).

46 Lock-Pullan, *US Intervention Policy ...*

47 Tomes, *Military Innovation and the Origins ...*, pp. 18, 13, 16, 255–256; According to Naveh, this rediscovery of the campaign, the orchestration of theater military activities and planning conventional warfare at the operational level, led to a renaissance in American military thought. Naveh, *In Pursuit*, pp. 105, 126, 128; Lieutenant General L.D. Holder, deputy commander of the US TRADOC, saw the adoption of operational art as the most important change in army doctrine since World War II. L.D. Holder, “A New Day for Operational Art”, in *Operational Level of War – Its Art*, ed. R.L. Allen (Carlisle Barracks: US Army War College, 1985).

48 Saul Bronfeld, “Fighting Outnumbered: The Impact of the Yom Kippur War on the U.S. Army”, *Journal of Military History*, vol. 71, no. 2 (April 2007): 465–498.

stimulated more sophisticated and systematic thinking by American theoreticians about the nature of battlefield integration and extension. ALB mirrored many of the developments of Soviet operational theory since the 1920s.⁴⁹ This emulation was so apparent that, according to John Erickson, “Generals Svechin and Isserson and Marshall Tukhachevskii, would at once be impressed and flattered, sufficiently so even to overlook the protracted intrusion upon their copyright”.⁵⁰

An operational corpus of knowledge facilitates an intellectual climate suitable for systematic thinking about changes in military affairs, indispensable for the diagnostics of any future RMA. Without a broad professional aptitude for operational thinking in the US military, the RMA concepts would have remained untapped. Robert Tomes concludes that the evolution of American military thought within the frames of the ALB, and specifically the introduction of the operational level of thinking, were central to the evolution of the American RMA.⁵¹

In the late 1970s three seeds of the future American RMA were sown. The key capabilities developed then created the technological quality which in tandem with the sophistication of American military thought and new doctrine produced the fertile soil for launching and realizing a bold defense transformation in 1990s.⁵² The ALB demonstrated that the level of American military thinking had become far more sophisticated as it made the transition from sequential annihilation to understanding combat in terms of the broader operational level.⁵³ However, the offset response consisted of little more than sustaining a technological edge in the face of an armored assault by the Warsaw Pact forces.⁵⁴ The corpus of operational knowledge was a solid basis for the development of new ideas, but still inadequate for generating the revolutionary visions of future war. No advances to re-conceptualize the existing paradigm of warfare were made in those years. The precision-guided missiles (PGMs) were seen as just another weapon in the military arsenal. The very community that had developed the weaponry

49 Lock-Pullan, *US Intervention Policy* ..., p. 93; Tomes, *Military Innovation and the Origins* ..., p. 301.

50 According to Erickson, the 1982 FM 100-5, by adopting the principle of equal importance of firepower and maneuver, and by distinguishing tactics from operations, along with its later move toward operational art, was clearly indebted to Soviet military thinking. John Erickson, “The Development of Soviet Military Doctrine”, in *The Origins of Contemporary Doctrine*, ed. John Gooch, occasional no. 30 (Camberley, UK., Strategic and Combat Studies Institute, 1997), pp. 106–107;

51 Tomes, *Military Innovation and the Origins* ..., p. 265.

52 Owens, pp. 82–83.

53 Lock-Pullan, *US Intervention Policy* ..., p. 685.

54 Perry, “Desert Storm and Deterrence”.

failed to recognize its potential in future war.⁵⁵ Although there were a few academics who foresaw the future in the early 1970s,⁵⁶ Knox and Murray claim that the tactical emphasis of the Pentagon's analysts had prevented them from seeing anything revolutionary in the greater accuracy of the guided munitions.⁵⁷ To make matters worse, the phase of the technological and conceptual preconditions of the American RMA coincided with the misinterpretation by US intelligence of Soviet military-technical revolution (MTR) concepts.

The Soviet Theory of the Military-Technical Revolution

Although it was the US that was laying the technological groundwork for the RMA, Soviet, rather than American military theorists, were the first to intellectualize about its long-term consequences. In contrast to the West, which focused on the weapons' narrow implications, the Soviets were pioneers in championing the argument that the new range of technological innovations constituted a fundamental discontinuity, which they dubbed the MTR. Beginning in the late 1970s, the Russians produced a significant number of seminal works on the MTR. They actually predated the West by almost a decade in their realization and elaboration of the revolutionary essence embodied in the military technological shifts of the US and North Atlantic Treaty Organization (NATO).

Applying the methodology of "forecasting and foreseeing", the Soviets systematically analyzed the emerging technologies in order to identify them as either revolutionary or evolutionary with regard to future conflict. In about the mid-1970s, Soviet military forecasters be-

55 Barry Watts, "American Air Power", in Williamson Murray, *The Emerging Strategic Environment: Challenges of the Twenty-first Century* (Westport: Praeger Publishers, 1999), pp. 183–218. For the comprehensive survey of American air power, see: John A. Olsen, *John Warden and the Renaissance of American Air Power* (Potomac Books, 2007).

56 In addition to defense intellectuals and people in the US military forces, academics' thoughtful ideas should be also mentioned. See especially the March/April issues of *Survival*, 1979. Edward Luttwak, "American Style of Warfare and the Military Balance", considered the impact of PGMs on the maneuver/attrition balance; James Digby, "New technology and Super-Power Actions in Remote Contingencies"; considered the impact of new technologies on the power projection; John Mearsheimer, "Precision-Guided Munitions and Conventional Deterrence", considered the impact of PGMs on the defense/offence balance; see also Samuel Huntington, "Conventional Deterrence and Conventional Retaliation in Europe". All above mentioned articles were published in *International Security*, vol. 8, no. 3 (1983/1984).

57 MacGregor Knox and Williamson Murray, *The Dynamics of Military Revolution, 1300–2050* (Cambridge: Cambridge University Press, 2001), p. 3; Murphy Donovan, "Strategic Literacy", *Air Power Journal* (winter 1988).

came engaged in theorizing about the forthcoming MTR, observing that the current phase of military development was characterized by the unprecedented emergence of qualitatively new technologies and revolutionary equipment. Under the conceptual guidance of the Chief of the General Staff Marshall Nikolai Ogarkov, Soviet military theoreticians argued that state-of-the-art conventional technology, which made it possible to “see and strike deep” with high precision on the future battlefield, and the organizational changes which had to be made to accommodate this emerging weaponry, would not constitute a phase in a process of evolutionary adaptation but a genuine discontinuity in military affairs.

The Soviet analysts carefully monitored US and NATO technological advances (moving-target indication radar, stand-off missiles and terminally guided munitions) and doctrinal innovations (ALB and FOFA). They placed these innovations in a much deeper and broader context, reflecting a far more profound grasp of the implications of these developments than the West itself possessed. The Soviets saw ALB and FOFA as much more than simply a doctrinal update or an operational threat and sought broader theoretical frames of analysis in order to describe these developments. The Soviets believed that the emerging technologies could potentially extend the depths to which future systems – both sensor technologies and means of fire – would operate. In their eyes, the ability to “see and to strike” through the entire depth, precisely and simultaneously, represented a yawning discontinuity which had significant ramifications in terms of the methods of employing corps and armies, and which would shape the nature of war in a revolutionary way.

The search for a countermeasure to the Western response to the echelonment technique provided the Soviets with a frame of reference and intellectual fuel for the debate about the MTR – a conceptualization by Soviet military theoreticians of the changing nature of warfare under the impact of emerging technologies. This intellectual fuel was much more than just a regular countermeasure to the West. Both approaches capitalized on the notion of *deep battle* using the latest technologies. However in terms of “military thought” the Soviet reply went further in its conceptual findings, and was more revolutionary than its Western trigger. Beginning in the late 1970s, the Soviets started to develop doctrines and concepts of operations which accompanied the introduction

of these new means of combat to the tactical, operational and strategic levels.

At the level of strategic policy management the MTR made nuclear war a less desirable option in the eyes of Soviet strategists and shifted the equilibrium toward conventional confrontation. The Soviets were convinced that conventional PGMs, in combination with the timely detection of targets, were becoming so accurate, destructive and extensive in their range, that they were approaching the effectiveness of tactical nuclear weapons. On the doctrinal level, analyzing the introduction of high-accuracy systems, and particularly the depths to which these systems were capable of operating, the Soviets declared that the line which had divided combat into offensive and defensive was increasingly disappearing, since these two forms of conducting war were making use of the same weapons to attain their operational goals.

At the operational and tactical levels, the concept of the Soviet MTR-era operations coalesced into the notion of a simultaneous, uninterrupted strike by fire and maneuver against the enemy to the entire depth of his operational formation. This conclusion resulted in the development of two interrelated operational concepts: (1) the reconnaissance strike (RUK) and fire (ROK) complexes and (2) Operational Maneuvering Groups (OMG). RUK and ROK were operational architectures which consolidated the reconnaissance systems with high precision, fire-destruction elements, linked through the command-and-control channels. The quintessence of that ability was a "system of systems" which was to consist of an integrated triad of (1) ground, air, and space reconnaissance, surveillance, and target acquisition assets; (2) direct fire elements and deep-strike weaponry; and (3) advanced command-and-control that ensured the delivery of strikes close to real time. The manifestation of the new concept on the operational level was dubbed the reconnaissance strike complex (RUK) and its tactical expression known as the reconnaissance fire complex (ROK). The OMG concept committed part of the force much earlier and deeper across the front to avoid an ALB and FOFA attack, thus executing a Soviet preventive blow to NATO's rear. Swift infiltration of a group of armored divisions through several axes, would create a deep and dynamic center of gravity in NATO's rear. It would turn over the defense, create operational shock to command-and-control, paralyze the enemy's ability to react and would result in operational chaos and disorganization. OMG was a reworked version of the WWII mobile-group concept, when au-

onomous armor formations, using stealth and mobility, infiltrated into the enemy's operational rear and, using shock and firepower, created command-and-control chaos from within. At the later stage of concept development, the coordination between ROK/ RUK and OMG resulted in their eventual organic unification under the term of the Reconnaissance-Fire Group. In theory, intelligence assets, stand-off fire capabilities and maneuvering elements of the extended battlefield should be orchestrated as an integrated whole.

While positing the doctrinal response to Western "deep-striking" capabilities, the Soviets went far beyond any particular doctrinal countermeasure and offered a new, comprehensive theory regarding the future battlefield under the impact of scientific-technological progress. One may argue that the Soviet futuristic vision of operational maneuvering groups operating on the future battlefield as an orchestrated whole with reconnaissance strike/fire complexes and synchronized by command-and-control systems may be seen as the conceptual twin of what would be termed in the American RMA a dominating maneuver under the precision strike, executed in accordance with the principles of network-centric warfare.⁵⁸

American intelligence and the assessment of the Soviet MTR

The American defense community's disregard for the emerging change in the military regimes lasted for about a decade. This inattention is particular striking in light of the wealth of information accumulated by US intelligence about Soviet theoretical writings on the MTR.

In its analysis of the Soviet perception of Western military capabilities, US intelligence detected at a very early stage, and with a high level of accuracy, the new direction of military thought which was evolving in Soviet military circles. By the mid-1970s, the US had developed a general understanding of the mechanisms of the way in which the Soviets developed their military thought; exercises to test theoretical propositions were performed and doctrinal discussions and scientific conferences were held.⁵⁹ The intelligence community translated and

58 Dima P. Adamsky, "Through the Looking Glass: The Soviet Military Technical Revolution and the American Revolution in Military Affairs", *Journal of Strategic Studies*, vol. 31, no. 2 (2008): 262–275.

disseminated Soviet writings on military thought, doctrine, strategy and operational concepts to make important information easily available across the services.⁶⁰ The CIA had at its disposal a considerable amount of open Soviet sources which reflected the intellectual debate about the emerging MTR and its implications for the Soviet vision of future war.⁶¹ These sources, which included translations of the classified journal *Voennaia Mysl'* [Military Thought], shed a great deal of light on the term "military-technical revolution" within the context of Soviet military thinking at the time.⁶² In 1974, the seminal work *Scientific-Technical Progress and the Revolution in Military Affairs*, was translated and disseminated by the CIA.⁶³ In 1981, a special report was dedicated to the Soviet methodology of "forecasting military affairs", which inquired into the nature of the paradigmatic changes in the nature of war and into the essence of the current MTR in particular.⁶⁴

From the late 1970s, US intelligence closely monitored the growing Soviet interest in microelectronics, computers and signal processing, and Moscow's continuous efforts to acquire them by both legal and clandestine means.⁶⁵ The CIA reported conspicuous Soviet concern with regard to the technological lag vis-à-vis NATO, particularly in key technologies which provided precision weaponry capabilities.⁶⁶ The analysts argued that the Soviet search for technologies was a necessary starting point in the implementation phase of the MTR decreed by the Soviet Chief of Staff. They estimated that the Russians intended to use the MTR concepts, and especially PGM, in order to change the total force structure and combat potential of Soviet forces.⁶⁷ The "smart" precision-guided munitions, which the Soviet military reckoned would al-

59 National Foreign Assessment Center, SR 79-10338X, *Soviet Military Theory: Structure and Significance*, October 1979; CIA FOIA Electronic Reading Room [hereafter ERR]; p. 6.

60 Deputy for National Intelligence Officers, to Assistant Chief of Staff/Intelligence, Department of the Air Force, *Soviet Military Thought*, 17 May 1974; Deputy to the DCI for Collection Tasking to Director of Central Intelligence, *Possible Reductions of Air Force Translation of Soviet Documents*, 21 August 1978; Gen James Brown, Asst Chief of Staff, Intelligence, Department of the Air Force, to Director, Central Intelligence, *USAF Efforts in the Filed of Literature Intelligence*, 21 November 1977, The U.S. National Archives and Records Administration [hereafter NA].

61 FBIS, *War and the Army: A Philosophical and Sociological Study*, edited by D.A. Volkogonov, A.S. Milovidov and S.A. Tyushkevich, JPRS L/9649, 7 April 1981, pp. 1-7, 16-17, 21, 24, 136, 141, 148, 167-171; FBIS, *Methodology of Military Scientific Cognition*, JPRS I/8213, 11 January 1979, pp. 12-29; NA.

62 US Joint Publications Research Service, *Translations on USSR Military Affairs: Basic Military Training*, FOUO 11/79/ JPRS L/8421, 25 April 1979. For the reference to the MTR see especially pp. 33-34 and 222; FBIS, *Translations from Voyennaia Mysl'*, no. 12, 1971, FPD 0003/73, 17 January 1974, pp. 87-88; FBIS, *Translations From Voyennaya Mysl'*, no. 10, 1971, FPD 0008/74, 11 February 1974, page 6; FBIS, *Translations From Voyennaya Mysl'*, no. 7, 1971, FPD 0014/74, 7 March 1974, pp. 1-3, 6; NA.

ter the nature of war, relied on a variety of technologies in the field of microprocessors and computers, and consequently their acquisition became a more urgent necessity.⁶⁸

On the heels of monitoring the Soviet quest for advanced technology, US intelligence soon began to arrive at the operational essence of the MTR - Soviet experimentation with reconnaissance strike and fire complexes. Discussing Soviet conventional doctrine, the CIA understood that the Soviets considered conventional weapons so accurate, lethal and destructive as to approach the potential of nuclear munitions.⁶⁹ A series of CIA estimates from the early 1980s refer to *reconnaissance strike organizations* (RSO), which had been developed out of the Soviet concern for the threat posed by the "Assault Breaker", precision-guided, deep-striking, theater-level systems, capable of firing on moving follow-on Soviet echelons. The Assault Breaker, designated by the Soviets as ROK, and envisioned as a pivot of conventional theater operation, was the 1978 DARPA project which leveraged emerging technology to foster significant change in command-and-control capabilities, mobility, armor, night-fighting, massed firepower and precision stand-off fire. It focused on the development of sensors, computing, communications guidance and munitions to allow a deep strike against hard, mobile targets.⁷⁰ According to the same estimates, the RSOs were a further expression of the new MTR concept of integrated, deep, simultaneous fire destruction of the enemy. The analysts grasped that the Soviet RSOs consisted of an integrated triad of reconnaissance and target acquisition complexes, automated command-and-control elements and long-range striking systems. They correctly attributed the ROK and RUK to the operational

63 ACS/AF/Intelligence to Deputy for National Intelligence Officers, "Soviet Military Thought" Translation Series, 13 May 1974; NA.

64 FBIS/USSR Report/Military Affairs, *Military Science, Theory, Strategy: Forecasting in Military Affairs*, vol. 6, 1978, FOUO 1/1981, 26 March 1981, pp. 1-6; FBIS/Translations on USSR Military Affairs, *Sociological Study of the Soviet Military Engineer*, FOUO 3/79; especially 396 and 408; NA.

65 National Foreign Assessment Center, SR 81-18935X, "The Development of Soviet Military Power: Trends Since 1965 and Prospects for the 1980s", 13 April 1981, p. 67; ERR. Nikolai Pushkarev, *GRU: Vymysly i real 'nost' - spetssluzhba voennoi razvedki* (Moscow: Eksmo, 2004), pp. 121-7; Ivan Potapov, "Ot Khrushchiov do Gorbacheva", KZ, 11 February, 2006.

66 National Foreign Assessment Center, SR 81-18935X, "The Development of Soviet Military Power: Trends Since 1965 and Prospects for the 1980s", 13 April 1981, pp. 67-69; and Central Intelligence Agency Directorate of Intelligence, SW-86 20026DX, *Soviet Artillery Precision - Guided Munitions: A Conventional Weapons Initiative*, September 1986; Special National Intelligence Estimate, *Soviet Acquisition of Military Significant Western Technology*, September 1985; ERR.

67 Directorate of Intelligence, SOV 84-10173, *Soviet Ground Forces Trends*, 1 October 1984, pp. 19-20. and National Intelligence estimate, NIE 11-14-79, *Warsaw Pact Forces Opposite NATO*, 31 January 1979, p. 78; ERR.

(army) and to the tactical (division) levels and envisioned them as the main trend in future Soviet force development.⁷¹

In the late 1980s the CIA reported that since the 1970s the Soviets, motivated by the need to counter NATO deep-attack, high-technology conventional weapons and extended battlefield concepts, had been able to match NATO capabilities in nearly every major ground-forces weapons category. Discussing the Soviet conventional doctrine, the CIA acknowledged Soviet declarations regarding their perception of the virtual parity of conventional vs nuclear weapons. The CIA report argued that military advantages afforded to the USSR by its numerical supremacy might be mitigated by Western progress in advanced-technology conventional weapons, especially long-range PGMs.⁷² Toward the end of the Cold War, the CIA attained additional clarification of the Soviet doctrinal vision. It reckoned that the outcome of the future war would be determined mainly by a massed strike of conventional PGMs linked to real-time reconnaissance systems and complementary ground maneuver rather than by masses of tanks, infantry and artillery.⁷³

However, in forecasting the development of Soviet military power for the 1980s, US intelligence concluded with an assessment which minimized the overall implications of the Soviet innovation. US intelligence predicted that if current trends continued,

new technology, whether developed or illegally acquired, was expected to lead to evolutionary improvements in individual systems. However, not one of these technological developments or even their combination in the foreseeable future was expected to revolutionize modern warfare.⁷⁴

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- 68 Central Intelligence Agency Directorate of Intelligence, SW 86-10062, *Soviet Microelectronics: Impact of Western Technology Acquisitions*, December 1986; and National Intelligence Estimate, NIE 11-12-83, *Prospects for Soviet Military Technology and Research and Development*, 14 December 1983; ERR.
- 69 Director of Central Intelligence, *Trends and Development in Warsaw pact Theater Forces and Doctrine Through the 1990s*, NIE 11-14-89, February 1989; ERR.
- 70 Richard Van Atta, Jack Nunn, and Alethia Cook, "Assault Breaker" in *DARPA Technical Accomplishments, Volume 2 – Detailed Assessments*, Richard H. Van Atta et al (Alexandria, VA: Institute for Defense Analyses, November 2003, P-3698), p. IV-14.
- 71 Directorate of Central Intelligence, NIE 11/20-6-84, *Warsaw Pact Non-nuclear Threat to NATO Airbases in Central Europe*, 25 October 1984; pp. 41-42; and National Intelligence Estimate, NIE 11-14-85/D, *Trends and Developments in Warsaw pact Theater Forces, 1985-2000*, September 1985, pp. 9-13, 29-33; ERR.
- 72 Director of Central Intelligence, *Trends and Development in Warsaw pact Theater Forces and Doctrine Through the 1990s*, NIE 11-14-89, February 1989;
- 73 Maj.Gen. Shlipchenko, cited in the CIA Directorate of Intelligence, *The USSR: Initial Military Reaction to the Desert Storm*, 26 February 1990, p. 3; ERR.

Similarly, while discussing Soviet writings on the MTR and RUK concept during the early 1980s, senior Department of Defence (DoD) officials treated the issue according to arms-race Cold War logic: if the notion of what the Soviets termed Western “reconnaissance-strike capabilities” caused a certain strategic discomfort in Moscow, then the US should expand its investment in this area.⁷⁵ This logic was consistent with various administrations’ efforts - among them economic ones - to neutralize Soviet influence, to place them at a competitive disadvantage and to bring the struggle to an end on American terms.⁷⁶

The wealth of information concerning Soviet views of the discontinuity in military affairs, accompanied by the poverty of comprehension regarding its consequences, was a situation which endured within most of the US defense community for almost a decade. Only a few American analysts, most notably General William Odom, focused on the validity of the MTR and recognized it as more than just another Soviet innovation.⁷⁷ Most Soviet watchers in the West, in their analysis of Soviet theoretical writings, were unable to see the forest for the trees of specific technologies and tactical-operational problems.⁷⁸

The Conceptual Birth of the American RMA

Though there is no specific date for the birth of the current American RMA, one can designate the period of the late 1980s – early 1990s as the intellectual cradle of the paradigmatic change in American security thought. MacGregor Knox and Williamson Murray contend in their work on the dynamics of military revolutions that Andrew Marshall and his experts within the Office of Net Assessment (ONA) were the first to register the significance of Soviet writings on the MTR and to introduce

74 National Intelligence estimate, NIE 11-14-79, *Warsaw Pact Forces Opposite NATO*, 31 January 1979, p. 79; National Foreign Assessment Center, SR 81-18935X, *The Development of Soviet Military Power: Trends Since 1965 and Prospects for the 1980s*, 13 April 1981, pp. 67–69; ERR.

75 Statement by Andrew Marshall at CSBA roundtable on future warfare, 12 March 2002, in Vickers and Martinage, *The Revolution in War*, p. 11; Andrew Marshall, quoted in Andrew F. Krepinevich, *The Military-Technical Revolution: A Preliminary Assessment* (Washington, DC.: Center for Strategic and Budgetary Assessments, 2002), p. i.

76 Derek Leebaert, *The Fifty-Year Wound: The True Price of America's Cold War Victory* (Boston: Little, Brown and Company, 2002), p. 507; Ronald E. Powaski, *The Cold War: The United States and the Soviet Union, 1917–1991* (New York: Oxford University Press, 1998), p. 233.

77 Others include Mary Fitzgerald, Notra Truelock and experts at Andrew Marshall's Office of Net Assessment.

78 David Arbel and Ran Edelist, *Western Intelligence and the Collapse of the Soviet Union, 1980–1990* (London, Frank Cass, 2003).

the notion of the revolutions in military affairs into the American defense community.⁷⁹ The Russian sources echo this claim.⁸⁰

Although the technological groundwork for the innovation had been laid down in the 1970s, for the American defense community, the RMA thesis had been nothing but a vague, abstract term, when Andrew Marshall and Andrew Krepinevich first circulated their memorandum on the RMA in the early 1990s. The US armed forces (similar to the British when they first began experimenting with armored and mechanized warfare in the mid-1920s) were not consciously thinking in terms of a revolution.⁸¹ As one scholar has remarked, the US military, like Molière's character in the *Le Bourgeois Gentilhomme*, had been "speaking in prose" (the RMA) but didn't know it.⁸²

Indeed, only a small group on the margins of American defense planning in the early 1980s would recognize the approaching RMA.⁸³ Albert Wohlstetter is generally considered to be the first senior figure within the American defense establishment to understand the dramatic impact of the new accurate weapons on the nature of war. Wohlstetter referred to the phenomenon as "revolution in the accuracies of unmanned weapon systems".⁸⁴ Envisioning the first-generation PGMs deployed in the latter stages of the Vietnam War, he realized their potential for the substantial reduction of the inefficiencies and uncertainties that had plagued large-scale industrial-age combat. In the face of what he called the "enormous inertia" of the armed services, Wohlstetter, supported by a few defense intellectuals, campaigned vigorously through the 1980s, to consider more carefully the strategic implications of an expanding family of PGMs. In his view, the "revolution in microelectronics" opened up new vistas for the application of force and an increasingly wider variety of political and operational realities.⁸⁵

It was only at the very end of the Cold War that a genuine interest in Soviet MTR theories gathered momentum in the American defense

79 Knox and Murray, *The Dynamics ...*, p. 3.

80 Sergei Modestov, "Serii Kardinala Pentagona Andrew Marshall – ideolog novoi amerikanskoi revoliutsii v voennom dele", *Nezavisimoe Voennoe Obozrenie*, no. 4, 14 December 1995.

81 Knox and Murray, *The Dynamics ...*, p. 4; James Der Derian, *Virtuous War* (Oxford: Westview Press, 2001), pp. 29–32. The Gulf War had an importance similar to that of the battle of Cambrai.

82 Jeffrey R. Cooper, "Another View of the Revolution in Military Affairs", in *In Athena's Camp*, eds John Arquilla and David Ronfeldt (RAND: National Defense Research Institute, 1997), p. 139, note 39.

83 Tomes, *Military Innovation and the Origins ...*, p. 336.

84 Andrew Bacevich, *The New American Militarism* (Oxford: Oxford University Press, 2005), pp. 161–163; Stephen Rosen, "Net Assessment as an Analytical Concept", in Marshall et al., *On Not Confusing Ourselves*, pp. 283–284.

establishment. The highest point of Wohlstetter's efforts to incline the defense community to re-conceptualize the nature of warfare came in 1987, when he co-chaired with Fred Ikle the Commission on Integrated Long Term Strategy. By this time, it was no longer the standard intelligence analyses of the doctrinal action-reaction dynamic in the European theater which attracted American attention, but the essence of the discussion about the emerging nature of the future security environment. The report discussed the need of extending its studies beyond Cold-War military-balance assessments, even though the USSR was still alive and kicking.⁸⁶ The commission's report gave credit to American technological advances discussed above such as stand-off PGMs, space, "stealth", radar and targeting capabilities. However, the report stated without hesitation, that whereas the Soviets fully appreciated the implications of these systems on the ways of waging modern warfare, the Pentagon did not. On a more positive note, the Commission declared that if the US awoke to the opportunity at hand, it might acquire a more versatile, discriminating and controlled capability to employ this technology-driven change in war.⁸⁷

To further develop its initial insights, in 1988 the Commission established a working group, co-chaired by Andrew Marshall and Charles Wolf. The group, which included a few select defense intellectuals from the establishment and academia, was entrusted with the task of projecting the likely contours of military competition in the future security environment. The report echoed the findings of its predecessor in stating that the Soviets had identified roughly the same list of technologies as important for future war, but had considered their implications more systematically. It stated further that most, if not all considerations given to this subject in the West had focused too narrowly on the utility of highly accurate, long-range systems for raising the nuclear threshold and enhancing conventional deterrence.⁸⁸ According to the Marshall

85 Ibid.; Albert Wohlstetter, "Threats and Promises of Peace: Europe and America in the New Era", *ORBIS* vol. 17, no. 4 (winter 1974); id. "Between an Unfree World and None: Increasing Our Choices", *Foreign Affairs*, vol. 63, no. 5 (Summer 1985); id. "The Political and Military Aims of Offensive and Defensive Innovation", in Fred Hoffman, Albert Wohlstetter, and David Yost, *Swords and Shields: NATO, the USSR, and New Choices for Long-Range Offense and Defense* (Lexington, Massachusetts, 1987).

86 Krepinevich, *The Military Technical Revolution*, pp. i-iv.

87 Fred C. Ikle and Albert Wohlstetter, *Discriminate Deterrence Report of the Commission on Integrated Long Term Strategy* (Washington, D.C.:DoD, January 1988), pp. 8, 29,49,65; Bacevich, *The New American Militarism*, pp. 160-162.

88 Note in Marshall Andrew W., and Charles Wolf: "The Future Security Environment", report of the Future Security Environment Working Group, submitted to the Commission on Integrated Long Term Strategy (Washington, D.C.: DoD, October 1988), p. 143.

and Wolf report, rather than merely identifying ways to improve specific systems or perform existing missions, Soviet writings had suggested that the conduct of war would be broadly transformed by a “qualitative leap” in military technologies. The report found that in contrast to the American approach, the Soviet MTR writings tended to focus not on questions of the feasibility, costs, or timing of specific innovations, but rather to assume that families of new technologies would eventually be introduced, and to examine the tactical, operational, and strategic implications of technological trends. The report asserted that the Soviets had envisioned a more distant future than American military experts and conceded that the Russians might be correct in their assessment that the advent of new technologies would revolutionize war. The group concluded that if this were indeed the case, then a transformation in the nature of war would affect American force structures and command practices in some cases more profoundly than the introduction of nuclear weapons.⁸⁹

From the late 1980s, Andrew Marshall eclipsed Wohlstetter as the leading proponent of inquiring into a potentially emerging paradigmatic change in the future security environment. Building upon its work for the above commission, ONA embarked on a more detailed assessment of the Soviet MTR vision starting from 1989. The preliminary lessons from the Gulf War provided further stimulus for this inquiry, as the US sought to conceptualize the new type of warfare seen during Desert Storm. The US specialists claim and the Soviets concur that during the first post-Cold War military campaign, Operation Desert Storm, the allies had successfully executed a perfect version of the Soviet conventional-theater offensive which encapsulated most of the doctrinal principles developed by Soviet military theoreticians within the frames of the MTR. In Ogarkov’s view, the most impressive allied capability demonstrated during the war was the ability to conduct a tightly synchronized, integrated joint-operations assault throughout the depth of the operational theater, striking both the enemy’s strategic centers of gravity and military forces, in order to produce decisive results. Desert Storm focused US attention on weapons technology and high-tech research, much as Marshal Ogarkov had envisioned ten years prior to the war.⁹⁰ The ONA experts had picked up on the writings of the Soviet military and offered an assessment which had two related goals: to iden-

89 Andrew W. Marshall and Charles Wolf, “The Future Security Environment”, pp. 34–35; 40; 42; 64; 69–71.

tify whether or not the Soviet analysts were correct in their conviction that they were witnessing a fundamental discontinuity in military affairs; and second, if a military revolution was indeed on the horizon, to pinpoint critical issues which had to be given a prominent place on the defense management's agenda.⁹¹

This assessment of the Soviet MTR, which was completed in 1992 (with a more comprehensive assessment a year later), is perhaps the best-known document prepared by the ONA. The ONA intellectual effort yielded what seemed to be a total consensus that Soviet theorists had been correct since the late 1970s about the character of the emerging MTR. The net assessment confirmed the Soviet postulates which assumed that advanced technologies, especially those related to informatics and precision-guided weaponry employed at extended ranges, were bringing military art to the point of revolution in the nature of warfare. Along with *information warfare*, the report identified the concept of *reconnaissance strike complexes* as the main determinant of future warfare.⁹² The 1992 and 1993 assessments called for a significant transformation of the American military, not so much in terms of new technologies but rather in operational concepts and organizational innovation. Being more advanced in these two fields was expected to be far more enduring than any advantage in technology or weapons systems. The report underscored the importance of a concept of operations in identifying the most effective weapons. The assessments attributed the highest importance to the investigation of and experimentation with novel concepts of operations and deducing from them a new architecture of military power.⁹³

In contrast to the traditional "technology-driven" mentality of the American defense community, Andrew Marshall and his experts emphasized above all the conceptual and doctrinal, rather than the purely

90 Naveh, *In Pursuit*, pp. 238 and 330; Stephen J. Blank, *The Soviet Military Views of Operation Desert Storm: A Preliminary Assessment* (Carlisle Barracks, PA: Strategic Studies Institute, US Army War College, 1991), pp. 31–33; Norman C. Davis, "An Information-Based Revolution in Military Affairs", in *In Athena's Camp*, John Arquilla and David Ronfeldt (RAND: National Defense Research Institute, 1997), p. 85; Cooper, "Another View of the Revolution . . .", p. 124; Edward Felker, *Russian Military Doctrinal Reform in Light of Their Analysis of Desert Storm* (Alabama: Air University Press, 1995), p. 33; Bacevich, *The New American Militarism*.

91 Statement by Andrew Marshall at a CSBA roundtable on future warfare, 12 March, 2002; in Vickers and Martinage, *The Revolution in War*, p. 12; Krepinevich, *The Military Technical Revolution*, pp. i–iv.

92 Michael Horowitz and Stephen Rosen, "Evolution or Revolution?" *Journal of Strategic Studies*, vol. 28, no. 3 (June 2005): 439–440. Marshall, *Some Thoughts on Military Revolutions*, pp. 2–4; Krepinevich, *The Military Technical Revolution*, pp. iii–iv and 5–7; Vickers and Martinage, *The Revolution in War*, pp. 10–13.

93 Krepinevich, *The Military Technical Revolution*, p. 8; Marshall, 1993, pp. 2–4

technological aspects of the RMAs. The memorandum states outright that

the most important competition is not the technological competition, although one would clearly want to have superior technology. The most important goal is to be the first, to be the best in the intellectual task of finding the most appropriate innovations in the concept of operations and organizations, to fully exploit the technologies already available and those that will be available in the course of the next decade or so.⁹⁴

The phrase MTR denoted too great an emphasis on technology and therefore an alternative term, *revolution in military affairs*, was adopted. It is interesting to note, that this expression was also borrowed from Soviet military writings on the subject, though ONA experts considered it preferable because it emphasized *revolution* rather than *technology*.⁹⁵ According to William Owens, the then Vice Chairman of the JCS, Soviet ideas about the MTR had stirred enough interest among observers of Russia in the West to reduce it to the official Pentagon acronym. “A higher form of praise of Pentagon officials does not exist”.⁹⁶ The observations about the characteristics of a new military technical revolution were made on the basis of Soviet and Russian insights presented in their writings and personal exchanges with Soviet/Russian specialists during the early 1990s.⁹⁷

Marshall stressed the importance of the peacetime innovation that the US had effected since the early 1990s – a luxury afforded by the Soviet decline. He envisioned the challenges to come, but during the relatively peaceful years that followed, he called for undertaking a more active search for and experimentation with new doctrines. Addressing the implications for strategic management, the assessment called for the

94 *Some Thoughts in Military Revolutions*, 1993, p. 2.

95 Krepinevich, *The Military Technical Revolution*, p. iv; Cooper, “Another View of the Revolution ...”, p. 135, note 1; See for the Soviet “use” of the RMA term: P.M. Der-evianko, *Revolutsiia v voennom dele: vchem ee sushchnost’?* (Moscow: Ministerstvo Oborony SSSR, 1967); and especially Bondarenko, *Sovremennaya voennaia nauka I razvitiie voennogo dela* (Moscow: Voenizdat, 1976), pp. 109–111; “Nauchno tekhnicheskii progress i voennaia nauka”, *VM*, no. 2 (1970): 27–39; Cherednichenko, “Nauchno tekhnicheskii progress i razvitiie vooruzhenia i voennoi tekhniki”, *VM*, no. 4 (1972): 29–41. Edward Warner, the Assistant Secretary of Defense for Strategy and Threat Reduction in June 1993, confirmed that the American definition of a revolution in military affairs was heavily based on Russian or Soviet theoretical concepts, quoted in The U.S. Army Center of Military History, transcript from the Fletcher Conference, 3 November 1999 [online 15 Jul 2008].

96 Owens, *Lifting the Fog Of War*, p. 83.

97 Soviet perspectives on the MTR were presented at the beginning of Krepinevich’s assessment as working assumptions which provide a solid ground for developing further knowledge, *The Military-Technical Revolution*, pp. 6–8.

following specific actions: to implement new concepts of operations and organizations through changes in educational programs and changes in acquisition and creating new promotion paths to train and to promote officers with appropriate skills and expertise.⁹⁸ After conducting several historical studies sponsored by ONA,⁹⁹ Allan Millett and Williamson Murray concluded that “military institutions that developed organizational cultures where serious learning, study, and intellectual honesty lay at heart of preparation of officers for war, were those best prepared for the challenges that they confronted on the battlefield”.¹⁰⁰

The MTR Preliminary Assessment became the intellectual starting point for the future US defense transformation.¹⁰¹ Andrew Marshall and his proponents succeeded not only in intellectually defending their vision but in actually implementing the notion of the RMA across the US defense community.¹⁰² The evaluation was circulated in the US defense community, initiating the most comprehensive reforms at the DoD since the Vietnam War.¹⁰³ A year after the publication of his legendary memorandum, there were five task forces exploring the RMA and its consequences.¹⁰⁴ From the mid-1990s on, the term RMA established itself among specialists as an authoritative frame of reference within which the debate over the future of war unfolded.¹⁰⁵

98 Marshall, *Some Thoughts on Military Revolutions – Second Version* (Washington DC.: Office of the Secretary of Defense, 23 August 1993), pp. 3–6.

99 Allan R. Millett and Williamson Murray, eds, *Military Effectiveness*, vol. I, *World War I*; vol. 2, *The Interwar Period*; and vol. 3, *World War II* (Cambridge: Cambridge University Press, 1988); and Williamson Murray and Allan R. Millett (eds.), *Military Innovation in the Interwar Period* (Cambridge: Cambridge University Press, 1996).

100 Murray Williamson, “Transformation of Professional Military Education”, in *National Security Challenges for the 21st Century* (US Army War College, 2003), p. 16.

101 Debra O. Maddrell, *Quiet Transformation: The Role of the Office of Net Assessment* (National Defense University: The National Security Strategy Process, Research Paper, 2003).

102 Maddrell, *Quiet Transformation*.

103 Krepinevich, *The Military Technical Revolution*.

104 Tames, *Military Innovation and the Origins ...*, pp. 9–10; Der Derian, *Virtuous War*, pp. 28–29.

105 Bacevich, *The New American Militarism*, pp. 164–166.

American Strategic Culture

American Way of War: Swift Annihilation and Attrition by Fire Power

The national mission of conquering an entire continent, together with the nation's prolonged frontier experience, left their mark on American strategic culture.¹⁰⁶ The United States developed into a country of unusual dimensions and the scale of its resources has influenced the national security enterprises it has undertaken.¹⁰⁷ As American society grew in size and wealth it also accumulated military power, with no apparent economic or demographic limits. Restrictions on American power were not natural, but rather determined by political and strategic considerations.¹⁰⁸ Almost two-hundred years have passed since the United States faced an enemy with a larger gross national product than its own. American productive capacity, translated into overwhelming material superiority, has played a critical role in the nation's military successes. Its dominance in numerous industrial and technological sectors, in skilled manufacturing and in the ability to increase production capacity, created mere military advantages: a large defense budget, a significant pool of machines for fighting a war and educated manpower capable of operating them.¹⁰⁹ Given the abundant material resources, troops' equipment, and excellent managerial expertise, the United States relied less on perfectly planned and executed strategies to win.¹¹⁰

106 Gray, *Strategy and History*, p. 141; Ira Gruber, "The Anglo-American Military Tradition and the War for American Independence", in *Against all Enemies*, eds Kenneth J. Hagan, William R. Roberts, (Westport, CT.: Greenwood Press, 1986), pp. 21–46; Ray Allen Billington, *America's Frontier Heritage* (Albuquerque, NM: University of New Mexico Press, 1986).

107 Allan R. Millett, "The United States Armed Forces in the Second World War", in *Military Effectiveness*, vol. 3, *The Second World War*, eds Millett and Williamson Murray (Boston, 1988), pp. 60–62; 81–84.

108 John Shy, "Jomini", in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, Peter Paret (Princeton NJ.: Princeton University Press, 1986), pp. 274–275.

109 Andrew May, *The Sources of the U.S. Military Advantage* (McLean, Science Applications International Corporation, 2002), pp. 23–24; 60.

Self-efficacy dictates a strategy to shift the conflict into those arenas where one enjoys an inherent advantage over one's enemy.¹¹¹ The strategy of attrition and annihilating the enemy with firepower was the best way to transform the nation's material superiority into battlefield effectiveness.¹¹² The translation of enormous resources into firepower, technology, logistical ability and a consequent inclination for direct attack, date back to the military experience of the American Civil War. This "annihilation by fire" approach has been largely successful throughout American military history.¹¹³ In illustrating this tendency in the country's strategic culture, Eliot Cohen points to two outstanding characteristics of American conduct during the Second World War: a preference for massing a vast array of men and machines, and a preference for direct assaults.¹¹⁴ According to John Ellis, on the operational level, US generals relied on material superiority, firepower, and overwhelming force rather than on creative maneuvers which would threaten the enemy and force him to surrender.¹¹⁵ Referring to the American preference for mechanical and industrial solutions, some argue that the United States has often waged logistic, rather than strategic wars.¹¹⁶

Discussing American strategic culture, Thomas Mahnken defines this preference for an overwhelming blow as taking a "direct approach to strategy over indirect". In his discussion of American strategic culture, he dubs this phenomenon "an industrial approach to war".¹¹⁷ Echoing this claim, Chester Wilmut argues that the Americans have adhered to the theory that if a military machine was big enough, it could be driven wherever they wanted to go.¹¹⁸ The conflicts in Korea and Vietnam pro-

110 Arms, "Strategic Culture and The American Mind", in *Essays on Strategy IX*, Thomas C. Gill (Washington DC.: National Defense University, 1993), p. 25; Max Lerner, *America as a Civilization* (New York: Simon and Schuster, 1957), pp. 910–911; Colin Gray, *War, Peace and Victory: Strategy and Statecraft for the Next Century* (New York, Simon and Schuster, 1990), p. 354; id., "Strategy in the Nuclear Age: The United States, 1945–1991", in *Military Innovation in the Interwar Period*, eds Williamson Murray and Allan Millet (New York: Cambridge University Press, 1996), pp. 595–596.

111 May, *The Sources...*, pp. 7–8, 16.

112 Attrition-style warfare refers to a traditional war-fighting strategy that focuses on seeking out the enemy's military forces, wherever they might be, and then using firepower to destroy them piece by piece through a process of gradual attrition until the enemy is no longer capable of fighting effectively.

113 Lock-Pullan, *US Intervention Policy...*, pp. 20–21; Russel Weigley, *Eisenhower's lieutenants: the campaign of France and Germany, 1944–1945* (London: Sidgwick & Jackson, 1981), p. 6.

114 In many respects, this was a war of mass production, fought by a country that had applied that concept in forging the world's largest and most productive economy. Eliot Cohen, "The strategy of innocence? The United States, 1920–1945", in *The Making of Strategy: Rulers, States, and War*, Williamson Murray (Cambridge: Cambridge UP, 1996), p. 464.

115 John Ellis, *Brute Force: Allied Strategy and tactics in the Second World War* (New York: Viking, 1990), pp. 534–535, xviii; Lock-Pullan, *The US Intervention Policy...*, p. 18.

vide further examples of the military doctrine of annihilation and a resource-based approach to warfare.¹¹⁹ Capitalizing on this industrial approach, the US has often out-produced its enemies in the amount of military power that it was able to generate.¹²⁰ Criticizing Weigley's formulation, some scholars have insisted that the American armed forces have pursued a much wider range of strategies beyond pure attrition or annihilation. American military tradition, they argued, is also rich in fighting small wars, insurgencies and developing excellence in deterrence strategies.¹²¹ However, Thomas Mahnken has claimed, even in these cases, a preference for attrition and annihilation "stands up remarkably well as a portrayal of American military strategic culture and the aspirations of the US military."¹²² It is most likely for this reason that US strategic culture, which seeks decisive, swift and measurable national-security outcomes, is less at home with stability and support missions, on which swift annihilation by massive firepower is less relevant.¹²³

Astrategic Thinking

Longstanding American superiority in resources translated into a traditionally low incentive to engage in patient strategic considerations and in thorough operational calculations.¹²⁴ Scholars agree that the materially wealthy United States has, throughout its military history, preferred an approach to war based on annihilation and attrition by means of technology and firepower rather than a style of fighting resting on

116 Martin Gannon, *Understanding Global Cultures* (Thousand Oaks, CA: Sage, 1994), p. 190; Colin S. Gray, *Irregular Enemies and The Essence of Strategy: Can the American Way of War Adapt?* (Strategic Studies Institute: US Army War College, 2006), pp. 35–36, 45–46; Thomas M. Kane, *Military Logistics and Strategic Performance* (London: Frank Cass, 2001); Gray in Murray, p. 590.

117 Thomas Mahnken, *United States Strategic Culture* (Defense Threat Reduction Agency: SAIC, 2006), p. 10; also see Gray, "Strategy in the Nuclear Age", pp. 594–595.

118 Chester Willmot, *The Struggle for Europe* (London: Wm. Collins, 1954), pp. 136–137. Allan R. Millett, "The United States Armed Forces in the Second World War", in *Military Effectiveness* vol. 3, *The Second World War*, eds Millett and Williamson Murray (Boston, 1988), pp. 60–62; 81–84; Allan R. Millet and Peter Maslowski, *For the Common Defense: A Military History of the United States of America* (New York, 1984) ch. 1–2.

119 Lock-Pullan, *US Intervention Policy ...*, p. 23.

120 Richard Overy, *Why the Allies Won* (New York: Norton, 1995), p. 192, cited in Mahnken *United States Strategic Culture*, p. 11; Bacevich, *The New American Militarism*, pp. 156–158; Robert Bathurst, *Intelligence and The Mirror: On Creating the Enemy* (New York: Sage Publications, 1993), p. 109. Albert Wohlstetter states that superior economic resources offer numerous advantages in a war of attrition against materially inferior enemies. Albert Wohlstetter and Henry Rowen, *Objectives of the United States Military Posture* (RAND, May 1, 1959).

121 Brian M. Linn, "The American Way of War Revised", *Journal of Military History*, vol. 66, no. 2 (April 2002), pp. 501–533.

122 Mahnken, *United States Strategic Culture*, p. 10.

maneuverability or on strategic thoroughness.¹²⁵ The American military sought to take the war to the enemy as rapidly and as destructively as the machinery of industrial-age warfare permitted, while maneuver was considered to be simply the means to impose firepower on the opposing force.¹²⁶ It almost took it for granted that it would be able to mass forces and firepower whenever and wherever it desired.¹²⁷ This industrial approach to warfare accounts, according to some scholars, for the relative disfavor with which traditional military theory is regarded.¹²⁸ Robert Lock-Pullan notes that the United States did not historically develop “excellence in strategy and military thought because it did not have to”.¹²⁹ Scholars report the strong predisposition of the American military tradition to value practice at the expense of theory.¹³⁰ Although a professional military education of the US officers’ corps was strongly emphasized, Williamson Murray argues that American strategic culture frequently tended to be anti-intellectual and anti-historical.¹³¹ Colin Gray argues that this neglect of a professional military education at the top, results in part in a tendency to think astrategically.¹³² The philosophy of a continuous and profound professional military education was simply not that important an attribute to American military culture. Intellectual curiosity in military science never became a criterion for promotion.¹³³

The above observations also reflect on the American approach to developing professional theoretical knowledge about the nature of war. No theoretical approach for the organized study of war in all its aspects (the impact of social, economical, political, and technological phenom-

123 Ibid.; Matthew J. Morgan, “An Evolving View of Warfare: War and Peace and the American Military Profession”, *Small Wars and Insurgencies*, vol. 16, no. 2 (June 2005): 147–169. As Jeremy Black has demonstrated, until today, American cultural reflex drives its strategists to seek “decisive battle”, which will bring “decisive victory” with clear-cut results. Black, *Rethinking Military History*.

124 Gray, *Irregular Enemies*, pp. 31, 38–39.

125 Eliot Cohen, “The strategy of innocence? The United States, 1920–1945”, in *The Making of Strategy: Rulers, States, and War*, ed. Williamson Murray (Cambridge: Cambridge UP, 1996); Lock-Pullan, *US Intervention Policy ...*; John Ellis, *Brute Force*; Donn Starry, “A Perspective on American Military Thought”, *Military Review*, vol. 69 (1989): 2–11.

126 Lock-Pullan, *US Intervention Policy*, pp. 19–22, 83; Gray, *Irregular Warfare*, p. 42.

127 Starry, “A Perspective ...”: 2–11; Mahnken, *United States Strategic Culture*, p. 11.

128 May, *The Sources ...*, p. 48; Lock-Pullan, *US Intervention Policy ...*, p. 13; Gray, *Irregular Enemies*; Starry, “A Perspective ...”

129 Lock-Pullan, *The US Intervention Policy ...*, p. 13; Williamson Murray, “The Future of American Military Culture: Does Military Culture Matter?” *ORBIS*, (winter 1994).

130 Chris Donnelly, *Red Banner: The Soviet Military System in Peace and War* (London: Jane’s Information Group, 1988), p. 201.

131 Murray, “The Future of American Military Culture”: 34–35; in the other source he argues that the US senior military leadership’s “overall attitude at best appears to be that education is a luxury for the American military rather than a necessity. Williamson Murray, “Transformation of Professional Military Education”, in *National Security Challenges for the 21st Century* (US Army War College, 2003), pp. 10–11.

132 Gray, “National Style in Strategy”.

ena on the methods of fighting) was ever formulated in the West.¹³⁴ Fundamental studies of war and predictions about its future obviously did take place in the US. However when scholars compared them to those done in the USSR, they found the former to be fragmented, not integrated, uncoordinated, and rarely linked directly to the development of the state's military machine.¹³⁵ Edward Luttwak, in an essay written in 1981 in *International Security*, pointed out that despite the longstanding recognition of an operational level of warfare in classical military literature, there was no adequate term for this in Anglo-Saxon military thought.¹³⁶ John Erickson and Raymond Garthoff have concurred that the term "operational art" was foreign to Western military thinking.¹³⁷ This was a serious conceptual shortcoming, since it is generally on this level that paradigmatic changes in the nature of warfare are debated. Strategic and tactical implications are an outgrowth of the initial insights produced in the milieu of operational art.¹³⁸ The American disinclination to invest in operational thinking comes as no surprise. The idea of "collapsing the enemy" by operational maneuver rather than simply annihilating it by firepower conceptually diverged from the established American strategic tradition.¹³⁹

It was only in the wake of the Vietnam War that ALB concepts began to emphasize warfare maneuverability and the necessity to develop theoretical knowledge on the operational level.¹⁴⁰ It was not however until 1986 that the US army reoriented from battles of integral annihilation in favor of a more dynamic and complex understanding of war, and officially recognized operational art as an integral part of the US military thought.¹⁴¹

133 Murray, "Transformation of Professional Military Education", pp. 13–17.

134 Lacking any formal theory to approach the study of war, Western military researchers often had difficulty in even grasping the terminology used by the Russians. Donnelly, *Red Banner*, p. 101–102;

135 It contrasted with the Soviet case, where all the insights about the nature of war, weaponry and strategy were channeled directly into specific policy decisions. Donnelly, *Red Banner*, p. 109.

136 Edward N. Luttwak, "The Operational Level of War", *International Security* (winter 1980/81).

137 Raymond Garthoff, *Significant features of Soviet military doctrine* (Santa Monica, Calif.: Rand Corp., 1954); Erickson, "The Significance of Operational Art ..."

138 Naveh, *In Pursuit...*; F.F. Gaivoronovskii and M.I. Galkin, *Kultura voennogo myslenia* (Moscow: Voennizdat, 1991).

139 Lock-Pullan, *US Intervention Policy ...*, p. 102; Richard Simpkin, *Race to the Swift* (London: Batsford, 1985). Walter Jacobs, "Operational Art", *Army*, no. 11 (1961), cited in Erickson, *Soviet Ground Forces*.

140 John Kiszely, "Thinking About the Operational Level", *RUSI Journal*, vol. 150, no. 6 (December 2005). Richard Simpkin, *Deep Battle: the Brainchild of Marshall Tukhachevskii* (New York: Brassey's Defense Publishers, 1986), p. ix and ch. 5.

141 Lock-Pullan, *US Intervention Policy ...*, p. 92; Murray, "Transformation of Professional Military Education", p. 17.

Optimistic and Engineering Approaches to Security

The belief of the founding fathers that America represented a “new beginning” contributed to a national identity based on liberal, democratic, Protestant and capitalistic principles. Individual freedoms, pragmatism and rationalism formed the cornerstones of the new society.¹⁴² The capitalist economy, liberal political structures and a strong spirit of exploration produced a belief that as nature could and should be understood, potentially almost any problem can be solved. Optimistic entrepreneurship became a value in all fields of American social activity and created a society based on notions of efficacy, rationalism and pragmatism. Compounded by repeated success, it produced a romantic engineering creed that viewed social and security problems as essentially mechanical in nature and, consequently, consistent with the logic of man-made machines.¹⁴³

American history is rife with “miraculous” achievements, typically in the face of challenging geography. Conquering the wilderness bred a frontier pragmatism that was translated into an engineering, problem-solving ethos. This approach often regards political conditions as a set of problems,¹⁴⁴ and pushes strategists, influenced by engineering, to “attempt the impossible.”¹⁴⁵ As a society whose Declaration of Independence affirmed the “pursuit of happiness” as the natural right of every citizen, the Americans tended to take a proactive approach, viewing sources of unease and discomfort as “engineering problems”.¹⁴⁶ A belief evolved in popular culture that problems could always be solved.¹⁴⁷ The

142 Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (Gloucester: Talcott Parsons, 1988), pp. 62–64; Barry Alan Shain, *The Myth of American Individualism: The Protestant Origins of American Political Thought* (Princeton: Princeton UP, 1995); Mark Noll, ed., *Religion and American Politics from the Colonial Period to the 1980s* (Oxford: Oxford UP, 1990), pp. 19–20; Philip Gleason, “American Identity and Americanization”, *Harvard Encyclopedia of American Ethnic Groups* (Cambridge: Harvard University Press, 1980), pp. 31–32; Arms, “Strategic Culture and The American Mind”, pp. 4–6.

143 May, *The Sources ...*, pp. 12, 14, 18, 26, 28, 36–37, 40, 42–43, 45–46.

144 Gray, “Strategy in the Nuclear Age”, p. 590; Gray, *Irregular Enemies*, p. 33.

145 Stanley Hoffman, *Gulliver's Troubles: On the Setting of American Foreign Policy* (New York: McGraw-Hill, 1968).

146 Gray, “Strategy in the Nuclear Age”, pp. 588, 593.

147 John Shy, *A People Numerous and Armed: Reflections on the Military Struggle for American Independence* (University of Michigan Press, 1990), pp. 238–240, 270; Charles Heller and William Stofft, eds, *America's First Battles, 1776–1965* (Lawrence: UP of Kansas, 1986); Gray, “Strategy in the Nuclear Age”, p. 597; Gray, *Irregular Enemies*, p. 33. Walter Russell Mead, “The Jacksonian Tradition and American Foreign Policy”, *National Interest* (winter 1999/2000): 5–29. Swift resolutions are frequently preferred over long-term and demanding enterprises. Gray, *War, Peace and Victory*, pp. 196, 354; Arms, “Strategic Culture and The American Mind”, pp. 18–19; Downey and Metz; Jean-Francois Revel, *How Democracies Perish*, (New York: Doubleday, 1983); Charles Cogan, *French Negotiating Behavior: Dealing with La Grand Nation* (Washington DC.: United States Institute of Peace, 2003), pp. 149–151.

political challenges posed by the American Indians, menacing European or Asian empires were transformed by the United States into military problems that could be resolved definitively by means of machine warfare.¹⁴⁸ The absence of national-level security disasters reinforced optimism as an American national philosophy.¹⁴⁹ Such a strategic culture is more at home with administration than with the art of diplomacy or strategy.¹⁵⁰ It is inclined toward reductionist methods of problem-solving, by minimizing the complications created by culture, time, and distance.¹⁵¹

Similar engineering positivism is manifested in American military thought. Though Carl von Clausewitz might be considered the father of the American approach to civil-military relations, many claim that the true mentor of US military thinking is Antoine Jomini. He wrote about war as an art, but his quest for reducing complexity to a few apparently simple principles has characterized American military thought. Armed with the Jominian belief in the effectiveness and power of basic axioms, American practicality sought to reduce strategic problems to equations. The country's domestic history encouraged the belief that American know-how would inevitably find a solution to any problem.¹⁵² This tendency is reinforced by an American fascination with technology that dictates, drives, and organizes the managerial mindset in military affairs.¹⁵³

American Time Orientation - "Present and Immediate Future"

Anita Arms describes in her study of American strategic culture how the need for immediate action, the rapid resolution of problems and

148 Gray, "Strategy in the Nuclear Age", p. 598.

149 C. Vann Woodward, "The Age of Reinterpretation", *American Historical Review*, vol. 66 (October 1960).

150 Gray, "Strategy in the Nuclear Age", pp. 598, 608–609. Collin S. Gray, *Weapons Don't Make War: Policy, Strategy, and Military Technology* (Lawrence: UP of Kansas, 1993).

151 Bathurst, *Intelligence and The Mirror*, p. 120; this optimism can be observed in foreign-policy enterprises. Throughout its history, Mahnken argues, the US has had an impulse "to transform the international system in the service of liberal democratic ideals". Mahnken, *Uncovering Ways of War*, p. 6.

152 Shy, "Jomini", pp. 182–185; Gray "Strategy in the Nuclear Age", pp. 588, 592–593; Lock-Pullan, *US Intervention Policy ...*; Starry, "American Military Thought"; Gray, *Modern Strategy*, pp. 149–150; Philip Skuta: *Poker, Blackjack, Rummy and War: The face of American Strategic Culture* (Carlisle Barracks, US Army War College, 2006), pp. 10–11; 14–15; Carnes Lord, "American Strategic Culture", *Comparative Strategy*, vol. 5, no. 3 (1985): 289–290.

153 Tilford, *The Revolution in Military Affairs*; Gray, "Strategy in the Nuclear Age", p. 598.

achieving results went hand in hand with a strong American time orientation toward the present instead of the past or distant future.¹⁵⁴ The practicality of American thinking “condemns the irrational past”, and directs it toward the immediate future, making the orientation more functional than that in other societies, where the future is measured in decades or generations. American time, argues Edward Hall, is linear.¹⁵⁵ The future appears in American thinking in the form of anticipated consequences of actions.¹⁵⁶

American culture usually considers the newest to be the best. This inclination is clearly reflected in the US military’s approach to weapons acquisition policy. While Soviet weapons research, development and procurement were driven by consumer requirements, the Western armed forces’ often procured what industries produced and sold. In the West it was possible for a weapons system to be procured because it represented state-of-the-art technology, and not necessarily because its use was prescribed by the doctrine.¹⁵⁷

The fascination with novelty and rapid transformations predisposes American society to accept change more readily than other cultures. However, as Frederick Downey and Steven Metz have noted, with little attention paid to the past, the tendency is to look ahead - not to the distant future, but more to the demanding present time.¹⁵⁸ Although US strategic planning has not always focused solely on the here and now,¹⁵⁹ observers characterize it as generally averse to an extended strategic outlook and more comfortable with near-term crisis management than with long-term strategy planning.¹⁶⁰ As Williamson Murray put it, referring mostly to Vietnam, “the American nation’s worst defeat resulted largely from a military and civilian leadership that prized modern tech-

154 Arms, “Strategic Culture and The American Mind”, pp. 9–12; Alvin Toffler, *Future Shock* (New York: Bantam Books, 1971) pp. 2–3; 54–55; David A. Hollinger, “The Problem of Pragmatism in American History”, *The Journal of American History*, vol. 67, no. 1 (1980): 88–107.

155 Edward T. Hall, *The Dance of Life: The Other Dimensions of Time* (New York: Anchor Press, 1983), pp. 201–202, 221–223.

156 Edward Stewart and Milton Bennett, *American Cultural Patterns: A Cross Cultural Perspective* (Yarmouth, Me.: Intercultural Press, 1991), pp. 35–36; Bathurst, *Intelligence and The Mirror*, ch. 6.

157 Donnelly, *Red Banner*, pp. 123, 133.

158 Frederick Downey and Steven Metz, “The American Political Culture and Strategic Planning”, *Parameters*, vol. XVIII (September 1988): 34–42; Arms, “Strategic Culture and The American Mind”, pp. 18–21.

159 For example, consider instances of long-term American strategic vision, such as: post-Civil War reconstruction; the Marshall Plan, the leading US role in the UN and Bretton Woods; the NSC-68 and the US commitment to containment of the USSR. Skuta, *Poker, Blackjack ...*, pp. 16–17;

160 Jeremy Rifkin, *Time Wars: The Primary Conflict in Human History* (New York: Touchstone, 1987), pp. 73–73; Arms, “Strategic Culture and The American Mind”, pp. 11–15; Skuta, *Poker, Blackjack ...*, p. 7; Gray.

nology over the lessons of the past.”¹⁶¹ This lack of historical and cultural curiosity frequently results in a situation in which the enemy of the US understands the Americans far more coherently and effectively than the Americans understand him.¹⁶²

Democratic Tradition, Bottom-Up Organization and the Role of the Joint Chiefs of Staff (JCS)

As a social-organizational phenomenon, the JCS manifested the American strategic culture just as the Soviet General Staff (GS) was keeping with the Russian strategic tradition. The organizational role of the JCS similar to that of the General Staffs of other countries was inconsistent with American cultural characteristics. The American political modus operandi prevented the concentration of an ultimate authority in a single military organization. Consolidating bureaucratic power in one central place (i.e. in the hands of the JCS chairman) would have contradicted the American democratic tradition of checks and balances. In keeping with the liberal tradition of American society, authority was delegated down to the services. Consistent with an entrepreneurial culture, the competition between services was expected to be beneficial and to serve as an impetus for innovative initiatives.¹⁶³

As a result, one of the most significant bodies of the American military system, the JCS, was also one of the most controversial. Although the JCS was designated as the principle military advisory body to the civilian leadership, the chairman lacked the statutory mandate for independent long-term recommendations. His advice centered more on budget allocations and less on long-term strategy or development of American military power. The JCS was, for the most part, disconnected from the operational realm, rarely held command responsibility of its own, and as a rule, delegated considerable authority, including doctrinal development, to the services.¹⁶⁴ *De facto*, the services, and not the

161 Murray, “Transformation of Professional Military Education”, p. 16. Donnelly, *Red Banner*, p. 31.

162 Murray, “Transformation of Professional Military Education”, p. 16.

163 Eliot A. Cohen, “How to Think About Defense”, in Williamson Murray, *1995–1996 Brassey’s Mershon American Defense Annual* (Washington, DC: Brassey’s, 1995).

164 Lawrence Korb, *The Joint Chiefs of Staff: the First Twenty-Five Years* (Bloomington: Indiana University Press, 1976); id., *The Fall and the Rise of the Pentagon* (Westport: Greenwood Press, 1979); Thomas L. McNaughter and Roger L. Sperry, “Improving Military Coordination: the Goldwater-Nichols Reorganization of the Department of Defense”, in *Who Makes Public Policy?* Robert S. Gilmour and Alexis A. Halley (Chatham: Chatham House, 1994); Peter J. Roman and David W. Tarr, “The Joint Chiefs of Staff: From Service Parochialism to Jointness”, *Political Science Quarterly*, vol. 113, no. 1, (1998): 91–111; William J. Lynn and Barry R. Posen, “The Case for JCS Reform”, *International Security*, vol. 10, no. 3. (winter 1985–1986): 69–97.

JCS or the Department of Defense, were the most powerful institutions of American national security.¹⁶⁵

The establishment and subsequent functioning of the JCS was a distinct manifestation of American military parochialism. Its members faced a constant in-built dilemma, between representing the interests of their respective services and thinking jointly and broadly about the nature of the armed forces in an existing or emerging security environment. It was the former which invariably prevailed. Rather than being an elite military organization which concentrated the finest professional capital, the selection process produced narrowly focused, combat-oriented line officers, committed to the parochial interests of their services. The officers were selected late in their careers and were not formally educated for duty in the JCS. In striking contrast to the Soviet GS, the JCS by no means consisted of the *crème de la crème* of the American military.¹⁶⁶

Strategic and long-term defense planning were weakly institutionalized in the JCS. It lacked the powerful cadres required to produce effective cross-service vision and advice that was capable of affecting the long-term development of the US military. By definition, the Chairman was a budgetary manager and occasional operational planner but not a deductive thinker about the nature of war. He was neither a doctrinal luminary nor an initiator of long-term strategic decisions. The JCS remained a captive of the services and lacked the intellectual mechanisms to generate broad, cross-cutting long-term recommendations. The institutionalized conceptual centers of gravity, such as Training and Doctrine Command (TRADOC), were diffused among the services which initiated most American military innovations.¹⁶⁷ Lacking strategic guidance, the services' innovations were often piecemeal, inconsistent, and sectarian, and rarely expanded beyond the operational level. "Each branch developed its distinctive strategic paradigm" and the JCS rarely offered conceptual alternatives to the views developed in the services.¹⁶⁸ As a rule, American military innovated bottom-up, from the services to the leadership.¹⁶⁹

165 Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (London: Johns Hopkins University Press, 1989).

166 Ibid; and Roman and Tarr, p. 94.

167 Rosen, *Winning the Next War*.

168 Roman and Tarr, pp. 91, 94; Lynn and Posen; Korb.

169 Evangelista, *Innovation and Arms Race*; Bathurst, *Intelligence and The Mirror*; the US also approached negotiations in the same inductive or bottom-up manner. Cogan, *French Negotiating Behavior*, pp. 11, 48–49, 124–125, 247; Avruch, *Culture and Conflict Resolution*, pp. 63–65; Cohen, *Negotiating across Cultures*, pp. 30–33.

No single institution existed in the American military which possessed a synthetic grasp of the security environment. Given the structure of the JCS, there was no institution capable of systematically thinking through the discontinuities in military affairs along the entire spectrum of their implications for the services. Without that perspective, it was virtually impossible to analyze the impact of the scientific-technological changes on the nature of warfare in general and on the doctrine and organization of the American military forces in particular. The state of professional periodicals serves as a case in point. Following the 1986 military reform, the JCS established its own professional publication, *Joint Forces Quarterly*, for the dissemination of knowledge among senior military professionals. This vanguard of American military thought was established only in 1993. In contrast, the professional publications of the American military services had been established several decades earlier than the quarterly of the JCS. For the sake of comparison, the Soviet GS had established its periodical *Military Thought* in the late 1920s. The titles of the journals also manifest which *raison d'être* their founders attributed to them. Williamson Murray, in discussing the relatively insignificant attention paid to doctrinal conceptualizations and theory development within the framework of American military culture, argues that the Joint Staff never constituted the intellectual center of gravity of the US military forces.¹⁷⁰ Through the years, the above-mentioned weaknesses of the JCS system were observed and noted by several American defense intellectuals.¹⁷¹

Technological Romanticism in Military Affairs

The strong bias toward technocentric warfare is an essential component of American strategic behavior. However, prudent exploitation of the technological dimension of war was a vital American asset in a number of areas. Scholars do not condemn machines or technology, rather their misuse and an overreliance on technology.¹⁷² According to Thomas Mahnken, “no other nation has placed greater emphasis upon the role of technology in planning and waging war, than the US.”¹⁷³ Reliance on

170 Murray, “The Future of American Military Culture”: 39–41.

171 Edward Luttwak, *The Pentagon and the Art of War* (New York: Simon and Schuster, 1984); Harold Brown, *Thinking About National Security: Defense and Foreign Policy in a Dangerous World* (Boulder: Westview Press, 1983)

172 Gray, *Irregular Enemies*, p. 36; id., *Strategy and History: Essays on Theory and Practice* (London: Routledge, 2006), p. 166; id., *Modern Strategy* (Oxford: Oxford University Press, 1999), p. 147.

173 Mahnken, *United States Strategic Culture*, p. 12.

new technology is a corollary of the predisposition to solve problems quickly and in simple, direct terms.¹⁷⁴

Initially, America's romance with machinery, particularly with mechanical means of transportation, was a result of the need to conquer the wilderness. Population density on the frontier, together with an acute shortage of skilled artisans obliged Americans to invent substitutes for human skill and muscle.¹⁷⁵ The new society responded to this shortage by ingeniously embracing machines and taking the lead in the production of mechanical tools. Since the early nineteenth century the United States has been a land of technological marvels and developed an extraordinary rate of technology dependency.¹⁷⁶

The fascination with technology was not unique to the military; it characterized the culture as a whole. In contrast to Europe, American history has few examples of mobs destroying industrial machines. As Andrew May has shown, the capitalist economy fueled, and even demanded, ongoing innovation while the relentless character of the competition and the constant pressure to improve pushed scientists, technologists, and consumers closer together. American thinking is unusually innovative and enthusiastic with regards to technology. In the broader popular narrative, technology is generally seen as bringing benefits.¹⁷⁷ The liberal American tradition saw technology as an instrument for preserving the nation's immunity from war rather than as new means for waging it.¹⁷⁸

One of the principal by-products of technology was a faith in technology.¹⁷⁹ American strategic culture viewed technology as a panacea in global affairs, and sought ways to expand its scope and to apply technical solutions to strategic issues.¹⁸⁰ Weigley, in discussing the

174 Skuta, *Poker, Blackjack ...*, p. 16.

175 Gray, *Strategy and History*, p. 141; Kathleen Thelen, *How Institutions Evolve: the Political Economy of Skills in Germany, Britain, the United States, and Japan* (Cambridge: Cambridge University Press, 2004), pp. 280–281.

176 Denis W. Brogan, *The American Character* (New York: Vintage Books, 1956), p. 150; Billington, *America's Frontier Heritage*; Gray, *Strategy and History*, p. 141; Ira Gruber, "The Anglo-American Military Tradition and the War for American Impedence", in *Against all Enemies*, Hagan and Roberts eds, pp. 21–46.

177 May, *The Sources ...*, pp. 12, 14, 18, 26, 28, 35–37, 40, 42–43; Steven M. Irwin, *Technology Policy and America's Future* (New York: St. Martin's Press, 1993); Thomas Parke Hughes, *Changing Attitudes Toward American Technology* (New York: Harper and Row Publishers, 1975).

178 Michael Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Yale University Press, 1987), pp. 233–235; *In the Shadow of War*, pp. 10–11.

179 Tilford, *The Revolution in Military Affairs*, p. 11; Loren Baritz, *Backfire: Vietnam, The Myths That made Us Fight, The Illusions That Helped Us Lose, The Legacy That Haunts Us Still* (New York: William Morrow and Co., 1984), p. 32.

180 Weigley, *The American Way of War*, p. 416; Gray, *Irregular Enemies*, p. 33; Sherry, *In the Shadow of War*, pp. 38–39; id., *The Rise of American Air Power*, pp. 233–235; Farrell, 2002, p. 19.

American way of war, argues that the pragmatic qualities of the American character have fostered a national penchant for seeking refuge from difficult problems of strategy in technology.¹⁸¹ This predisposition to technicity – to the exaggerated significance of the technical – was characteristic of American policymakers, as well.¹⁸² Many military historians regard the technology of warfare as one of the most important independent variables in the country's military thought.¹⁸³ Technological romanticism engendered visions of a mystical silver bullet promising decisive victory.¹⁸⁴

The zeal for technology was further fueled by a desire to get more “bang for the buck” while minimizing American, if not enemy casualties.¹⁸⁵ The desire to minimize human losses (typical of democratic regimes) is another trait of American strategic culture. American society could not abide a high rate of casualties and the military sought a style of fighting designed to minimize fatalities. Thus, it became American practice to send metal into battle in place of vulnerable flesh.¹⁸⁶ The preference to expend bombs and machines rather than personnel also led the United States to prefer to wreak destruction from a distance.¹⁸⁷ According to Eliot Cohen, these elements are mutually reinforcing. The armed forces opt for air power, stand-off strikes, overwhelming firepower, and high technology as a mean to reduce the forces' vulnerability in military operations.¹⁸⁸

This technological enthusiasm varies across the distinct subcultures of the American military services.¹⁸⁹ The air force and navy were traditionally the most techno-friendly and techno-dependent. The army

181 Weigley, *The American Way of War*, p. 416.

182 Gray, “Strategy in the Nuclear Age”, pp. 593, 609; Lock-Pullan, *US Intervention Policy ...*, ch.1, pp. 13–28.

183 Shy, *A People Numerous ...*, pp. 287–288; Gray, *Irregular Enemies*, p. 37.

184 Tilford, pp. 10–11; Gray, *Strategy and History*, p. 165.

185 Andrew Krepinevich, *The Army and Vietnam*, (Baltimore; London: Johns Hopkins University Press, 1986), pp. 5–7; Gray, *Irregular Enemies*, pp. 47–48; Theo Farrell, “Strategic culture and American Empire”, *SAIS Review*, vol. XXV, no. 2 (summer-fall, 2005); Lerner, *America as a Civilization*, p. 910; Jeffrey Record, “Collapsed Countries, Casualty Dread, and the American Way of War”, *Parameters*, (Summer 2002) pp. 4–23.

186 Farrell, “Strategic Culture and American Empire”; Gray, *Irregular Enemies*, pp. 47–48, 37; For the tendency to send men and not machines as a root of American technological determinism, see Krepinevich, *The Army and Vietnam*, pp. 5–7; Chris Gray, *Postmodern War* (York: Guilford Press, 1997), pp. 50, 137, 248, 50, 29, 225; Gray, *Irregular Enemies*, pp. 47–48; Lock-Pullan, *US Intervention Policy ...*, p. 21; Robert Scales, *Firepower in Limited War* (Novato, CA: Presidio, 1995) pp., 3–5, 10–30.

187 Chris Gray, *Postmodern War* (York: Guilford Press, 1997), p. 137.

188 Eliot A. Cohen, “The Mystique of US Air Power”, *Foreign Affairs*, vol. 73, no. 1 (1994): 109–124; Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000).

189 Builder, *The Masks of War*.

kept its distance from such techno-bias and the marines valued technology the least. Being “boots-on-the-ground” services, the army and marines rely to a relatively greater extent on the human element than on machines and put the former at the center of warfare; hence the saying that the air force and navy man the equipment, while the army and marine corps equip the man. However, scholars agree that in spite of these differences, techno-centric romantic culture was ingrained in all four of the American military services and also served as a common denominator for civilian policymakers involved in military affairs.¹⁹⁰

Within the defense establishment, debates about technology and budgets frequently usurped the place of strategy. The traditional orientation toward quick action and results, an attachment for things new and futuristic, and a disinclination to wage long wars was frequently in keeping with the almost instinctive reliance of American strategists on technology as a panacea in national security affairs.¹⁹¹ This pragmatism can result in a technical approach to international security, and a conception of complicated issues as problems requiring engineering solutions.¹⁹² American reliance on technology, according to Thomas Mahnken, was a poor but ubiquitous substitute for strategic thinking in international security.¹⁹³

An Inclination to Ethnocentrism

The US has historically seen itself as an arbiter of morality, with a special moral-political mission in the world.¹⁹⁴ It has been argued that this

190 Mahnken, *United States Strategic Culture*, pp. 16–18; Builder, *The Masks of War*, pp. 3–4; Farrell, “Strategic Culture and American Empire”; Murray, “The Future of American Military Culture”: 36; Sociological research characterizes US military officers as “technological optimists”. Thomas Mahnken and James FitzSimonds, *The Limits of Transformation: Officer Attitudes toward the Revolution in Military Affairs*, Newport Paper no. 17, (Newport: Naval War College Press, 2003), ch. 6; and also see Mahnken, *United States Strategic Culture*, p. 12.

191 Russel Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (Bloomington, Indiana University Press, 1977), p. 416; Downey and Metz; Todd Zachary, *The Effect of American Strategic Culture on Implementing National Strategy*, (Maxwell: Air Force University, 2000), pp. 50–53; Gray, in Murray, 35–36; 45–46; Lord, “American Strategic Culture”: 289–290; Gray, “Strategy in the Nuclear Age”, pp. 588, 593; Downey and Metz; Tilford, *The Revolution in Military Affairs*; Andrew May, *The Sources ...*, pp. 45–48.

192 Ryle, *The Aspects of Mind*; Stewart and Bennett, *American Cultural Patterns*, pp. 32–33; Edmund Glenn, *Man and Mankind: Conflict and Communication Between Cultures* (Norwood: Ablex Publishing Corporation, 1981), pp. 80–81; Gray; Arms, “Strategic Culture and The American Mind”.

193 Mahnken, *United States Strategic Culture*, p. 13.

194 Francis J. Bremer, *John Winthrop: America's Forgotten Founding Father* (Oxford: Oxford University Press, 2003); Gray, *Irregular Enemies*, p. 34; id., “Strategy in the Nuclear Age”, p. 591.

vision, fueled by the isolationist tradition, has sometimes created an ethnocentric belief among Americans that they occupy the moral high ground and their inclination to view the world primarily through the perspective of their own culture.¹⁹⁵ The early ideologies of American colonists were influenced by the Protestantism of the Puritan settlers who believed that they were God's people - chosen to lead the other nations of the world. John Winthrop gave this notion metaphoric expression in his description of America as a "City upon a Hill."¹⁹⁶ The successful course of political and military history in the US has provided justification for its belief in its own optimism, a self-confident sense of superiority, and invulnerability.¹⁹⁷ Americans' high estimation of themselves as a nation, including a collective narrative which emphasizes political and moral uniqueness, liberty, a divine mission, and a multidimensional sense of national greatness has made it difficult for them to accept the beliefs, habits, and behaviors of foreign cultures.¹⁹⁸

American history, at least up until the Vietnam War, was presented as an extremely positive narrative. Young colonies evolved into a power capable of carrying out the world's most important endeavors. This generated an extraordinary optimism regarding what could be achieved by the American way of war.¹⁹⁹ The early wars - the Seven Years War (1756-63), the Revolutionary War (1775-83), and the War of 1812 - regardless of how they had begun, were victorious at a relatively small cost. The late American entry into both World Wars was followed by a steady march toward victory. Successful involvement in both wars are recounted with considerable ignorance, minimizing the role played by Britain, Russia, and France, and a belief that the United States had ultimately won in both cases.²⁰⁰ This was a narrative which perpetuated ethnocentricity and bolstered the existing strategic culture.²⁰¹ The overwhelmingly victorious historical experience kept Americans from ex-

195 Booth, *Strategy and Ethnocentrism*; Gray, *Irregular Enemies*; Mahnken, *Uncovering Ways of War*; Robert H. Scales, "Culture Centric Warfare", *US Naval Institute Proceedings*, vol. 130, no. 10 (October 2004): 32-36; Cogan, *French Negotiating Behavior*, pp. 4, 6, 11; Archie Roosevelt, *For Lust of Knowing: Memoirs of an Intelligence Officer* (Boston: Little Brown and Company, 1988), pp. 440-441; Horace Kallen, *Culture and Democracy in the United States: Studies in the Group Psychology of the American People* (New York, 1924), p. 53; Irving Kristol, "Defining Our National Interest", *The National Interest* (fall 1990): 19-20.

196 Bremer, *John Winthrop*.

197 Henry Steele Commager, *The American Mind: An Interpretation of American Thought and Character Since the 1880* (New Haven: Yale University Press, 1950), pp. 430-431; Gray, *War, Peace and Victory*, pp. 25-26; Arms, "Strategic Culture and The American Mind", pp. 24-25; Shy, *A People Numerous ...*, pp. 278-282.

198 Gray, *Irregular Enemies*, p. 34; Gray, "Strategy in the Nuclear Age", pp. 582, 591; Scale, "Culture-Centric Warfare", pp. 32-36. Shy, *A People Numerous ...*, p. 268.

199 Shy, *A People Numerous ...*, pp. 278-280; Gray, "Strategy in the Nuclear Age", pp. 582, 591, 597.

200 Shy, "Jomini", pp. 278-282; 285-286.

aming counterproductive conduct that might undermine military effectiveness.²⁰²

Ethnocentrism is known to produce a phenomenon known as mirror-imaging, a cognitive situation in which decision-makers or intelligence analysts project their thought processes or their value system onto the subject under reference.²⁰³ The tendency for mirror imaging also comes from insufficient interest in the opponent's way of thinking. This "pathology" has been diagnosed in the American security and intelligence experience.²⁰⁴ It primarily hampers the ability to properly identify and assess emerging foreign methods of warfare. Thomas Mahnken has detected signs of mirror imaging among American intelligence officers monitoring developments in Japan and in Nazi Germany during the World War Two. In addition, technical developments were often assessed on the basis of the analyst's own technology.²⁰⁵ Robert Bathurst has reported on constant "mirror imaging" in the routine work of American intelligence officers analyzing the Soviet military doctrine and technological capabilities during the Cold War.²⁰⁶ The adversary's practices are studied not only in order to understand the potential enemy but also in order to learn alternative military art to emulate valuable ideas. In this regard, ethnocentrism can prove to be a serious obstacle. While the Soviet Army showed no reluctance to imitate and copy ideas from the US, this was not usually the case in reverse. Western nations, and the American military in particular, were less flexible in their attitudes, exhibiting a "not invented here" mentality.²⁰⁷

201 Kenneth J. Hagan and William R. Roberts, eds, *Against All Enemies: Interpretations of American Military History from Colonial Times to the Present* (Westport, CT, 1986), pp. 210–47; Shy, *A People Numerous ...*, pp. 193–224.

202 The sustaining myth of American national exceptionalism – the notion of a truly unique society – fostered a strategic-cultural arrogance. Gray, "Strategy in the Nuclear Age", pp. 593–595; Francis Fukuyama, "The End of History", *National Interest* (Summer 1989), pp. 3–18.

203 Richards J. Heuer, *Physiology of Intelligence Analysis* (Washington DC.: Center for the Study of Intelligence, 1999), pp. 70–71.

204 Andrew Stuart, *Friction in U.S. Foreign Policy: Cultural Difficulties with the World* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2006).

205 Mahnken, *Uncovering Ways of War*, pp. 11, 50.

206 Bathurst, *Intelligence and the Mirror*.

207 Donnelly, *Red Banner*, pp. 131–132, 206.

Conclusion

Cultural Factors and the American RMA

The cultivation of the technological seeds of the American RMA preceded the maturation of the conceptual ones. The US developed technology and weaponry for about a decade without realizing their revolutionary implications. Why did it take the US defense community close to a decade to acknowledge the accuracy of Soviet assumptions and to translate MTR theoretical postulates into a radical military reform? Several qualities of American strategic culture prevented its swift comprehension of the paradigmatic change in the nature of warfare discussed in the case under study.

During the introduction of PGM weaponry to the battlefield, mainstream American military experts concentrated on the *focal point* – the mechanical application of the new technologies on the tactical level, and detached it from the *context* – the implications of this new weaponry on the ways and means of conducting operations. This concentration on the focal technologies at the expense of the broader contextual implications hampered the US military from the swift comprehension of the paradigmatic change in the nature of war. The US forecasting efforts were piecemeal, extrapolated ahead from current capabilities, rather than trying to anticipate qualitative leaps in military regimes. The ALB innovation aimed to satisfy specific requirements related to a narrow, techno-tactical, yet relevant set of operational threats. The US military long saw in the stand-off PGMs no more than a perfect and immediate remedy for the Soviet echelonment doctrine. The US possessed only an intuitive understanding of the revolution that was about to occur, and was not consciously thinking in terms of a revolution. Not until Andrew Marshall and his colleagues from ONA introduced the notion of the RMA into the professional military discourse did the emerging discontinuity reach the consciousness of the American defense community.

In keeping with the inductive approach to understanding reality, a paradigmatic change among the mainstream of the US military did not occur before the particular empirical experience (Gulf War) had been observed and generalized.

Why did ONA experts reach better assessments than the rest of the American intelligence community on what the Soviets were thinking? As Colin Gray has noted in one of his publications, “a security community may have more than one strategic culture.”²⁰⁸ Led by Andrew W. Marshall ever since, the ONA experts succeeded in grasping this discontinuity because they did not embody – in fact had consciously suppressed – most of the traits of American strategic culture. The intellectual conduct of ONA was the striking exception to the rule, which nevertheless proved the rule. Eclectic, holistic and synthetic in its nature, the thinking style and the intellectual atmosphere inside the ONA diverged remarkably from the logical-analytical approach of mainstream American strategic culture. ONA experts consciously stressed the importance of context-dependence in the course of their analytical activity and sought to distance themselves from mainstream mechanical focalism. In contrast to the prevalent American cost-effectiveness approach which was procedural and prescriptive, ONA was consciously committed to producing descriptive knowledge.²⁰⁹

American strategic culture was less prepared institutionally and intellectually to think in terms of revolutions in military affairs. Institutionally, in keeping with a decentralized liberal culture, relevant conceptual and organizational military innovations, such as ALB, originated in a bottom-up manner, from the services and not top-down from the JCS or DoD. In keeping with the American cultural tendency to divide strategic problems into discrete parts in order to solve them, discerning the whole was frequently difficult. The American JCS had no ethos of being a “brain of the military”, and consequently strategic and long-term defense planning was weakly institutionalized there. The JCS lacked a powerful bureaucracy capable of producing an effective cross-service vision and advice that could affect the long-term development of US military power. The Chairman was a budgetary manager and occasional operational planner but not a deductive thinker about the nature of war. He remained a captive of the service’s parochialism

208 Gray (SAIC, 2006), p. 23.

209 Pickett et. al, “Net Assessment”, pp. 173–177.

and lacked the intellectual capital to generate deep, cross-cutting, long-term observations.

Intellectually, the US military was unprepared for grasping the RMA as well. For generations, an integral battle of annihilation and enemy attrition by superior firepower had been an American way of war. This industrial approach to warfare accounts for the relative disfavor of the American theoretical military tradition. One implication was that the notion of operational art as a theoretical concept was rejected by the US military tradition until 1980s. The aim of “collapsing the enemy” by operational maneuver rather than simply annihilating it by firepower conceptually diverged from the established American strategic tradition. Because ideas about paradigmatic changes in the nature of war originate on the operational level of military thought, the lack of this intellectual layer was a serious obstacle that prevented thinking in terms of the RMA.²¹⁰

The traditional orientation toward quick action and results, an attachment to things new and futuristic, and a disinclination to wage a long war, resulted in the almost instinctive reliance of American strategists on technology as a panacea in national security affairs. An optimistic and engineering approach to security, an industrial approach to warfare, annihilation and attrition by firepower, the positive role of machines in the American cultural narrative, the desire for cost-effective firepower, while minimizing casualties, made the US probably the most techno-centric military in the world. In this atmosphere, a functional and mostly tactical application of the advanced technologies took center stage. With certain variations, techno-euphoria was deeply ingrained in all four military services. During the 1970s, this technological romanticism disinclined the defense establishment to perceive the broader impact of this technological breakthrough upon the nature of war and to make a quantum leap in the sphere of military thought. American thinking appeared to focus more on how new technologies could be used to enhance the performance of existing missions. The PGMs were seen as just another, albeit significant, force multiplier in the military

210 Flawed thinking about the impact of technology on the character of future war occurred not only at the stage of the paradigmatic change. H.R. McMaster has clearly shown how the US military frequently failed to understand the implications of the RMA. The superficial thinking that accompanied the uncritical embracing of the RMA corrupted American strategic and operational thought in subsequent decades. According to McMaster, “influential organizations within the US military focused on how US forces might prefer to fight and then assumed that preference was relevant to the problem of future war.” H.R. McMaster, “On War: Lessons to be Learned”, *Survival*, vol. 50, no. 1 (February-March 2008): 19–30.

arsenal. Notwithstanding ONA's intent to focus the professional attention of the US defense community on the symbiotic relationship between technology, concepts and organizational structures, "techno-euphoria" blossomed once again during the implementation stage of the American RMA in the late 1990s.

Historically, ethnocentricity was a considerable factor in American strategic culture. The US saw itself as an arbiter of morality, with a special moral-political mission in the world. This vision inclined the US to view the world primarily through the perspective of its own culture. Ethnocentricity increased the likelihood of such analytical pathologies as "mirror-imaging", in which foreign-security developments were measured by American standards. This unmotivated analytical bias of the US analysts made them less receptive to certain military innovations from abroad, since they did not correspond to the common wisdom of the American defense establishment. In keeping with this cultural trait, in their evaluations of the Soviet MTR, American experts projected their own perceptions. They measured the Soviets by the standards of the US military and on the basis of American technology. Until the ONA assessment, the US defense community had failed to grasp the essence of the Soviet MTR developments, and avoided accepting controversial futuristic conclusions offered by the Russians. Soviet writings about the revolutionary impact of the new weaponry were skeptically treated by the US experts as futuristic nonsense. Ironically, Soviet theories ultimately provided a kind of a "mirror" for US strategists. By analyzing how American military power was reflected in Soviet eyes in the early 1980s, US strategists were able to realize during the early 1990s the value of the revolutionary treasure they possessed.

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