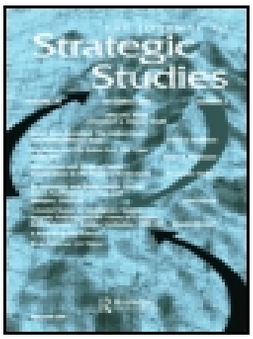

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The Revolution in Military Affairs with Chinese Characteristics

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ABSTRACT Chinese strategists believe the Revolution in Military Affairs (RMA) offers a 'historic opportunity' to alter the military balance with the United States. Having long downplayed the People's Liberation Army (PLA)'s capabilities and aims, China is now publicizing its capacity to inflict damage while cultivating uncertainty about its precise intentions to induce caution in adversaries. Key dimensions of China's RMA include complementary kinetic and information attacks and the substitution of 'information deterrence' for nuclear deterrence. Contrary to earlier analyses focused on a decisive surprise strike, current journal articles emphasize the need for 'serialized' information and kinetic attacks. Chinese strategists may err in three ways, however: They may underestimate US resilience; they may overestimate the PLA's ability to conduct 'warfare engineering'; and China's peacetime preparations for the RMA may incite an unexpected response.

KEY WORDS: China, People's Liberation Army, Military Modernization, Revolution in Military Affairs

Introduction: Variation in RMA Perspectives

For defense strategists and international relations theorists alike, a fundamental change in the behavior of military organizations and the conduct of war raises the question of which states or actors are best positioned to benefit. It has been demonstrated that the Soviet Union saw the current revolution in military affairs (RMA) as delivering a major advantage to the United States. This article argues that a traditional Chinese strategic outlook emphasizing superior information, intelligence, and the manipulation of perceptions to prepare the battlefield in peacetime shapes the People's Republic of China's (PRC's) approach to the RMA. The advances in computing and communications and the fundamental shift in strategic affairs associated with the RMA therefore provide China, at least in Beijing's eyes, with an opportunity to benefit disproportionately relative to its rivals. A related finding is that the current environment differs

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fundamentally from the Cold War context in which the RMA first emerged.[1]

The specter of a confrontation between NATO and Warsaw Pact forces in Europe formed the backdrop for the developments associated with the Soviet identification in the mid- to late-1970s of an American-led 'military-technical revolution', subsequently known as the RMA or simply 'military revolution' in the United States.[2] This fact may constitute the lone point of agreement within a set of lively RMA debates among strategic studies scholars and students of the Cold War. In particular, notwithstanding controversies about the existence, definition, significance, and future of the RMA,[3] its documentary origins have been traced to the Soviet observation that the United States was exploiting developments in computer processing and other technologies to achieve a 'reconnaissance-strike complex' (RSC) capable of targeting Soviet forces based deep in the rear. While it is clear that the Soviet and American defense establishments exhibited significant variation in the degree to which, and the ways in which, they conceptualized and employed the RMA,[4] the record shows that doctrinal developments in the United States and the USSR were rather tightly coupled in the period of the RMA's birth, with the US AirLand Battle doctrine a clear response to the Soviet echelons approach. By the mid- to late-1970s, the United States and the USSR shared a perspective on what would be the dominant engagement if their competition devolved into a hot

[1]This evolution was predicted by at least one early American observer of the RMA: 'We live in a period of large scale, rapid technological and, very likely, social change. The pace of technological change is accelerating. We have not fully exploited and adjusted to developments in information and communication technologies; the next wave of change-producing developments is coming out of the biological and human sciences, which are likely to become significant sources of change in military operations and organizations.' Andrew W. Marshall, 'Forward', *The Military-Technological Revolution: A Preliminary Assessment, 1991* (Washington DC: Center for Strategic and Budgetary Assessments 2002).

[2]Marshall, 'Forward', and Andrew F. Krepinevich, *The Military-Technological Revolution: A Preliminary Assessment, 1991* (Washington DC: Center for Strategic and Budgetary Assessments 2002).

[3]Thomas Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington DC: US Government Printing Office 1993), 235–51; Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton UP 2005).

[4]Dima P. Adamsky, 'Through the Looking Glass: The Soviet Military-Technical Revolution and the American Revolution in Military Affairs', *Journal of Strategic Studies* 31/2 (April 2008), 257–94; Adamsky, *The Culture of Military Innovation: Comparing the RMA in Russia, the United States, and Israel* (Stanford UP 2010).

war. Their approaches, while different, did proceed from a common point of departure.

Today, by contrast, the nature of the dominant engagement, and even the existence of a competition between the United States and China are disputed. Turning to Chinese writings on the RMA promises to shed some light on why this may be the case.

Chinese Writings on the RMA: Imitation is the Sincerest Form of Flattery?

What is the Chinese conception of the RMA (*xin junshi geming*, new military revolution, or *junshi geming*, military revolution)? A logical first approach to the question would be to investigate the prevailing way of defining the RMA in the PRC. This is no mean task considering the various definitions and understandings within the United States and elsewhere around the world. The task is further complicated by the fact that People's Liberation Army (PLA) strategists who write in the journals of the Chinese Academy of Military Science and National Defense University, among other outlets, tend to follow international military thought closely, as they have inherited a strategic outlook that emphasizes 'knowing the enemy' and carefully monitoring trends, as will be discussed in further detail below. For instance, one of the leading Chinese writers on the RMA, Major General (ret.) Wang Baocun, is also a translator of Paul Kennedy's *Rise and Fall of the Great Powers*.[5]

Perusing Chinese military journals and edited volumes from the 1980s and 1990s yields an impressive array of definitions that seem to mimic lines from Russian and American sources – lines that emphasize organizational and doctrinal shifts associated with technological advances allowing for dramatically enhanced reconnaissance and precision at increasing ranges. The PLA watched and learned from a distance as the United States employed new RMA capabilities first in Operation 'Desert Storm' and then in the wars in the Balkans in the 1990s. The Chinese were reading Marshal Nikolai Ogarkov's work, studies commissioned by the US Office of Net Assessment, and other Western analysis,[6] and in many cases it is difficult to discern whether they added a particular gloss of their own to the foreign assessments.

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[5]Xia Liping, 'China, US, Japan Strategic Relations: Striving for Win-win and Avoiding Security Dilemmas', CPP20071109587001 Beijing *Shijie Jingji Yu Zhengzhi* in Chinese, 1 Sept. 2007.

[6]Michael Pillsbury, *China Debates the Future Security Environment* (Washington DC: National Defense UP 2000).

But in this period, one can also find articles emphasizing the new vulnerabilities and opportunities for information warfare (IW, or *xinxi zhan*, alternately translated as informatized or informationalized [*xinxi hua*] war) created by the reliance of militaries, as well as broader social and economic systems, on computer networks. These discussions seem to reflect unique Chinese contributions, or a unique synthesis of Russian and American writings that ends up looking like neither.

Consider, for instance, this article by then-Senior Colonel Wang Baocun, published in the *PLA Daily* newspaper in April 1998, worth quoting at length:

> The opportunity created by the new military revolution is a chance of a lifetime. Our army enjoys many favorable conditions for informatization. Our country has achieved rapid progress in informatization and has the basic 'potential energy' to extend this work to the military. An important feature of the present military revolution is that local informationization begins sooner and develops faster than in the armed forces and is technologically more advanced. After building sufficient 'potential energy', the work will then be extended to the military and will trigger off an enormous military transformation ....[7]

The author goes on to state that 'unlike nuclear and stealth technologies, information technology has greater potential for diffusion and penetration and is not easy to keep secret'. The article then describes the dual-use character of most information technologies and concludes by arguing that because the value of information technologies lies in connections, the flow of valuable technological know-how is 'swift' and 'unstoppable'. The Chinese military will benefit from this through absorbing advances generated in other countries.[8]

While some of the arguments about the Internet and characteristics of the RMA in this piece overlap with points made in a 1996 *Foreign Affairs* article by Eliot Cohen,[9] Wang's method of exposition and the conclusions he draws for China are *sui* generis. Without articulating a threat or raising cause for alarm, he has pointed out that the PLA is

[7]Wang Baocun, 'Military Reform in a Transformation Era', FTS19980506000321 Beijing *Jiefangjun Bao* in Chinese, 21 April 1998, 6.
[8]Ibid.
[9]Eliot A. Cohen, 'A Revolution in Warfare', *Foreign Affairs* 75/ 2 (March/April 1996), 37–54.

positioned to appropriate the fruits of research and development in other countries and thereby to 'leap' into a dominant military position.[10] Indeed, the goal of reaping competitive benefits from open trade and technology flows creates an imperative to reassure the United States and other militarily advanced states. Hence the omission of any specific platforms, either American or desired Chinese, in favor of statements like this:

> During the Eighth Five-Year Plan period, China's telephone switching capacity increased by 58.99 million lines, bringing the total interoffice switching capacity to 71 million lines and the total switching capacity of urban and rural telephones to 85.10 million lines. China thus became a country with one of the largest telephone networks in the world.

And this: 'If we take the matter lightly and let the opportunity slip past, we will once again be discarded by history when developed countries have completed their work . . .'. To prevent the abstract language and invocation of China's historical deficits from distracting us from the PLA's practical efforts to leapfrog, it helps to keep in mind what China was pursuing in the way of capabilities at the time. For instance, in the years running up to Wang's publication, the periodical *Naval and Merchant Ships* (*Jianchuan Zhishi*), published by the Chinese Society of Naval Architecture and Engineering (CSNAME), a major Chinese shipbuilding concern, had run a series of articles on technical aspects of naval operations ranging from the uses of infrared sensors on naval attack planes and helicopters and methods for jamming anti-ship missiles to anti-submarine warfare (ASW) acoustics, various types of sonar arrays, and stealth casings for torpedoes to defeat sonar.[11]

Another, complementary piece from a different source – the journal of the Chinese Institute for Contemporary International Relations (CICIR), an arm of the PRC's intelligence/counterintelligence apparatus – is also worth citing at length, as these two articles seem to be representative of the open-source Chinese RMA literature. This excerpt begins with the author's third point, following a discussion of how the increased transparency of political actions has reduced the scope of warfare (point one) and its destructiveness (point two), which may again be taken as a form of reassurance:

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[10]Wang, 'Military Reform'.

[11]Liu Kun, 'China: Torpedo Stealth', FTS19960809000630 Beijing *Jianchuan Zhishi* [Naval and Merchant Ships] in Chinese, 9 Aug. 1996, 27.

> **3. Transformation from nuclear deterrence to information deterrence**
>
> Traditional deterrence theory is mainly nuclear deterrence theory. Nuclear weapons are capable of enormous destruction far exceeding that of conventional weapons. Thus, nuclear weapons can produce a huge social and psychological reaction, and they have a unique deterrent effect. The core of nuclear deterrence theory is to 'use the non-use' of nuclear power as a means to force an enemy to abandon the launching of a nuclear offensive or other warlike action, and thus achieve a nation's political, security, and military objectives. Therefore, some people believe that a 'nuclear weapons umbrella' in a sense serves to protect security in the nuclear age.
>
> The concept of an 'information umbrella' is an extension of the concept of a nuclear weapons umbrella. This concept asserts that in the information age, information superiority has a similar deterrent role.[12]

The article proceeds to state that some scholars see an information umbrella as capable of replacing the nuclear umbrella and as superior to the latter insofar as information superiority, unlike nuclear superiority, may actually be exercised in peacetime. Among the key characteristics of the information umbrella, the author explains, is the fact that it can facilitate observing the enemy while denying the enemy the ability to monitor one's own forces. 'Any form of military attack can under certain circumstances become a form of deterrence,' the article argues, and this includes information warfare. The author singles out the possibility of using information superiority to 'gain the initiative,' an end connected to the ability to 'make a huge strike on the opponent at an extremely small price,'[13] and thus win the war.

The article proceeds to explore how a variety of violent and nonviolent means can be used to exploit vulnerabilities in military computer networks. According to the author, the principal forms of combat operations in future information warfare will be viruses and hackers. Viruses will be used to target command and control systems, radars, and sensors, as well as other computer operated platforms such as the navigation and fire systems on aircraft, ships, tanks, and missiles. The Central Intelligence Agency (CIA) and National Security Agency

[12]Zhou Fangyin, 'The Effect of the Information Revolution on Military Affairs and Security', CPP20010817000186 Beijing *Xiandai Guoji Guanxi* in Chinese, 1 Aug. 2001, 28–32.
[13]Ibid.

(NSA) of the United States are cited as being known to have exhibited interest in the development and use of viruses for such purposes. The US Defense Advanced Research Projects Agency (DARPA) is also singled out for its interest in 'injecting computer viruses from very long ranges into the tactical systems of aircraft, ships, etc., so as to paralyze the computers in various kinds of weapons systems at critical moments . . .'.[14] In sum, the author argues, the dependence of modern militaries on information networks means that information security will be increasingly critical.

Several exotic terms confront American readers of this piece by Zhou, Wang's article, and other work by Chinese strategists – despite the authors' use of the United States as a model or benchmark. Phrases such as 'potential energy' (what China will store up as it develops high-tech capabilities), 'warfare engineering' (the use of simulations and other peacetime activities to determine conflict outcomes), and 'paralysis combat' (the use of threats to or attacks on information infrastructure to paralyze the enemy) cited above, as well as others like 'assassin's mace' (a secret weapon that can enable the inferior to defeat the superior) and 'invisible forces' (communications and other high-tech capabilities that are not as easy to count up as guns and tanks), highlight Chinese attention to matters that have been, at best, at the periphery of American military thinking in an era of nation-building, counter-terror, and counterinsurgency campaigns.[15] Specifically, it seems that the Chinese have conceptualized the RMA as a set of technological advances that create new opportunities to target an enemy's resolve through the threat or infliction of focused, limited, but highly damaging strikes. In a world in which nuclear weapons raise the specter of total destruction and are thus almost unusable, cyber attacks and precision strikes may be employed to generate acute pain or losses.

In this vein it is noteworthy that when Chinese military researchers invited a small group of American analysts to Beijing in March 1998 for one of the first post-Tiananmen US-China defense gatherings, albeit at the sub-official level, it was the RMA that was on the agenda.[16]

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[14]Ibid.

[15]Wang, 'Military Reform'; Zhou, 'The Effect'; 'Watch Closely the Revolution of Military Technology in the New Era', interview with Zhu Guangya, FTS19951023000001 Beijing *Jiefangjun Bao* in Chinese, 23 Oct. 1995, 7; Peng Guangqian and Yao Youzhi (eds.), *The Science of Military Strategy*, English language edition (Beijing: Military Science Publishing House 2005), 431–3.

[16]Robert Butler, Charles Hawkins, and Timothy Thomas, 'West Meets East: Chinese and Western Researchers Exchange Views on the Revolution in Military Affairs', Historical Evaluation and Research Organization (HERO) Library, accessible at <www.herolibrary.org/p117.htm> (accessed June 2009).

During the meeting, the Chinese speakers focused on the impact of the high-tech aspects of the RMA on command and control, specifically asking the Americans about the use of simulations, 'the organization of US divisions and the flexibility of the division commander to locate himself at different command posts, and how easily he could communicate with subordinate units and headquarters staff officers', as well as the US Defense Department's 'use of IT [information technology] to protect its resources and the use of networks to segregate information traffic'.[17] This suggests a clear focus on the ways in which combat simulations are conducted and influence US decision making; the strengths and weaknesses associated with US command and control arrangements in a networked environment; and the protection or vulnerability of data in Pentagon computers. By 2004, according to the Defense White Paper issued by the State Council Information Office that year, the PLA had embraced an official doctrine of an 'RMA with Chinese Characteristics' that was described as having 'informationalization at the core'.[18]

As hinted above, we may be deceived if we rely only on what is written, particularly in English-language publications that the Chinese can expect foreigners to read. Even if the extant Chinese writings are not designed to mislead, one must account for the possibility that not all RMA exponents within the PRC will be equipped to determine or to foresee its evolution in China. Research by Michael Pillsbury, for instance, indicates the existence of an RMA constituency within the PLA advocating certain technologies and directions for force transformation in opposition to advocates of older, more traditional 'People's War' and 'Local War' doctrines, preparing China to absorb and then gradually fight off an invading force or to defeat another power in a limited, local conflict, respectively.[19] Stepping back from what has been written, we can try to gauge the RMA's impact by considering how it corresponds to or interacts with deeper traditions in China's approach to matters of war and peace.

Chinese Strategic Culture

From the close monitoring of foreign perspectives to the emphasis on information warfare, many aspects of the Chinese writings on the *xin junshi geming come* into focus when considered in light of the strategic tradition inherited by the PRC. Further, this tradition illuminates some

[17]Butler, Hawkins, and Thomas, 'West Meets East'.
[18]PRC State Council, *China's National Defense in 2004* (Beijing: State Council Information Office 2004).
[19]Pillsbury, *China Debates*.

observable contemporary Chinese strategic behavior that may be associated with the RMA even though it is not discussed in the writings – including the acquisition and selective revelation of new Chinese capabilities. What is the connection between the current regime in Beijing's approach to the RMA and China's strategic tradition? The answer lies in the endurance of certain fundamental philosophical and political views that are reflected in the tradition and continue to shape the regime's behavior around war and peace. It is no accident that Deng Xiaoping encouraged senior PLA strategists to study the ancient Chinese military classics as he launched them on the course of modernization or that he compared the contemporary security environment to the world of the Warring States period, when the classics were written.[20]

The Warring States period (c. 450–221 BC), from which emerged China's most famous book on strategy, Sun Zi's (Tzu's) *Art of War*, was a founding moment for the Chinese autocratic regime. By the end of the period, the Qin dynasty had finally managed to centralize control over all the lands that then made up the Chinese ecumene, prevailing by outmaneuvering and defeating the six other states with which it had been vying for ascendancy for more than a century. Sun Zi's masterpiece offers stratagems and counsel developed for that struggle.

A key feature of the Warring States context was the performance-based nature of political legitimacy. Rulers were judged on their ability to provide at least a subsistence level of goods and to preside over a stable realm, and verdicts were always rendered retrospectively: a dynast was considered to have lost the right to rule if and when he had failed to survive a challenge.[21] The ruling house of a warring state endured so long as the state's peasants and landowners had confidence in its stewardship, confidence derived from the enjoyment of material comfort rather than any organic allegiance. But in the wake of a natural disaster or when confronted with a dynasty that had succumbed to corruption and was no longer capable of rallying forces to its defense, invaders, rebels, or both were likely to encroach. Underlying the performance-based criteria for legitimacy, the various schools of

[20]Jacqueline A. Newmyer, 'Oil, Arms, and Influence: The Indirect Strategy Behind Chinese Military Modernization', *Orbis* (Spring 2009), 205–19; Pillsbury, *China Debates*.

[21]Note the contrast between this kind of materialist, arbitrary, and contingent political culture on the one hand and the modern Western liberal notion of rule by law, according to the consent of the governed, who are endowed with basic rights, including that of regular political participation on the other.

traditional Chinese philosophy converged in emphasizing the pursuit of harmony with one's environment. Harmony could be achieved through proper social relations and the observance of rites (Confucianism) but also through aligning oneself with nature (Taoism). Both Confucianism and Taoism demand situational awareness, then, as both schools see external signals as the guide for behavior. From this perspective, it is not surprising that signs of tumult in the realm were especially troubling, evidence of political malpractice.

This made for internally preoccupied regimes, with strong Warring States rulers deploying informant networks to report on potentially seditious activities. And it encouraged volatility: After gathering intelligence, in the face of a challenge rulers were known to strike out or crack down dramatically, lest the appearance of weakness generate its own momentum and encourage other threats. It is against this backdrop that we must understand Sun Zi's insistence on the need both for attention to trends and, where necessary, bold action, to ensure success at a moment of maximum danger.

It is also critical to recognize certain structural factors about the Warring States period that were conducive to using peacetime to prepare for war, including the shallowness of alliance relationships and the relative porosity or interpenetration of the various rival states. On the first point, security pacts among regimes with domestic stability concerns proved fragile, as outlying landholders could sometimes be bought off by an invading power, or as a ruling house was convinced that its chances of survival would be enhanced by a change in diplomatic alignment. On the second point, the various warring states existed in close proximity and were mutually intelligible culturally and linguistically. Borders were open, with emissaries often traveling from one capital to another. The states were thus eminently knowable to one another. A ruler who was already dispatching spies within his realm could have confidence in his ability to gather information from his agents abroad. At the same time, he had to worry about foreign spies, double agents, and false defectors in his midst, as Sun Zi exhorts. In a world of fluid allegiances, with enemies plotting both within and outside the realm, rulers could not count on a sharp line separating war from peace but rather had to remain vigilant about potential collaboration between foreign and domestic foes.

The remedy prescribed by Sun Zi and the other Chinese classics is to work to construct a secure environment by eliminating enemies and potential rivals starting in the immediate vicinity and building out from there. All conceivable means are included in the arsenal for accomplishing this – from ruses and sabotage to direct attacks – and the fact that enemy rulers and military leaders could be known

personally opens up possibilities for exploitation of their particular weaknesses, physical or psychological. By offering inducements, using blackmail, and at times applying deadly force, the texts counsel, a network of friendly or dependent powers can be created as hostile coalitions are divided and weakened. The Qin state that eventually prevailed in the Warring States period was originally a peripheral one, benefiting from the infighting that occurred among the central powers as it built up its capabilities. In embarking on its conquest, the Qin employed a mix of behind-the-scenes diplomatic maneuvers, covert actions, and well-timed brutal direct attacks.

In sum, the Chinese strategic tradition may be said to present a dynamic, intelligence-based approach to competitions with other powers. Adversaries can be expected not only to mount open challenges but also to plot and encourage subversive activities in one's homeland, so they must be continuously watched and assessed. Further, because a failed military enterprise would endanger the regime's domestic legitimacy, moments for action must be carefully calculated. Force should be deployed decisively, when the grounds have been prepared so that success is virtually guaranteed.

When Deng uttered ancient aphorisms, it was easy for Westerners to ignore the unfamiliar references, but consideration of the classical Chinese strategic corpus that he embraced raises questions that compel our attention, especially in light of his role as the sponsor of the PLA's transition from a People's War force to a modernized, RMA-savvy military. For instance, how much of the traditional Chinese approach to politics and legitimacy has endured beneath the Marxist trappings of the PRC? To what degree did Deng perceive the waning of the Soviet Union as ushering in an era of flux and jockeying for power that resembled China's classical founding period? Was he taken with a comparison between the interpenetrated warring states and the porosity of modern states in an era of low mobility costs, peace, and high levels of global commerce? How much should we then read into his famous invocation of the classical Chinese line about 'biding time and hiding capabilities' in 1991?[22] A review of Deng's multi-volume *Selected Works* reveals only one other occasion when he spoke similarly, in a report delivered at a meeting of senior cadres of the Taihang sub-bureau of the Communist Party Central Committee in 1943:

> The task of the underground Party organizations in enemy-occupied areas is to gather strength secretly by every means

[22]Sheryl WuDunn, 'China Says Soviets Erred Earlier in Picking Leader', *New York Times*, 8 Sept. 1991, section 1, p.13.

> available and to bide their time. They should try to organize well-selected cadres to work underground as extensively as possible. Party members should try to infiltrate all enemy and puppet organizations, as well as local feudal organizations, to carry out their own activities ...[23]

Putting these references from 1943 and 1991 together, one could form an impression of the classical line as a response to difficult circumstances for the Chinese Communist Party. In shepherding China through the period of the fall of the Soviet Union, Deng's approach, as it had been in the early 1940s when the Party faced Japanese invaders and Kuomintang (Nationalist) rivals, was to advocate the maintenance of a low profile in the face of danger, concomitant with the pursuit of the 'strength' necessary to overcome it.

Analysis of China's Warring States strategic tradition, then, suggests that the PRC's approach to the RMA has been guided by a worldview designed to counter an adversary who poses an external military challenge while also threatening internal stability. Given the advanced capabilities with which this foe is endowed in Chinese writings and military exercises,[24] the adversary in question can only be the United States. According to the tradition, the prescription would be to conceal or create uncertainty about China's posture while gathering intelligence and executing military and diplomatic measures to build up forces – preparing the battlefield. The goal, it follows, would be to acquire the capacity to present the United States with a disposition of forces, or, if necessary, a show of force, so menacing as to virtually guarantee the disappearance of a challenge. With this framework in mind, having surveyed the Chinese writings on the RMA, it makes sense to turn to the record of Chinese activities in the RMA era.

The Early Chinese Response

China's approach to the RMA can be divided into two periods, with a detection and investigation phase (from the late 1980s to the mid- to late-1990s) paving the way for the current implementation phase. Early in the detection phase, consistent with the classic strategic emphasis on intelligence and monitoring trends, the Chinese sought to draw lessons

[23]*Selected Works of Deng Xiaoping*, Vol. 1 (1938–1965), (Beijing: Foreign Languages Press 2006).

[24]Ding Haiming and Sun Zhaoqiu, 'First Appearance of "Informatized Blue Army" in the Training Field', CPP20050711000095 Beijing *Jiefangjun Bao* (Internet Version-WWW) in Chinese, 11 July 2005, 2.

from the end of the Cold War. The conclusion of PLA thinkers like Major General Xu Hezhen was that the USSR owed its defeat to the Strategic Defense Initiative (SDI) and American IW, with the former draining the economy and the latter sapping the Soviet will.[25] Both the cost-imposing SDI and the 'virus' of democracy are linked to the RMA, as the Chinese understand it to comprehend the acquisition of particular high-tech capabilities like missile defense systems and the use of communications infrastructure to spread ideas damaging to an enemy regime. Xu and other senior PLA officers have written of US efforts to use IW against China.[26]

In terms of practical military effects, the Chinese observed the RMA in action in the First Gulf War (1990–91) and then in Kosovo (1999), where the United States accidentally bombed China's Belgrade embassy, and their descriptions of these campaigns as examples of 'non-contact' and 'informationalized war' should give pause to those inclined to interpret such terms as non-kinetic. Consider, for instance, this passage in an article called 'Military Theoretical Innovation Needed for Preparing for Information War, High-Tech War', co-authored by a professor in the campaign department at China's National Defense University:

> If we say war in the industrial age is 'iron and steel' confrontation complete with imposing arrays of troops, then war in the information age will emphasize the asymmetrical contest of information that is silent and invisible. This trend is hastening the birth of a brand-new form of war. One new form of war is non-contact warfare, which had its debut in the Gulf War and distinguished itself in the Kosovo war. Today it continues to make big strides in the direction of precision, invisibility, and knowledge. To deal with 'non-contact' war, the most important thing is to develop innovative military theories, disengage ourselves from

[25]Shen Weiguang, 'Trends in the Development of World Warfare – Reducing Destructive Force', in idem (ed.), *On the Chinese Revolution in Military Affairs* (Beijing: New China Press 2004), 131–46, cited in Timothy L. Thomas, *Decoding the Virtual Dragon: Critical Evolutions In the Science and Philosophy Of China's Information Operations And Military Strategy – The Art of War and IW* (Ft Leavenworth, KS: Foreign Military Studies Office 2007); Xu Hezhen, 'Focus on Psychological War Under the Background of Larger Military Strategy', CPP20001211000122 Beijing *Zhongguo Junshi Kexue* in Chinese, 20 Oct. 2000, 67–76; see also Xu Hezhen, CPP20011121000214 Beijing *Zhongguo Junshi Kexue* in Chinese, 30 Sept. 2001, 94–100.
[26]Ibid.

> the traditional contact war model, and break new ground in joint operations, in integrated air and outer space warfare, and in information network warfare.[27]

The connection between 'non-contact' and joint, integrated military operations emerges clearly.

Other PLA analyses of the Gulf War and Kosovo similarly expose the links between abstract concepts and the concrete military capabilities that their authors believe China should acquire. Note the interpretation of Kosovo as an informatized war, for instance, in this paraphrased passage from Major General Dai Qingmen, head of an unspecified (suspected IW) department in the headquarters of the PLA General Staff:

> In terms of the concept of the success or failure of informatized war, the goal is to control the enemy and preserve oneself. The objective of controlling the enemy and preserving oneself was exemplified during the war in Kosovo. Here, in 1999, the US military conducted large-scale air raids on Yugoslavia and forced them to surrender under duress without penetrating deep into Yugoslav territory. The success or failure of informatized war is not determined by the ratio of casualties on either side or whether one side has captured the other side's territory, but rather in forcing the enemy to submit to one's will.[28]

In addition to this concept of 'controlling' the enemy, Dai demystifies 'information war' and 'assassin's mace' or 'trump card' (*shashoujian*) weapons with reference to US conduct in the First Gulf War and Kosovo in a 2000 article called 'Innovating and Developing Views on Information Operations':

> *Synthesization of arms and equipment for fighting an information war in single-dimensional space is a natural demand of seizing information superiority*. In a future war, a belligerent with

[27]Fan Zhenjiang, Zhao Tianliang and *Jiefangjun Bao* reporter Zhang Guoyu, 'Military Theoretical Innovation Needed for Preparing for Information War, High-Tech War', CPP20030121000089 Beijing *Jiefangjun Bao* (Internet Version-WWW) in Chinese, 21 Jan. 2003, 6.

[28]Dai Qingmen, 'Discourse on Armed Forces Informationization Building and Information Warfare Building', in Shen Weiguang (ed.), *On the Chinese Revolution in Military Affairs* (Beijing: New China Press 2004), 39–47, cited in Thomas, *Decoding the Virtual Dragon*.

> information superiority is bound to give scope to its own superiority and try to gain the initiative in operations by making full use of various information fighting platforms in three-dimensional space, including a ground-based platform, a sea-based platform, an air-based platform, and a space-based platform, and by developing a C4 ISR [Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance] system, which integrates human functions with mechanical functions and covers all-dimensional space so that every single-dimensional space, such as ground, sea, air, space, and electronics, will become a battlefield where information will be fiercely contended for; every information struggle in single-dimensional space will bear on eventual control of information; and contention for information control in every single-dimensional space will affect a war in terms of process and outcome.

The author then states that this creates a requirement to attack an adversary's C4 ISR system with either simultaneous or sequential strikes. The key for inferior powers in conflict with superior forces, the article argues, is to achieve 'local information superiority.' The analysis proceeds to address the need for 'serialization' of trump cards. Serial strikes and redundancy are necessary in case a superior enemy has a network capable of resisting solitary information attacks. 'Only by simultaneously developing and serializing high and new technological arms and equipment for information operations, as well as conventional arms and equipment for information operations, will it be possible to create favorable conditions for gaining more initiative in a war,' the article explains. The implication for the PLA is that resources should be invested not only in the development of trump cards but also in the improvement of existing conventional information warfare tools, with an eye toward employing both in serialized operations.

Finally, not all of the analysis of the United States was so positive. Note the language about an 'inferior belligerent' and 'an army with less advanced arms and equipment' above, and then consider this assessment of the changes in warfare wrought by the RMA, published in the quarterly journal of the PLA Academy of Military Science and the China Military Science Association:

> Since ancient times, there have never been combat operations in which stratagems were not employed. Warfare in different eras has different characteristics, and the role which stratagems have played in wars throughout history has not been the same either. In

> informationized war, the high degree of complexity in the confrontation in information space provides a broader stage on which to employ stratagems. It could be said that in comparison with other combat actions, actions aimed at seizing information supremacy lay more stress on the use of stratagems.[29]

The author goes on to emphasize that the PLA should marshal its strengths in information warfare and 'employ stratagems creatively' to defeat a superior enemy. This will necessarily entail trying to disrupt the enemy's operations in real time, as well as setting the stage in advance in a way that results in the enemy relying on insufficient or misleading intelligence.[30]

The Chinese were thus also tracking signs of US weakness in the 1990s. Embedded in theoretical treatises on the future of warfare under informationalized conditions, PLA officers are arguing that the RMA affords China the chance to 'defeat the powerful enemy', as the article later refers to the United States and the United Kingdom.

Further reading of Chinese reactions to the RMA in practice in the 1990s confirms that these interpretations are representative. Published PLA analysis covering the information-gathering phase highlights how the United States was able to achieve victories through well-timed – that is, surprise – and well-coordinated or 'informatized' strikes. Enemies were not able to strike back at the United States, so the American military mastered 'non-contact' warfare; however, vulnerabilities in the US military and strategic posture were diagnosed. Accordingly, China was said to need to develop both high-tech and conventional capabilities to participate in the RMA. In some of the articles excerpted above, improving the 'quality' – education level and technological sophistication – of PLA personnel as a prerequisite for embracing the RMA is discussed, and the Chinese were eager to learn more about US training practices as soon as the post-Tiananmen restrictions on military contacts were eased. It would be a mistake to conclude from a review of the open-source material that this was all that China extracted from its monitoring of trends in the 1990s, however. Given the acknowledged asymmetry between the US and Chinese militaries in this period and the PLA's desire to use technology transfers to leapfrog, we should not expect to find blueprints for actions to redress the imbalance, at least not labeled as such.

Still, some PLA behavior following from the diagnosis of the situation in the 1990s could not be disguised. 'It wasn't the equal of

[29]Dai Qingmin, 'On Seizing Information Supremacy', CPP20030728000209 Beijing *Zhongguo Junshi Kexue* in Chinese, 20 April 2003, 9–17.
[30]Ibid.

ours, but it was impressive by any standard, and they did it in one year', was the response in 1999 of an American visitor to a Chinese training center modeled on one that PLA visitors to the United States had toured in the late 1990s.[31] Other evidence of direct Chinese responses to the RMA includes steps taken to reduce the size of the force while increasing the degree requirements, especially in certain branches. As a result of these measures, Chinese military writers can now boast that almost 80 per cent of cadres in the Second Artillery have bachelor's degrees or higher, for instance.[32]

What we observe in this initial period, then, is an effort to gather information about the RMA and to prepare to respond. As a primary matter, preparing to respond required changes in PLA recruitment, training, and procurement. The emphasis on 'information', 'non-contact' and various other potentially benign-sounding kinds of warfare does not seem to indicate a bloodless interpretation of the RMA. Rather, PLA strategists believe that the US achieved remarkable kinetic effects at range in the Gulf War and Kosovo through the manipulation of information available to the opposition and the ability to strike military targets from long distances. Finally, the PRC's approach to the *junshi geming* in this period seems to have involved continuing to reassure the United States about China's inferiority while concealing a nascent effort to confront the United States with an unfavorable balance.

Contemporary Chinese Applications

In the current decade, as China has implemented its RMA strategy, we appear to be witnessing a shift from a posture of reassurance toward greater willingness to demonstrate capabilities. During the 1990s, as China gathered data about the RMA and analyzed its effect on the balance of power, the PLA continued to pursue comprehensive modernization – from road-mobile missiles, upgraded nuclear forces, higher quality fighter aircraft and surface ships, and more stealthy submarines to expanded and improved air defenses, mines, torpedoes, and the like – mostly through foreign purchases.[33] At the same time, consistent with Deng's injunction to 'bide time and hide capabilities', and the broader classical Chinese tradition of denying adversaries

[31]Charles F. Hawkins, 'The People's Liberation Army Looks to the Future', *Joint Forces Quarterly*, No. 25 (Summer 2000).
[32]Andrew S. Erickson and David D. Yang, 'On the Verge of a Game-Changer', US *Naval Institute Proceedings* 135/5 (May 2009).
[33]Richard Fisher, *China's Military Modernization: Building for Regional and Global Reach* (Westport, CT: Praeger Security International 2008).

intelligence, these advances were made relatively quietly. China did not demonstrate its new weapons systems through tests aimed at other powers, with the important exception of the 1995–96 Taiwan Straits crisis, and many of the new platforms were installed at remote, interior bases, with limited exercises that would have exposed them to public view.

But in the last few years, beginning arguably with the 2007 anti-satellite test (ASAT), the world has seen more of China's modernized force structure. What is the logic behind the PLA's show of might through the ASAT test, increasingly prominent military activities in cyberspace, and China's rumored new anti-ship ballistic missile (ASBM)? Why are we increasingly reading about PLA exercises conducted in a complex electromagnetic environment?[34]

Again, in keeping with a strategic tradition that emphasizes secrecy, American readers do not have access to documents outlining the rationale for these gambits. But it is clear that from the perspective of the PLA strategists cited above, the capabilities that have been displayed or are rumored to have been acquired have tremendous disruptive potential. They are non-contact in that they would allow the PLA, at least in an initial strike, to inflict damage at range. Together with ground-based laser painting of objects in orbit and other incidents, the direct ascent kinetic-kill vehicle that China successfully shot into an aging weather satellite in January 2007 seems designed to send a message to the United States about the vulnerability of its reconnaissance and positioning assets in space. Cyber intrusions for the sake of espionage, denial of service, or sabotage similarly have the quality of giving China a way to signal the ability to disrupt American civilian and military operations. Similarly, China's recent ASBM test seems to be part of a program to develop a potent first-strike option against American aircraft carrier battle groups. This program also includes land, air, and submarine based cruise missiles, as well as torpedoes carried on attack submarines.

Does this mean that China has given up on 'hiding its capabilities and biding its time', confident that it can broadcast once-secret aspects of its defense posture? Considering the opacity that still surrounds the PRC's military budget, doctrine, and view of the dominant engagement in a potential conflict with the United States, the answer is clearly no. What has changed is that the PLA now uses uncertainty as a substitute for concealment, where hiding capabilities is no longer practical or desirable. Uncertainty reigns, not only about the budget but also about the true extent of China's cyber or network combat potential.

[34]PRC State Council, *China's National Defense in 2006* (Beijing: State Council Information Office 2006); Cao Qisheng and Huang Chao, 'Jinan Theatre Carries Out Special-Topic Study on Frequency Use', *PLA Daily* in English, 12 June 2009.

Further, in the cyber domain, the PLA may be able to benefit from plausible deniability, complicating attribution for attacks. While there would likely be no mystery if a Chinese missile hit a US satellite or aircraft carrier, the absence of any hints from PLA sources about the conditions under which they envision using such weapons is striking. Is the buildup all about Taiwan? If so, then why do the Chinese seem to have blue-water naval ambitions? The posing of such fundamental questions by foreign observers renders the partial revelations undertaken to date consistent with ancient Chinese counsel about maintaining information superiority.

In 2000, then-Senior Colonel (now Major General) Chen Bojiang spoke vaguely to an American interviewer about the connection between Chinese offensive capabilities and expectations for war:

> No enemy would 'let themselves so easily be involved in a protracted war with China', though China might be defeated, because of the excessive cost of campaigning. Moreover, given overall Chinese strategy, 'It is also unallowable to have a protracted war. Under the conditions of new history, the main task of the country is to carry out the economic construction ... military actions must be [quickly accomplished in] scope and time.

From this, Chen derives an emphasis on the offensive, according to Hawkins, who quotes him to the effect that 'attack as the main resort has an extraordinary importance on the high-tech battlefield'.[35]

What can be inferred is that the Chinese RMA vision is to acquire the capacity to inflict significant costs on an adversary, even a conventionally superior one, through a variety of means from targeting space assets and electro-magnetic pulse attacks to strikes on aircraft carriers and even civilian computer networks. Though new clues and hints have emerged, the full range of tools at the PLA's disposal remains enshrouded, encouraging the United States to err on the side of caution. Facing a potentially broad spectrum of Chinese destructive capabilities and lacking an understanding of the PLA's concepts of operation for using these weapons, US decisionmakers might rule out challenging the PRC.

Conclusion: Impact of the Chinese RMA on the Military Balance

Two questions remain to be addressed: Is the account of Chinese strategy advanced here the most convincing interpretation? And, are Chinese military strategists correct in their estimate that the RMA

[35]Hawkins, 'People's Liberation Army'.

alters the balance of power between China and the United States, neutralizing or supplanting US conventional superiority?

The first question raises the issue of alternative hypotheses, including the argument that China is not seeking to challenge the United States or redress the balance but merely to claim its place as a great power. According to this hypothesis, the PLA's modernization is not distinctive but rather consistent with expectations derived from the record of other great powers' conduct. Given the range of Great Power behavior observable in the twentieth century, it is difficult to know whether to be reassured by this line of reasoning. China could have modeled itself on postwar Germany or Japan and avoided the risk of antagonizing the United States. To be sure; that would have lowered the costs for a Taiwanese declaration of independence, but if Taiwan is the reason that the PRC has embarked on a massive buildup, then China's recidivism makes it a certain kind of rising power, and the acquisition of capabilities that indicate ambitions well beyond Taiwan remain to be explained.

A second alternative hypothesis would counter the details about the RMA above with evidence that the PLA is primarily focused on domestic security, with the bulk of forces still assigned to the Army, attending to border control, disaster relief operations, and other conventional or internal missions. To this there is an easy response. One virtue of China's RMA strategy from Beijing's point of view is that it is consistent with a continuing investment in domestic stability forces. Domestic stability remains the Chinese Communist Party leadership's priority, and to date, the PLA has proven capable of serving it even as it has acquired specialized, high-tech capabilities and undergone organizational transformation in areas related to the fielding of these capabilities. For the PLA and its Party leadership, moreover, external and internal threats are linked, as described above, so that the ability to deter the United States may be seen inseparable from the domestic security mission.

Turning to the question of the military balance, the Chinese strategists could err in thinking that the PLA's adoption of the RMA renders China capable of deterring, or if necessary, overcoming a challenge from the United States. Their fallibility may reveal itself in three ways.

First is the possibility that they will misjudge what display of threat or force is sufficient to break American will and find themselves unprepared for resiliency in the face of what had been envisioned as a fait accompli.

Second, to the extent that they have envisioned the application of a 'warfare engineering' or 'serialized' approach, they may fail to foresee the ways that a conflict could escalate – perhaps because the adversary turns out to possess and deploy hitherto unknown capabilities.

Third, in the course of the PLA's selective revelation of new capabilities, the Chinese may find that they incite a response that they had not expected, either from a regional power or from the United States. This would disrupt whatever phased rollout had been planned and might even embroil the PLA in a conflict prematurely, prior to the full acquisition of assets necessary to defeat the enemy's will. One can imagine that there are debates within the PLA leadership ranks over how and when to test, and there is no guarantee that the right conclusions will always be reached.

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