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WAR CONTROL

Chinese Writings on the Control of Escalation in Crisis and Conflict

Burgess Laird

About the Author



BURGESS LAIRD is a Senior International Policy Analyst with the RAND Corp. and an Adjunct Instructor in the graduate program in Global Security Studies at Johns Hopkins University. His areas of expertise include defense strategy and force development, deterrence, and arms control and nonproliferation. Previously, he served in senior defense analytical and management positions with the Institute for Defense Analyses, Hicks & Associates, and Los Alamos National Laboratory. He also served for over six years as a strategy and force development analyst in the Office of the Under Secretary of Defense for Policy. He served as an advisor to the 2009 U.S. Congressional Commission on the Strategic Posture of the United States.

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Whether or not atomic weapons are ever again used in warfare, the very fact of their existence, the possibility that they could be used, will affect the future of wars. In this sense Korea was an atomic war even though no atomic weapons were used. In this sense even the Cold War is an atomic cold war.

—Paul H. Nitze¹

I. Introduction

In a chapter examining China's thinking on escalation, the authors of a comprehensive 2008 RAND study of escalation management in the 21st century came to the stark, and since widely cited, conclusion that Chinese authoritative writings on escalation and escalation management through 2005 appeared "to be undertheorized and still under development."² The authors arrived at their judgment after examining three broad categories of People's Liberation Army (PLA) writings in which they found only limited research devoted to analyzing the general issue of escalation in warfare and even less focused on the more specific issue of the effect of PLA doctrine on the risks of inadvertent or accidental escalation. They did note, however, that interest in these topics "appears to be growing" in the Chinese military and observed that more writings on escalation and escalation control "may appear in the coming years."³ A 2006 analysis of Chinese concepts in escalation management conducted by Lonnie Henley, at the time the defense intelligence officer for East Asia and the Pacific in the Defense Intelligence Agency, arrived at similar conclusions, including the observation that Chinese military writers were still in the early stages of considering how to manage the unwanted escalation of a crisis or conflict and the prediction that further development of such concepts could be expected over the next decade.⁴

The current understanding of Chinese thought on escalation of crises and conflicts among American scholars and practitioners alike has largely been based upon the RAND and Henley studies, together with a 2006 edited volume of American and Chinese case studies on the management of Sino-American crises.⁵ However, two studies authored by U.S. Sinologists that appeared in early 2016 are likely to revise and further refine current understanding. The first, a study on the evolution of Chinese crisis management theory authored by Alastair Iain Johnston of Harvard,⁶ and the second, a study on recent Chinese military writings on escalation control co-authored by Alison Kaufman and David Hartnett of CNA⁷ are based on Chinese writings that have appeared since the middle of the first decade of the 2000s; as such, they constitute important if not overdue appraisals that promise to add to the U.S. appreciation of Chinese views on escalation.

Understanding how Chinese military strategists think about escalation has only taken on added importance, if not urgency, in the eight years that have elapsed since the RAND study. To wit, the possibility of military crises and confrontations with China has increased and continues to do so as Beijing's ambitions, interests, and capabilities grow.⁸ Continued advancements in the capabilities of the PLA conventional and nuclear forces and in the associated doctrine and operating approaches that condition their use in crisis and conflict raise concerns about the possibility of unwanted escalation. PLA developments in capabilities and doctrine for the domains of space and cyberspace raise similarly pronounced and novel concerns as military operations in both of those domains present additional and not fully understood avenues of unwanted escalation. That a Sino-U.S. crisis, let alone conflict, would play out under the nuclear shadow should be lost on no one.

Questions of particular salience to U.S. strategists and decisionmakers include: How do recent Chinese military writings describe escalation and the processes and actions by which it might occur in crisis or in war? What do Chinese strategists say about escalation prevention and control, their importance, and the challenges of implementing them? What do PLA analysts say about crises and conflict between nuclear powers and the necessity of limited means in the pursuit of limited political and military objectives in the latter; in short, what do they say about the concept of limited war? In contrast to the Chinese military texts from the first five to eight years of this century, do the more recent writings reflect a greater understanding – do they even acknowledge – that actions taken to deter an adversary can lead inadvertently to escalation? What do PLA strategists say about thresholds and red lines, and about communications between parties in time of crisis and war? Finally, what do authoritative texts say about escalation risks and challenges associated with the new and rapidly changing operational domains of space and cyberspace? In short, how are Chinese strategists accounting for escalation and limited war in their authoritative writings post-2010? Do their arguments and concepts remain "undertheorized"?

II. Purpose and Methodological Approach

The purpose of this examination is to review authoritative PLA writings on escalation of crises and conflicts that have appeared since approximately 2008 with the objective of highlighting select aspects of Chinese thought that have evolved over that period as well as those that have remained relatively unchanged. In both instances, the aspects selected for discussion are those the author believes hold special salience for U.S. defense strategists, planners, and decisionmakers – those that, in other words, help illuminate how Chinese strategists are thinking about the questions outlined above.

Chinese authoritative literature is generally understood to encompass the writings of PLA strategists and officers, active and retired, published by the Chinese government's highly respected institutions such as the Academy of Military Science (AMS) and the PLA's National Defense University (NDU) or are otherwise found in respected professional military journals such as *China Military Science*. As the 2008 RAND study observed, such writings are generally considered *authoritative* in the sense that many, if not most, are produced as teaching materials for use in educating PLA officers about various aspects of joint operations doctrine. At the same time, such writings cannot necessarily be considered *definitive* for the straightforward reason that while they reflect beliefs, principles, and concepts held by Chinese strategists and officers, other classified PLA contingency plans and war plans not generally available to Western analysts “presumably reveal, in far greater detail, specific PLA operations and, thus, the PLA's relative propensity for escalation.”⁹

This examination is distinct from both the Kaufman and Hartnett study and the Johnston study in three respects. First, unlike both of those studies, this examination is not the product of a Sinologist, but instead that of a U.S. defense strategist and force planner, who does not speak or read Mandarin but who nonetheless spends significant time studying China's military.¹⁰ Second, although this examination, like the Kaufman and Hartnett study, focuses upon Chinese authoritative writings, it is not as comprehensive in its scope as their study, but as discussed above, is instead designed to focus on only select aspects of recent Chinese writings on escalation that the author believes are of special relevance to U.S. defense strategists, planners, and decisionmakers. Finally, this examination's exclusive focus on Chinese thought on escalation as reflected in the authoritative PLA literature distinguishes it from the wide-ranging Johnston study, which encompasses the development of crisis management theory and research in China as well as an analysis of problems characterizing crisis management practice there.

There are, of course, advantages and disadvantages in consulting China's authoritative thought to the exclusion of the writings of its scholarly communities. On the one hand, the author hopes to understand the thinking and views of those who fundamentally shape decisions about strategy and doctrine, operations, and investments instead of focusing on the thinking of Chinese scholars – however serious and thoughtful – whose views typically have little bearing on or connection to Chinese military officials.¹¹ The authoritative literature, after all, contains the considered views of senior Chinese military officers and experts – the PLA's best and brightest. Many of the authoritative writings are the consensus products of committees of authors comprising former and current senior PLA officers. Significantly, as noted above, China's authoritative writings, whether articles or books, are official pedagogical texts deliberately authored to provide carefully considered, doctrinally informed guidance for the PLA's rising midlevel officers; these texts are subsequently used as handbooks by the PLA's senior officers.

On the other hand, it is necessary to concede that accounts that rely exclusively upon authoritative sources for a representative take on Chinese views of escalation may well be asking too much of the official literature in two respects. First, it is entirely plausible that Chinese strategists, like their American counterparts, would be concerned that more complete and detailed discussions could inadvertently reveal actual or perceived vulnerabilities as well as areas of uncertainty and internal



A Chinese officer takes notes at the PLA Academy of Military Science, where many authoritative teaching texts are authored. (Wikimedia Commons)

disagreement that adversaries could exploit.¹² Second, and more significant, the author's examination reveals that authoritative Chinese writings reflect a traditional military logic strikingly similar to that which American political leaders, defense officials, and international relations scholars came to understand during the Cold War as being at fundamental tension with the requirements of crisis management.

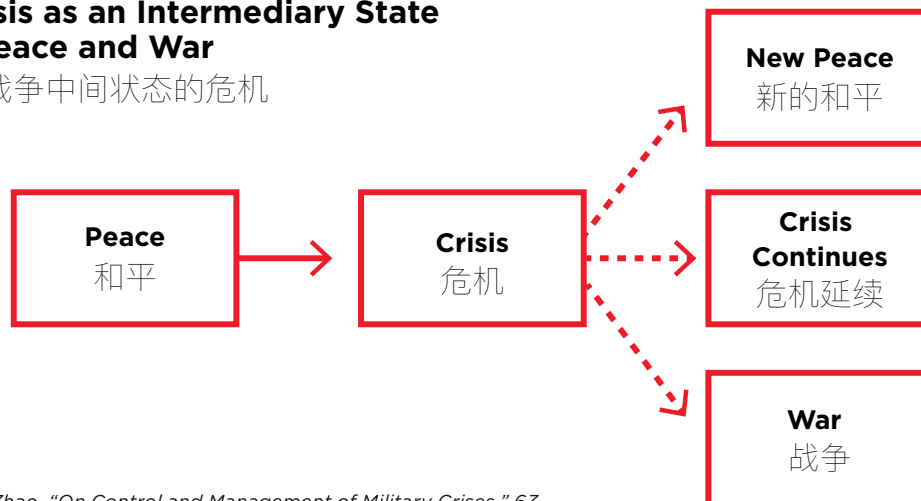
This is a military logic that, as the international relations scholar Alexander George explained over four decades ago, stresses the overriding importance of operational efficiency and tasks aimed at reducing the vulnerability of forces, increasing the readiness of forces, and seizing the initiative.¹³ It is, moreover, a logic that stands in sharp contrast to the logic that characterizes what George described as “political-military strategy” – strategy that, above all else, preferences the avoidance of actions that could cause an unwanted escalation of a crisis even as it seeks to secure a state's political and military objectives. Among the measures that political-military strategy emphasizes to manage crisis situations are those that are deliberately designed to slow down the tempo and momentum of military movements in an effort to create pauses adequate in duration for diplomatic exchanges, the assessment of the situation, and response to proposals.

Thus, in limiting the examination of Chinese thought on escalation to views expressed in authoritative PLA writings, the author acknowledges that the examination ignores possibly contrary perspectives of scholars and thinkers writing outside authoritative channels, and it confines itself to a body of writings that reflect a distinctly military logic in which escalation concerns take a back seat to traditional military operational concerns.

Finally, before proceeding to the examination itself, two other matters regarding the PLA authoritative writings on escalation need to be highlighted. First, Chinese strategists seldom actually write about the concept of escalation or associated concepts such as escalation control and escalation management themselves. This is a long-standing characteristic of Chinese authoritative writings that has not appreciably evolved over time. Instead, their strategists write about escalation in terms of the Chinese concepts of the containment and control of military crisis, the “containment of war,” and finally “war control,” a broad concept that encompasses control of armed conflict in all its phases.¹⁴ The strategists also address the matter of escalation in their writings about deterrence, the main objectives of which include deterring major military crises, effectively containing war, deterring the eruption of wars, curbing warfare escalation, and avoiding or reducing warfare damage.¹⁵ Second, because Chinese writing on escalation so often takes the form of a discussion of the containment and control of military crisis, it is noteworthy in itself as well as important for establishing definitional clarity of this examination to point out that Chinese strategists define military crisis in much the same way as do most Western analysts. Thus the authors of one broadly representative text define military crisis as “a unique and confrontational situation between countries” that constitutes a dangerous transitional state between peace and war. Drawing from a number of authoritative Chinese sources and PLA strategists as well as American scholars, the authors report that a crisis is marked by three major attributes: the existence of threat to a core interest of a relevant party, a sense of urgency, and a serious danger that the situation may lead to armed conflict.¹⁶

Figure: Crisis as an Intermediary State between Peace and War

作为和平与战争中间状态的危机



Source: Zhao and Zhao, “On Control and Management of Military Crises,” 63.

III. Overview of Findings

From this examination, four central findings about current Chinese thinking on escalation emerge:

First, escalation of crises and conflicts (“war control”) emerges as a subject of major importance in recent authoritative writings of Chinese strategists. The emphasis given to the subject is especially pronounced in comparison with the authoritative writings of the 2000–2005 period, when there were few treatments of the subject.

Second, Chinese strategists believe that crises and wars need to be controlled not out of a concern that they could escalate to major war potentially involving nuclear weapons use and catastrophic destruction, but primarily out of a concern that an uncontrolled local war could derail China’s economy and in the process foster widespread domestic discontent and instability that would threaten the legitimacy of the Chinese Communist Party (CCP).

Third, in contrast to Western strategists dating back to at least Carl von Clausewitz, Chinese strategists believe both that war can be controlled if only the correct processes and scientific principles are followed and that advancements in intelligence, surveillance, and reconnaissance (ISR) capabilities as well as command and control capabilities and precision weapons have further strengthened the ability to control war.

Finally, despite the increased attention and centrality given to the subject by Chinese strategists, the substantive aspects of the treatment of escalation have changed very little over the years. In fact, what is most noteworthy from the author’s examination of recent Chinese writings on escalation is not the increased attention given to the subject but the fact that the authoritative writings continue to be characterized by the same or similar omissions and silences that led the authors of the 2008 RAND study to conclude that Chinese writings on escalation were “undertheorized and still under development.” Specifically, the examination reveals five lacunas in recent Chinese writings about escalation that are similar to those that characterized the writings in the 2000–2005 period.

1. PLA writings continue to offer no discussion of the different mechanisms by which crises and conflicts might escalate or any acknowledgement that crises and conflicts can escalate not only deliberately, but also inadvertently and accidentally.
2. Chinese strategists continue to remain silent regarding the potential escalation risks that accompany Chinese military principles, doctrines, and concepts otherwise seen as critical to crisis and war control, including the PLA’s emphasis on the principle of seizing the initiative, its belief that crises should be seen and exploited as windows of opportunity, and the conviction that in crises involving territorial and sovereignty issues, Chinese leaders would be justified in refusing to initiate communications.
3. PLA writings continue to eschew any discussion of the possibility that in a crisis or conflict, an adversary might see Chinese actions themselves as having crossed key thresholds or red lines. Chinese strategists argue, for example, that offensive cyberspace and counterspace operations are not only advisable early in a conflict with a major adversary, but that such operations can be undertaken at a comparatively low risk of escalation.
4. Chinese writings on nuclear deterrence remain closed to the possibility that the deterrent signaling actions called for by the Chinese concept of “inexorable momentum” could motivate an adversary response precisely the opposite of the objective of the concept.
5. Chinese strategists are silent regarding the escalation risks associated with China’s potential adoption of a launch-on-warning (LOW) policy for its nuclear missile forces.

The omissions and silences of authoritative Chinese thought on escalation are both curious and potentially worrisome – curious because PLA strategists are nothing if not attentive to Western critiques of their doctrinal writings, and potentially worrisome because the apparent dismissal of those critiques

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suggests the existence of a major disconnect between Chinese and American views and approaches to risks that accompany crises and confrontations involving nuclear-armed adversaries.

The remaining sections of this examination are organized as follows. The first subject examined is the Chinese concept of limited war, including its origin and the ultimately pragmatic reasons the PLA is given the mission of ensuring that the scale, scope, means, and objectives of wars are to be carefully limited. The paper then turns to an examination of the Chinese concepts of the containment and control of crises, and discusses how the PLA sees the control of both crises and wars as imperative lest they escalate to a point that threatens to derail China's national economic development. Next, the paper considers the Chinese concept of war control, highlighting three principles related to that concept that,

PLA writings eschew any discussion of the possibility that in a crisis or conflict, an adversary might see Chinese actions themselves as having crossed key thresholds or red lines.

instead of preventing crises and conflicts from escalating uncontrollably, could well provoke precisely the opposite outcome. The examination then turns to a look at what Chinese strategists are saying about the relatively new and dynamic domains of military cyberspace and space operations. The paper next examines nuclear deterrence, emphasizing the Chinese concept of inexorable momentum and Beijing's potential adoption of a nuclear force policy of "launch on warning" as issues that raise pronounced escalation risk concerns. The examination concludes with a summary of the study's main findings and a brief discussion of implications for U.S. policy.

IV. Limited War

We begin by examining Chinese views on limited war, a concept widely recognized by Western strategists as the imperative bounding condition of conflict in an age in which all wars between major powers invariably take place under the nuclear shadow and each of which, for a variety of reasons and actions not always fully understood and still less under our control, could escalate into total wars with catastrophic and existential consequences for entire nation-states. Chinese strategists trace the origin of the concept and reality of limited war in the modern era to the advent of nuclear weapons and the ensuing Cold War. In doing so they suggest that local wars and limited wars are virtually synonymous. In an early section of the most recent version of *The Science of Military Strategy*, the only section in the text that addresses limited war itself, the authors write:

Nuclear weapons' ultimate destructive effect placed human society's war goal and war means in extremely great contradiction. And the limitlessness of the destructive might of the weapons, in turn, demanded an explicit restriction on the political goal of war, so as to avoid the limitlessness of the war's political goal to bring the disasters of a nuclear great war. After a nuclear balance of terror was achieved through a nuclear arms race, the U.S. and the Soviet Union were forced to face [the fact that] a nuclear great war yields no winner and would cause the harsh reality of "nuclear winter," so they had to make a new strategic choice to actively control the strategic impulse of using nuclear weapons and to rely on fighting limited wars or local wars against the backdrop of nuclear deterrence to achieve a limited war political goal.¹⁷

According to *The Science of Military Strategy*, in local war under future "informationized"¹⁸ conditions, strict control of the goals and means of war is necessary to ensure that the wars that do occur do not threaten national survival, do not cause fundamental harm to the national economic entities, and do not threaten the realization of the strategic objectives of national development. From this, the authors argue that the "goals of local war are specifically expressed as limited political goals, limited military goals, and limited economic goals" and commanders are therefore urged to

... not overdo the degree of force in war, and not take as primary threatening of the adversary's

survival and comprehensive stripping away of the adversary's military capability, but rather take forcing the adversary to come to terms as primary; see that the size of the operational scope is moderate, and not try to cover the entire space of the enemy and friendly sides' homelands, but rather limit the scope to within a certain area (zone); ensure that the strike objectives are distinguished by relative importance ... but not focusing on civilian targets ...¹⁹

Two characteristics are notable about these passages on the origins and imperatives of the modern notion of limited war. The first is that Chinese analysts do in fact trace the origins of the idea of limited war as well as the imperatives of limiting the political, military, and economic goals of such war to the immense destructive power of nuclear weapons. Western students of limited war theory in the post-World War II era would find little substantive discrepancy between the selected passages from *The Science of Military Strategy* and the ideas and imperatives advanced by leading Western analysts and scholars of the subject.²⁰

The second and more striking point to be made about these passages is that they constitute the *only* discussions in the entirety of *The Science of Military Strategy* that logically and explicitly associate the imperative of limited war goals to the specter of nuclear warfare and thus to the *issue of national survival itself*, an issue that is by definition existential in its scope. Throughout the remainder of *The Science of Military Strategy* as throughout all the authoritative Chinese writings examined for this report, there is only one reference to limited war²¹ and no acknowledgement of how limited or local wars could escalate to nuclear conflict, let alone a reference to the imperative of limiting wars and crises as matters of national survival.²² Instead, the argument – encountered repeatedly – is that local wars and crises alike should be controlled lest they derail the *nation's development goals in the period of strategic opportunity*.

The injunction that the PLA should not take actions that would jeopardize the “nation's development goals in the period of strategic opportunity” is one that strongly resonates with Chinese strategists, as it purposefully recalls the second of the four “new historic missions” that Hu Jintao, then general secretary of the Chinese Communist Party and president of the People's Republic of China (PRC), presented to the PLA in December 2004. The second historic mission calls upon the PLA to “provide a powerful security guarantee for safeguarding the important Strategic Opportunity Period of national

development,” and in doing so it tasks the military with preventing domestic or international disruptions to China's pursuit of further economic development in particular “during the first two decades of the 21st century,” a timespan that Hu's predecessor, Jiang Zemin, designated as China's “Strategic Opportunity Period.”²³ Importantly, for Jiang and Hu, the period is one of “strategic opportunity” for China because it is one in which the international situation is expected to continue to be peaceful, the likelihood of great power conflict low, the world moving toward multipolarization and globalization, and China's economy growing and thus benefiting China's populace.²⁴ According to this view, major war involving the use of nuclear weapons, i.e., total war, is no longer likely given international conditions, and therefore attention and planning should prioritize preparation for deterring and conducting local war under informationized conditions.

Chinese strategists tend to view the disappearance of large-scale total war almost as if it were a historically determined inevitability. As Liu Shenyang writes: “Large scale war and weapons of mass destruction are gradually exiting the stage of history because massive destruction is incompatible with modern civilization.”²⁵ Thus the repeated imperative to ensure that crises and wars not threaten the nation's development goals during the period of strategic opportunity also constitutes an acceptance of the assumption that the period is one of relative international peace and in which the possibility of great power conflict is low. And it is upon this assumption, it must be emphasized, that Chinese strategists have erected much of their understanding of the imperatives of crisis and war control.

The Chinese preoccupation with preventing the harm that uncontrolled crises and conflicts could cause to development goals is fundamentally pragmatic, if not well-grounded,²⁶ and stands in stark contrast to the ultimate Western motivation for managing crises involving nuclear powers: the concern that such crises or conflicts might escalate – inadvertently, accidentally, or (less likely) deliberately – to a point at which they pose a threat to the nation's very existence.²⁷

But there is an even more fundamental factor still that helps explain why Chinese strategists place such emphasis on preventing crises and war from escalating to the point that they derail economic development goals. It is the straightforward recognition on the part of China's leaders, from Deng Xiaoping to Xi Jinping, that the CCP's legitimacy and authority are inextricably tied to its ability to deliver high economic growth year in and year out. Deng was the first to recognize that as goes China's

economy, so goes the people's continued willingness to put up with a party whose avowed Marxist ideology no longer enjoys any support among the great majority of the Chinese people.

In brief, Chinese leaders harbor a deep concern – well-grounded in China's long history – that a major contraction in the economy would spur widespread domestic instability and discontent that could threaten the legitimacy if not the ruling position of the CCP itself. Seen through a Western lens it may appear only self-evident that the PLA, the army of the CCP, should seek to control crises and wars so that they do not derail China's economic growth. But in the end, the PLA must control crises and wars so that they do not trigger economic disruption that might place the ruling CCP in jeopardy.

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This underlying political motivation for controlling crises and wars would seem to hold important implications for U.S. strategy and planning. In particular, it suggests that operational concepts such as “offshore control,” which emphasizes the benefits of threatening China's energy and commercial lifelines through the Strait of Malacca,²⁸ should receive fresh consideration not as alternatives to but rather as complementary concepts to more direct operational approaches such as AirSea Battle.²⁹

V. Containment and Control of Crises

Chinese writers recognize containment and control of crises as critical aspects of military strategy that function to prevent small crises from escalating into larger ones and large ones from escalating into wars.³⁰ Crisis is described as being a “dangerous condition for possibly igniting wars” that exists “between peace and war.”³¹ PLA analysts see the likelihood of crises as increasing and warn that they must be controlled lest they jeopardize the “nation's development in the period of strategic opportunity.” Observing that “The frequency of the eruption of wars has shown a downward trend but the frequency of the eruption of crises has shown an upward trend,” the authors of the latest edition of *The Science of Military Strategy* reason that “it is both a period of strategic opportunity and a period of strategic risk” in which China “will unavoidably face various categories of complex and changing crisis events.” They go on to warn that if the crises are not appropriately handled, they could “create serious interruptions and damage to the nation's development and the security grand situation, and even influence the nation's rise and the course of history.”³²

Chinese authoritative writings, in other words, acknowledge that absent control, lesser crises can escalate into more consequential and expansive crises. They thus insist that great effort will be necessary to prevent economic and social crises from escalating into political crises, international crises from evolving into domestic crises, and non-military crises from transforming into military crises.³³ China's 2015 defense white paper similarly states that the PLA will “work to effectively control major crises, properly handle possible chain reactions, and firmly safeguard the country's territorial sovereignty and security.”³⁴ Importantly, however, even while acknowledging that crises can and do escalate in a chain-reaction like manner, Chinese strategists do not identify, let alone discuss or provide examples of, the kinds of activities that PLA commanders should avoid lest they trigger the unwanted escalation of crises. In short, recent Chinese authoritative writings on crisis escalation are just as silent on the matter of distinguishing between deliberate and inadvertent mechanisms of escalation as the Chinese authoritative writings that appeared in the 2000–2006 period.³⁵

PLA strategists advance a concept of “quasi-war” to refer to major crises in which militaries confront one another undertaking shows of force and other operations that in U.S. joint doctrine would be categorized as military flexible deterrent options (FDOs).³⁶

Such quasi-wars may even involve “combat activities of some intensity” but cannot yet be considered outright war. As Chinese writers explain, in “quasi-wars” the military has two goals: to prevent the crisis from escalating into war, by creating “the conditions for a political solution,” and to simultaneously prepare the battlefield should war erupt.³⁷ As LTG Wang Xixin, deputy commander of the Shenyang Military Region, argues in the journal *China Military Science*:

Conflict control during crisis times ... is aimed at avoiding wars. ... Once a crisis occurs, the first thing is to respond quickly to show the principle stance [of avoiding wars] and strive for strategic initiative, expanding diplomatic efforts, public opinion and propaganda in order to convey specific and clear information and advice to the other side, and to increase mutual understanding and enhance trust. At the same time, [commanders must] actively carry out internal preparations for addressing a contingency, including adjusting military deployments and military deterrence, and completing dual preparations for negotiating a resolution and for dealing with a random contingency.³⁸

In advancing this argument, Chinese PLA writings on military crises neglect to account for the substantial challenges inherent in meeting the dual objectives of preventing a crisis from escalating into war while simultaneously preparing the battlefield should war erupt; how these objectives might be in fundamental tension with each other; and thus the possibility that activities to prepare the battlefield for war could, in fact, not deter the adversary from escalating but instead cause the adversary to respond in an escalatory manner. Notably, this omission characterized the earlier writings of Chinese strategists from the 2000–2006 period.

The Importance of Effective Communications in Crises, But Not All Crises

Authoritative writings indicate a strong belief among senior PLA strategists that establishing and maintaining effective communications in crisis situations is critical to preventing crises from escalating out of control. Two strategists at China’s National Defense University, for instance, write that when a crisis erupts, Chinese officials “must act swiftly” to strengthen communication with the other party in order to seek a resolution. Communication through “multiple channels at multiple levels,” including both official and private channels, must be maintained to accurately deliver information in a timely manner and to avoid misreading and misjudgment by each party.³⁹

But Chinese strategists make it clear that effective communication is not to be confused with complete transparency of intent; instead, they insist upon the importance of maintaining some ambiguity in communications with the other party during a crisis. Zhao Ziyu and Zhao Jingfang argue that the art of communication in crisis situations is “to delicately conceal the relation between our intent and the information we try to communicate.” To maintain effective communication, they write, “information must be kept transparent to some extent. However, we should not reveal everything just for the sake of avoiding misreading.”⁴⁰

That Chinese writings would advance a concept that emphasizes both the imperative of maintaining effective communications with the other party in a crisis situation and the importance of seeing that Chinese communications are characterized by a certain degree of ambiguity may be at odds with textbook views of crisis communications. However, they should not come as a shock to Western analysts who recognize that crisis communications involve the complex challenge of striking a balance between displaying a willingness and flexibility to negotiate with the other party and displaying a resolution and willingness to escalate the situation should fundamental principles and interests not be respected. Though it does risk the other party’s misreading the communication, careful use of ambiguity in communications is a means of striking that delicate balance.

If Chinese thought about communications in crisis situations concluded with the counsel that such communications “should not reveal everything just for the sake of avoiding misreading,” then this particular author would not find their writings on this subject to be distressing. But it does not end there. In a recent study, Iain Johnston observes that Chinese leaders may not believe that establishing early communications with the adversary is imperative in every crisis situation.⁴¹ Johnston provides two examples of situations in which China might be reluctant to initiate high-level communications with an adversary. First, he believes that Chinese leaders might resist doing so in a situation in which an adversary has been the first to use military force over a territory controlled by China. In such a situation, China may well refuse – justifiably from its perspective – to initiate discussions with an adversary on the grounds that it is the adversary who “has moved the issue from the realm of crisis management to that of escalation dominance.” The logic seems to be that when its territory is attacked, China’s first and only real obligation is to respond with military force; the burden of initiating crisis communication falls entirely on the attacking party – the adversary. A second situation in which Chinese leaders appear



A Chinese warplane intercepts a U.S. Navy patrol plane flying a routine mission in international airspace over the South China Sea in May 2016. Such dangerous encounters are becoming much more frequent in the region, where China has increasingly asserted claims of sovereignty. The potential for miscalculation or accidents that could escalate into a military crisis is large and increasing. (U.S. Navy)

to think it justifiable to decline to initiate high-level communications would be one in which an adversary has intervened in a territorial dispute despite not being an actual claimant. As Johnston notes, in this type of situation, Beijing's refusal to communicate with the adversary would serve to "underscore the illegitimacy of their involvement."⁴²

Of course, the reluctance of Chinese leaders to establish high-level communications with the other party in increasingly tense situations is more than simply an implication inferred from Chinese writings. More unsettling, Beijing has a growing track record of spurning crisis communications. During the Clinton administration, a direct hotline linking the presidents of the two countries was established, but the Chinese refused to use it after the April 1, 2001, collision of a U.S. Navy EP-3 with a PLA navy (PLAN) fighter near Hainan Island.⁴³ Similarly, in response to U.S. arms sales to Taiwan, China has twice temporarily closed off its end of a military hotline that was established in April 2008 between China's minister of defense and the U.S. secretary of defense.⁴⁴

Western officials and strategists are thus fully justified in viewing such practices and their doctrinal grounding in authoritative writings with deep concern. After all, the problem is not solely that Chinese leaders are expressing reticence about reaching out and communicating with an adversary in the early stages of brewing crises, which is to say in the very time period when communication is most necessary and perhaps can make the greatest difference. Even more portentous is that they may yet prove

unwilling to communicate during crises in some of the most volatile corners of the region – Taiwan and disputed areas in the South China Sea and East China Sea – the very places where one might expect crisis to erupt and escalate quickly. If Timothy Heath, a noted expert on the PLA, is correct, then perhaps Chinese leaders have come to share such concerns. Heath argues that China's signing of a September 2015 agreement with the United States to establish rules for the use of a military hotline and to conclude confidence-building measures governing maritime and air-to-air military encounters was motivated by Beijing's "underlying anxiety about the potential for militarized crises."⁴⁵ For this analyst, the combination of recent authoritative Chinese writings as well as Beijing's refusal to use the hotlines already in place suggests that China's actual intention to make use of hotlines and other crisis communications measures in future times of growing tension and crisis remains for now a worrisomely open question.

Crises as 'Windows of Opportunity'

Like the Chinese authoritative literature published in the 2000–2006 period,⁴⁶ recent Chinese writings continue to reflect an adherence to the belief that it is important to recognize crises not only as situations in which risks accumulate, but also as "windows of opportunity" in which "contradictions and issues" might be resolved. On this basis, the 2013 *Science of Military Strategy* urges commanders to leverage crises to turn the situation to China's advantage, exhorting them to "strive to change bad events into good events; to utilize crisis

event conditions to grasp the opportunities to implement ... strategic measures that are difficult to decide to push ahead during peacetime; and to enable the entire situation to develop and transform towards a direction favorable to us.”⁴⁷ Other recent authoritative writings echo this view. For instance, writing in China’s prestigious military journal, *China Military Science*, NDU analysts Zhao and Zhao argue: “Military crisis control and management is based on protecting the fundamental interest of a nation. Its objective is to strive to ensure initiative in crisis management ... in addition, effort will be made to turn ... crisis into an opportunity to further expand national interests.”⁴⁸

The problem with such counsel is that the quest to gain advantage from a crisis while simultaneously seeking resolution to it raises escalatory risks similar to those raised by the attempt to realize the dual objectives of working to prevent a crisis even while preparing for battle in case those efforts fail. In addition, as Kaufman and Hartnett note, the position that sees crises as windows of opportunity raises the logical possibility that leaders could intentionally provoke a crisis in a quest to realize a strategic objective under the belief that the crisis could be managed and resolved satisfactorily and the strategic objective gained.⁴⁹

VI. War Control

Writing in 2014 in *China Military Science*, Wang Xixin, PLA lieutenant general and deputy commander of the Shenyang Military Region, described the concept of “war control” as

actions taken under the framework of national political objectives, a variety of mandatory and non-mandatory means dominated by the military are chosen flexibly and applied ... to effectively curb the war, control the war situation, eliminate war chaos and safeguard national interests and world peace. More simply, it is to firmly grasp warfare and dynamically manage warfare. Its substantive connotation is using the minimum cost to safeguard national interests. ... The scope of controlled warfare covers pre-war crisis control, operational control during the war and stability control after the war.⁵⁰

Early in *The Science of Military Strategy*, the authors advance an overarching argument summarizing the principal reasons why local war must be controlled – reasons that they develop further in the text:

The restrictiveness of political goals in local wars, the great precision of informationized means of operations, and the highly consumptive nature and tremendous destructiveness of contemporary warfare have determined that military confrontational actions and especially acts of war are restrictive in nature and must be controlled.⁵¹

Chinese writings emphasize that the control of war comes down to the issue of limiting the political, economic, and military goals of war as well as its scope, scale, tempo, and means, all while striving to obtain a favorable outcome at the smallest possible cost.⁵² Notably, the authors of the most recent edition of *The Science of Military Strategy* warn against a “blind expansion” of political goals when military operations are succeeding, and “inappropriate recklessness” when “it is no longer possible to achieve the fixed military goals.”

Much about the Chinese conception of the reasons for controlling war is compatible with Western views. Such compatibility is evident in the PLA’s insistence that military goals must be limited because political goals are themselves limited, and as Chinese strategists remind, echoing the otherwise Western Clausewitzian view, military goals serve political goals. Thus, Chinese military commanders are urged to differentiate between political goals and military goals and, recognizing that

the latter serve the former, “appropriately adjust the military goals when necessary.”⁵³ This compatibility extends even to those aspects of Chinese thinking on war control that raise escalation concerns. Two prominent aspects of Chinese thinking about controlling war itself raise potential escalatory concerns that merit the attention of Western strategists and decisionmakers. These are the operational principle of seizing the initiative and the belief that war can be controlled as if it were a machine awaiting only the calibration of a skilled engineer bearing the latest in high-technology tools. It is and should be an ongoing source of concern for U.S. strategists that, as discussed below, Chinese strategists are hardly unique in either their emphasis on seizing the initiative or in their view that war is an undertaking subject to the full control of well-prepared and well-equipped military leaders. Indeed, U.S. military doctrine and thinking at times reflect very similar views.

Seizing the Initiative

A recurring theme in Chinese authoritative writings on war control – prominent in the more recent writings and the writings of the 2000-2008 period alike – is the importance of seizing the initiative early in a conflict and maintaining the initiative throughout the course of a conflict.⁵⁴ A 2010 article co-authored by three PLA officers and appearing in the journal *China Military Science* is representative of the Chinese writings covered in the course of this examination. In advancing guidelines for controlling war situations in informationized war, the authors emphasize the imperative of establishing favorable conditions in the opening of war by seizing the initiative, with special attention paid to doing so in the realm of information dominance. They write, “Initiative on the battlefield is the lifeline of a military; without battlefield initiative, the control over war situations will be conducted under extremely difficult conditions, and victory ... will have no reliable guarantee.”⁵⁵

They also emphasize that the PLA must be ready to attack actively and dominate the enemy by seizing the earliest moment of opportunity, arguing that

The art of controlling war situations should pay due attention to the use of offensive operations in the initial stage of operations ... making the seizure of early moments of opportunities to dominate the enemy the focus of establishing favorable conditions in war opening.

The authors of *The Science of Military Strategy* state the imperative more boldly:

Once the preparations are full and there is earnest assurance, we should concentrate the crack troops and ferociously attack, to open up the situation within a relatively short period of time, to strive to catch the enemy unexpectedly and attack him when he is not prepared, to seize and control the battlefield initiative, paralyze and destroy the enemy’s operational system and shock the enemy’s will for war.⁵⁶

At times Chinese strategists describe seizing the initiative in terms that border on encompassing pre-emptive action. For example, PLA Colonel Zhang Yu, PLA Lieutenant Colonel Liu Sihai, and PLA Major Xia Chengxiao write

Generally speaking, in the initial stage of future wars, there are two kinds of opportunities in which our military may seize the early moments to dominate the enemy by executing offensive operations. The first is, in the process of enemy assembling forces and deploying for attacks, take advantage of the favorable opportunity of the enemy’s incomplete development of combat capabilities to conduct necessary advanced attacks to disrupt the enemy’s strategic deployment. The other is, when signs of enemy invasion are clear, we may timely organize our regular armed forces to boldly conduct cross-border combat operations, directing the fighting to the enemy side and inflicting heavy strikes on the enemy. What must be pointed out is that, in the initial stage of future wars, our military’s seizure of early moments of opportunities to dominate the enemy by conducting offensive operations cannot be separated from the basic requirements of active defense ...⁵⁷

Western strategists will be familiar with much of what is found in the Chinese writings on seizing the initiative for the straightforward reason that U.S. military doctrine and thinking reflect very similar views. To wit, U.S. joint military doctrine emphasizes the importance of seizing the initiative both across the range of military operations and at the operational and tactical as well as at the strategic levels of warfare.⁵⁸ In fact, joint doctrine for

operational planning recognizes six phases of warfare for which plans must be prepared; as is well known in the U.S. defense community, “Seize [the] Initiative” constitutes Phase II of the construct. Similarly, Americans who watched much of the First Gulf War and at least the initial phase of the invasion of Iraq in 2003 play out on their televisions have a sense of what is connoted in the term “shock and awe” even if they are not as familiar with the more formal concept of “Rapid Decisive Operations,” which came into prominence in the first part of the last decade before the grinding realities of the wars in Iraq and Afghanistan started to whittle away at some of the more unvarnished claims advanced in its name. In one respect, such points of similarity between Chinese and Western thinking are not surprising. After all, from Sun Tzu in China to Clausewitz from the Western canon, seizing the initiative has long been recognized as an essential principle of war. The problem, however, is that the speed and intensity of combat operations – and indeed the preparations that precede the operations themselves undertaken to seize the initiative – work at cross purposes with the expressed Chinese and Western objectives of limiting the scope, scale, and intensity of major war between belligerents.

Ironically, for the better part of the Cold War and well before Chinese strategists were writing about war control, Western scholars and decisionmakers had come to recognize that the military logic of seizing the initiative, among other military concepts, threatened to undercut the objectives of crisis management and magnify the chances of escalation. Indeed, rather than urging rapid and dominant action to achieve an early seizure of the initiative, in the decade after the Cuban missile crisis American and Soviet strategists and decisionmakers alike came to see⁵⁹ that deliberately slowing the tempo and momentum of military movements and creating pauses so the sides could negotiate were among the essential operational requirements or principles for managing crises.⁶⁰ Since the end of the Cold War, however, neither Chinese nor Western strategists have been particularly seized with acknowledging the fundamental tension between the military logic of seizing the initiative and the requirements of crisis management.⁶¹ Context helps explain this lacuna.

Far from managing the escalation of a crisis, military concepts and capabilities designed to seize the initiative could result in the very opposite.

With the exception of the 1999 Kargil War between Pakistan and India, there have been no wars involving nuclear belligerents and none in which the conventional capabilities of the belligerents have been even roughly symmetrical in either quality or quantity. But when and if the parties to a crisis, let alone a conflict, are both major powers in possession of advanced conventional weapons capabilities and substantial nuclear weapons arsenals, then the tension must be squarely addressed since efforts by either party to seize the initiative could well ignite rapid unwanted escalation. During a crisis, the preparatory efforts that would be necessary to seize the initiative could well provoke the initiation of conflict itself by signaling imminent aggression by one or both parties.⁶² In brief, in crisis and conflict alike, the speed and lethality enabled by the advanced technologies of modern war, the very technologies that are touted as enabling the control of war, could cause one or both actors to act precipitously, if not pre-emptively, in an effort to use their weapons before they lose them. Far from managing the escalation of a crisis, military concepts and capabilities designed to seize the initiative could result in the very opposite.

War Control as an Engineering Problem

In their writings about war control, Chinese strategists emphasize that from the initiation of war through its termination, effective war control and the victory that it will bring is largely a function of “meticulous planning based on scientific methods and full preparations,” preparations that they stress are often more important than exploiting tactical and operational combat opportunities themselves.⁶³

Of note is how insistent Chinese strategists are in arguing that war control is a concept not only based on scientific methods, but one that can be operationalized with the precision and control of a finely engineered machine. Perhaps this perspective arises from the origins of the concept of war control, or at least from the origins of the concept as Chinese strategists understand it. As Lieutenant General Liu Shenyang explains:

The concept of war control originates from control theory. It seeks precise control and focuses on quality and efficiency. Let us use the concept of war control as a guide to raise our efficiency in command management. ... We should use the concept ... to guide weapon development [with a focus on weapons] that can see more clearly, respond more quickly, and strike more accurately.⁶⁴

Without providing any evidence, Chinese strategists assert that the ability to control war has always been significant; but now in the 21st century, they insist that the ability for commanders to control war has never been stronger. This is so because of a host of advanced technology weapons systems designed for use in informationized warfare, including most especially advancements in intelligence, surveillance, and reconnaissance capabilities; command and control (C2) capabilities; and precision weapons systems. As three senior PLA officers argue in an article appearing in *China Military Science*:

[T]he extensive use of high-performance reconnaissance and detection devices makes the battlefield more transparent and increases the knowability [sic] of war situations; the use of informationized command and control means shortens the preparation and implementation time of control of war situations ... ; [and] the large scale use of precision-guided and non-lethal weapons considerably enhances the long-range precision strike capability against strategic and campaign targets as well as the “soft-kill” capability to disable the enemy from fighting the war, making possible the effective control over the scale and intensity of war.⁶⁵

When reading such encomia to the purported benefits brought to modern warfare by advanced technology, Western strategists cannot help but be reminded of the prevalence in U.S. military thought in recent years of very similar arguments. Some of the more ardent advocates of the vaunted “Revolution in Military Affairs” (RMA) – a concept that has continued to enthrall a not insignificant percentage of U.S. analysts and decisionmakers – aver that technological advancements, properly harnessed, will transform the character, if not the nature, of war itself. For instance, advocates of network-centric warfare confidently claim that advanced information technologies networked throughout the joint battlespace will provide a level of total information dominance over the enemy so thorough and unambiguous as to eradicate the very fog and friction of war⁶⁶ – the ambiguity, uncertainty, and chaos recognized since Clausewitz as the prevailing characteristic of war.⁶⁷

The author has heard the assertion that the Chinese concept “war control” is a rough equivalent to the Western concept of escalation control, or more correctly, escalation management. And, to be sure, the Chinese concept of war control and the Western concept of



A Chengdu J-20 flies in a November 2016 airshow in China. The stealthy multirole combat J-20 brings significant new capability to the PLA's already potent anti-access and area denial set of concepts. (Wikimedia Commons)

escalation management are very similar in that they share a fundamental concern with ensuring that the scope, scale, objectives, military means, and finally the intensity of war itself do not outstrip the political goals for which the nation has entered upon war. But while China's concept of war control and the U.S. notion of an RMA appear to subscribe to a shared belief in the feasibility of achieving precise control and machinelike efficiency in prosecuting war, the Western concept of escalation management most decidedly does not.

Despite the many differences that separated the key architects of the Western concept of escalation management on the vexing question of how escalation might be controlled in a competition between nuclear-armed rivals, on one thing there would have been no disagreement at all between Brodie and Kahn, or Schelling and Halperin, or George and Osgood. That is, of course, the recognition that what makes escalation control so very challenging is that the objects of that attempt at control are ultimately sentient beings engaged in conflict: humans possessing free will, individuals who make choices, and states comprising individuals who make choices. Humans and states at war cannot be precisely controlled, nor the means of war always precisely employed and used in the most efficient ways. Their writings on escalation management, in short, reflect a fundamental agreement with Clausewitz's recognition that “The art of war deals with living and with moral forces. Consequently, it cannot attain the absolute, or certainty; it must always leave a margin for uncertainty, in the greatest of things as much as in the smallest.”⁶⁸

Awareness that war is an inescapably human undertaking that pits intelligent belligerents against one another – replete with all of their psychological and cognitive strengths and shortcomings – undergirds the notion that “escalation management,” not “escalation control,” more accurately reflects the character of the task before strategists and decisionmakers. Escalation management connotes the idea that the endeavor is as much an art as a science – in fact, probably much more so. It connotes the idea of imperfect tradeoffs, an acknowledgement that inefficiencies will persist, that accidents will happen, and that messages and signals sent by one actor in a conflict can and perhaps too frequently will be misinterpreted and inadvertently lead to unwanted and unexpected escalatory responses by the other actor.

To proceed on the assumption that war can be precisely controlled, by contrast, is to pretend that humans and states at war can be controlled, that their actions can be regimented with the efficiency of a well-calibrated machine. In this regard, the assumption ignores one of the more important insights derived from close study of the Cuban missile crisis, namely that it is excessively difficult for top leaders operating under the stress of time pressures to maintain control over the moves and actions of the large complex and bureaucratic organizations that comprise modern military forces. As George explains, this difficulty arises from

the exceedingly large number of often complex standing orders that come into effect at the onset of a crisis and as it intensifies. It is not easy for top-level political authorities to have full and timely knowledge of the multitude of existing standing orders. As a result, they may fail to coordinate some critically important standing orders with their overall crisis management strategy.⁶⁹

Such an assumption also ignores the evidence that the increasing complexity of the technological systems – systems that some U.S. strategists, like their Chinese counterparts, point to as the means for exerting unerring and precision control in war – have been found to be a major contributing source of the accidents and failures that continue to occur even as technology advances.⁷⁰ More to the point, decisionmakers will be more likely to assume that their messages and signals will not be misinterpreted by the adversary, that their guidance and the intent of their guidance will be understood with crystal clarity and will not conflict with standing orders that might govern the actions of their own forces, and

that should a crisis nevertheless escalate, it will not be because of any action taken by them. Against such a context, it is not difficult to appreciate how a strong belief in one’s ability to control war could result in a dangerous degree of overconfidence of the type that underwrites the unwanted escalation of crises.

Absence of Discussion of How Wars Can Escalate

Significant for its absence from the recent Chinese writings on escalation is any explicit discussion of the processes or mechanisms of escalation within war, or as Chinese strategists might have it, a treatment of the processes leading to a loss of control over a war. This author could find no direct, let alone sustained, discussion in *The Science of Military Strategy* or other recent authoritative writings of accidental or inadvertent escalation. In this respect, the recent Chinese writings on escalation are precisely like the earlier writings on escalation from the 2000-2006 period. As Chinese strategists would have it, or at least as the authors of *The Science of Military Strategy* would leave its readers to conclude, local war under informationized conditions is controllable war, war whose military intensity, scale, and scope are fully controllable in large part precisely because of the advanced capabilities that make for “informationized conditions.” While the possibility of accidents in crisis and war conditions is acknowledged, Chinese strategists seem to believe that what happens in a local war under informationized conditions is a reflection of the deliberate choices and actions of the belligerents. Thus, on this matter, the earlier verdict of the 2008 RAND study still stands.

It is not difficult to appreciate how a strong belief in one’s ability to control war could result in a dangerous degree of overconfidence of the type that underwrites the unwanted escalation of crises.

VII. Space and Cyberspace Operations

Following traditional land, sea, and air battlefields, space and network space have increasingly become important battlefields. A new type of battlefield is currently forming, and it has a large scope that integrates five dimensions – land, sea, air, space, cyber – into one, and that is highly three-dimensional and interwoven by the tangible and the intangible. And, battlefield dominance rights are extending from dominating land, sea, and air towards dominating space, and dominating cyber. Space has become a strategic elevation point, and space-based assisting-support and support systems are an indispensable strategic brace-support in winning informationized wars. ... A future war might first begin with attack-defense confrontation in space and network space, and seizing command of space and network dominance will become the crux to obtaining comprehensive dominance rights on the battlefield to further conquer the enemy and gain victory.⁷¹

In the 2013 version of *The Science of Military Strategy*, Chinese strategists characterize space and cyberspace as independent domains critical to modern warfare, and in doing so, as Kevin Pollpeter and Jonathan Ray point out, the authors provided a level of strategic prominence for both domains absent from the 2001 version of the document.⁷² The more recent version goes on to proclaim that “Space has become a strategic elevation point, and space-based assisting-support and support systems are an indispensable strategic brace-support in winning informationized wars.”⁷³ For its part, China’s 2015 defense white paper adds, “Outer space has become a commanding height in international strategic competition. ... Cyberspace has become a new pillar of economic and social development, and a new domain of national security.”⁷⁴ The logic is straightforward. As stated in November 2009 by then-People’s Liberation Army Air Force Commander and now Vice Chairman of the Central Military Commission General Xu Qiliang, control of this new commanding height means having control of the air and space, which in turn “means having control of the ground, oceans, and the electromagnetic space, which also means having the strategic initiative in one’s hands.”⁷⁵ The authors of *The Science of Military Strategy* put it more economically, asserting that space and

network space are “the crux to obtaining comprehensive dominance rights on the battlefield to further conquer the enemy and gain victory” or more simply still, “new fields for seizing the battlefield initiative.”⁷⁶

Chinese strategists believe that future wars will likely begin with “attack-defense confrontations” in space and “network space” – the English translation of the term most often used by Chinese writers rather than cyberspace.

While Chinese strategists assert that in the space domain, China still follows the principle of not attacking unless attacked,⁷⁷ they do not foreclose the option of conducting offensive space operations; indeed, *The Science of Military Strategy* openly embraces it, noting:

Space military systems ... are certain to be key point targets of the opposing sides’ attack and defense confrontation. In order to effectively contain the hostile space activity of other nations, and prevent friendly space systems from suffering attack ... [we] also must ... develop certain space offensive means and capability, and when necessary reveal the capability to cause substantive sabotage of and adversely influence the adversary’s space systems, as well as reveal the firm resolve to dare to and prepare to use this capability, thus creating certain psychological pressure on and fear in the adversary, and forcing the adversary to dare not conduct space operations. ... When necessary, [we] even can conduct limited space operational activities with warning and punishment as goals to stop the adversary from willfully escalating the intensity of a space confrontation.⁷⁸

But the authors go much further. Recognizing enemy networks as force multipliers, Chinese strategists urge the PLA to leverage

the characteristic of networks as easy to attack but difficult to defend [and consequently] to not only sabotage the enemy’s software systems, but also destroy the enemy’s hardware facilities equipment ... especially emphasize[ing] sabotage of the enemy ground support and signal communication systems, and severing of contacts between enemy space [forces] and the earth’s surface, so that the enemy cannot control and exploit space systems.⁷⁹

Building on a gray zone approach not terribly dissimilar from Chinese practice in the South China Sea, the authors of *The Science of Military Strategy* urge the military and civilian sectors, in preparing for and implementing cyber activities, “to integrate” so that the civilian network sector “screens the military in peacetime” and executes “military-civilian joint integrated attacks in wartime.”⁸⁰

Recent Chinese writings reflect a thorough awareness of space and cyberspace as being offense dominant domains, an awareness that serves to underwrite repeated calls for commanders to undertake preparations for early offensive action. PLA writings thus reflect the belief that offensive cyberspace and counterspace operations are not only advisable early in a conflict with a major adversary, but that such operations can be undertaken at a comparatively low risk of escalation. And as regards the benefits of action, Chinese strategists paint a vision of the power of offensive cyberspace operations that is breathtaking in its claims. To wit:

One successful [round of] network warfare can cause collapse of the adversary’s economy, and paralysis of his operational systems. Within future war, the side holding the superior position in computer network operations will seize the initiative in war and generate powerful psychological awe in the enemy. Network warfare serves as a new type of strategic deterrent means.⁸¹

On the other hand, Chinese writings reflect a sophisticated understanding of the deterrence challenges in the cyber realm.

Network deterrent effects are difficult to accurately evaluate. ... [T]he concealed quality and element of surprise in network attack are very strong; people find it very difficult via adjustments to and changes in hostile network activities to assess the changes in the adversary’s decision-making and intent. The non-occurrence of large-scale network attack actions is not equivalent to the absence of network attacks ... very likely this is because the hostile network attacks cannot penetrate functionally powerful network defense systems, and is not necessarily because the adversary has been deterred and thus forced to abandon or alter his intention to execute network attacks.⁸²

Nevertheless, Chinese authoritative writings urge commanders to be unafraid “to use military deterrence methods, particularly in space, network and other new domains of struggle, to smash the enemy’s warfighting command systems.”⁸³

If there were U.S. China watchers and strategists who remained skeptical about the sincerity of Chinese authoritative views concerning the critical roles of space and cyberspace operations in future warfare, the creation of the Strategic Support Force (SSF) in December 2015 should have put any such lingering skepticism to rest.

PLA writings thus reflect the belief that offensive cyberspace and counterspace operations are not only advisable early in a conflict with a major adversary, but that such operations can be undertaken at a comparatively low risk of escalation.

According to PLAN Rear Admiral Yin Zhuo, the SSF’s missions will include “target tracking and reconnaissance, daily operation of satellite navigation, operating BeiDou satellites, managing space-based reconnaissance assets, and attack and defense in the cyber and electromagnetic spaces.” Admiral Yin asserts that the SSF’s missions “will be deciding factors in [the PLA’s] ability to attain victory in future wars.”⁸⁴ While the creation of the SSF is only one element of a major reorganization and reform effort of the PLA ordered by President Xi it is arguably one of the more significant because, for the first time within the PLA, space and cyberspace operations will enjoy a level of institutional and budgetary prominence on a par with that of the traditional domains of land, sea, and air operations. Some senior Chinese military experts and former senior military officers have even described the SSF as a “fifth service” in its own right.⁸⁵ This means that issues of doctrine, personnel, and training for space and cyberspace operations will receive a level of institutional attention and support that they simply have not enjoyed until now. Moreover, organizationally, the establishment of the SSF means that the PLA’s cyberspace and space operations will no longer exist within different services of the PLA and instead will be unified under one organization, where they are far less likely to be treated as separate, discrete missions and far more likely to be treated as joint and integrated missions in accordance with Chinese strategic thought.

Whether the establishment of the SSF is a positive development for crisis stability and escalation prospects in future Sino-U.S. crises is another matter altogether. This is because Chinese strategists do not appear to have yet grappled with the possibility that operational concepts and activities they now seem to embrace in the realms of space and cyberspace could inadvertently lead to escalation of a crisis or conflict. In fact, this author's review of the authoritative literature reveals that with regard to the domains of space and cyberspace, Chinese analysts again fail to even raise the subject of inadvertent escalation. And yet, it is highly unlikely that they have simply overlooked such issues. Instead, it is more likely that the absence of such a discussion is deliberate. In this respect, David Gompert and Phillip Saunders offer the compelling argument that just as the American reluctance to acknowledge that the strategic nuclear relationship between the United States and China is now one of mutual vulnerability stems, in part, from an American hesitancy to relieve Chinese fears of nuclear escalation, so too, the Chinese habit of neglecting to address the escalatory implications of military operations in space and cyberspace stems, in part, from a reluctance to relieve American fears of conflict in those two domains.⁸⁶

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VIII. Nuclear Deterrence

From the foregoing, it should be clear that Chinese strategists hold a broad perspective of deterrence as they recognize multiple modes of and roles for deterrence: conventional deterrence, space and cyberspace deterrence, and nuclear deterrence.⁸⁷ In fact, PLA writings make it clear that China's conception of deterrence encompasses not just military capabilities, but also diplomatic, economic, and scientific and technological strength. However, this section of the examination focuses on how Chinese strategists conceive of escalation within the context of nuclear deterrence.⁸⁸ More specifically, given the breadth of the subject of deterrence, the author confines the discussion to an examination of those aspects of recent Chinese *thinking*⁸⁹ on nuclear deterrence that raise notable escalation issues and concerns, whether they are of recent vintage or are carried forward from the earlier authoritative literature.

The main aspects of the Chinese conception of deterrence (and here, the conception does cover deterrence in all its modes) have not evolved over the past 16 years and should appear familiar enough to Western strategists as to raise no concerns.⁹⁰ To wit, Chinese strategists see deterrence as a continuation of and subordinate to politics. The fundamental goal of deterrence "is to stop an opponent's certain behavior from endangering ourselves" by making "the opponent believe that the cost of his activity will exceed the benefit he might gain, and



The new Type-094 Jin-Class SSBN capable of carrying up to 12 JL-2 nuclear sea-launched ballistic missiles provides China with a more secure nuclear deterrent. In doing so, it could also encourage a more aggressive security policy that misjudges U.S. resolve and the possibility of unwanted escalation. (Wikimedia Commons)

therefore, change his strategic judgment,” and its “role” is to “transmit the danger, urgency, and reality of possible violence.” Deterrence is characterized as “a military notion, and also a psychological-political notion” that entails the “application of comprehensive strengths,” whose effectiveness depends upon three essential factors: capability, resolution, and communication.

Regarding nuclear deterrence more specifically, the 2012 version of the *China Strategic Missile Force Encyclopedia* asserts that “Nuclear deterrence is generally divided into nuclear deterrence in peacetime, nuclear deterrence under crisis conditions, and nuclear deterrence in conventional warfare.” In peacetime, the goal of nuclear deterrence is to “safeguard national interests and enhance the national status and to prevent potential nuclear threats from escalating.” Under crisis conditions, the goal of nuclear deterrence is “to prevent nuclear crises from escalating and to prevent nuclear threats from escalating into a real nuclear war.” And, in conventional warfare, “the goal of nuclear deterrence is to prevent a conventional war from escalating into a real nuclear war and to suppress a limited nuclear war ... from escalating into a full-scale nuclear war.”⁹¹ These goals have also remained consistent in authoritative PLA writings over the past 16 years and are consistent with Beijing’s publicly articulated policy and strategy for nuclear weapons, although they are cast at a different level.⁹²

Inexorable Momentum

One persistent aspect of the Chinese understanding of deterrence that continues to raise escalation concerns is the notion of “inexorable momentum” that is associated with the PLA’s concept of deterrence signaling. According to this notion, credibly signaling China’s willingness and intent through a series of increasingly escalatory methods is essential to creating a perception on behalf of the adversary that, unless it backs down, the inexorable momentum reflected in China’s actions points to an undeniable willingness to use decisive force. Johnston draws attention to NDU’s 2015 version of the *Science of Strategy*, which lists eight methods of signaling designed to create such a sense of inexorable momentum and thus to deter the adversary.⁹³ With the exception of conducting attacks on the adversary’s information systems, the list of deterrence signaling methods in the 2015 NDU text is very similar to lists advanced to support the same notion of inexorable momentum in earlier authoritative texts such as the 2001 version of *The Science of Military Strategy* and the once secret *Science of Second Artillery Campaigns*, published in 2004.⁹⁴ The persistent problem that characterizes both the older and the more recent Chinese treatments is that the texts contain no acknowledgement that the suggested deterrent signaling actions, which include such provocative actions as conducting launch exercises, run the real risk not of causing the adversary to back down, but rather of just the opposite, of provoking the adversary to escalate in the certainty that China is already committed to decisive military action. This is but another example of the disquieting silence that continues to characterize Chinese writings on escalation.



Soldiers stand in front of a Chinese DF-31A intercontinental ballistic missile. (Wikimedia Commons)



A DF-5B intercontinental ballistic missile is displayed during the World War II Victory Day parade in November 2015. (China Central Television)

Moving to a Launch-on-Warning Posture?

The PLA's more recent writings on deterrence raise a second and new concern regarding Chinese thinking about escalation. Specifically, the most recent edition of *The Science of Military Strategy* includes a short passage that has generated attention and concern among U.S. deterrence and nonproliferation specialists⁹⁵ as well as U.S. Sinologists who specialize in Chinese military issues⁹⁶ as it unmistakably reveals that Chinese strategists are already formally discussing the possibility of China moving to an embrace of a launch-on-warning nuclear posture for its nuclear missile force. The passage suggests that some unknown number of Chinese strategists, to include the authors of that text, believe that the adoption of a launch-on-warning nuclear posture would possess the virtue of enhancing deterrence even as it maintained consistency with China's nuclear no-first-use policy. The passage in question reads:

When conditions are met, and when necessary, one can rapidly launch a nuclear missile counterstrike when it has been clearly determined that the enemy has already launched nuclear missiles against us but said enemy nuclear warheads have yet to arrive at their targets and effectively explode or cause actual damage to us. This both conforms to our country's consistent policy of no first use of nuclear weapons and also effectively prevents our nuclear forces from suffering greater losses, improving the survivability of nuclear missile forces and their counterstrike capabilities.⁹⁷

The adoption of a launch-on-warning nuclear posture would constitute a fundamental departure for China's nuclear strategy, as it would require the mating of warheads and missiles – thus breaking with China's long-standing practice of storing nuclear warheads separate from their delivery vehicles – as well as the development of a strategic early warning system. The adoption of such a policy would increase crisis instability and thus escalation concerns by raising the risk of accidental or erroneous launches in response to false warnings not dissimilar to those experienced by the Soviet and Russian warning systems.⁹⁸ As with the concept of creating inexorable momentum, Chinese strategists are disturbingly silent regarding any of the risks, including the escalation risks that could be associated with the adoption of a launch-on-warning posture.

IX. Summary of the Main Findings

From the foregoing examination, the author discerns four central findings about current Chinese thought on escalation.

First, in comparison with the authoritative writings of the 2000-2005 period, when there were few treatments of the subject, in more recent Chinese writings, crisis control and war control clearly emerge as subjects of major importance for the Chinese military. More appears to be written about them today than in the first decade of the 21st century, and Chinese strategists appear to believe adamantly that crises and wars must be controlled lest they escalate.

Second, Chinese strategists believe that crises and wars need to be controlled not, it appears, out of the almost existential concern that continues to undergird the approach of most U.S. strategists and decisionmakers to the subject – the concern that crises and confrontations between nuclear armed states could escalate to major war potentially involving nuclear weapons use and catastrophic destruction. This concern, of course, was not simply the product of game theoretic exercises; more importantly, it was born in no small measure out of the harrowing experiences of the Berlin and Cuban missile crises. By stark contrast, the Chinese preoccupation with controlling crisis and conflict stems from the pragmatic and utilitarian concern that uncontrolled local war could escalate to levels that threaten to derail China from achieving its economic and social development objectives. Left unstated in PLA writings is the knowledge, born of China's own history, that economic disaster has a nasty habit of fostering widespread domestic discontent and instability that threaten the legitimacy of China's rulers.

Third, in contrast to Western treatments of war dating back to at least Clausewitz's *On War*, contemporary Chinese military writings reflect an enduring Chinese belief that war can be controlled if only the correct processes and scientific principles are followed. PLA strategists, not unlike some American strategists, believe that advancements in intelligence, surveillance, and reconnaissance capabilities as well as command and control capabilities and precision weapons have further strengthened the ability to control war. However, whether held by Chinese or Americans, the belief that humans engaged in crisis and conflict can be controlled with precision and certainty as if calibrating the parts in a machine flies in the face of experience. If taken to heart, it could blind leaders to the possibility that their actions and signals could serve as the catalysts for unwanted escalation.

Finally, despite the increased attention and centrality given to the subject by Chinese strategists, the substantive aspects of the treatment of escalation have changed very little over the years. In fact, what is most noteworthy from the author's examination of recent Chinese writings on escalation is not the increased attention given to the subject but the fact that the authoritative writings continue to be characterized by the same or similar omissions and silences that led the authors of the 2008 RAND study to conclude that Chinese writings on escalation were "under-theorized and still under development." This examination has revealed five lacunas in recent Chinese writings.

1. PLA writings continue to offer no discussion of the different mechanisms by which crises and conflicts might escalate or any acknowledgement that crises and conflicts can escalate not only deliberately, but also inadvertently and accidentally. In particular, authoritative Chinese writings fail to distinguish between escalation mechanisms that are deliberate, inadvertent, or accidental in nature.
2. Chinese strategists continue to remain silent regarding the potential escalation risks that accompany Chinese military principles, doctrines, and concepts otherwise seen as critical to crisis and war control, including, in particular, the emphasis on the principle of seizing the initiative, the belief that crises should be seen and exploited as windows of opportunity, and the conviction that in crises involving territorial and sovereignty issues, Chinese leaders would be justified in refusing to initiate communications.
3. PLA writings continue to eschew any discussion of thresholds and red lines in either crisis or conflict. The silence runs across the board, from the absence of discussion of the types of actions and triggers that might constitute the crossing of red lines by an adversary to failure to discuss the possibility that PLA actions might be seen by an adversary as having crossed its red lines. With respect to the silence over the crossing of red lines by adversaries, the recent writings continue a pattern established in the 2000-2005 period, with two important exceptions. One of the exceptions is a passage in the *Science of Second Artillery Campaigns*, a secret 2004 PLA textbook that has since found its way into circulation in the West. The passage lists four specific wartime red lines, which if crossed by an adversary would lead the PLA to approach China's leadership to request a lowering of China's nuclear use threshold.⁹⁹ The second exception arose in the context of a debate that briefly occurred among Chinese strategists in the 2008-2010 time frame over whether

China should revisit its "no first use" policy in light of the fact that in certain cases conventional attacks could have effects as devastating as nuclear attacks. The example cited by those who wanted to reconsider the policy was an adversary's use of precision conventional weapons to attack a country's forces. The argument was that such an attack would be tantamount to having broken the nuclear threshold, as the country that was the victim of the attack would find it difficult to refrain from a nuclear counterattack.¹⁰⁰

Chinese strategists simply do not address the possibility that an adversary might see Chinese actions as having crossed key thresholds or red lines of the adversary.¹⁰¹ This examination has revealed, for instance, that recent Chinese writings argue that offensive cyberspace and counterspace operations are not only advisable early in a conflict with a major adversary but, incredibly, that they can be undertaken at a comparatively low risk of escalation. The possibility that an adversary might see such actions as profoundly escalatory is never even raised. In short, not only have Chinese strategists laid the groundwork for extending the concept of seizing the initiative into the realms of space and cyberspace warfare, but in doing so they seem to be operating under the highly questionable assumption that the escalatory implications would be quite limited.

4. On the subject of nuclear deterrence, Chinese strategists continue to fail to acknowledge the possibility that the deterrent signaling actions called for by their concept of inexorable momentum could in fact result in an adversary response precisely the opposite of what is intended.
5. Finally, while Chinese strategists appear to have accounted for the benefits to be gained from China's potential adoption of a launch-on-warning policy, they appear inexplicably to have overlooked or perhaps underweighted the escalatory risks that such a policy change could raise.

The omissions and silences of authoritative Chinese writings on critical aspects of escalation are both curious and potentially worrisome – curious because PLA strategists are nothing if not attentive to Western critiques of their doctrinal writings, and potentially worrisome because the apparent dismissal of those critiques suggests the existence of a major disconnect between Chinese and American views and approaches to risks that accompany crises and confrontations involving nuclear-armed adversaries.

X. Policy Implications

It has almost become obligatory to conclude examinations such as this by arguing that the insights of the study suggest that confidence- and security-building mechanisms (CSBMs) between the United States and China need to be reinforced. To be sure, there is goodness in the aim as well as the track record of CSBMs: They aim to reduce fears of attack in tense situations such as crises or in situations such as in the South China Sea today where the possibility is increasing for an accident or miscalculation to spin rapidly into a crisis. They do so through processes and mechanisms designed to make different states' behaviors more predictable, thereby bolstering the confidence of the different states that they will not become the victim of an attack. But the U.S. policy community hardly needs to be reminded of CSBMs and their purported as well as actual ability to mitigate fears and instill confidence. Indeed, in 2014 and 2015, the Chinese and U.S. militaries established a number of potentially important confidence building and crisis communications mechanisms.¹⁰² Whether mil-to-mil interactions, the establishment of political and military hotlines, the development of regional risk reduction centers, or regular high-level bilateral discussions such as the U.S.-China Strategic and Economic Dialogue (S&ED), multiple CSBMs have been in place and underway for some time. Indeed, 2016 marked the eighth anniversary of the S&ED. In addition to these official government-to-government interactions, numerous "Track 1.5" and "Track 2.0" diplomacy discussions have taken place between China and the United States over the years and continue at a strong pace.¹⁰³ Despite all this activity, many U.S. analysts and scholars do not miss a chance to argue that the state of Sino-U.S. affairs could only benefit from bolstering CSBM efforts, especially activities aimed at building a shared understanding of the potential for crisis and conflict escalation and the need to dampen that potential. The logic seems to be that an ongoing exchange of views is good, and you simply cannot have too much of a good thing. But you can.

In fact, the energy and passion that the United States brings to efforts to get China on the same page regarding an understanding of what contributes to and detracts from stability in potential future crisis situations could well backfire. Repeated expressions of American handwringing and anxiety over Chinese writings and practices, let alone capabilities, could come to be seen by Beijing and U.S. allies alike as reflections of potentially weak U.S. resolve in crisis situations. In other words, U.S. overtures on the CSBM front could inadvertently foster

the mistaken perception that the United States might be reticent to act boldly in defense of U.S. and allied interests and thus is but one step away from a position that amounts to *de facto* strategic decoupling. Such a perception could prove all the more dangerous if, as some defense analysts contend, China comes to see itself in the early part of the 2020s, just four years away, as enjoying escalation dominance vis-à-vis the United States in crises and conflicts in the Western Pacific.¹⁰⁴ As goes the perception of U.S. resolve, so goes the perception of U.S. credibility in following through on its deterrent threats toward an adversary and in living up to its security commitments to its allies. In this sense, what might begin as an effort to address a gulf separating U.S. and Chinese views of risky operational concepts and practices could ironically end up fostering a Sino-U.S. crisis in the Western Pacific by inadvertently serving as a green light for increased Chinese assertiveness in the Western Pacific.

The logic seems to be that an ongoing exchange of views is good, and you simply cannot have too much of a good thing. But you can.

The central policy implication of this examination of recent Chinese thought on escalation, most emphatically, is not that the United States should redouble its already healthy scale, scope, and frequency of official and unofficial CSBM efforts with China. To the contrary, the most important policy implication is one that perhaps to the chagrin of many U.S. officials would involve far fewer receptions and dinners with their Chinese counterparts and more time spent reading dense, often dry, and at times awkward translations of PLA articles and books. It is, in short, that in their efforts to understand how the Chinese military might behave in future crisis situations and, in particular, how the Chinese view the subject of escalation of crises – what engenders it, fuels it, mitigates it – U.S. strategists and officials would do well to pay heed to what Chinese strategists have to say about escalation and crisis in their authoritative writings.

The authoritative literature, after all, contains the considered views of senior Chinese military officers and experts – the PLA's best and brightest. These are strategists, analysts, and experienced military officers, typically connected with highly respected institutions such as the Academy of Military Science, the National

Defense University, and several other government-oriented “think tanks,” who could legitimately be called upon to provide military advice to China’s president. Thus, the authoritative literature is not an assemblage of random views of former PLA officers writing for the public in publications such as the *People’s Daily* or *Global Times*. Many of the authoritative writings are the consensus products of committees of authors comprising former and current senior PLA officers. Significantly, in all cases, China’s authoritative writings, whether articles or books, are official pedagogical texts deliberately authored to provide carefully considered, doctrinally informed guidance for the PLA’s rising midlevel officers; the writings are subsequently used as handbooks by the PLA’s senior officers. China’s authoritative literature focuses on strategic and operational concepts and guidance that align with and reflect China’s national goals and objectives. It does not provide descriptions of PLA capabilities or an overview of China’s orders of battle, but it does provide an authoritative window into when and how and under what conditions the formidable and growing military capabilities of China’s military would be brought to bear. In so doing, the authoritative literature provides a vista into PLA views and potential operational behavior that could perhaps be matched only by the most detailed and elaborated of highly secretive contingency plans, and perhaps not even then. Neither a detailed knowledge of PLA capabilities nor a close analysis of the writings and speeches of China’s leadership provides such a unique vista.

In comparison with the PLA strategists of the 2000–2005 period, those who have written about escalation management in more recent years appear positively seized by the subject, but the conceptual depth and rigor of the more recent writings curiously appears not to have advanced at all.

So, it would be well for U.S. strategists and decisionmakers, not simply Sinologists and intelligence community analysts, to invest time in reading and thinking about Chinese authoritative writings on escalation and crisis. Should they do so, they surely will find, as

this examination has demonstrated, that the conceptual shortcomings and omissions of Chinese thinking first identified in the 2008 RAND study continue to characterize the authoritative writings on escalation that have appeared over the last decade. And, more worrisomely, they will see that Chinese strategists have extended some of the same problematic principles and concepts, in particular seizure of the initiative, into the domains of cyberspace and counterspace operations.

In comparison with the PLA strategists of the 2000–2005 period, those who have written about escalation management in more recent years appear positively seized by the subject, but the conceptual depth and rigor of the more recent writings curiously appears not to have advanced at all. Indeed, one of the more notable, if perplexing, takeaways from this examination is not the increased attention given to the subject of escalation by Chinese strategists in comparison to the earlier period, but how very little the substantive aspects of the Chinese treatment of escalation have changed over the years. Against this finding, it would appear that American strategists and officials would do well to entertain the distinct possibility that the Chinese may just hold very different, and in some respects fundamentally different, views about crises, conflict, their avoidance, and the possibility as well as the sources of unwanted escalation. Perhaps Chinese thinking about escalation is not undertheorized after all; perhaps it reflects an understanding that Americans simply remain resistant to hearing.

Coda: Response to a Recurring Methodological Objection

In prior presentations of the arguments presented in this examination, the author has encountered the objection that the focus on Chinese strategic and doctrinal writings is overly narrow and that a richer and more compelling, if not more accurate, understanding of Chinese thought about escalation can only be gained through an integrated assessment that accounts not only for Chinese military writings but also for trends and investments in Chinese military capabilities and operational concepts and for actual Chinese behavior in past crisis and conflict situations through an examination of case studies.

The author will be the first to agree that an appreciation of Chinese military capabilities and operational concepts is a necessary, though still insufficient, condition for understanding the options Chinese leaders have available to them in crises and conflicts. Indeed, while intriguing and sometimes helpful in shedding light on how a nation's armed forces might approach different crises and conflicts, strategic thought and doctrine are in the end hollow absent the capabilities and operational concepts to execute them. Fortunately, on this issue, analysts now have at their disposal a significant and ever-growing body of rigorous examinations of the evolution and growth of Chinese military capabilities over the past 20 years – capabilities that provide PLA leaders the ability to implement many if not all of the concepts and doctrinal practices articulated in their strategic writings.¹⁰⁵ The author assumes the reader's close acquaintance with such treatments.

As regards the utility of case studies of past Chinese behavior in crises and conflicts as a source of illumination for what the Chinese might actually do in future crises and conflicts, the author might dispense with the objection over their absence on the practical grounds that a treatment of case studies would both go beyond the scope of the task given him and exceed the space limitations afforded the resulting paper, both of which are true. A more substantive response, however, is that the author believes that the set of crises and conflicts that exist in the PRC's 67-year history are so limited in number and so distant in time and circumstance as to render their utility in illuminating, let alone forecasting, future Chinese behavior extremely suspect.¹⁰⁶ And, this from an analyst who is intellectually predisposed and indeed persuaded that looking back is almost always a necessity when attempting to see more clearly what may well lie ahead.

The problem, in brief, is that the China the United States confronted in the crises over Taiwan in 1995-1996, the China that responded so viscerally to the 1999 accidental

bombing of the Chinese Embassy in Belgrade, and the China that the United States confronted in the tense months after the April 2001 collision between U.S. and Chinese military aircraft off the coast of Hainan is simply not the China that exists in 2017. Not in military capabilities, not in economic strength, not in leadership, and not in terms of military strategy and doctrine.¹⁰⁷

What is true regarding the United States' suspect ability to anticipate future Chinese behavior in *crises* from their past behavior in crises is just as true, if not more so, regarding the fool's errand of attempting to anticipate China's behavior in a future *conflict* from its behavior in past conflicts. Indeed, that China's only direct and overt armed conflict with a nuclear weapons state – the 1969 border conflict with the Soviet Union – came at a time when China possessed a small, vulnerable nuclear arsenal renders that case of doubtful utility in anticipating future Chinese behavior. That China's last direct involvement in an armed conflict was its 1979 conflict with Vietnam, long before China undertook its substantial and still ongoing military modernization efforts, is alone, enough to render a case study of that conflict even less useful. Had China possessed conventional military capabilities and forces comparable in quality to the Soviet Union's or Vietnam's at the time of those conflicts, then those situations would have greater similarity, at least in the conventional realm, to the roughly symmetrical regional military balance that today exists between the United States and China in the Asian Pacific. But, of course, except in terms of the sheer numbers of bodies that China could bring to bear in a war, the Soviet Union and Vietnam both significantly outclassed Chinese conventional capabilities and forces at the time of those conflicts. Indeed, the impressive scope, scale, and technological sophistication of today's PLA in terms of both conventional and nuclear capabilities have all been put in place *not* since China's conflict with Vietnam, *not* even since its confrontations with the United States in 1995 and 1996 over Taiwan, but, by and large, since 1999, when China witnessed for a second time in the same decade the stunning speed and effectiveness of the U.S. military in dispatching autocratic adversaries bearing otherwise significantly sized and equipped militaries. And yet, for Beijing, it was the accidental bombing of China's Embassy in Belgrade, which senior-most officials of China believed to be anything but an accident that served as the most critical turning point in spurring new and unprecedented levels of investments in China's military modernization.¹⁰⁸ It is for these reasons the author believes that examining case studies of Chinese behavior in long-past crises and conflicts would fail to yield any insights capable of explaining, let alone anticipating, current or future Chinese military thinking about escalation and its management.¹⁰⁹

Endnotes

1. Paul H. Nitze, "Atoms, Strategy and Policy," *Foreign Affairs*, 34 no. 2 (January 1956), 187.
2. Forrest E. Morgan, Karl P. Mueller, Evan S. Medeiros, Kevin L. Pollpeter, and Roger Cliff, *Dangerous Thresholds: Managing Escalation in the 21st Century* (Santa Monica, CA: RAND Corp., 2008), 49.
3. *Ibid.*, 48 and 51.
4. Lonnie D. Henley, "War Control: Chinese Concepts of Escalation Management," in *Shaping China's Security Environment: The Role of the People's Liberation Army*, eds. Andrew Scobell and Larry M. Wortzel (Carlisle, PA: Strategic Studies Institute and U.S. Army War College Press, 2006), 81-103. Also see Lonnie D. Henley, "Evolving Chinese Concepts of War Control and Escalation Management," in *Assessing the Threat: The Chinese Military and Taiwan's Security*, eds. Michael D. Swaine, Andrew N.D. Yang, and Evan S. Medeiros, with Oriana Skylar Mastro, (Washington: Carnegie Endowment, 2007), 85-110.
5. Alison A. Kaufman and Daniel Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control" (CNA, 2016), 1. The edited volume referenced is that of Michael D. Swaine and Zhang Tuosheng, eds., *Managing Sino-American Crises: Case Studies and Analysis* (Washington: Carnegie Endowment for International Peace, 2006).
6. Alastair Iain Johnston, "The Evolution of Interstate Security Crisis-Management Theory and Practice in China," *Naval War College Review*, 69 no. 1 (Winter 2016), 29-71. Interestingly, just as the books discussed to this point, including the co-edited Swaine and Tuosheng volume, have helped form the American understanding of Chinese thought on escalation, Johnston reports his finding that the Swaine and Tuosheng volume "has had an important impact on crisis-management research in China." *Ibid.*, 33.
7. Kaufman and Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control."
8. For an excellent discussion of the risks for crises and conflicts that could involve the United States and China over the next couple of decades, see Avery Goldstein, "First Things First: The Pressing Danger of Crisis Instability in U.S.-China Relations," *International Security*, 37 no. 4 (Spring 2013), esp. 53-58.
9. Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century*, 49.
10. As a non-Mandarin speaker, the author consulted that portion of the Chinese authoritative literature that has been translated into English and thus concedes that he may admittedly be like the person looking for answers at night in those few places where the streetlights just happen to exist.
11. In fact, what is more often encountered in examinations reporting on Chinese scholarly views of military and broader security issues is, not to place too fine a gloss on the situation, a variant of recycled Western scholarly bathwater. Thus, this author, at least, often leaves such pieces not so much persuaded that the argument advanced is an accurate reflection of the current state of thinking of PLA strategists, let alone senior Chinese decisionmakers, as it is a reflection of a close acquaintance with the ongoing discussion and debate within the Western scholarly community.
12. For perspective, consider the difficulty of pointing to U.S. official writings containing anything approaching an open and direct exploration of, for instance, the difficulty of compelling an adversary to stop fighting while simultaneously demonstrating restraint in U.S. goals and military objectives. Nonetheless, recent debates within the U.S. Congress and between Congress and the executive branch concerning the Reliable Replacement Warhead and a conventional version of the Trident D5, and more recently the wisdom of the AirSea Battle concept, all reflect a degree of transparency and openness in the U.S. discussion of even the most sensitive matters that simply does not exist in and could not take place in China.
13. Alexander L. George, "The Development of Doctrine and Strategy," in *The Limits of Coercive Diplomacy*, eds. Alexander L. George, David K. Hall, and William E. Simons (Boston: Little Brown, 1971), 1-35. Also see Alexander L. George, "The Tension between 'Military Logic' and Requirements of Diplomacy in Crisis Management" and "A Provisional Theory of Crisis Management," in *Avoiding War: Problems of Crisis Management*, ed. Alexander L. George (Boulder, CO: Westview Press, 1991) 13-21 and 22-27.
14. Peng Guangqian and Yao Youzhi, eds., *The Science of Military Strategy*, official English-language edition of the 2001 Chinese edition (Beijing: Military Science Press, 2005), 213. That this is a still unchanging characteristic of Chinese thought on escalation is reflected in the fact that Henley highlighted the characteristic about the Chinese authoritative literature released through the 2005 time frame. See Henley, "War Control: Chinese Concepts of Escalation Management," 82.
15. Military Strategy Research Department, PLA Academy of Military Science, *The Science of Military Strategy* [战略学], 3rd ed., (Beijing: Military Science Press, 2013) [军事科学出版社], 119.
16. Zhao Ziyu [赵子聿], and Zhao Jingfang [赵景芳], "On Control and Management of Military Crises" [论军事危机的管控], *China Military Science* [中国军事科学], (July 2, 2013) [2013年7月2日], 62-71. The close correspondence of the Chinese and most Western definitions of crisis can be seen in Michael D. Swaine, "Sino-American Crisis Management and the U.S.-Japan Alliance: Challenges and Implications," in Michael D. Swaine and Zhang Tuosheng, eds., *Managing Sino-American Crises: Case Studies and*

Analysis (Washington: Carnegie Endowment for International Peace, 2006), 84-85. Also compare with Goldstein's definition of crisis; see Goldstein, "First Things First: The Pressing Danger of Crisis Instability in U.S.-China Relations," 51. The American scholars that Zhao and Zhao draw upon are Michael Brecher and Jonathan Wilkenfeld, whose scholarship on political-military crises and crisis management is widely acclaimed and highly regarded. See Michael Brecher and Jonathan Wilkenfeld, *Crisis, Conflict, and Instability* (Oxford: Pergamon, 1989); and Michael Brecher and Jonathan Wilkenfeld, *A Study of Crisis* (Ann Arbor: The University of Michigan Press, 2000).

17. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 89.
18. Broadly, for the Chinese, the term "informatization" (信息化) – sometimes translated as "informatization" – indicates the development and extensive utilization of advanced information and communication technologies. The PLA is seized with the concept and see it as crucial to the development and modernization of a strong military. For an excellent discussion, see Andrew S. Erickson and Michael S. Chase, "Informatization and the Chinese People's Liberation Army Navy," in Phillip C. Saunders, Christopher Yung, Michael Swaine, and Andrew Nien-dzu Yang, eds., *The Chinese Navy: Expanding Capabilities, Evolving Roles* (Washington: Center for the Study of Chinese Military Affairs, Institute for National Strategic Studies, National Defense University, 2011), 247-286.
19. *Ibid.*, 124.
20. A small but representative sampling of such analysts and scholars and their germane work would include Henry Kissinger, *Nuclear Weapons and Foreign Policy* (New York: Harper & Brothers, 1957); Morton Halperin, *Limited War in the Nuclear Age* (New York: John Wiley & Sons, 1963); Glenn Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, NJ: Princeton University Press, 1961); Bernard Brodie, *Escalation and the Nuclear Option* (Princeton, NJ: Princeton University Press, 1965); and of course, both Robert E. Osgood, *Limited War: The Challenge to American Strategy* (Chicago: University of Chicago Press, 1957) and Robert E. Osgood, *Limited War Revisited* (Boulder, CO: Westview Press, 1979).
21. Wang Xixin [王西欣], "Further Discussion on War Control" [再论控制战], *China Military Science* [中国军事科学], (April 15, 2014) [2014年4月15日], 60.
22. The 2012 version of the *China Strategic Missile Force Encyclopedia* does contain a brief entry on "Local wars under nuclear deterrence conditions," which it defines as "When a local conventional war occurs between two nuclear nations or a local conventional war occurs between one nuclear and one non-nuclear nation, the conflict bears the characteristics and role of nuclear deterrence... After World War II and since the outbreak of the Korean War, the Vietnam War and the fourth Middle Eastern War, local wars occur under nuclear deterrence conditions." See He Qionghua [贺琼华], "Nuclear Deterrence" [核威慑], *China Strategic Missile Force Encyclopedia* [中国战略导弹部队百科全书], (Beijing: China Encyclopedia Publishing House, 2012 [北京: 中国百科全书出版社, 2012年]), 40-41. The concept is similar to what Western thinkers refer to as "conflict under the nuclear shadow." By this understanding, then, all local wars under conditions of informatization that involve a nuclear power are also local wars under nuclear deterrent conditions. A question arises: Does this seemingly obvious connection provide additional motive for the Chinese to control the political and military objectives as well as the military means of war? The answer is not obvious from recent authoritative writings.
23. For an excellent discussion, see Daniel M. Hartnett, "The 'New Historic Missions': Reflections on Hu Jintao's Military Legacy," in *Assessing the People's Liberation Army in the Hu Jintao Era*, eds. Roy Kamphausen, David Lai, and Travis Tanner (Carlisle, PA: Strategic Studies Institute and U.S. Army War College Press, 2014), 31-81.
24. Hartnett, "The 'New Historic Missions': Reflections on Hu Jintao's Military Legacy," 43.
25. Liu Shenyang [刘沈阳], "On War Control – Mainly from Military Thinking Perspective" [论控制战—主要从军事思想角度的], *China Military Science* [中国军事科学], (April 2014) [2014年002期], 1-8.
26. The authors of a recent RAND report find that while a conventional war between China and the United States would result in immense economic costs for both countries – costs that would include the contraction of trade, consumption, and revenue from investments abroad – the harm done to China's economy would be far greater because of key structural asymmetries that distinguish the two. The authors estimate that after one year of severe war, U.S. GDP could decline between 5 percent and 10 percent, while China's GDP could decline by an enormous 25 percent to 35 percent. Significantly, for the upcoming discussion of the operational strategy of "Offshore Control," the estimated 25 percent to 35 percent impact found in the RAND report does not include the costs that would result from U.S. deliberate efforts to disrupt China's energy supplies. Even absent such a strategy, what the RAND analysts characterize as a "war zone effect" could be expected to dramatically disrupt seaborne trade in all goods in the Western Pacific during a Sino-U.S. war. See David C. Gompert, Astrid Stuth Cevallos, and Cristina L. Garafola, "War with China: Thinking Through the Unthinkable" (RAND Corp., 2016), esp. 41-50.
27. To be clear, while pragmatic concerns with the damage done to the economic health of the country would not be and, since the dawn of the nuclear age, have never been out of place in the U.S. discussion of the importance of managing the potential escalation of crises and conflict, such concerns have seldom served as the primary motivating factor underlying the discussion. Perhaps the only significant single exception would be the discussion among

the relatively small community of planners and targeteers at Strategic Air Command during the height of the Cold War in the late 1950s through mid-1960s who put great effort into elaborate if macabre calculations to determine what percentage of the adversary's industrial capacity could and should be destroyed to secure victory should war with the Soviet Union break out.

28. For example, T.X. Hammes advances the idea of a distant blockade entailing the establishment of a set of concentric rings to deny China the use of the sea within the first island chain with the maritime and airspace of outer rings dominated by U.S. and allied forces working to ensure that energy supplies and other key commercial traffic bound for China does not proceed to China. See T.X. Hammes, "Offshore Control: A Proposed Strategy for an Unlikely Conflict," Strategic Forum No. 278 (Institute for National Strategic Studies, National Defense University, June 2012).
29. Now officially referred to as the Joint Concept for Access and Maneuver in the Global Commons (JAM-GC).
30. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 113–114.
31. *Ibid.*, 114.
32. *Ibid.*, 114.
33. *Ibid.*, 113–115.
34. Information Office of the State Council of the People's Republic of China, *China's Military Strategy* (May 2015), http://www.china.org.cn/china/2015-05/26/content_35661433.htm.
35. Deliberate escalation is a form of intentional escalation by a combatant undertaken with the goals of gaining an advantage, avoiding defeat, and/or sending a signal. Deliberate escalation might be undertaken for instrumental motives or suggestive motives or a combination of both. Inadvertent escalation, by contrast, is defined as a situation in which a combatant "deliberately takes an action that it does not perceive to be escalatory, but is nevertheless interpreted that way by the enemy. In short, inadvertent escalation is characterized by intentional action that leads to the unintentional and unforeseen result of escalation." For further discussion, see Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century*, 19–33, from which these definitions are derived.
36. U.S. Joint doctrine defines FDOs as "preplanned, deterrence-oriented actions carefully tailored to send the right signal and influence an adversary's actions. They can be established to dissuade actions before a crisis arises or to deter further aggression during a crisis. FDOs are developed for each instrument of national power — diplomatic, informational, military, and economic — but they are most effective when used to combine the influence across instruments of national power." See U.S. Joint Chiefs of Staff, *Joint Operation Planning*, Joint Publication 5-0 (December 2006), esp. Appendix E.
37. Kaufman and Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control," 27–28.
38. Wang, "Further Discussion on War Control," 62–63.
39. Zhao and Zhao, "On Control and Management of Military Crises," 66.
40. *Ibid.*, 66.
41. Johnston is careful to caveat that his thoughts on the matter are anecdotal in nature as they are based upon his interactions with Chinese officials and analysts on crisis management. See Johnston, "The Evolution of Interstate Security Crisis-Management Theory and Practice in China," 43.
42. *Ibid.*, 43.
43. Paul H.B. Godwin and Alice L. Miller, "China's Forbearance Has Limits: Chinese Threat and Retaliation Signaling and Its Implications for a Sino-American Military Confrontation," China Strategic Perspectives Report No. 6 (Center for the Study of Chinese Military Affairs, Institute for National Strategic Studies, National Defense University, 2013), 28.
44. *Ibid.*, 28–29.
45. Timothy R. Heath, "An Overview of China's National Military Strategy," in *China's Evolving Military Strategy*, ed. Joe McReynolds (Washington: The Jamestown Foundation, 2016), 17–45.
46. Henley, "War Control: Chinese Concepts of Escalation Management," 151.
47. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 114–115.
48. Zhao and Zhao, "On Control and Management of Military Crises," 65–66.
49. Kaufman and Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control," 51–52.
50. Wang, "Further Discussion on War Control," 60.
51. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 111.
52. *Ibid.*, 113.
53. *Ibid.*, 115.
54. As Henley bluntly observed in 2006, "It is difficult to overstate how prominent the concept of the initiative is in Chinese writings." Henley, "War Control: Chinese Concepts of Escalation Management," 90.

55. Zhang Yu, Liu Sihai, and Xia Chengxiao [张羽, 刘四海, 夏成效], "On the Art of Controlling War Situations in Informatized Warfare" [论信息化战争的战局控制艺术], *China Military Science* [中国军事科学], (August 2010) [2010年,002期], 27.
56. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 116.
57. Zhang, Liu, and Xia, "On the Art of Controlling War Situations in Informatized Warfare," 28–29.
58. U.S. Joint Chiefs of Staff, *Joint Operation Planning*, JP 5-0 (2011); and U.S. Joint Chiefs of Staff, *Joint Operations*, JP 3-0 (2011).
59. Kerry Kartchner and Michael Gerson argue that the two Cold War adversaries established a common language and common approach to escalation control through crisis management "designed above all not to maximize the achievement of one's own national security objectives per se but to help prevent further escalation." See Kerry M. Kartchner and Michael S. Gerson, "Escalation to Limited Nuclear War in the 21st Century," in *On Limited Nuclear War in the 21st Century*, eds. Jeffrey A. Larsen and Kerry M. Kartchner (Stanford, CA: Stanford University Press, 2014), 160.
60. In the later years of the Cold War, Alexander George distilled the requirements of successful crisis management into a list of principles of crisis management. See Gordon A. Craig and Alexander L. George, *Force and Statecraft: Diplomatic Problems of Our Time* (New York: Oxford University Press, 1983), 206–207; and George, "A Provisional Theory of Crisis Management," 25–26.
61. For a discussion of the central importance of the concept of seizing the initiative in current Russian military operational art and doctrine, see Stephen R. Covington, "The Culture of Strategic Thought Behind Russia's Modern Approaches to Warfare" (Belfer Center for Science and International Affairs, October 2016), 36–38.
62. For a discussion, see Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century*, 57.
63. See, for example, Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 115.
64. Liu, "On War Control – Mainly from Military Thinking Perspective," 1-8.
65. Zhang, Liu, and Xia, "On the Art of Controlling War Situations in Informatized Warfare," 26.
66. See, for instance, William A. Owens, *Lifting the Fog of War* (New York: Farrar, Straus and Giroux, 2000).
67. Carl von Clausewitz, *On War*, Michael Howard and Peter Paret, eds. and trans. (Princeton, NJ: Princeton University Press, 1976).
68. Clausewitz, *On War*, 86.
69. George, "The Tension between 'Military Logic' and Requirements of Diplomacy in Crisis Management," 18.
70. Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (New York: Basic Books, 1984); and Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton, NJ: Princeton University Press, 1995).
71. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 95.
72. Pollpeter and Ray characterize the 2013 *Science of Military Strategy's* treatment of space as a "great leap forward" over previous editions. See Kevin Pollpeter and Jonathan Ray, "The Conceptual Evolution of China's Military Space Operations and Strategy," in *China's Evolving Military Strategy*, ed. Joe McReynolds (Washington: The Jamestown Foundation, 2016), 248.
73. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 96.
74. Information Office of the State Council of the People's Republic of China, *China's Military Strategy*.
75. Kevin Pollpeter, Eric Anderson, Jordan Wilson, and Fan Yang, "China Dream, Space Dream: China's Progress in Space Technologies and Implications for the United States" (U.S.-China Economic and Security Review Commission, 2015), 8.
76. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 96.
77. *Ibid.*, 185.
78. *Ibid.*, 181–182.
79. *Ibid.*, 131.
80. *Ibid.*, 131.
81. *Ibid.*, 131.
82. *Ibid.*, 193–194.
83. *Ibid.*, 129.
84. John Costello, "The Strategic Support Force: China's Information Warfare Service," *China Brief*, 16 no. 3 (February 8, 2016), 2.
85. Costello, 1–2.
86. That the American reluctance also stems, in part, from the assurance concerns that such an acknowledgement could generate among U.S. allies is obviously not lost on Gompert and Saunders. See David C. Gompert and Phillip C. Saunders, *The Paradox of Power: Sino-American Strategic Restraint in an Age of Vulnerability* (Washington: National Defense University Press, 2011), 14 and 39–70.

87. The authors of *The Science of Military Strategy* assert that “Military deterrence can be subdivided into ... conventional deterrence and nuclear deterrence, space deterrence and information deterrence, direct deterrence and indirect deterrence, peacetime deterrence and contingency deterrence, actual combat deterrence and non-actual combat deterrence, and local deterrence and integrated-whole deterrence.” See Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 134.
88. For a recent and more comprehensive treatment of Chinese concepts and capabilities, see Michael S. Chase and Arthur Chan, “China’s Evolving Strategic Deterrence Concepts and Capabilities,” *The Washington Quarterly*, 39 no. 1 (Spring 2016), 117–136.
89. Thus, this examination does not discuss escalation concerns arising from, for instance, the organizational fact that the PLA Rocket Force (PLARF) exercises operational command and control over both China’s conventional and nuclear missiles, thus raising the possibility that a conventional strike on a facility understood as providing C2 for Chinese conventional missiles could be misconstrued by the PLARF as a strategic strike intended to degrade China’s nuclear C2 capability. For an excellent examination of this particular issue, see John W. Lewis and Xue Litai, “Making China’s Nuclear War Plan,” *Bulletin of the Atomic Scientists*, 68 no. 5 (September 2012), <http://bos.sagepub.com/content/68/5/45>.
90. The summary of main aspects that follow are derived from the 2013 version of *The Science of Military Strategy*; virtually the same discussion of main aspects can be found in the 2001 version of *The Science of Military Strategy*. See Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 134–136; and Peng and Yao, *The Science of Military Strategy*, 178–180.
91. He Qionghua, “Nuclear Deterrence,” 41.
92. In its publicly articulated policy and strategy for nuclear weapons, Beijing outlines what it terms a “self defensive nuclear strategy” in which nuclear weapons serve to deter nuclear attack, to counter nuclear intimidation, and to counterstrike in self defense. Chinese officials never tire of proclaiming that the policy governing China’s nuclear strategy is one of “no first use” that China maintains a “limited” development objective of creating a “lean and effective” force, that China will never enter into a nuclear arms race with any other country, and that its nuclear force is under the direct command not of the PLA, but of the Central Military Commission. See Information Office of the State Council of the People’s Republic of China, *The Diversified Employment of China’s Armed Forces* (April 2013), http://www.nti.org/media/pdfs/China_Defense_White_Paper_2013.pdf
93. As Johnston reports, the eight methods of signaling are: public statements indicating a willingness to use force; raising of the level of weapons preparations; displays of strength through publicized exercises; redeployment of forces; raising of military alert levels; attacks on the adversary’s information systems (including cyberattacks); weapons tests and proactive disruption of the adversary’s military movements; and limited attacks as warning signals. See Johnston, “The Evolution of Interstate Security Crisis-Management Theory and Practice in China,” 43.
94. Peng and Yao, *The Science of Military Strategy*, 178; and Li Xianyun [李贤允], Rong Jiaxin [容嘉信], Shao Yuanming [邵元明], Ge Xinqing [葛信卿], Huang Zongyuan [黄宗元], Wang Zengyong [王增勇], Chang Jin’an [常金安], Lü Xiangdong, [吕向东], Wang Xiaodong [王晓东], Huang Wei [黄伟], Mao Guanghong [毛光宏], Zhou Min [周敏], Wu Min [武旻], Chen Changming [陈昌明], Li Chaomin [李朝民], Yu Jixun [于际训] and Li Tilin [李体林], eds., *Science of Second Artillery Campaigns* [第二炮兵战役学], (Beijing: PLA Press [解放军出版社], March 2004), 277–278.
95. See, for an example, James M. Acton, Senior Fellow at the Carnegie Endowment for International Peace and Co-Director of its Nuclear Policy Program, “China’s Offensive Missile Forces,” Testimony to the U.S.-China Economic and Security Review Commission, April 1, 2015, <http://carnegieendowment.org/2015/04/01/china-s-offensive-missile-forces>. Notably, Acton believes two ongoing technical developments in China point to the possibility of the adoption of a launch-on-warning policy. First are Chinese efforts to improve the country’s land-based early-warning radars and the purported development of a space-based early-warning system; the second are continuing Chinese programs to deploy only solid-fueled, road-mobile ballistic missiles, a capability that would facilitate the adoption of a LOW posture.
96. See, for example, Michael S. Chase and Arthur Chan, “China’s Evolving Approach to ‘Integrated Strategic Deterrence’” (RAND Corp., 2016), 49-50; and Gregory Kulacki, “The Chinese Military Updates China’s Nuclear Strategy” (Union of Concerned Scientists, March 2015), 4.
97. Military Strategy Department, PLA Academy of Military Science, *The Science of Military Strategy*, 175.
98. For a discussion, see Bruce G. Blair, *The Logic of Accidental Nuclear War* (Washington: Brookings Institution Press, 1993), 168–218; and Kulacki, “The Chinese Military Updates China’s Nuclear Strategy,” 7.
99. The four situations are: First, when an enemy threatens to carry out conventional strikes against our nuclear facilities ... Second, when an enemy threatens to carry out strikes against our major strategic targets related to the safety of the people, like large-scale water and electricity stations ... Third, when an enemy threatens to carry out medium or high strength conventional strikes against our capital, important major cities, and other political and economic centers ... Fourth, when conventional warfare continues to escalate and the overall strategic situation changes from positive to disadvantageous for us, and when national safety is seriously threatened ... See Li Xianyun, et al., eds., *Science of Second Artillery Campaigns*, 294.

100. Michael S. Chase, "China's Transition to a More Credible Nuclear Deterrent: Implications and Challenges for the United States," *Asia Policy*, No. 16 (July 2013), 87. As noted in the Introduction of this examination, it is possible that the failure of Chinese strategists to discuss specific Chinese thresholds and red lines is intentional, a lacuna explicable as reflecting a concern over revealing too much and exposing a vulnerability. Chinese strategists could also be concerned over the possibility of providing a level of specificity that could generate unwanted controversy and attention, as the *Science of Second Artillery Campaigns* seems to have done. Like other parts of the text, the *Science of Second Artillery Campaigns*' list of four instances in which China might consider reducing its nuclear threshold has attracted a good deal of discussion and concern among Western analysts and decisionmakers. Chinese officials have made a habit of deflecting such concern and indeed any discussion of the *Science of Second Artillery Campaigns* by arguing against the authoritative nature of the text, with some even saying that its publication was a mistake that sent the wrong signals about China's nuclear strategy. For a discussion, see Eben Lindsey, Michael Glosny, and Christopher Twomey, "US-China Strategic Dialogue, Phase VI: An NPS and Pacific Forum Conference, June 2011," PASC Report 2012 001 (U.S. Naval Postgraduate School and Defense Threat Reduction Agency, November 2011), 9.
101. It bears noting that the absence of a discussion of thresholds in the 2013 *Science of Military Strategy* and other authoritative writings focused on addressing external threats stands in stark contrast to Chinese writings that address domestic emergencies. Kaufman and Hartnett point out that similar to the 2013 *Science of Military Strategy*, Chinese emergency plans emphasize the importance of preventing potential crises before they occur and quickly controlling them once they do. Unlike the 2013 *Science of Military Strategy*, however, such plans go on to "lay out clear thresholds for classifying the severity of an incident" in some specificity. For a discussion, see Kaufman and Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control," 44–45.
102. As Phillip Saunders and Julia Bowie note, these include a memorandum of understanding (MOU) on notification of major military activities, an MOU on rules of behavior for safety of air and maritime encounters, and an agreement on the use of a new secure video link to communicate during crises. For an excellent discussion, see Phillip C. Saunders and Julia G. Bowie, "US-China military relations: competition and cooperation," *Journal of Strategic Studies*, 39 no. 5-6 (August 2016), 676–677.
103. Track 1.5 and 2.0 diplomacy comprises discussions involving non-state actors and governmental actors in the former and only non-state actors in the latter. While unofficial, they can be understood and are very much seen as important types of CSBMs as they aim to assist governmental actors in managing and resolving conflicts by exploring different possible solutions relatively unconstrained by official policy. For an excellent discussion of U.S.-China Track 1.5 and 2.0 discussions on security matters, see Michael O. Wheeler, "Track 1.5/2 Security Dialogues with China: Nuclear Lessons Learned," IDA Paper P-5135 (Institute for Defense Analyses, September 2014).
104. For a discussion, see Robert Haddick, *Fire on the Water: China, America, and the Future of the Pacific* (Annapolis: Naval Institute Press, 2014), esp. 206–208.
105. For a recent example, see Eric Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power 1996-2017" (RAND Corp., 2015).
106. The author believes that the Godwin and Miller study of Chinese threat and retaliation signaling cited above is perhaps one of the few exceptions to the argument presented in this Coda. In that study, the authors examine numerous cases of major disputes and crises since 1949 in which Beijing has threatened to use military force or has actually resorted to military force. Their effort unearths a number of valuable insights regarding what can be seen as a fairly standardized threat and warnings calculus that Beijing has developed over the decades and that it rolls out to signal its intent to employ military force in disputes and crises. See Godwin and Miller, "China's Forbearance Has Limits: Chinese Threat and Retaliation Signaling and Its Implications for a Sino-American Military Confrontation."
107. Importantly, the 2006 Swaine and Tuosheng edited volume of case studies consists of papers initially developed for a 2004 conference on crisis management in Beijing; see *Ibid.*, xii. Thus the crises referenced in the author's sentence and the case studies of those same crises appearing in the volume were separated by a mere three to nine years. In short, the degree of change China had experienced in the time separating the crises that were the focus of the case studies and the actual publication of the volume was in many instances negligible. But in the decade that has passed since the volume appeared and in the 15 years that have elapsed since the case study of the latest crisis, China has changed immensely in each of the four categories referenced.
108. The performance of U.S. military forces in Operation Desert Storm in Iraq and the 1995-96 crises over Taiwan were wake-up calls for China's leadership. Lessons learned from the former caused the Central Military Commission of the Chinese Communist Party to take the unusual step of issuing a major revision to the military strategic guidelines that serve as the basis for China's national military strategy, while the crises over Taiwan coming just a few years later resulted in an actual and substantial increase in the PLA's budget. But as Western analysts have come to learn over just the past few years, it was, in fact, the U.S. accidental bombing of the Chinese Embassy in Belgrade in 1999 that served as a fundamental turning point that, as Chase notes, "motivated Beijing to devote even greater resources to improving the capabilities of the

PLA by focusing on asymmetric approaches to exploiting potential U.S. military vulnerabilities and developing advanced, high-technology weapons to deter — or, if necessary, counter — U.S. military intervention in any conflict involving China.” See Chase and Chan, “China’s Evolving Strategic Deterrence Concepts and Capabilities,” 117. On the role and importance of the military strategic guidelines in China’s national military strategy, see M. Taylor Fravel, “China’s New Military Strategy: ‘Winning Informationized Local Wars,’” *China Brief*, 15 no. 13 (July 2, 2015), <https://jamestown.org/program/chinas-new-military-strategy-winning-informationized-local-wars/>

109. To be clear, this does not mean that other important insights and lessons about current and future challenges associated with crises and conflicts cannot be derived from case studies of past crises and conflicts in general, let alone from the specific examples referenced. Michael Gerson, for example, derives a number of important lessons and implications for future nuclear challenges in his excellent case study of the 1969 Sino-Soviet border conflict. But, being the careful analyst that he is, Gerson makes it abundantly clear that the insights and lessons he derives are pertinent to future confrontations “between states with vastly asymmetric nuclear (and conventional) capabilities...,” which, of course, is to say, pertinent to situations in which the relationship between the actors is similar in terms of relative military capabilities, experience as nuclear states, strategic cultures, and views on deterrence as the situation that existed between China and the Soviet Union in 1969. See Michael S. Gerson, *The Sino-Soviet Border Conflict: Deterrence, Escalation, and the Threat of Nuclear War in 1969* (Alexandria, VA: Center for Naval Analyses, 2010), 53–59.

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