Chapter 10

An Overview of Chinese Thinking About Deterrence

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Abstract All major powers undertake deterrence behaviour, as an integral part of their foreign and security policy. This includes the People's Republic of China (PRC). The PRC, however, comes from a different strategic tradition than the United States; therefore, understanding Chinese views of deterrence has become salient. This is complicated by the evolution in Chinese thinking about deterrence, as it has sought to incorporate various elements of national power.

Keywords coercion • information deterrence • space deterrence • non-military deterrence • limited deterrence

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10.1 Differing Definitions of Deterrence

The concept of deterrence, “in its most general form, ... [is] simply the persuasion of one’s opponent that the costs and/or risks of a given course of action he might take outweigh its benefits”.¹ In this formulation, there is no presumption that deterrence as being dissuasive versus coercive. Either would be a form of deterrence. The difference between Western and Chinese thinking about deterrence, however, begins at this fundamental, conceptual level. For Western thinkers, deterrence is primarily about *dissuasion* (although there is nothing in the definition of the term that presupposes this). Thomas Schelling, for example, in his 1966 book *Arms and Influence*, defines deterrence as “the threat intended to keep an adversary from doing something”.² This definition is echoed by other Western analysts of deterrence. John Mearsheimer, in his book *Conventional Deterrence*, notes that “deterrence, in its broadest sense, means persuading an opponent not to initiate a specific action because the perceived benefits do not justify the estimated costs and risks”.³ Schelling specifically differentiates *deterrence* from *coercion*, which he defines as “the threat intended to make an adversary do something”.⁴ Glenn Snyder makes the same point by noting that deterrence “is the power to *dissuade* as opposed to the power to *coerce* or *compel*”.⁵ Thus, Western analyses of deterrence implicitly (and even explicitly) associate deterrence with dissuasion, and *disassociate it from compellence*.⁶

The Chinese term that is most often equated with deterrence is *weishe* (威慑). The Chinese themselves translate the term as “deterrence”.⁷ But the attendant meanings and implications underlying the term are very different. For the Chinese, the term *weishe* embodies *both* dissuasion *and* compellence. The 2011 PLA volume on military terminology, for examples, defines a strategy of deterrence, or *weishe zhanlue*, as “a military strategy of displaying or threatening the use of armed power, in order to compel an opponent to submit”.⁸ This definition does not distinguish between dissuasion or compellence in the Chinese definition. Indeed, the entry notes that there are offensive deterrence strategies and defensive deterrence strategies, which would seem to represent compellence and dissuasive approaches respectively.

¹George and Smoke 1974, p. 11.

²Schelling 1966, p. 69.

³Mearsheimer 1983, p. 14.

⁴Schelling 1966, p. 69.

⁵Emphasis added. Snyder 1988, p. 31.

⁶Some define coercion as encompassing deterrence and compellence. Others define compellence as encompassing deterrence and coercion. In both cases, the Western concept of deterrence primarily focuses on dissuasion. For this paper, we will use the term *compellence* to encompass the broader concept, which will include both deterrence and coercion.

⁷PLA Encyclopedia Committee 2002, p. 477.

⁸All Army Military Terminology Management Committee 2011, p. 51.

Other authoritative Chinese volumes echo this view. Generals Peng Guangqian and Yao Youzhi, in the 2005 PLA textbook *The Science of Military Strategy*, note that

deterrence plays two basic roles: one is to dissuade the opponent from doing something through deterrence, the other is to persuade the opponent what ought to be done through deterrence, and *both* demand the opponent to submit to the deterrer's volition.⁹

Thus Peng and Yao, in essence, combine Schelling's definitions of deterrence and coercion within the Chinese term *weishe*. This combined approach also occurs in a volume authored by the PLA's National Defence University's Military Science Research Department, which attests that the purpose of deterrence is "to halt, or prevent, the other side from starting a conflict, and thus protect one's own interests from aggression. Or, it is to shake the other side's will to resist (*dikang yizhi*; 抵抗意志), and thus seize those interests or benefits that originally would have required conflict in order to obtain them."¹⁰

In the 2015 edition of *The Science of Strategy* (*zhanlue xue*; 战略学), published by the Chinese National Defence University, strategic deterrence is defined as a form of military combat whereby an adversary is coerced to "give way, compromise, or submit (*tuirang, tuoxie, huo qufu*; 退让妥协或屈服)".¹¹ Again, there is no distinction made between dissuasion and compellence. In essence, the available literature suggests that the Chinese do not necessarily think in terms of deterrence, as that term is employed in Western strategic literature, but in terms of *coercion*. Whether an adversary agrees to do something they would prefer *not* to do, or avoids doing something they would prefer *to* do, both fit within the Chinese term *weishe*. This term incorporates both the compellence and dissuasive aspects.

As important, Chinese decision-makers assess successful deterrence differently from their American counterparts. American discussions tend to characterize deterrence as a *goal*; in particular, there is often reference to deterring an adversary from acting in a particular domain (e.g., space, cyber). The 2010 US National Security Strategy, for example, states that the US is committed to maintaining "superior capabilities to deter and defeat adaptive enemies" and reassure friends and allies.¹² The very act of deterring one or more opponents from acting in certain domains or in certain ways is seen as serving US interests. By contrast, the Chinese view deterrence as a *means* to achieving political ends. There does not appear to be much focus on deterring or dissuading an adversary from acting in space or cyber, for example. Instead, for Chinese decision-makers, successful deterrence is ultimately a form of political activity and psychological warfare, whereby an adversary

⁹Emphasis added. Peng and Yao 2005, p. 215.

¹⁰Emphasis added. National Defense University Science Research Department 2004, p. 85.

¹¹Xiao 2015, p. 119.

¹²Office of the President of the United States 2010, pp. 17–18.

is constrained in their actions, allowing China to achieve its goals.¹³ (Although nuclear deterrence would seem to be the exception, with a general desire to avoid the use of nuclear weapons against China.) Chinese writings in turn suggest that their decision-makers will rely on more than one means in order to try and deter (and compel) an adversary. Chinese discussions of deterrence such as the various editions and versions of *Science of Strategy* and *Science of Military Strategy* consistently suggest that they will incorporate conventional, space, and information forces and actions, as well as orchestrate economic, diplomatic, and even mobilisation activities and planning, in order to force an adversary to submit. The focus is not on deterring action in one or another domain, but in securing the larger Chinese strategic objective (e.g., getting Taiwan to abandon efforts at securing independence; obtaining support for Chinese claims to the South China Sea). The act of deterrence is to help achieve a particular goal; *deterrence is not the goal itself*. As one Chinese analysis notes, the basic developmental path for Chinese deterrence is “nuclear and conventional unified; deterrence and warfighting unified; deterrence and control [of conflict] unified”.¹⁴

Interestingly, Chinese writings suggest that there is much more attention being paid to nuclear, space, and information capabilities and their contributions to deterrence than conventional forces. In the second edition of the *PLA Encyclopedia*, released in 2007, there are several entries for different aspects of *weishe*. Not only is there an entry for the strategy of deterrence (*weishe zhanlue*; 威慑战略), but there are also entries for “nuclear deterrence (*he weishe*; 核威慑)”, “space deterrence (*taikong weishe*; 太空威慑)”, and “information deterrence (*xinxi weishe*; 信息威慑)”.¹⁵ Each entry includes a discussion of how deterrence in this context is viewed, not only by Chinese analysts, but foreign analysts as well. There is no entry, however, for conventional deterrence. Other Chinese writings provide additional insight into how the Chinese conceive of each of these aspects of deterrence. This paper will examine the Chinese view of these various types of deterrence individually, and what they might mean in combination.

10.2 China's Concepts of Nuclear Deterrence

Within this different Chinese perspective of deterrence, nuclear weapons occupy a particular place. The primary role of Chinese nuclear weapons is in supporting broader Chinese policies of *weishe*, in both its dissuasive and coercive aspects.¹⁶ As Chinese leaders have noted, the mere possession of nuclear weapons compels an adversary to take them into account. Thus, as Chinese Foreign Minister Chen Yi

¹³Zhou and Wen 2004, p. 20.

¹⁴Academy of Military Science Military Strategy Research Office (PRC) 2013, p. 147.

¹⁵Editorial Committee 2007, pp. 279–284.

¹⁶Editorial Committee 2007, p. 4.

observed in 1962, in the midst of the “two bombs, one satellite effort,” “producing atomic bombs, missiles, and supersonic aircraft would put me, the Minister of Foreign Relations, in a better position!”¹⁷

Nuclear deterrence is defined as the display of nuclear forces, or the threat of their employment, in order to shake and awe an adversary, or limit and constrain their military activities. It involves warning an adversary of the possible employment of nuclear weapons, either in an offensive or counter-offensive manner, and the associated destruction in order to generate psychological impacts in the target of deterrence. The expectation is that this will compel an adversary to engage in a cost-benefit analysis, and by generating fear, shake their will and cause them to abandon their goals. As the 2007 *PLA Encyclopedia* notes, successful nuclear deterrence will allow the deterring side to achieve its political or military goals.¹⁸ According to Chinese writings, the power of nuclear weapons, coupled with their capacity for both compellence and dissuasion, means that nuclear weapons not only can deter conflict and compel adversaries, but can also serve to limit the outbreak of conflict more generally. Beginning in the 1990s, Chinese leaders noted that China’s strategic deterrent forces could constrain conflicts, delay its outbreak, or limit the scale of a conflict should one nonetheless occur.¹⁹

According to Chinese analyses, while capabilities and will are essential elements of deterrence in peacetime, signalling one’s will to employ those capabilities is vital in time of crisis.²⁰ Only if an adversary has no doubt that the PRC is prepared to employ its capabilities can conflict be constrained. Nuclear weapons’ inherent destructiveness is a means of influencing the adversary’s calculations of risk and cost, while their deployment is a concrete expression of Chinese capability. While this echoes Western concepts of deterrence, it is notable that Chinese writings explicitly note the importance of not only capability and will, but the communication of both these elements to those whom one wishes to deter. By contrast, the role of communicating capability and will is more implicit in Western writings; indeed, much of the effort in the Cold War was focused on this communications issue. It would appear that the Chinese see communications as embodying not only signalling but also credibility.

For the PRC, its approach to nuclear deterrence has focused on “limited deterrence”. That is, China has sought to develop sufficient numbers of nuclear weapons to allow it to maintain a survivable second-strike force, but has not chosen to pursue a larger number typically associated with nuclear war-fighting (including counter-force targeting of an adversary’s nuclear forces). China’s strategic nuclear forces are mainly comprised of land-based ICBMs, and a handful of sea-based nuclear missiles. There are several dozen ICBMs, mainly the DF-31 series, and one Chinese ballistic missile submarine, whose JL-1 SLBM was comparable to the early

¹⁷Deng 1993, p. 60.

¹⁸Editorial Committee 2007, p. 282.

¹⁹Academy of Military Science Military Strategy Research Office (PRC) 2013, p. 142.

²⁰Academy of Military Science Military Strategy Research Office (PRC) 2013, p. 174.

Polaris A2 in range. All of these are equipped with single nuclear warheads. Until 2015, the land-based missile force, both nuclear and conventional, were under the control of the Second Artillery, which was considered an “independent branch” (as opposed to a full-fledged service), with a strategic mission. A major overhaul of the People’s Liberation Army at the end of 2015, however, saw the reorganization of the Second Artillery into the PLA Rocket Forces (PLARF) and its elevation to a full-fledged service. The elevation in status means that PLARF officers will be co-equal members of the staffs of each of the new war zones, alongside the ground forces, PLA Navy, PLA Air Force, and PLASSF. Indeed, a PLARF officer could, in theory, be placed in command of a war zone. The full implications of this shift are not yet clear, but it suggests that there may be a greater role for China’s missile forces in any future joint campaign, both conventional and potentially nuclear. There has been some discussion of the PRC obtaining a nuclear bomber, which would give the PRC a triad such as that of the United States. It remains to be seen whether the Chinese will commit the resources necessary to build such a force.

China sees its nuclear forces as marked by several key characteristics. As noted earlier, China fields only a *limited deterrent*. This is all that necessary because, in the Chinese formulation, China adheres to a nuclear no-first use policy against states and regions that have no nuclear weapons. (This no-first use policy, however, appears to be less than absolute.) There is little indication that the PRC has engaged in either planning or acquisition to support a nuclear war-fighting strategy (including nuclear counterforce strikes against an adversary’s nuclear deterrent forces). Therefore, the PRC has no requirement for a massive nuclear force. Moreover, it has a strictly “defensive” nuclear policy, where it will only use nuclear weapons in response to an adversary’s aggression. Instead, within this context, the PLA’s nuclear deterrent forces, the Second Artillery and its successor the PLARF, are focused on retaliatory nuclear missions. According to Chinese analyses, the PLA therefore needs to field an elite deterrent force that is credible (*ke xin*; 可信) and reliable (*ke kao*; 可靠), but does not have to be large. A credible, reliable nuclear force, coupled with the will to use it in response to an adversary’s aggression, are central to China’s conception of nuclear deterrence.

In order to improve its credibility, Chinese writings suggest that the PLARF will have to field a force that can weather an adversary’s first strike, and possible missile defences, and still launch an effective retaliatory strike. This will entail strengthened striking power, improved survivability, and the ability to respond rapidly if and as necessary. Improvements in these areas will allow the PLARF to generate much more destructiveness should it be employed, thereby enhancing the credibility of the threat posed. Similarly, in order to enhance its reliability, the PLA is interested in improving the level of information support provided to the PLARF, including strengthening nuclear C2 capabilities, the provision of improved strategic early warning, as well as a rapid response capability.

It is important to note, however, that Chinese analyses, while not calling for nuclear counter-force targeting, do call for the ability to wage “real war (*shi zhan*; 实战)” with nuclear weapons, in addition to implementing deterrence. “Deterrence capability is based on the ability to wage real war, and the structure of deterrent

strength is indistinguishable from combat strength. Deterrent strength is embedded in real combat capability.”²¹ Chinese writings therefore suggest that deterrence is served by maintaining a capability of waging “real war”, including mounting nuclear strikes. This view is reflected in what appears to be a concept of a “deterrence ladder”, akin to an escalation ladder, as part of Chinese deterrent activities. In the PLA volume *Science of Second Artillery Campaigns*, the authors suggest that the Second Artillery (and presumably the PLA Rocket Forces) has adopted an escalatory ladder to frame their deterrence activities.²² The rungs comprise:

- *Public opinion pressure.* The public display of Chinese nuclear missiles in the media underscores that China possesses a nuclear deterrent capability.
- *Elevating weapons readiness.* This includes increased readiness of warheads and launchers (which are seen as two separate, but related activities), as well as demonstrating launch preparations. Since Chinese nuclear warheads appear to be stored at centralized facilities, this would suggest that deploying warheads to missile units would be part of a Chinese deterrent effort.
- *Displays of actual capability.* This goes beyond public displays before the media, to include military reviews and parades; invitations to foreign attaches to inspect Chinese forces; and coverage of high level visits to forces in the field. The authors of *The Science of Second Artillery Campaigns* also suggest that mobile missiles might deploy while other nations’ surveillance satellites are known to be overhead, or nuclear missile forces might be incorporated into various exercises. They also suggest simulated launches could be undertaken at this rung.
- *Manipulating tensions and creating impressions and misimpressions.* By deploying forces, emitting various signals and signatures, simulating launches, and/or raising readiness (in a demonstrable fashion), the PLA would seek to influence an adversary’s calculus of the likelihood and destructiveness of a conflict.
- *Demonstration launches.* As a crisis progresses, the Chinese may decide to launch one or more missiles, in order to deter (or coerce) an adversary. These may be aimed at designated areas at sea or on land, and might involve the launch of several different types of missiles to demonstrate comprehensive readiness.
- *Demonstration launches near an adversary’s forces or territory.* By engaging in test firings near an adversary’s naval forces, homeland, or seized territories, the PLA would try to coerce an adversary into abandoning their ongoing activities. It is a form of indirect attack that seeks to deter or coerce.
- *Announcing the lowering of the nuclear threshold.* The PLA specifically associates this move with countering an adversary that has substantial nuclear capabilities, but also an advantage in high-technology conventional weapons. In order to counter the latter element, the Chinese leadership might announce a

²¹Academy of Military Science Military Strategy Research Office (PRC) 2013, p. 147.

²²This section is drawn from Chinese People’s Liberation Army Second Artillery 2003, pp. 281–296.

lowering of the nuclear threshold, e.g., entertaining a nuclear response to conventional attacks against vital strategic targets in the PRC. These include nuclear facilities (including nuclear power stations); targets that could cause great loss of life such as hydroelectric facilities (presumably such as the Three Gorges Dam); the nation's capital or other major urban or economic centres. Such an adjustment might also occur if the PRC found itself in a situation where it was losing a conventional war, and was faced with a challenge to its national survival.

This array of actions underscores the Chinese belief that successful deterrence requires the PLA to be able to signal resolve—and those signals can include the employment of actual forces (as in the sixth and potentially the seventh rungs). Coupled with the incorporation of both conventional and nuclear forces under PLARF command, this would suggest that the PLA Rocket Force may envision conventional missiles as a means of warning of potential nuclear escalation. Rather than developing a nuclear counter-force capacity, the PLARF may hope to employ the same missile, with a conventional warhead, to engage in demonstrations or even attacks, as a warning of the potential for further escalation to nuclear means. For example, by employing conventional DF-21s, Chinese leaders could demonstrate the capability and reach of the missile, as well as their willingness to employ such systems. The existence of a nuclear-armed variant, perhaps within the same unit, would therefore exert deterrent pressure upon the adversary (coercive or dissuasive), whether there was an explicit threat or not.

This approach would also seem consistent with the Chinese belief in the need for tailored responses as part of deterrence efforts, including nuclear ones. As one analysis notes:

The actual effects of nuclear deterrence are directly determined by the deterred side's awareness and understanding of nuclear deterrence information. The same type of capability and determination to apply that capability will generate different effects against different targets of deterrence, or the same target under different conditions.²³

This suggests that the PLA's planners are trying to avoid a "cookie-cutter" approach towards deterrence. Instead, they will employ different deterrent measures against different adversaries, or even against the same adversary as conditions were to evolve.

China's deterrence efforts are further complicated because they must account for more than just the United States. Chinese leaders must also deter Russia, India, and potentially Japan. Thus, China arguably maintains more than a "minimal" deterrent's worth of nuclear weapons. It remains unclear, however, what Chinese strategic planners consider sufficient or necessary numbers of nuclear weapons to deter potential adversaries. Moreover, given the proximity of Russia, India, and Japan, Chinese nuclear planners could employ nuclear-armed medium and intermediate range ballistic missiles to effect nuclear deterrence. For the DF-21

²³Academy of Military Science Military Strategy Research Office (PRC) 2013, p. 174.

(MRBM) and DF-26 (IRBM) missiles, Hans Kristensen and Matthew Korda assume China has 80 and 34 nuclear warheads respectively, as of 2019.²⁴

10.3 Chinese Concepts of Space Deterrence

Chinese writings since at least the late 1990s have repeatedly emphasized the importance of establishing space dominance (*zhi taikong quan*; 制太空权), as part of fighting “local wars under modern, high-technology conditions”, “local wars under informationised conditions”, and now “informationised local wars”. While the PLA is not necessarily reliant on space for its operations, its most formidable adversary, the United States, is seen as dependent upon space systems. Denying an adversary the ability to exploit space, as well as securing it for one’s own use, is therefore integral to establishing space dominance. This, in turn, elevates the role of space deterrence (*kongjian weishe*; 空间威慑), which is now seen as a vital mission for the PRC’s space forces. It is a relatively new task, arising in light of the rapid development of space technology, as well as the broad reliance upon space systems in support of other military functions.

Chinese writings define space deterrence as the use of space forces and capabilities to deter or coerce an opponent, preventing the outbreak of conflict, or limiting its extent should conflict occur. By displaying one’s own space capabilities and demonstrating determination and will, the PLA would hope to induce doubt and fear in an opponent, so that they would either abandon their goals, or else limit the scale, intensity, and types of operations. It is important to note that space deterrence is not aimed solely, or even necessarily, at deterring actions in space, but rather, in conjunction with nuclear, conventional, and informational deterrence capabilities and activities, influence an opponent’s overall perceptions and activities.

In the Chinese view, space deterrence has several unique characteristics.²⁵ One is *its broad impact* (*quan fangwei xing*; 全方位性). Effective space deterrence will affect not only space forces but terrestrial forces and operations as well. This reinforces the point that, from the Chinese perspective, “space deterrence” is not about deterring adversaries from acting in space, but exploiting space-related systems to achieve certain political and military aims (largely on Earth). Related to this is the assessment that *space deterrence is unified or integrated* (*yiti xing*; 一体性). This is a reflection of the unified nature of space capabilities, which includes military, civilian, and commercial space systems, and which encompasses systems in orbit, terrestrial tracking and control facilities, and associated data links. Successful space deterrence will employ a variety of means, including land, sea, and air-based systems as well as space-based capabilities, and will include both

²⁴Kristensen and Korda 2019.

²⁵Chinese Military Encyclopedia 2007, pp. 280–281.

offensive and defensive operations. Finally, implementing space deterrence must take into account *its comprehensive nature* (*zonghe xing*; 综合性). Space strength touches on a nation's economic, financial, scientific, as well as military capabilities. Space deterrence therefore reflects, in part, a nation's economic and scientific sophistication; that is, a country cannot have a strong space deterrent if it is economically and scientifically weak. At the same time, since a nation's space capabilities include not only its military systems, but also its commercial and civilian assets, facilities, and personnel, space deterrence therefore must include these elements as well.

PLA writings suggest that there is a perceived hierarchy of space deterrence actions. Although states may signal their broad pursuit of space deterrence through development of various technologies, in time of crisis or conflict, PLA teaching materials and textbooks suggest that the Chinese conceive of a "deterrence ladder" of space actions when in a crisis. This ladder goes beyond broad technological and bureaucratic developments, and involve displays of space forces and weapons; military space exercises; deployment or augmentation of space forces; and employment of space weapons.²⁶

- *Displays of space forces and weapons* (*kongjian lilian xianshi*; 空间力量显示) occur in peacetime, or at the outset of a crisis. The goal is to warn an opponent, in the hopes of dissuading them from escalating a crisis or pursuing courses of action that will lead to conflict. Such displays involve the use of various forms of media to highlight one's space forces, and are ideally complemented by political and diplomatic gestures and actions, such as inviting foreign military attaches to attend weapons tests and demonstrations. An article from a leading PLA journal suggests that the space deterrence calculus includes not only military space forces but civilian systems as well.²⁷ Because of the steady increase in civilian space activities, and the concomitant rise in dual-use capabilities, many civilian space activities can rapidly morph into military ones. Thus, the article notes, launch of multiple satellites from one rocket and on-orbit satellite repair have military applications, and the conduct of such activities, even by civilian entities, is nonetheless a form of space deterrence.
- *Military space exercises* (*kongjian junshi yanxi*; 空间军事演习) are undertaken as a crisis escalates, if displays of space forces and weapons are insufficient to compel an opponent to alter course. They can involve actual forces or computer simulations, and are intended to demonstrate one's capabilities but also military preparations and readiness. At the same time, such exercises will also improve one's military space force readiness. Examples include ballistic missile defence tests, anti-satellite unit tests, exercises demonstrating space strike (*kongjian tuji*; 空间突击) capabilities, and displays of real-time and near-real time information support from space systems.

²⁶Chang 2005; Jiang 2013.

²⁷Sun and Chang 2003, p. 33.

- *Space force deployments* (*kongjian liliang bushu*; 空间力量部署) are seen as a significant escalation of space deterrent efforts. It occurs when one concludes that an opponent is engaged in preparations for war, and involves the rapid adjustment of space force deployments. As with military space exercises, this measure is not only intended to deter an opponent, but should deterrence fail, is seen as improving one's own preparations for combat. Such deployments, which may involve moving assets that are already in orbit and/or reinforcing current assets with additional platforms and systems, are intended to create local superiority of forces so that an opponent will clearly be in an inferior position. It may also involve the recall of certain space assets (e.g., space shuttles), either to preserve them from enemy action or to allow them to prepare for new missions. This may be akin to the evacuation of dependents from a region in crisis, as a signal of imminent conflict.
- The Chinese term the final step of space deterrence as “*space shock and awe strikes* (*kongjian zhenshe daji*; 空间震慑打击)”. If the three previous, non-violent (or less violent) deterrent measures are insufficient, then PLA writings suggest that it may engage in punitive strikes, so as to warn an opponent that one is prepared for full-blown, comprehensive conflict in defence of the nation. Such strikes are seen as the highest, and final technique (*zuigao xingshi he zui hou shouduan*; 最高形式和最后手段) in seeking to deter and dissuade an opponent. Employing hard-kill methods, soft-kill methods, or a combination, one would attack an opponent's physical space infrastructure or data links, respectively. If this succeeds, opposing decision-makers will be psychologically shaken, and cease their activities. If it fails, an opponent's forces will nonetheless have suffered some damage and losses, facilitating the securing of space dominance in a wartime context.

It is important to note that these various space deterrence activities are unlikely to be undertaken in isolation. Rather, they will be coordinated with other, non-space activities. Indeed, several Chinese analyses note that space operations enhance other forms of deterrence, including nuclear and conventional. By providing precise information on adversary forces (e.g., location), they make nuclear attacks more effective. Space dominance can be rapidly converted into advantages for one's air, naval, and ground forces.²⁸ Similarly, by maintaining constant surveillance of an adversary under all conditions, one exerts a broader psychological pressure that also enhances deterrent (and coercive) efforts.

²⁸Sun and Chang 2003, p. 35.

10.4 Chinese Concepts of Information Deterrence

According to Chinese analyses, the rapid advances in information technology coupled with globalization have wrought a fundamental shift in the world's socio-economic situation. We now live in the Information Age, with information being the primary currency of international power: "Outer space and information space and network and electromagnetic space have become the new main focal points for major powers interested in developing their economy and increasing their comprehensive national power. It has become the new 'high ground' for maintaining security."²⁹

The growing role of information and associated technologies has led to "information deterrence" becoming a new aspect of *weishe*. That is, information itself has become an instrument of conflict, with the ability to establish "information dominance" a central focus in future wars. The ability to threaten a nation's information systems directly affects societal stability, popular livelihood, and national survival.³⁰ According to Chinese analyses, "information deterrence" conceptually includes deterrence in the cyber realm, but goes further, encompassing all aspects of information and information operations. "Information deterrence (*xinxi weishe*; 信息威慑)" is defined in the PLA's terminological reference volume as "a type of information operations activity in which one compels the adversary to abandon their resistance or reduce the level of resistance, through the display of information advantage or the expression of deterrent/coercive information".³¹ As with other PLA writings on deterrence, the Chinese approach to information deterrence does not differentiate between a compelling and a dissuasive effect.

The 2007 edition of the *PLA Encyclopedia* defines "information deterrence" as those activities in which "threats that employ information weapons or which implement information attacks against an opponent, lead to shock and awe and constrain the adversary".³² Interestingly, this definition notes that "information deterrence" relies in part upon warning an adversary of the serious consequences of an attack (including through demonstration), creating fears that will influence the other side's cost-benefit analysis. The purpose of information deterrence, again, is to allow the deterring side to "achieve a particular political goal (*dadao yiding de zhengzhi mubiao*; 达到一定的政治目标)", *not* to prevent the other side from acting in the information domain.

Another Chinese study guide defines it as "a national display of information advantage or the ability to employ information operations to paralyze an adversary's information systems, so as to threaten that adversary. This serves to constrain

²⁹Xie 2013, p. 126.

³⁰Xiao 2015, p. 123.

³¹All Army Military Terminology Management Committee 2011, p. 262.

³²Chinese People's Liberation Army National Defense University Scientific Research Department 2007, p. 283.

the other side, as part of the deterrent/coercive goal.”³³ What is clear across these various definitions is that “information deterrence”, like the broader Chinese conception of deterrence in general, includes both dissuasion and coercion, and embodies the idea of deterring *through* information operations, rather than deterring operations *in* information space.

From the Chinese perspective, the importance of information in the successful conduct of warfare means that one can also employ threats against the adversary’s ability to obtain and exploit information in order to deter and coerce them. Among states with roughly equivalent levels of information technology, given the widespread penetration of the Internet into all aspects of life, the potential ability to massively disrupt the adversary’s entire society provides an opportunity to engage in deterrence. Indeed, on a day-to-day basis, Chinese writings suggest they believe that information deterrence is already in effect among equal players, precisely because the scale of disruption that would otherwise erupt would be enormous, while few states are confident of their ability to avoid such disruptions.³⁴ However, where there is a distinct imbalance in information capabilities, it is harder for the weaker side to effect information deterrence. Conversely, the side that may be weaker in terms of conventional military power but who has significant network warfare capabilities may well be able to paralyze and disrupt the more conventionally capable side, and at least impose greater costs, if not actually defeat them.³⁵

In the Chinese view, the ability to successfully conduct offensive information operations is therefore the most important means of implementing information deterrence. A demonstrated capability of exploiting information to one’s own end, even if not employed, will nonetheless arouse concerns in the adversary. To this end, network offensive power, the ability to conduct effective computer network attack operations is essential, as it is seen as the foundation for information deterrence.³⁶ This is in part because computer network attack (CNA) capabilities are relatively inexpensive, yet able to exploit a variety of means of attack, especially since computer networks now permeate so many aspects of society, the economy, and national security. Consequently, there is an unprecedented ability to employ CNA to paralyze and disrupt an adversary across much of its society. Moreover, there is a wide range of capabilities that can be employed, and a variety of vulnerabilities that can be exploited. These elements make network security difficult, both in terms of establishing counters but also establishing attribution.³⁷ Consequently, the implicit threat underlying information deterrence is harder to counter than conventional, nuclear, or space deterrence. Indeed, the uncertainty

³³Academy of Military Science Operations Theory and Regulations Research Department and Informationized Operations Theory Research Office 2005, p. 15.

³⁴Academy of Military Science Military Strategy Research Office 2013, p. 196.

³⁵Academy of Military Science Operations Theory and Regulations Research Department and Informationized Operations Theory Research Office 2005, pp. 15–16.

³⁶Academy of Military Science Operations Theory and Regulations Research Department and Informationized Operations Theory Research Office 2005, p. 15.

³⁷Xiao 2015, p. 123.

confronting all states even now about the ultimate effect of information operations, and especially attacks against each other's information networks, is believed to be a major factor in forestalling the occurrence of large-scale network conflict.³⁸ Chinese analysts seem to believe that this uncertainty creates the opportunity for robust information deterrence. As the 2013 volume of *Science of Military Strategy* notes, in order to produce an effective deterrent strength, it is necessary to not allow the adversary to accurately determine the deterring side's applicable policies, applicable forms, and compel the adversary [the target of deterrence] to constantly be guessing and feel that they are faced with hard choices.³⁹

In the event of a crisis, some Chinese analysts suggest that one could remind an adversary of one's ability to plant computer viruses or that one is prepared to undertake large scale paralyzing attacks against an adversary's "finances and exchanges, energy resources, transportation, or military command systems" in order to warn them to cease and desist their resistance.⁴⁰ At a minimum, such moves are considered likely to affect the adversary's will to fight. At the same time, a clearly demonstrated ability to defend and safeguard one's information resources and systems can also serve to deter an adversary. If the adversary is unable to successfully attack one's information systems, then their ability to establish information dominance is likely to be extremely limited. In which case, their ability to establish dominance over other domains (e.g., air, space, maritime) is also likely to be very constrained, reducing their chances of successfully achieving whatever strategic objectives they might have. Under such circumstances, the adversary is likely to be deterred from initiating aggression, or may be coerced into submitting.

10.5 A Possible Information Deterrence Ladder

Given Chinese writings about deterrence activities in the space and nuclear domains, it is possible that there is a "deterrence ladder" for information operations. Chinese writings suggest that a deterrence ladder for information is indeed being explored.⁴¹ One article by a PLA expert from the Chinese military's Academy of Military Sciences lays out such a conceptual ladder for information deterrence.⁴²

³⁸Academy of Military Science Military Strategy Research Office 2013, p. 190.

³⁹Academy of Military Science Military Strategy Research Office 2013, p. 137.

⁴⁰Liang Shenyang, Sun Ying, "Pushing the Construction of Strategic Deterrence Capability, Using War to Deter War", *Xinhua Monthly* (2 November 2017).

⁴¹All references in this section, unless otherwise stated, are drawn from Yuan 2016.

⁴²The People's Liberation Army Academy of Military Science is the leading brain trust for the PLA. It is comparable to a combination of the RAND Corporation, the US Army's Training and Doctrine Command (for the entire PLA), the Inspector General directorate, and some aspects of the Command and General Staff College (for the entire PLA).

- *Deterrence through network technology experimentation* (*wangluo kongjian jishu shiyan weishe*; 网络空间技术试验威慑). The first, basic step for information deterrence is to undertake testing and development of new technologies associated with network warfare. This includes cyber weapons, but also new offensive methods and tactics. As important, one should allow such efforts to be revealed through the media, thereby informing the rest of the world of one's capabilities. A strong foundation in information technology and training is essential. As important, because of the rapid pace of development in this field, new breakthroughs may occur at any time; uncertainty about that can also support deterrent policies.
- *Deterrence through network equipment displays and demonstrations* (*wangluo kongjian zhuangbei zhanshi weishe*; 网络空间装备展示威慑). Where the first step of information deterrence is demonstrating technological capabilities, the second step involves demonstrating a broader array of network warfare capabilities, including equipment development plans, prototype testing, and equipment production. This approach will deliberately reveal to an adversary China's overall capabilities (rather than individual pieces of equipment or programs), as well as demonstrate that they are part of a broader, integrated development effort. Yuan Yi specifically mentions the publication of white papers (such as the Chinese defence white paper), newspaper and magazine articles, and other official releases of information.
- *Deterrence through network operational exercises* (*wangluo kongjian zuozhan yanxi weishe*; 网络空间作战演习威慑). Simply displaying network capabilities, and discussing them, may not deter a potential adversary. The next rung on the Chinese information deterrence ladder is therefore to undertake operational exercises. This can involve forces deploying and operating in a real environment or a simulated one. The article suggests that public exercises involving forces in the field are typically defensive, while more offensive operations are undertaken in simulated environments, such as national cyber test ranges. Yuan Yi specifically mentions the American "Schriever" space wargames as an example of how the United States displays and develops network warfare capabilities and signals its resolve to employ them.
- *Deterrence through actual network operations* (*wangluo kongjian zuozhan xingdong weishe*; 网络空间作战行动威慑). In both the nuclear and space contexts, the highest level of deterrent action is the actual employment of nuclear and space capabilities respectively, intended to signal an adversary the critical nature of the situation, and to demonstrate resolve. As important, employment of such weapons can affect the initial campaign, if the target is sufficiently valuable. Chinese writings suggest a similar mind-set may exist for information deterrence, i.e., that the highest rung would be the employment of actual network warfare capabilities against an adversary's systems. This might involve a direct attack against key adversary networks, in order to pre-empt an enemy attack, or in response to an adversary's probe, as retaliation (and a demonstration of capability). Yuan Yi suggests a more psychological focus, such as disrupting email networks, generating a flood of text messages, and

attacks against the power grid. Another Chinese analyst argues that successful information deterrence requires the implementation of “key point, planned, strong, multiple revisit, sustained deterrent/coercive information attacks. This will cause the adversary to have lowered self-confidence, shaken will, altered determination, so as to achieve the goal of winning without fighting.”⁴³

It is important to keep in mind that such information deterrent activities would not be occurring in isolation, but would be coordinated with a host of comparable activities. These would involve not only military forces (e.g., naval exercises, space exercises), but also diplomatic and political pronouncements, economic measures, etc. This is especially likely to be the case at the higher rungs on the ladder. At the same time, however, because China confronts a variety of potential adversaries, its leaders must constantly strive to engage in multilateral deterrence. Therefore, the Chinese leadership may not necessarily engage only in deterrent activities against, say, the United States or Japan, even in the midst of a crisis with those states. Heightened operations or limited offensive information operations, in the deterrent context, may be undertaken against third parties, both in order to demonstrate capability and resolve against the main target, but also to signal those third parties (and others) that China has sufficient capability to degrade them as well.

10.6 Other Chinese Deterrence Activities

Chinese analysts note the growing role of space, and information deterrent activities, which combine with more traditional nuclear and conventional deterrence to offer a wider variety of deterrent techniques.⁴⁴ Chinese writings suggest, though, that they see many other capabilities as providing even more means for effecting *weishe* (i.e., both compellence and dissuasion). One Chinese article, for example, enumerates a number of means of developing strategic deterrent techniques (*zhanlue weishe shouduan*; 战略威慑手段). These include not only developing strong overall military capabilities, fielding sufficient nuclear forces, and undertaking certain types of military activities, but it also notes the role of public diplomacy and public opinion; strategic psychological warfare; and improving military preparations.⁴⁵ Military diplomacy and propaganda work, for example, improves China’s deterrent capacity, by expanding and improving China’s and the PLA’s international image.⁴⁶

⁴³Yibing 2011.

⁴⁴Xiao 2008.

⁴⁵Zhang 2004, pp. 33–34.

⁴⁶Wang 2015, p. 13.

10.6.1 Mobilisation

An important contributor to deterrence, in the Chinese view, is mobilisation. The Chinese military defines “national defence mobilisation (*guofang dongyuan*; 国防动员)” as those steps undertaken by the government to convert some or all of various sectors from a peacetime footing to a wartime one, in response to conflict, national security threats, or crises. Mobilisation encompasses the preparations, planning, organization, and implementation of armed forces mobilisation, national economic mobilisation, political mobilisation, militia mobilisation, science and technology mobilisation, equipment mobilisation.⁴⁷ Chinese analysts see national defence mobilisation as a vital strategic option, allowing the nation to cope with threats while still allowing the national development focus to be on non-military aspects.⁴⁸ In addition, however, in the context of deterrence, they see the act of mobilising as exerting a deterrent effect. The implementation of “national defence mobilisation is the expression of a nation’s will and its interests”.⁴⁹ As important, because of civil-military integration and the melding or fusion of civilian and military power (*junmin ronghe*; 军民融合), mobilisation is essential in order to supplement a nation’s combat power.

Actual mobilisation of a nation can deter adversaries by demonstrating both Chinese will and the ability of the PRC to expand and increase its actual capability.⁵⁰ A decision to mobilise converts a portion of China’s potential military capability into actual military forces and strength. This is likely to cause an adversary to reassess the situation and recalculate the likely costs and benefits of their course of action. By shifting the balance of power, and potentially raising both costs and risks, the adversary may be deterred. Moreover, given the costs associated with mobilisation, the willingness to nonetheless accept that burden demonstrates China’s will and resolve.

Similarly, Chinese analysts argue that public announcements of mobilisation, and mobilisation exercises, also have a deterrent effect. This is in part consistent with the Chinese emphasis that successful deterrence requires not only capability and will, but communicating those aspects to the target of deterrence. Indeed, the passage of the Chinese National Defence Mobilisation Law in 2010 is seen as part of this public messaging, “demonstrating the will to defend national security” in the face of existing threats.⁵¹ Through public pronouncement of mobilisation orders, Chinese analysts believe that one may be able to induce shock and awe in the other

⁴⁷All Army Military Terminology Management Committee 2011.

⁴⁸Chinese People’s Liberation Army National Defense University Scientific Research Department 2007, p. 13.

⁴⁹Ren 2010, p. 14.

⁵⁰Ren 2008, p. 227; Peng and Yao 2001, p. 51.

⁵¹Hu and Huang 2010, pp. 3–4.

side, causing them to be deterred (or coerced).⁵² Mobilisation exercises can have a similar effect. They improve the organization and planning of mobilisation; a more effective mobilisation structure contributes to deterring an adversary. In addition, such exercises publicly display China's ability to mobilize, thereby further influencing the adversary, and helps achieve the goal of mobilisation deterrence (*dongyuan weishe*; 动员威慑).⁵³

10.6.2 Conventional Deterrence

The available Chinese literature does not tend to focus on conventional deterrence. In a different volume of the PLA Encyclopedia, for example, there is discussion of conventional deterrence, but it is not broken out as a distinct form, unlike nuclear or space deterrence. Instead, it is mentioned, in terms of large conventional force deployments, alongside deterrence with nuclear and missile forces, as a means of deterring foreign aggression.⁵⁴ More discussion is accorded conventional deterrence in the 2015 edition of the *Science of Strategy* (amounting to one paragraph). This volume notes that conventional deterrence lost utility in the early days of the Nuclear Age, but has since been revived, in part due to the effectiveness of high-technology, long-range weapons. Conventional deterrence is described as controllable, and relatively low risk, generally not leading to large-scale destruction as with nuclear weapons, and therefore more likely to achieve political goals.⁵⁵ As the Chinese are discussing *weishe*, this description would suggest that the focus is as much on conventional compellence as on conventional deterrence in the Western sense.

Indeed, this would align with the 2013 *Science of Military Strategy*, which notes that conventional forces that have demonstrated an ability to defeat enemies can create deterrent effects. The authors note that the US-led 2003 Iraq War, where the US military rapidly defeated its adversary, sued real war to expand the effects of deterrence, while deterrence (*weishe*) effectively strengthened real war effectiveness.

It was a paragon of linking deterrence and real war. As conventional weapons' killing power is constantly increasing, real war actions generate deterrent effects. Inevitably, this will make potential adversaries undergo sustained deterrent impacts.⁵⁶

⁵²Ren 2010, p. 79.

⁵³Xu and Wang 2010, pp. 2–3.

⁵⁴Editorial Committee 2007, p. 247.

⁵⁵Xiao 2015, p. 12.

⁵⁶Academy of Military Science 2013, p. 138.

This discussion also highlights that, from the Chinese perspective, conventional deterrence is not simply about having technical capabilities, but demonstrated effectiveness of one's conventional forces.

10.6.3 Non-military Deterrence Activities

While this paper focuses on actions by the Chinese military and national security establishment to effect deterrence, as the Chinese have expanded their economy and other instruments of national power, their ability to influence other peoples' calculations has grown. They have more instruments of influence, including economic, financial, diplomatic, as well as military. Because of the reach of the Chinese government and the Chinese Communist Party, the PRC is able to undertake not only a whole of government approach towards deterrence (including coercion), but a whole of society approach to deterrence and compellence. This approach almost certainly incorporates tourism, trade, investment, and political warfare (including the "three warfares"), as well as more traditional military and diplomatic tools. China has increasingly used trade as a tool of deterrence (in the compellence sense). In 2010, a Chinese fishing boat rammed two Japanese Coast Guard vessels. After the captain was taken into custody, Japanese authorities indicated they were planning on trying him. After strident Chinese protests, the Japanese government released the captain without trial. Nonetheless, the PRC decided to suspend exports of rare earth minerals to Japan. This led to some disruptions in Japanese supply chains, but also drew attention to China's dominant position in the rare earths market. It remains unclear what the purpose of the embargo was intended to serve, but it is likely that it was intended to coerce Japan and prevent it from pushing its claims to the Senkakus.

China has also weaponized its tourist trade. The burgeoning Chinese economy has led to a massive growth in the number of Chinese tourists and tour groups worldwide. But Beijing has actively discouraged tourists visiting countries with which it has disputes, seeking to coerce these states into a more amenable political line. In 2012, tensions between China and the Philippines flared when both sides laid claim to Scarborough Shoal in the northern reaches of the South China Sea. (It is not part of the Spratly island grouping.) China subsequently issued a travel advisory about the Philippines, and began to discourage its tourists from visiting.⁵⁷ This affected many Philippine resorts and even led to cancelled flights. The ban was only lifted after the more conciliatory Rodrigo Duterte was elected in 2016.⁵⁸ Other examples involve Taiwan and South Korea. Since 2016 the number of Chinese

⁵⁷ Al-Jazeera 2012.

⁵⁸ Almendral 2014.

tourists to Taiwan has dropped precipitously since the sweeping electoral victories of the pro-independence Democratic Progressive Party (DPP) in that year.⁵⁹ Beijing's efforts to persuade Seoul to suspend the deployment of the THAAD missile defence system has included discouragement of tourist groups from visiting the ROK. Reports that China may officially order tour organizers to cancel visits caused the South Korean stock market to fall 1.1 percent.⁶⁰

While such moves are economic, they nonetheless would seem to fit the broad Chinese conception of *weishe*. They are intended to compel an adversary to submit to the Chinese will. As important, they are a means of achieving a Chinese political goal, without requiring the use of force—and “causing the enemy to submit without fighting” is part of the Chinese definition of *weishe*. Just because these efforts do not include a military component should not remove them from our analysis of Chinese concepts of deterrence, or more accurately, compellence.

10.7 Deterrence by Punishment or Denial (?)

A major focus of Western discussions of deterrence has been the difference between “deterrence by punishment” versus “deterrence by denial”. Deterrence by punishment involves the threat of inflicting more pain or imposing more costs than the adversary would be able to gain from their action. Deterrence by punishment can include escalation, both horizontal and vertical. Deterrence by denial, on the other hand, seeks to deter an adversary by denying them any advantage from the action that is trying to be deterred. Deterrence by denial is typically associated with the ability to defend a given target or likely objective. A military which can block an adversary's ability to gain territory, for example, through successful defence is engaging in deterrence by denial.⁶¹ The Chinese literature thus far reviewed does not provide any indications of a comparable discussion in Chinese writings. There is little indication of a specific terminological differentiation, which has preoccupied so much of Western literature.

Chinese writings seem to suggest that both deterrence by denial and by punishment are embodied in *weishe*, since there is discussion of both imposing higher costs on an adversary and on preventing adversaries from achieving their goals. This is consistent with the focus of *weishe*. It is on achieving a particular end, be it dissuading an adversary from a given action or compelling them to perform an action. Whether the desired goal is achieved by threatening punishment or by denying them gains matters less than that the adversary conforms to the deterring power. In this regard, the Chinese approach would seem much more pragmatic and

⁵⁹Smith 2016.

⁶⁰Reuters 2017.

⁶¹For further Western discussions of “deterrence by denial” and “deterrence by punishment”, see Snyder 1960; Mazarr et al. 2018.

effects-oriented. This also suggests that the Chinese will employ both methods, i.e., deterrence by denial and deterrence by coercion, in order to compel an adversary to submit. In the 2013 Science of Strategy, for example, the success of deterrence rests upon the reality of combat power (which would suggest deterrence by denial), the ability to retaliate credibly (which would suggest deterrence by punishment), and the decisiveness of the deterrent actions undertaken.⁶²

Further complicating Western analyses is the convergence between “deterrence” and warfighting. At the top of the Chinese conception of deterrence ladders for nuclear weapons, space capabilities, and information operations is the convergence between *weishu* and “real war (*shizhan*; 实战)”. In the various Chinese writings, there is a consistent view that, at that last rung, one will hopefully persuade an adversary to back down based on the demonstration of will and capability. Should that fail, however, then successful implementation of that last rung will improve one’s military situation (e.g., by gaining the initiative or neutralizing a key adversary asset). This linkage raises real questions about Chinese views of crisis stability and crisis management. However, it would seem that, from the Chinese perspective, the potential for loss of crisis control may serve to enhance deterrence. If that is their viewpoint, this would seem to align with the Western concept of “deterrence by denial”.

On the other hand, another common element in the various deterrence ladders is the idea of revealing new capabilities or new forces. Such revelations, coupled with shifting or altered force deployments, enhances deterrence because it complicates an adversary’s planning and targeting. The utility of surprise for enhancing deterrence is specifically noted in the 2013 Science of Strategy, which notes that not only new forces and technologies, but new concepts and doctrine can cause an adversary’s assessment of the military balance to be “even less certain, effectively scrambling the adversary’s original strategic preparations, elevating the credibility of deterrence”.⁶³ This would seem to be a version of “deterrence by punishment”. This array of discussions suggests that it is not an issue of cognizance; that is, Chinese thinkers are not ignorant of the difference between “deterrence by denial” and “deterrence by punishment”, but that this difference does not necessarily have significant meaning in the Chinese strategic context.

10.8 Conclusion

China’s strategic culture is several thousand years old. It developed within a very different milieu from that of the West. China has long been the dominant hegemon of the Asian continent, unrivalled in a way that has not existed in the West since the

⁶²Academy of Military Science 2013, pp. 152–153.

⁶³Academy of Military Science 2013, p. 150.

Roman Empire. Not surprisingly, then, it has developed a different conception of deterrence, a product of its own circumstances.

- China's concept of deterrence includes both dissuasion and coercion. It would therefore be more accurate to say that Chinese strategic thinkers engage in compellence, rather than "deterrence".
- Chinese concepts of compellence entail the use of various forms of power, both military and non-military. In the military context, they have long thought of multi-domain deterrence, incorporating nuclear, space, and information means. In this regard, Chinese deterrence and compellence actions do not appear to be oriented towards forestalling or preventing action in a given domain (space, cyber/information), or types of capabilities (nuclear, conventional). Rather than a goal or end, deterrence/compellence is a means to achieving a pre-determined political goal.
- Chinese compellence efforts are closely tied to their war-fighting concepts. Should the dissuasive or coercive effort appear to be failing, the final stage of compellence actions will likely overlap with war-fighting actions. The linkage itself, by raising issues of crisis stability, enhances deterrent effects, in the Chinese view.

Much of the available Chinese literature from which this is drawn was written before the massive reform of the PLA that occurred at the end of 2015. As the PLA has evolved organizationally, as well as in terms of equipment and operating range, it is likely that its views of deterrence and compellence has had to accommodate these changes. It is essential that further research be undertaken in this area. Unfortunately, the PRC has also become far less open in the intervening half-decade. Accessing Chinese materials, especially authoritative volumes such as military textbooks and teaching materials, has become far more difficult. A concerted effort, coordinated among various research organizations, should be a priority to support this research.

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