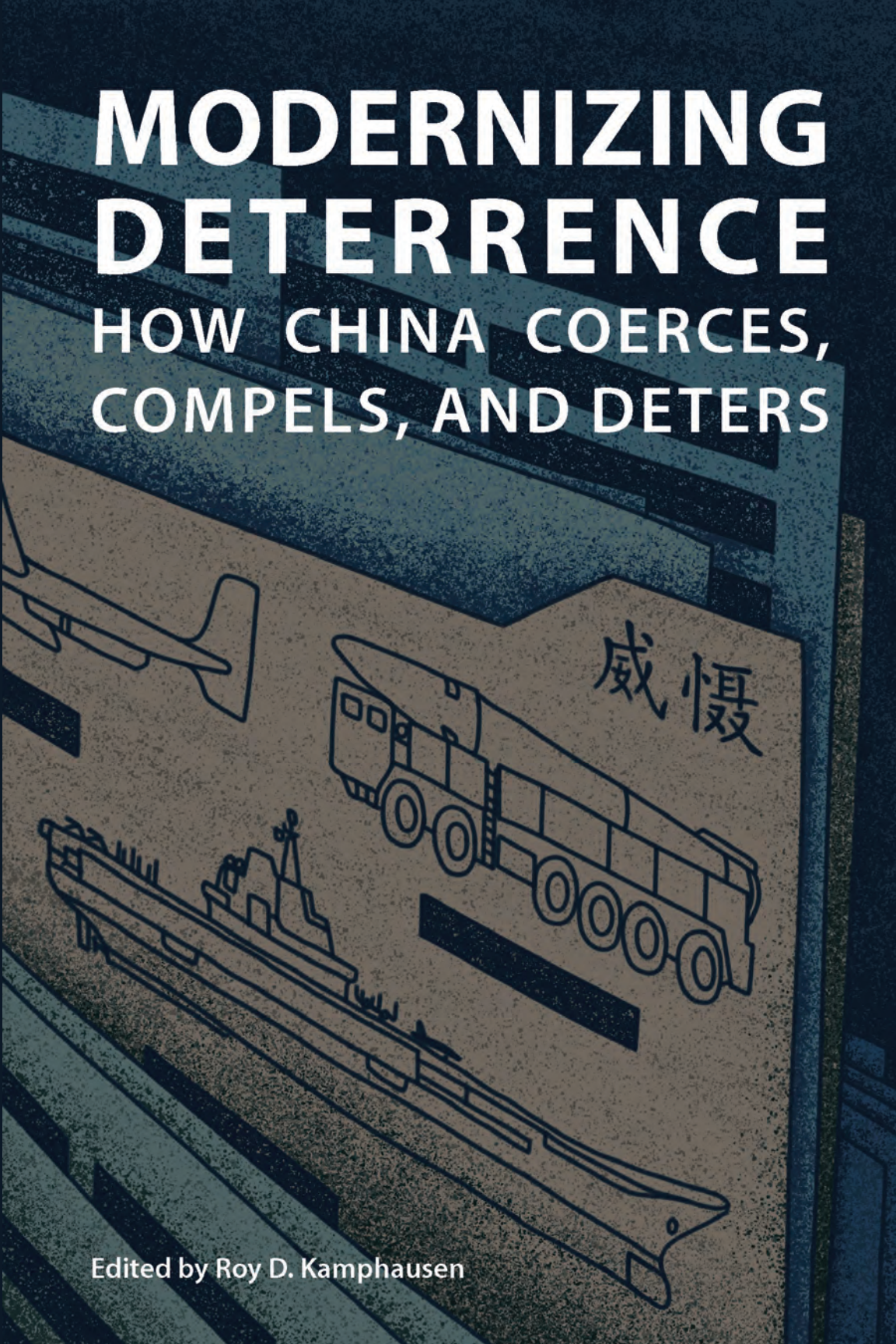
MODERNIZING DETERRENCE

HOW CHINA COERCES, COMPELS, AND DETERS



Edited by Roy D. Kamphausen

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THE NATIONAL BUREAU *of* ASIAN RESEARCH

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Edited by Roy D. Kamphausen

With contributions from

Brandon J. Babin, Nathan Beauchamp-Mustafaga, Mathieu Duchâtel, Andrew S. Erickson, Elsa B. Kania, Alison Kaufman, Nicola Leveringhaus, Rachel Esplin Odell, and Stein Tønnesson

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FOREWORD

I am honored to introduce *Modernizing Deterrence: How China Coerces, Compels, and Deters*, the latest volume from an important conference series on the Chinese People's Liberation Army (PLA) convened by the National Bureau of Asian Research (NBR) and U.S. Indo-Pacific Command. In the wake of the most extensive PLA reforms in decades, the leadership of the People's Republic of China (PRC) is aggressively integrating military and nonmilitary capabilities to advance foreign policy objectives in competition with the United States and its allies. The outstanding work of the authors in this volume is a thorough and insightful examination of the evolution of the PRC's strategic concepts and the PLA's growing role in supporting the PRC's ambitious pursuits.

As noted in the 2022 U.S. National Security Strategy, the PRC is the only strategic competitor with both the intent to reshape the international order and the economic, diplomatic, military, and technological power to do so. Increasingly, the Chinese Communist Party (CCP) is using all elements of national power to undermine the rules-based international order. Understanding how the party is integrating its growing military power among its other elements of national power to achieve these goals provides invaluable strategic insights into the thinking of CCP leadership. Moreover, while numerous studies and reports have focused on the military dimension of the CCP's approach, this NBR volume explores the party's commitment to pursuing dominance in a much broader, all-domain strategy that aggregates all available economic, technological, military, and strategic effects. The U.S. Indo-Pacific Command is particularly interested in how the CCP plans to coordinate and integrate all the levers of national power in pursuit of the PRC's regional and global objectives.

This collection of papers from the 2021 PLA Conference offers unique insights into understanding China's strategic thinking regarding deterrence and crisis management across a number of domains. It addresses conventional and nuclear deterrence, underscoring ways in which emerging capabilities will enable Beijing to challenge traditional U.S. nuclear overmatch. It also addresses evolving Chinese thinking on deterrence in emerging domains, such as space and cyber, as well as the PRC's attempts to leverage disruptive technologies to improve

its strategic deterrence capabilities. The volume highlights the evolving nature of warfare, notably articulating the development of a new strategic triad. Whereas that term once reflected strictly the nuclear weapon delivery capabilities of bombers, submarines, and ground-based missiles, the new strategic triad is perhaps more appropriately defined along nuclear, cyber, and space lines. Indeed, emerging space and cyber capabilities are leading to capabilities that can generate catastrophic effects across societies that are analogous to those generated by nuclear forces but without the immoral stigma associated with a nuclear explosion. In other words, nonkinetic effects could potentially be just as strategically powerful as kinetic effects, if not more so. Finally, this volume examines the degree to which Beijing is confident in its ability to manage escalation in crisis and conflict, identifying potential CCP responses should deterrence fail.

The authors' findings offer important insights for understanding how the PRC's thinking regarding deterrence is continuing to evolve and what this means for planners, policymakers, and warfighters. I am proud to see this essential work continue and commend the organizers, sponsors, and participants who made this volume possible.

Stephen D. Sklenka
Lieutenant General, USMC
Deputy Commander, U.S. Indo-Pacific Command
February 2023

Introduction: China's Evolving Thinking on Deterrence

Roy D. Kamphausen and Jeremy Rausch

The 2021 People's Liberation Army (PLA) Conference, cohosted by the National Bureau of Asian Research (NBR) and the China Strategic Focus Group at U.S. Indo-Pacific Command, took place in the wake of fundamental changes for the PLA. After more than five years of unprecedented structural and operational reforms, the Central Military Commission of the Chinese Communist Party (CCP) issued the "Guidelines on Joint Operations of the Chinese People's Liberation Army (Trial)" in November 2020.[1] The guidelines outlined the PLA's central objective: building a force capable of conducting "integrating joint operations" by developing and deploying weapons and equipment "characterized by higher precision, intellectualization, stealth, and unmanned operation." By declaring the essential completion of the "national defense and military reform of the leadership and command systems, scale, structure, and force composition" at the press conference introducing the new guidelines, the PLA appears confident and ready to work on achieving Chairman Xi Jinping's centenary goal of building a "world-class military" by 2049.[2]

The People's Republic of China (PRC) issued the new guidelines as it assumes a more active and assertive role in the Indo-Pacific region, while also looking to acquire a more prominent global role commensurate with

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[1] "Guidelines on PLA Joint Operations (Trial) Aim for Future Warfare: Defense Spokesperson," China Military Online, November 26, 2020, http://eng.mod.gov.cn/news/2020-11/26/content_4874656.htm.

[2] Ibid.

its "comprehensive national power." Those roles, and the ambitions that fuel them, are in many respects inimical to U.S. and allied interests and objectives. In recent years, PRC actions have threatened peace and stability in Asia in many ways. China has disregarded independent, international judicial rulings on the validity of its unsubstantiated territorial claims in the South China Sea. The PRC has continued to employ coercive measures across economic, diplomatic, and information domains against Taiwan, all the while refusing to rule out the use of force to unify the island with the PRC. In addition, the strengthening of China's relationship with Russia even as Russia has invaded Ukraine has sparked concerns regarding the degree of coordination in the pair's destabilizing regional and global behavior. While Russian president Vladimir Putin was forced to acknowledge China's concerns over the ongoing quagmire in Ukraine at a meeting with Xi Jinping in September 2022, his enduring and congenial relationship with Xi, their similar personality-driven autocratic governance structures, and shared distrust and disdain for the Western-led international system are some of the factors that continue to drive the strategic partnership between Moscow and Beijing.

At the same time, fundamental shifts in China's thinking on deterrence appear to be underway. The new strategic guidelines have been accompanied by a broad evolution of China's strategic deterrence concepts in which military and nonmilitary capabilities combine to create an "integrated strategic deterrence" posture aimed to protect China's interests.[3] The rapid modernization of the country's nuclear forces, as evidenced by the apparent construction of new intercontinental ballistic missile (ICBM) silos in western China and the development of a maturing nuclear triad, reflect a prospective shift in its approach to strategic deterrence. The PRC has also enhanced and consolidated its nonconventional capabilities in cyberspace, outer space, and electronic warfare under the aegis of the PLA Strategic Support Force. It has similarly undertaken aggressive diplomatic, disinformation, and economic coercion campaigns to shape the decision-making and behavior of other countries while conditioning their future actions to be more aligned with China's interests. Meanwhile, PLA writings indicate an ongoing effort to integrate capabilities and achieve a force capable of joint operations (as observed in the November 2020 joint strategic guidelines) across a broad spectrum of domains, from strategic to conventional to nonconventional.

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[3] Michael S. Chase and Arthur Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"* (Santa Monica: RAND Corporation, 2016), https://www.rand.org/pubs/research_reports/RR1366.html.

The 2021 PLA Conference addressed these changes in doctrine, organization, operations, and capabilities to address whether a structural shift in the PLA's approach to deterring adversaries in a contemporary context has begun. Utilizing a hybrid model combining in-person and virtual engagement, the conference brought together an audience of American and international participants to explore these pressing topics. The world's leading specialists on the PLA from academia, government, the military, and policy think tanks, from eight countries and three continents, joined the conference proceedings. This introduction briefly reviews the scope and arguments of each of the volume's chapters and summarizes key findings.

Taking Stock of Traditional PRC Views on Deterrence

The volume's opening section provides definitions of deterrence in the Chinese context, assesses long-held views on conventional and strategic deterrence, addresses China's primary deterrence challenges, and examines the role of traditional approaches to conventional and strategic deterrence in PLA strategy today. Over the last two decades, the PRC's approach to conventional deterrence has evolved to adapt to the PLA's shifting conventional capabilities. The modernization of the PLA Navy and Air Force, the augmentation of conventional missile capabilities and centralization of command and control under the PLA Rocket Force, and Beijing's efforts to exploit the dual-use nature of cutting-edge technology such as artificial intelligence and quantum computing have produced new organizational structures and operational capabilities previously not considered possible.

Andrew Erickson of the U.S. Naval War College and Nicola Leveringhaus of King's College London begin the volume with chapters surveying how the PRC has traditionally considered and employed deterrence in the conventional and strategic domains.

In the first chapter, Erickson explores how Beijing poses unique conventional deterrence challenges through its advanced missile systems, opaque decision-making and signaling, and disregard for confidence building. Erickson argues that under Xi Jinping, the PRC is achieving increasingly potent tailored conventional capabilities that could be employed at virtually every rung of the escalation ladder, thereby offering leaders more options and leverage against potential adversaries. While China's approach to "integrated strategic deterrence" historically has encompassed both nuclear and conventional deterrence, the conventional component is in some ways

the more important, if not fully understood by Western observers. China's rapid pursuit of a range of state-of-the-art systems is making its long-risky calculus concerning conventional deterrence still more destabilizing and dangerous in practice. For instance, Erickson notes that PRC researchers view ballistic missiles outfitted with hypersonic glide vehicles as a transformative technology that China must emphasize in response to similar U.S. (and Russian) developments. In view of Beijing's increasing risk tolerance and assertiveness, coupled with the rapid development of the PLA's capabilities to support such a posture, Erickson emphasizes that a comprehensive re-evaluation of PRC strategic thinking regarding conventional deterrence is required.

In the second chapter, Leveringhaus proposes supplementary methods for observers to assess China's approach to strategic deterrence and the ideology underpinning PRC nuclear policy. She posits that traditional approaches include (1) a rigorous tracking and documenting of technological changes to the Chinese arsenal and (2) a focus on past and present statements by authoritative political and military figures in China regarding strategic deterrence. She then argues that these approaches risk overlooking prior domestic political considerations that have shaped long-term ideas and practices of Chinese nuclear deterrence. Leveringhaus thus introduces the "domestic political approach" as an additional way to understand China's approach to strategic deterrence. This approach posits that domestic political considerations have an internal and external focus related to strategic deterrence: the internal focus is on the shifting dynamics of CCP ideology and how they have shaped Beijing's approach to strategic deterrence over time, while external political considerations concern diplomacy, specifically how China's nuclear deterrent serves diplomatic goals both in peacetime and at times of crisis. Leveringhaus concludes that the domestic political approach complements the two traditional approaches by providing a more comprehensive picture of Chinese attitudes and policies regarding nuclear deterrence.

Evolving PRC Perspectives on Deterrence in Existing and Emerging Domains

The volume's second section addresses new developments in the PRC's approach to deterrence in existing and emerging domains. Rachel Esplin Odell of the U.S. Department of State discusses the range of nonmilitary and nonconventional tools Beijing is deploying to deter other states from

taking actions that harm its interests and compel those already doing so to stop. Brandon Babin of U.S. Indo-Pacific Command explores the ongoing changes in Beijing's approach to strategic nuclear deterrence, including the construction of new ICBM silos in western China and the PLA's maturing nuclear triad. Nathan Beauchamp-Mustafaga of the RAND Corporation assesses Chinese military thinking on space and cyber deterrence and draws implications for the United States. Elsa Kania of Harvard University concludes the section by evaluating how the PLA's approach to deterrence may adapt to emphasize new instruments and opportunities to gain advantages in fields such as "new concept weapons" and military biotechnology.

In the volume's third chapter, Odell argues that the PRC has begun supplementing its long-standing suite of diplomatic and military deterrent signals with an increasingly diverse set of nonconventional tools for deterring or coercing other states and nonstate actors over the past decade. The PRC has used these tools to coerce multinational companies, international organizations, civil society organizations, and individuals, in addition to the governments of other states. Beijing has employed these tools to respond to perceived threats to its interests across a broad range of issues, including those that do not directly relate to military matters, such as criticisms over China's human rights record or handling of the Covid-19 pandemic. Odell calls for analysts to broaden their aperture when considering the actors in China that engage in deterrence or coercion operations. Especially in nonmilitary affairs, the PLA is not the primary actor in the PRC party-state responsible for exercising coercion. Accordingly, to understand the way that Beijing thinks about deterrence, it is necessary to look beyond PLA doctrine to the theory and writings of CCP leaders and institutions. Yet Odell finds that CCP political guidance does not use the explicit language of deterrence or compellence. Instead, CCP theory stresses the need for struggle and resolve in the face of challenges to China's interests. This potentially explains why Beijing persists in coercive nonconventional campaigns that damage its international image, even while failing to change the behavior of the targets, and why CCP leaders may even judge such campaigns to be successful despite such consequences.

In the fourth chapter, Babin explores the drivers of China's ongoing nuclear modernization efforts and the implications for the United States and its allies and partners in the Indo-Pacific. He argues that the principal reasons for China's nuclear modernization campaign lie in its desire to achieve a "strategic counterbalance" against other great powers, namely the United States, and to prevent third-party intervention in a regional conflict

(most likely Taiwan). Babin discusses how Xi's directions to the PLA to achieve a high-level of "integrated strategic deterrence" have updated and shaped the mission of the PLA Rocket Force in the era of strategic competition with the United States. He also surveys several hypotheses regarding the recent discovery of three large-scale ICBM silo fields in western China. He argues that this development does not signal a return to the Cold War–styled "shell game" but rather is consistent with the PLA's broader objectives to discard the traditional "minimal deterrent" approach and move toward a significant nuclear buildup of "counterbalance" (制衡) capabilities. Babin concludes that the principal objective driving the PLA's nuclear modernization is to use a nuclear counterbalance capability to dissuade the United States from coming to Taiwan's defense in the event of a conflict and thereby coerce Taipei to come to the negotiating table before conflict occurs.

In the fifth chapter, Beauchamp-Mustafaga argues that the space and cyber domains are viewed by China as two additional means of strategic deterrence, in addition to nuclear deterrence. A key commonality between these two domains is the perception that the United States dominates and seeks to further entrench its hegemony in these domains. Combined with the broader perception of U.S. hostility, this perception reinforces concerns that the PLA is weak, vulnerable, and is itself at risk of coercion by the United States, thereby requiring a strong deterrence response. Beauchamp-Mustafaga thus posits that Chinese thinking on space and cyber deterrence is evolving. For space, China's deterrence requirements are likely increasing. Early strategy was focused solely on the United States, but current strategy must also account for an India with anti-satellite capabilities, for instance. For the cyber domain, recent updates to Chinese military teaching materials suggest that the PLA has come to believe that deterrence requires demonstrating an ability not only to penetrate an adversary's networks but also to generate real strategic effects. Beauchamp-Mustafaga concludes that the space and cyber domains are thus key parts of China's conceptualization of the highest level of deterrence—"integrated strategic deterrence."

In the volume's sixth chapter, Kania reviews the PLA's efforts to leverage disrupting technologies and emerging capabilities to enhance its strategic deterrence system. She argues that while the PLA has pursued a range of advances on the frontier of military technology, China's capacity to realize a truly integrated and innovative paradigm for strategic deterrence remains uncertain and will likely not be realized in the short term. Kania evaluates how emerging guidance for the PLA highlights the development and application of "new concept weapons" and the transition from "informatization"

to "intelligentization" in modern warfare. Her discussion focuses on how this transition to "intelligentized" warfare is changing the means of China's approach to strategic deterrence. In the technological domain, the PLA is seeking to leverage capabilities in "unmanned intelligent" combat equipment, hypersonic weapons, and swarm systems. Kania also considers how the "cognitive domain" plays an important role in the PLA's approach to deterrence through activities such as "intelligent" psychological operations, cognitive confusion, and even "brain control weapons." Kania argues that the PLA has also shown interest in conducting scientific experimentation within the emerging biological domain of deterrence to broadly improve its ability to leverage biological capabilities across the spectrum of conflict. She concludes that, though the PLA does not yet possess these capabilities, the mere possibility of novel weapons systems and capacities could enhance deterrence by increasing uncertainty and risking miscalculation.

When Deterrence Fails: How the PLA Responds in a Crisis and Conflict

The volume's final section explores three potential Chinese responses to a failure of deterrence: conflict escalation, disengagement and de-escalation, and crisis management. Alison Kaufman of CNA, Stein Tønnesson of Peace Research Institute Oslo, and Mathieu Duchâtel of Institut Montaigne review and assess the doctrinal or practical guidance, organizational structures, and procedures that the PLA has employed in the past in each of these responses to a failure of deterrence. The chapters give high priority to the signaling Beijing uses to indicate a change in status and decision-making patterns, drawing on case studies such as the 2019 Sino-Indian border clash in eastern Ladakh and confrontations between the PLA Navy, Southeast Asian states, and the U.S. Navy in the South China Sea and Taiwan Strait, among others.

In the seventh chapter, Kaufman considers how specialists in the PLA as well as the broader PRC security community describe the dynamics and risks of controlling escalation during a military conflict. She argues that civilian and military writings over the last two decades display a shared confidence that conflict escalation can be controlled with the right tools and conditions. Effective escalation control is depicted as depending in large part on a country's ability to manage uncertainty—suggesting that PLA planners are not risk averse so much as uncertainty averse. Kaufman further argues that the desire to reduce uncertainty rests on the belief that

the progression from crisis emergence to actual conflict can be forecast, calculated, and managed using systematic and quantitative approaches that evaluate all possible courses of action and eliminate human error. She finds that PRC writings on controlling escalation exhibit several persistent blind spots with alarming implications. These include scant acknowledgment that operational principles and specific activities the PLA regards as de-escalatory may be interpreted differently by an adversary, thus introducing uncertainty regarding how PLA actors would handle a situation that they have not put through their elaborate evaluation process. Kaufman concludes that these blind spots could cause Beijing to become overly confident in the PLA's ability to control escalation in a crisis or conflict, with risky consequences.

In the eighth chapter, Tønnesson demonstrates how a pattern of Chinese de-escalation has unfolded in several crises and discusses what it might take for China to move beyond this pattern and engage in riskier behavior. Since China's war with Vietnam in 1979, he observes that none of China's foreign policy crises have escalated to actual warfare. Tønnesson posits two reasons: the PRC's maintenance of good working relations with all relevant great powers (the United States, Japan, and Russia) and a pattern of de-escalation when it has met with strong resistance. Since 2000, the Chinese economy has become the main driver of global industrial growth. China has used its new prosperity to build the world's second-strongest military while shifting to a policy of assertiveness, building a strategic partnership with Russia, and engaging in a power rivalry with the United States. Tønnesson argues that these developments have precipitated several crises during which China has stuck to its pattern of de-escalation in the face of resistance. If a crisis escalates to a point where Beijing sees a risk of armed confrontation, it ceases to act offensively. Tønnesson identifies several characteristics of the PRC's process of de-escalation, including holding talks with the adversary (which rarely involve any genuine concessions), pushing its position forward until it meets determined resistance, and refraining from further assertive moves while deploying heavy rhetorical attacks on the adversary. These behaviors raise questions about what might lead China to depart from this pattern and engage in riskier behavior during a crisis.

In the volume's concluding chapter, Duchâtel examines China's crisis management diplomacy following the 19th National Congress of the CCP. He argues that China has shown a strong preference for crisis management mechanisms when it is on the defensive or at a disadvantage, requires a tool to freeze a new status quo, or needs to consolidate gains. Conversely, when China is on the offensive, or when its goal is to change the status quo, crisis

management regimes are neglected or regarded as an obstacle. Duchâtel concludes that a preference for crisis avoidance or prevention mechanisms to address the root causes of conflicts, often in the form of high-level strategic guidance provided by political leaders, is characteristic of China's approach. Using case studies of China's tensions with the United States, Japan, and India, Duchâtel recommends that building crisis management regimes is important to increase transparency and predictability and to reduce the possibility of collisions or other incidents that could trigger severe crises.

Conclusion

Taken together, the nine chapters in this volume reveal broad changes to the PRC's deterrence strategy across conventional, strategic, asymmetric, and emerging domains. In some cases, such as conventional and nuclear deterrence, force modernization and operational testing are enabling the PLA to develop, deploy, and demonstrate next-generation capabilities such as the DF-21D "carrier killer" missile and a maturing nuclear triad in an effort to deter adversaries. In emerging areas, such as cyber, space, and biotechnology, the PLA is still exploring the prospects for utilizing these capabilities in a deterrence context. PLA writings, however, suggest that Chinese strategists understand the utility of such capabilities and aim to incorporate them into short-, medium-, and long-term strategic and operational planning exercises. Furthermore, the PRC employs a range of nonconventional coercive measures—from economic sanctions and diplomatic pressure to legal and information warfare—to supplement the PLA's military power with actions below the threshold of armed conflict. This volume also provides insight into how Chinese strategists and planners assess the PLA's ability to navigate conflict scenarios through escalation, de-escalation, and crisis management. Ultimately, the PRC embraces a belief that it possesses the analytical capacity, operational capability, and strategic foresight necessary to prevent uncontrolled escalation even while it secures its interests through the calculated and selective use of force across the spectrum of conflict. This highly risky PRC judgment requires ongoing interrogation by Western analysts and ought to be a topic of regular strategic dialogue between policymakers, lest the judgment be tested for the first time in the midst of a real crisis.

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support, the research published in this volume would not have been possible. Conference discussants, panel chairs, moderators, and keynote speakers, as well as NBR staff, including Alison Szalwinski, Audrey Mossberger, Rachel Bernstein, Eliot Roberts, and Kanghee Park, also deserve special thanks and acknowledgment for their contributions to the 2021 conference.

EXECUTIVE SUMMARY

This chapter argues that the People's Republic of China (PRC) poses unique conventional deterrence challenges through its unparalleled buildout of cutting-edge missiles combined with its opacity and dismissal of restraints.

MAIN ARGUMENT

Under Xi Jinping, the PRC is increasingly achieving potent, tailored conventional capabilities that could be employed at every level of the escalation ladder. Beijing's increasing risk tolerance and assertiveness, particularly vis-à-vis disputed sovereignty claims such as Taiwan—together with its meteoric development of military capabilities to support such a posture—require a comprehensive re-evaluation of deterrence in PRC strategic thinking. China's approach to "integrated strategic deterrence" historically has been broad, encompassing both nuclear and conventional deterrence across competition, crisis, and conflict. The conventional component is in some ways the most important, yet the least studied by Western observers. A panoply of elements, systems, capabilities, and missions are intertwined with Chinese approaches to conventional deterrence. Likewise, since their formal elevation in strategic importance in the early 1990s, conventional missiles have had a leading position in the modernization of the People's Liberation Army (PLA). China's rapid military buildup, centered on conventional missile systems, gives achieving an updated understanding of Beijing's conventional deterrence calculus unprecedented importance. Such understanding is complicated by China's deliberate opacity and unwillingness to be forthcoming or embrace meaningful guardrails in either public announcements or private engagement.

POLICY IMPLICATIONS

- PLA source suggestions of China possessing conventional intercontinental ballistic missiles in the future, including those outfitted with hypersonic glide vehicles, raise the possibility of serious, unintended escalation.
- Long-held overconfidence in "calibrated deterrence"—and the signaling that it implies—is the most dangerous element of Chinese thinking with regard to deterrence and warfighting.
- U.S. decision-makers must unambiguously uphold the credibility of U.S. conventional and nuclear deterrence, including extended deterrence to protect allies from PRC nuclear and conventional threats.

Chapter 1

China's Approach to Conventional Deterrence

Andrew S. Erickson

Under Xi Jinping, the People's Republic of China (PRC) is increasingly achieving powerful bespoke conventional capabilities that could be employed at virtually every level of the escalation ladder, thereby offering PRC leaders more rungs, options, and leverage in the international arena. Beijing's increasing risk tolerance and assertiveness, particularly vis-à-vis disputed sovereignty claims (e.g., Taiwan)—together with its meteoric development of military capabilities to support such a posture—require a comprehensive re-evaluation of deterrence in PRC strategic thinking. China's approach to "integrated strategic deterrence" historically has been extremely broad, encompassing both nuclear and conventional deterrence across competition, crisis, and conflict.[1] Amid current PRC views on deterrence, the conventional component is in some ways the most important, yet the least studied by Western observers. A panoply of elements, systems, capabilities, and missions—regarding cyber and space in particular, as well as aviation, information, and disinformation—are used in Chinese approaches to conventional deterrence. Likewise, since their formal elevation in strategic importance in the early 1990s, conventional missiles have had a leading position in the modernization of the People's Liberation Army (PLA).

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The views expressed in this chapter are those of the author alone. He thanks Cristina Garafola, Alastair Iain Johnston, the National Bureau of Asian Research, and anonymous conference participants and reviewers for invaluable comments.

[1] Michael S. Chase, "PLA Rocket Force: Executors of China's Nuclear Strategy and Policy," in *China's Evolving Military Strategy*, ed. Joe McReynolds (Washington, D.C.: Jamestown Foundation, 2016), 141–72; and Michael S. Chase and Arthur Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"* (Santa Monica: RAND Corporation, 2016).

This chapter focuses on the PLA's conventional missile and strike capabilities—including hypersonic glide vehicles (HGVs) now under development[2]—and specifically forces and weapons systems within the PLA Rocket Force.[3] The elevation of the force to a full service on December 31, 2015, reflects its strategic importance. To elucidate approaches to conventional deterrence in PLA strategy, the chapter assesses PRC views on conventional deterrence definitions, concepts, and doctrine; surveys PLA conventional missile organization and force structure; considers potential scenarios; and offers corresponding conclusions and policy recommendations. The chapter also documents changing doctrinal, organizational, force modernization, training, and other elements of the PLA's conventional deterrence.

Definitions, Concepts, and Doctrine

The People's Liberation Army Rocket Force is responsible for most of China's conventional ballistic missiles and land-attack cruise

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[2] All ballistic missiles are hypersonic (faster than Mach 5) at some point in their flight. Germany's V-2, deployed in September 1944, was hypersonic during its boost phase. Intercontinental ballistic missiles, first deployed by the United States in 1959, are high hypersonic (Mach 25) throughout their entire flight. Subsequent decades have witnessed the emergence of hypersonic missile systems that can maneuver instead of following a fixed parabolic trajectory, including anti-ship ballistic missiles (ASBMs), HGVs, and air-breathing supersonic combustion ramjets (scramjets). The United States investigated maneuvering re-entry vehicles in the late 1970s, and the Soviet Union investigated HGVs in the mid-1980s; both failed. In 1981 the United States fielded the Pershing II medium-range ballistic missile (MRBM), whose terminal braking maneuver has been widely attributed to China's DF-21D and DF-26B ASBMs. In April 2010 the United States successfully tested the first HGV, the Falcon HTV-2. The restarted Russian HGV research and development effort (Project 4202, which would become the Avangard) appears to have taken a little longer. What is "new" is the recent fielding of mature, hypersonic missiles with maneuvering payloads by U.S. adversaries. Russia has developed the Avangard HGV and has fielded, or will soon field, the scramjet-powered 3M22 Zircon hypersonic cruise missile. China has fielded the aforementioned DF-21D and DF-26B ASBMs, as well as the DF-17 (likely with the DF-ZF HGV). All of these systems use speed and maneuverability to greatly complicate the defender's problem. Maneuvering potentially enables approaching from unexpected angles to strike a moving target on land or sea. Nonparabolic trajectory allows approaching at lower altitude. Trade-offs include slowing significantly (typically below Mach 10) to mitigate the ionized plasma field that inhibits active radar sensors typically employed to seek targets.

[3] While the PLA Rocket Force remains the mainstay for conventional deterrence missions regarding long-range strikes, there are increasingly roles and missions to which the PLA Air Force, Navy, and even Ground Force contribute. The PLA Air Force has fielded roughly 100 modernized H-6 bombers in recent years, many of which are capable of carrying six CJ-20 land-attack cruise missiles (LACMs) and can reach Guam. Additionally, the H-6N bomber is fielding a nuclear-capable air-launched ballistic missile (ALBM), the CH-AS-X-13, and China is also working on the H-20 low-observable strategic bomber with assessed nuclear and conventional roles. PLA Navy surface vessels are fielding anti-ship cruise missiles (ASCMs) ranging from 250 kilometers to over 500 kilometers. Larger combatants will obtain ASBMs, and some ships will get LACMs, too. PLA Navy submarines may field long-range LACMs as well. PLA Navy Aviation has a relatively long-range ASCM role with the supersonic YJ-12 (up to around 250 kilometers). Even in the PLA Ground Force, long-range artillery ranges several hundred kilometers.

missiles (LACMs).[4] Since the early 1990s, when it was still known as the Second Artillery Force (SAF), the PLA Rocket Force has been responsible for "dual deterrence and dual operations"—adding conventional to its previously nuclear-only deterrence and strike capabilities.[5] The conventional missile component of China's strategic rocket forces, increasingly important in deterrence and warfighting, supports the goal of achieving information dominance, command of the air, and control of the sea to thwart third-party intervention.[6] Beijing's latest defense white paper in 2019 encapsulates the purview of the PLA Rocket Force:

> The PLARF plays a critical role in maintaining China's national sovereignty and security. It comprises nuclear missile, *conventional missile and support forces*, and subordinate missile bases. In line with the strategic requirements of *having both nuclear and conventional capabilities* and deterring wars in all battlespaces, the PLARF is enhancing its credible and reliable capabilities of nuclear deterrence and counterattack, strengthening intermediate and *long-range precision strike forces*, and enhancing strategic counter-balance capability, so as to build a strong and modernized rocket force [italics added].[7]

PLA National Defense University's 2020 edition of the *Science of Military Strategy* (SMS 2020), a textbook for senior officers, defines the PLA Rocket Force as "a strategic service that uses land-launched missile weapons systems operations and that possesses a number of operational capabilities, such as nuclear counterattack and conventional attack." The strategy document adds that the force is "the core strength of the PRC's nuclear deterrence, it is a strategic support for the PRC's status as a major power, and it is an important cornerstone for safeguarding national security."[8]

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[4] China's conventional missiles also include air-launched LACMs in the inventory of the PLA Air Force and increasingly ship-based LACMs in the PLA Navy, land-based coastal defense cruise missiles, and ASCMs launched from aircraft, surface ships, and submarines. For further information on recent PLA Rocket Force reforms and evolution, see David C. Logan, "Making Sense of China's Missile Forces," in *Chairman Xi Remakes the PLA: Assessing Chinese Military Reforms*, ed. Phillip Saunders et al. (Washington, D.C.: National Defense University Press, 2019), 393–435.

[5] John Lewis and Xue Litai, "中国军事战略方针及核战略之演变" [The Evolution of China's Military Strategy and Nuclear Strategy], *Leaders*, no. 38 (2011), available at http://ww2.usc.cuhk.edu.hk/PaperCollection/Details.aspx?id=8111.

[6] Michael S. Chase and Andrew S. Erickson, "The Conventional Missile Capabilities of China's Second Artillery Force: Cornerstone of Deterrence and Warfighting," *Asian Security* 8, no. 2 (2012): 115–37. For long-held PRC views regarding conventional deterrence, see Shou Xiaosong, ed., 战略学2013年版 [Science of Military Strategy 2013] (Beijing: Academy of Military Sciences, 2013), 137–52.

[7] State Council Information Office of the People's Republic of China (PRC), *China's National Defense in the New Era* (Beijing, July 2019), http://www.xinhuanet.com/english/2019-07/24/c_138253389.htm.

[8] Xiao Tianliang, ed., 战略学 [Science of Military Strategy] (Beijing: National Defense University Press, 2020). For background, see Joel Wuthnow, "What I Learned from the PLA's Latest Strategy Textbook," Jamestown Foundation, China Brief, May 11, 2021, 6–13.

China's tremendous emphasis on conventional deterrence via missiles is illustrated by the fact that, circa 2011, the SAF's "inventory of conventional weapons and equipment [was] about seven times as large" as its nuclear-capable weapons arsenal.[9] Doctrinal publications such as the *Science of Second Artillery Campaigns* (2004) and *Intimidation Warfare* (2005) appear to reflect an extreme overconfidence in the PRC's ability to finely calibrate deterrence and escalation in all conceivable circumstances.[10] This remains a persistent pattern, but with those publications now potentially dated, the following discussion scrutinizes in particular the most recent publicly available PLA doctrinal source, SMS 2020, and draws heavily on the most relevant sections therein: chapter 8, "Strategic Deterrence," and chapter 20, "Rocket Force Construction and Development."

SMS 2020 defines "strategic deterrence" as

> a mode of military struggle in which the nation and armed forces, in order to realize certain political goals, and with powerful military strength as the foundation, synthetically apply multiple means to cleverly display strength and the resolve to employ strength so as to confront the adversary with losses that will outweigh the gains, and even an aftermath difficult to bear; and thus force him to make concessions, come to terms, or submit.[11]

The reference to political goals appears particularly distinctive and important to understanding Chinese thinking about using force. Applicable throughout peacetime, crisis, and war, strategic deterrence hinges on "three basic essential factors: real strength, resolve, and information transmission."[12] The textbook distills China's strategic deterrence into "self-defense, limited, flexible, effective."[13]

Like most PRC, and many non-PRC, sources, SMS 2020 defines conventional deterrence in relation to nuclear deterrence.[14] It credits

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[9] Ron Christman, "Conventional Missions for China's Second Artillery Corps: Doctrine, Training, and Escalation Control Issues," in *Chinese Aerospace Power: Evolving Maritime Roles*, ed. Andrew S. Erickson and Lyle J. Goldstein (Annapolis: Naval Institute Press, 2011), 307.

[10] 第二炮兵战役学 [The Science of Second Artillery Campaigns] (Beijing: People's Liberation Army Press, 2004); and Zhao Xijun, ed., 慑战:导弹威慑纵横谈 [Intimidation Warfare: A Comprehensive Discussion of Missile Deterrence] (Beijing: National Defense University Press, 2005).

[11] Xiao, 战略学, 126–27.

[12] Ibid., 127. See also Du Gang, "论中国和平发展中的军事力量需求—军事与经济互动规律下的中国军事发展战略结构性研究" [On the Demand for Military Power in China's Peaceful Development—A Structural Study of China's Military Development Strategy under the Law of Military and Economic Interaction], *Strategy and Management*, no. 3 (2004), available at http://ww2.usc.cuhk.edu.hk/PaperCollection/Details.aspx?id=3248.

[13] Xiao, 战略学, 127, 133.

[14] See Peng Aihua, "常规军事威慑的形成与发展" [The Formation and Development of Conventional Military Deterrence], *China Social Sciences Journal* (2019): 7; and Feng Xiaoran, "威慑有效性研究" [On the Effectiveness of Deterrence] (PhD diss., Fudan University, 2014).

conventional weapons with superior accuracy, reliability, usability, and controllability.[15] These statements are from the PLA Rocket Force chapter of SMS 2020 but likewise apply to long-range missiles controlled by the PLA Air Force and PLA Navy. Under Xi Jinping, China is rapidly developing and deploying both nuclear and conventional missiles. Where there is a clear disparity in their relative public analytical coverage, there are far more Chinese- and English-language sources focusing on PRC nuclear weapons than on PRC conventional missiles.

With nuclear and conventional ballistic missiles, China pursues a comprehensive, integrated approach. As Xi himself instructs, "we must unify crisis prevention, war containment, and war-winning and unify war preparation and war stopping, deterrence and actual warfare, war operations and the use of military force in peacetime as a whole."[16] He further commands: "Comprehensively improve deterrence and combat capabilities under conditions of informatization, and resolutely safeguard and protect national sovereignty, security, and development interests."[17]

The PLA Rocket Force doctrine anticipates and seeks to respond effectively to strategic, operational, and technical trends. To attack increasingly reinforced, buried, hidden, and moving targets, "conventional strategic missiles that have the ability for rapid global precision attacks will become an important component of major military powers' strategic missile strengths."[18] While the PLA Rocket Force does not presently have dedicated conventional missiles with global range, and the PLA Air Force and Navy are not postured to do so either, this may represent a future goal. Even the possibility is significant: conventional intercontinental ballistic missiles (ICBMs), including those outfitted with HGVs, have the potential for serious unintended escalation in crisis or conflict.

For conventional missiles, China emphasizes numbers, range, and accuracy. Moving forward, the PLA Rocket Force will place "greater stress on building mobile operations units," "enhance the ability for rapid reaction," develop relevant systems to strengthen force "survival and protection,"

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[15] Xiao, 战略学, 132. See also Ling Shengyin, Sun Ying, and Chen Maoxia, "论我国战略威慑能力建设" [On the Construction of China's Strategic Deterrence Ability], *Journal of PLA Nanjing Institute of Politics* 33, no. 3 (2017): 104.

[16] Political Work Department of the Central Military Commission, "努力把马克思主义立场观点方法学到手" [Strive to Learn the Marxist Position, Viewpoint, and Method by Hand], *PLA Daily*, June 1, 2016; "习近平足迹与语录" [Xi Jinping Footprints and Quotations], *Beijing Times*, March 15, 2013; and Ling, Sun, and Chen, "论我国战略威慑能力建设," 101.

[17] Ling, Sun, and Chen, "论我国战略威慑能力建设," 101.

[18] Xiao, 战略学, 382.

and "emphasize the development of penetration means."[19] Similarly, three particularly well-placed experts suggest that China will strive to incorporate HGVs into its inventory and doctrine:

> Hypersonic missiles combine the advantages of both ballistic missiles and cruise missiles, while largely avoiding their disadvantages. The widespread use of hypersonic missiles will inevitably accelerate the evolution of warfare patterns, which will have an impact on traditional means of defense, operational combat style and resistance methods, and change the development direction of the existing military force system. Studying the operational use of hypersonic vehicles and their impact on future warfare will lead to the development of new weapons and equipment and promote the innovation of combat doctrine, and continuously seek new growth points for military power.[20]

Force Structure

To operationalize the aforementioned doctrine, Beijing has built the world's "most active and diverse ballistic missile development program."[21] Since the end of the Cold War, China has arguably prioritized conventional ballistic missiles and the organizations to support them over nearly all other major areas of military development, including nuclear ballistic missiles. Today, already unmatched in conventional ballistic missilery, China continues to develop and test new missiles, form new missile units, upgrade missile systems, and develop methods to counter defenses against them. The PLA Rocket Force is agile, mobile, integrated with other forces, and connected to the PRC's extensive air- and space-based military surveillance systems. It can reach out thousands of miles and destroy targets on land or at sea. Examining the professional trajectories of officers—with a particular focus on those who eventually rise to the ranks of senior leadership—reveals that there is an informal institutional hierarchy among missile bases, that there is some separation between conventional and nuclear units at the

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[19] Xiao, 战略学, 382–84, 389.

[20] Hao Xiaoxue, Wang Zhong, and Han Guangsong, "高超声速飞行器作战运用探要" [Discussion on the Operational Applications of Hypersonic Vehicles], *Ship Electronic Engineering* 41, no. 7 (2021). The authors' respective affiliations with the Central Theater Command in Beijing, the PLARF Engineering University in Xi'an, and the Joint Operations College at the PLA National Defense University in Shijiazhuang imply connectivity to coordinate such efforts. For similar analysis that focuses more specifically on HGVs and aircraft, see Wang Zaiduo et al., "高超声速飞行器技术研究进展" [Research on the Development of Hypersonic Vehicle Technology], *Science and Technology Review* 39, no. 11 (2021): 59–67.

[21] U.S. National Air and Space Intelligence Center, *2020 Ballistic and Cruise Missile Threat* (Wright-Patterson AFB, July 2020), 2, https://media.defense.gov/2021/Jan/11/2002563190/-1/-1/1/2020%20BALLISTIC%20AND%20CRUISE%20MISSILE%20THREAT_FINAL_2OCT_REDUCEDFILE.PDF.

personnel level, and that senior leaders are more likely to have served in the PLA Rocket Force's premier conventionally armed missile base.[22]

The U.S. Department of Defense's 2022 China Military Power Report documents a significant buildup and testing of conventional ballistic and cruise missiles of virtually all types and ranges that other leading missile powers possess (short-, medium-, and intermediate-range), as well as some unique to China. PRC ballistic missiles include the DF-26B anti-ship ballistic missile (ASBM); the initial DF-21D ASBM, which "is reportedly capable of rapidly reloading in the field"; and the DF-17, China's first operational HGV weapons system, with potential dual conventional and nuclear variants, which it began deploying in 2020.

Lora Saalman posits that China's DF-21, DF-26, and DF-ZF ballistic missiles may each have HGV variants, with uncertainty over whether they will be conventional or nuclear. From an extensive review of Chinese-language sources, she contends that China (like Russia) is pursuing such systems not solely to prepare for regional contingencies but to hedge against "the worst-case scenario assumption that the USA will deploy a prompt global strike system that places their arsenals and command and control infrastructures at risk." She judges that China often times its HGV tests to follow U.S. or Russian HGV tests.[23]

Intriguingly, the U.S. Department of Defense's China Military Power Report also references a "DF-27," which "could be a new IRBM or ICBM," depending on its actual range.[24] As for cruise missiles, the CJ-100 ranges 2,000 kilometers and the CJ-10 1,500 kilometers—ranges that are relevant for many U.S. allies and partners in the region.

As for maximizing its ability to operate such weapons effectively, the PLA Rocket Force in 2020 "launched more than 250 ballistic missiles for testing and training…more than the rest of the world combined." The previous two years also witnessed significant ASBM tests:

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[22] David Logan, "Career Paths in the PLA Rocket Force: What They Tell Us," *Asian Security* 15, no. 2 (2019): 103–21.

[23] Lora Saalman, "China's Calculus on Hypersonic Glide," Stockholm International Peace Research Institute, August 15, 2017, https://www.sipri.org/commentary/topical-backgrounder/2017/chinas-calculus-hypersonic-glide. For extensive analysis of Chinese sources, see Tong Zhao, "Conventional Challenges to Strategic Stability: Chinese Perceptions of Hypersonic Technology and the Security Dilemma," Carnegie Endowment for International Peace, July 13, 2018, https://carnegieendowment.org/2018/07/23/conventional-challenges-to-strategic-stability-chinese-perceptions-of-hypersonic-technology-and-security-dilemma-pub-76894.

[24] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2022* (Washington, D.C., November 2022), 65, https://media.defense.gov/2022/Nov/29/2003122279/-1/-1/1/2022-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF; and "DF-27 Hypersonic Ballistic Missile Leaked," China-Arms, August 12, 2021, https://www.china-arms.com/2021/08/df-27-hypersonic-ballistic-missile-leaked.

> On August 26 [2020] the PLARF test-fired four medium-range ballistic missiles into the South China Sea, marking the second consecutive year that the PLA has conducted such a test. In July 2019, the PLARF conducted its first-ever confirmed live-fire launch into the South China Sea, firing six DF-21D anti-ship ballistic missiles into the waters north of the Spratly Islands.[25]

Per Chinese approaches to deterrence that include test shots, some of these tests may have been intended as deterrence signals.

PLA Rocket Force missiles and other "counter-intervention" weapons are part of a comprehensive pattern: Beijing is preparing a potent weapons-based capability for virtually any possible scenario, contingency, or escalation. In particular, thanks to a robust PRC revolution in military affairs, the PLA Rocket Force's ballistic missiles have reached the point where they are effectively a type of naval force. Here China draws at a minimum on its two principal ASBMs, the DF-21D and DF-26B—the latter in increasingly large numbers.

In addition to such counterspace systems as jammers, lasers, microwaves, and electromagnetic pulse weapons, PLA Rocket Force conventional ballistic missiles serve as kinetic anti-satellite weapons. China's emerging Fractional Orbital Bombardment System (FOBS) may be only nuclear. A *Global Times* article characterizes a related test as part of a larger effort to "narrow the gap with the United States in key military technology fields and even form some individual capabilities that may exceed that of the United States"—with the goal of achieving military advantages over the United States in "the Taiwan Strait and the South China Sea."[26] However, sources such as SMS 2020 appear to posit a future conventional ICBM, presumably with coverage of the continental United States, which could present severe disambiguation problems. A future intercontinental HGV or FOBS may offer China such coverage with a relatively unpredictable trajectory.

Contingencies and Scenarios

Taiwan—and by extension U.S. and allied forces that might come to its aid—has long been the central focus of PRC strategic rocket force efforts

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[25] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021* (Washington, D.C., November 2021), 95, 71, https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF

[26] "别死盯中国高超音速导弹, 请视野宽些吧" [Don't Look Narrowly at China's Hypersonic Missiles, Please Expand Your Horizons], *Global Times*, October 17, 2021. For related discussion of reported U.S. developments, see "米利重提 '斯普特尼克时刻,' 意欲何为" [What Does Milley Mean by Revisiting "The Sputnik Moment"], *Global Times*, October 29, 2021.

in development, deterrence, and operational preparations. The stakes are high, and the risk is growing. For cross-strait scenarios, conventional missiles are paramount.[27] Meanwhile, broader Sino-U.S. deterrence relations are unprecedentedly complex and difficult. Xi Jinping's precise thinking remains unknown, but the PLA buildup he directs matches a logical operationalization of his apparent objectives vis-à-vis Taiwan: develop, deploy, and demonstrate options for every contingency and level of escalation sufficient for China to prevail no matter what happens. Xi's preference is almost certainly to use a mounting impression of overwhelming might to intimidate the United States and its allies into faltering to a degree that ultimately erodes their resolve and credibility to intervene, and cows Taiwan's populace and leadership into acquiescing to the PRC's demands. Aware that this may not prove possible, however, Xi simultaneously charges the PLA with preparing to "fight and win" if called to do so, and to this end he is pushing PLA reforms to ensure wholesale capability improvement. This also implies further extending deterrence into nonmilitary realms, including economic coercion, that are beyond this chapter's scope.

As SMS 2020 explains, the PLA Rocket Force is therefore "expand[ing] the intensity of building conventional missile units." PLA theater commands almost certainly have clearly defined operational control authorities over some of the conventional missile force.[28] This is evidenced by the command authorities granted to certain PLA Rocket Force bases, the integration of missile operations into the theater joint operations command structure, and indications from PLA press outlets that PLA Rocket Force units are subordinate to the theater command operational structure.[29]

In operational scenarios, "conventional missiles usually primarily attack the enemy's important military targets; in a single campaign, these targets are not only strategic[-level] in nature but they are also campaign[-level] in nature, and there are a fairly large number of them." Accordingly, "in order to achieve strategic or campaign goals and to make missile assaults truly effective, a very large number of missiles is used." The PLA Rocket Force's conventional strength is determined by "the actual military strength of possible future operational opponents and on our overall strategic intentions, as well as on the minimal requirements of the Ground Forces, Navy, and Air Force that could cooperate in operations." To prosecute a high-end

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[27] 第二炮兵战役学, 274.

[28] This is almost certainly different for nuclear forces given the supreme command.

[29] Roderick Lee, "Integrating the PLA Rocket Force into Conventional Theater Operations," Jamestown Foundation, China Brief, August 14, 2020, 24–31.

conflict, the PLA Rocket Force would need to be part of an effective joint force. Among other things, it is a big target and therefore needs such joint defenses as surface-to-air missiles and fighter aircraft. With respect to "the range of missiles, there should be a fairly large scope of firepower control, one that is able to have effective control over all important targets in major peripheral hostile countries and regions." As for "the precision, power, and performance of missiles, it is necessary to have the ability to attack enemy targets with differing natures."[30]

Beijing's approach to and experience with previous nuclear-related crises promote what are now long-standing PLA beliefs—and arguably overconfidence—in the ability to tailor, calibrate, and control escalation. Chinese and Russian sources and emerging bilateral scholarly consensus suggest compellingly that it was Mao Zedong who deliberately planned and initiated the Sino-Soviet border crisis of 1969. This included the Wusuli/Ussuri River clashes, specifically the PRC-premeditated Zhenbao/Damansky Island ambush on March 2, 1969. Mao's core calculus was arguably not even deterring Soviet interventionist aggression under the Brezhnev Doctrine following the 1968 invasion of what was then Czechoslovakia, but rather employing an external threat to generate domestic unity and political mobilization.[31]

To be sure, in addition to such high-risk behavior, PRC crisis behavior and risk-taking patterns in the Mao era and subsequently also reveal examples of limiting risks, such as Mao restricting shelling on Jinmen and Deng Xiaoping invading Vietnam but announcing a maximum duration of several weeks. Unfortunately, however, it appears that Beijing has consistently been willing to take the greatest risks regarding its territorial sovereignty claims. Moreover, development and deployment of capabilities, together with associated messaging and signaling, suggest mounting risk-taking under Xi. There are ever fewer areas where he appears to be willing to back down.[32] Most prominently, Taiwan contingencies loom as a dangerous area for potential escalation, particularly with Xi personally tasking the PLA in 2020 with achieving a "centennial military building goal" of extensive Taiwan-campaign-relevant capabilities by 2027.[33]

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[30] Xiao, 战略学, 389.

[31] Lyle J. Goldstein, "Return to Zhenbao Island: Who Started Shooting and Why It Matters," *China Quarterly*, no. 168 (2001): 985–97.

[32] The author is indebted to Alastair Iain Johnston for these insights.

[33] Andrew S. Erickson, "PRC Pursuit of 2027 'Centennial Military Building Goal' (建军一百年奋斗目标): Sources and Analysis," December 19, 2021, https://www.andrewerickson.com/2021/12/prc-pursuit-of-2027-centennial-military-building-goal-sources-analysis.

Such high-risk behavior may represent the growing expression of long-standing PLA thinking on counter-deterrence.[34] Focusing on the nuclear aspect, Phillip Saunders defines counter-deterrence operations as involving "efforts to communicate China's will and resolve to respond to a nuclear attack in order to signal that China cannot be coerced by nuclear threats and to reinforce deterrence. They can be considered a form of nuclear signaling."[35] A *Global Times* editorial in response to the unclassified version of the U.S. Department of Defense's *2021 Global Posture Review* invokes the term before declaring that

> it is vital to greatly develop and stockpile a significant number of missiles that can strike targets in the second island chain. Those missiles are not costly and can strike from a distance, so they are quite cost-effective. It can be said that in whatever positions the U.S. and its allies are preparing for attacks against China, our missiles should be ready to target those points.[36]

PRC international security crisis-management theory and practice have evolved considerably in recent years, particularly regarding PLA operations; but significant problems persist, specifically with respect to hypernationalism, exceptionalism, and underdevelopment.[37] While PLA views are evolving, and many critical unknowns remain for outside observers, controlling the outbreak and escalation of crises is clearly an area of PLA focus. Divergences from U.S.

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[34] See, for example, "彭念: 中日之间的威慑与反威慑游戏" [Peng Nian: The Game of Deterrence and Counter-Deterrence between China and Japan], Aisixiang, November 21, 2013, http://www.aisixiang.com/data/69762.html; and "中国反威慑让美如梗在喉" [China's Counter-Deterrence Sticks in America's Craw], Red China, October 22, 2013, http://www.red789.com/space-uid-1.html. For analysis of how counter-deterrence thinking may relate to China's nuclear posture and hypersonics development, see Larry M. Wortzel, "Hypersonic Weapons Development in China, Russia and the United States: Implications for American Security Policy," Association of the United States Army, Land Warfare Paper, no. 143, March 23, 2022, 6, https://www.ausa.org/publications/hypersonic-weapons-development-china-russia-and-united-states-implications-american.

[35] Phillip C. Saunders, "Chinese Nuclear Forces and Strategy," testimony before the U.S.-China Economic and Security Review Commission, Washington, D.C., March 26, 2012. For a related definition that incorporates conventional aspects, see Brian Radzinsky, "The Strategic Implications of the Evolving U.S.-China Nuclear Balance," *Washington Quarterly* 44, no. 4 (2021): 165.

[36] "China's Counter-Deterrence Best Response to U.S. Threats from 2nd Island Chain: Global Times Editorial," *Global Times*, November 30, 2021, https://www.globaltimes.cn/page/202111/1240339.shtml.

[37] Alastair Iain Johnston, "The Evolution of Interstate Security Crisis-Management Theory and Practice in China," *Naval War College Review* 69, no. 1 (2016): 29–44. See also Wu Xinbo, "Managing Crisis and Sustaining Peace between China and the United States," United States Institute of Peace, April 2008, https://www.usip.org/sites/default/files/2019-06/pw61_finalapr16.pdf; Yu Lihan, "威慑何以失败? 基于信号博弈视角的实证分析" [Why Does Deterrence Fail? Based on Signaling Game Theory—An Empirical Analysis] (master's thesis, Beijing Foreign Studies University, 2016); Peng Nian, "中日之间的威慑与反威慑游戏" [The Game of Deterrence and Counter-Deterrence between China and Japan], Aisixiang, November 21, 2013, https://www.aisixiang.com/data/69762.html; and Huang Hairuo, "当代威慑理论的再思考—以朝鲜核问题为例" [Rethinking Contemporary Deterrence Theory—The North Korean Nuclear Question as an Example] (master's thesis, Party School of the Jiangsu Provincial Party Committee, 2018).

thinking suggest that some PLA activities in a crisis could be perceived as—and therefore become—escalatory even if not intended as such.[38]

(Mis)Communicating Deterrence: Risk Factors

PRC visions for operationalizing conventional deterrence carry the risk of multiple types of potential misunderstandings and unintended consequences. These include inadvertent or unanticipated escalation, conflation of conventional and nuclear activities, and differences in adversary perceptions and decision-making.

Escalation Risks

To project images of military superiority and enhance deterrence, Beijing has unveiled, and will unveil at critical times, world-class systems.[39] A stronger step, whose escalatory potential may be underappreciated in SMS 2020, is "executing warning/demonstrative military strikes." Such actions are intended to involve only "a small quantity of military and political targets with clear awing effects, relatively isolated and easy to hit, and not likely to cause damage." However, the potential for error and miscalculation is not directly acknowledged or addressed.[40]

Some of the risks of escalation are different in terms of conventional missile units and transporter erector launchers in the PLA Rocket Force versus aircraft, ships, and submarines. The latter undertake a variety of operations across the spectrum of conflict, including in the gray zone. These non–PLA Rocket Force assets arguably provide additional benefits to PRC conventional deterrence, given their more flexible options for operations and signaling.

Conventional-Nuclear Confusion Risks

One of the greatest risks in Sino-U.S. deterrence relations is the lack of firewalls between China's conventional and nuclear missile doctrine, force

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[38] Alison A. Kaufman and Daniel M. Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control," CNA, February 1, 2016, https://apps.dtic.mil/sti/pdfs/AD1005033.pdf.

[39] Xiao, 战略学, 136.

[40] Ibid.

structure, and operations.[41] Arguably to an extreme degree, PRC doctrine calls for a comprehensive approach geared to "flexibly selecting and applying deterrent means," in part through "organically combining nuclear deterrence with conventional deterrence."[42] Accordingly, "operational units at the tactical level simultaneously have dual nuclear and conventional operational capabilities."[43]

New technologies not only are being developed for conventional missiles, but they will continue to be applied to nuclear missiles.[44] This blurring also complicates real-time determination whether a given system is conventional or nuclear, particularly among ground-launched missiles of intermediate range, such as the DF-26. This ambiguity greatly enhances the risk of U.S. forces presuming that an incoming missile is nuclear upon detection. Another huge risk this poses is that the United States' targeting of perceived conventional systems might accidentally cross the nuclear threshold by striking nuclear systems—or even conventional systems that China considers their strategic equivalent.

Risks from Differing Psychology and Interests

U.S. and PRC leaders arguably view and experience deterrence in substantially different ways. This should be deeply examined and fully factored into the equation. SMS 2020 emphasizes that decision-makers "must earnestly study the psychological features and behavioral modes of the adversary's decision-makers" and devotes considerable space to promoting both influence and deception measures.[45] A PRC article judges that U.S. experts consider the concept of "peace from power" to be the core component of the PLA's deterrence thinking, whereby China seeks to fulfill its objectives at the lowest possible level of escalation. Given that both China and the United States are implementing competing deterrence strategies in the Asia-Pacific, the author concludes that a mutual understanding of

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[41] The Janus-faced dual-payload concept has been contemplated by PRC strategists and technicians alike for some time. In September 2006, at the "10th Program for Science and National Security Studies Beijing Seminar on International Security" conference in Xiamen, the author witnessed the unexplained appearance of an unattributed paper on "combining nuclear and conventional" on the publications table. That conference was co-sponsored by the Institute of Applied Physics and Computational Mathematics, a reclusive organization closely affiliated with China's nuclear weapons industry.

[42] Xiao, 战略学, 139.

[43] Ibid., 382.

[44] Eric Heginbotham et al., *China's Evolving Nuclear Deterrent: Major Drivers and Issues for the United States* (Santa Monica: RAND Corporation, 2017).

[45] Xiao, 战略学, 127.

deterrence strategies must be established.[46] An anonymous U.S. government official with extensive experience in Sino-U.S. discussions on arms control considers the reality far worse:

> I would argue China doesn't want us to understand their deterrence strategy, that lack of clarity is baked into the ambiguity. For twenty years of dialogue on these issues, the Chinese government and Chinese experts outside of government did not engage meaningfully or seem to want to fix these problems of understanding. I don't believe the PLA wants us to understand them.[47]

Additionally, PRC thinking regarding war termination—and theory of victory, which is inherently linked—merits particular study. For instance, the "War Termination" section from SMS 2015 states the following:

> When we face an unfavorable [war] situation, we should consider two possibilities. If we can swiftly reverse the war situation, then we should conduct short, sharp operations to give the enemy a violent blow; if the [war] situation turns in our favor, we should immediately pursue a political approach to resolve the issue. If we cannot reverse the war situation in a fairly short period of time, then continuing to fight would not justify the losses incurred. At this point, stubbornly fighting would be worse than terminating combat operations. We should strive to minimize losses and seize the initiative by means of vigorous political and diplomatic struggle.[48]

Conclusion

In surveying China's approach to conventional deterrence, this chapter has provided an overview of key trends, including doctrinal and operational concepts, force modernization efforts, signaling dynamics, escalation risks, and policy implications. Particularly worrisome is that traditional PRC gaps and issues of concern appear to be persistent and even worsening. Foremost among them remain the PRC's overconfidence in its escalation management ability and its unwillingness to explicate changing views on strategic stability, let alone to consider embracing guardrails or other restraints. If anything, both issues are growing more acute as the PLA's conventional long-range missile capabilities strengthen and proliferate to more forces. The PLA, in turn, is developing new operational concepts and forces that could

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[46] Dong Lei, "美专家析解放军威慑战略: 力求 '不战而屈人之兵'" [American Experts Analyze the PLA's Deterrence Strategy: Striving to "Defeat the Soldier Without Fighting"], Reference News, April 22, 2017, http://www.cankaoxiaoxi.com/mil/20170422/1915835.shtml.

[47] Author interview with anonymous U.S. government official, 2022.

[48] Xiao Tianliang, ed., 战略学 [Science of Military Strategy] (Beijing: National Defense University Press, 2015), 232–36.

further complicate the dual-entanglement problem and multiply potential misperceptions in the event of a crisis or conflict.

The PLA Rocket Force's conventional missiles, which have been the core focus of this chapter, are wielded in combination with multifarious forces, activities, signaling, and messaging. Overall, China uses manifold tools to underpin deterrence, especially in the information space, which are intertwined with hard military capabilities for an overall conception of deterrence. Understanding China's conventional deterrence calculus requires considerable research across the board to ensure peace during what has emerged as a dangerous decade for the Sino-U.S. relationship. Not only are risks mounting vis-à-vis Taiwan, but both nations' development of long-range precision-strike systems means that within this critical period neither homeland may be a sanctuary, even at the conventional level.

Given these harsh realities, U.S. decision-makers must focus on maximizing and integrating military elements of deterrence, which are far more significant than any nonmilitary supplementation. They must unambiguously uphold the credibility of U.S. conventional and nuclear deterrence, including extended deterrence to support allies facing threats from China. The U.S. mission is vital, the stakes are high, and the margins are increasingly thin.

EXECUTIVE SUMMARY

This chapter examines the two dominant approaches to Chinese nuclear deterrence and considers a third domestic political approach focused on the role of party ideology and diplomacy.

MAIN ARGUMENT

Two approaches are widely utilized to assess Chinese nuclear capabilities, explain long-term ideas, and understand practices of strategic deterrence in China. The first involves a rigorous tracking of technological changes to the Chinese arsenal. The second (sometimes referred to as "nuclear talk") focuses on past and present statements about strategic deterrence by authoritative political and military figures in China. Yet these approaches risk overlooking prior domestic political considerations that also explain long-term ideas and practices of Chinese nuclear deterrence. A third approach, which I call the domestic political approach, is thus needed. According to this approach, domestic political considerations have an internal and external focus: the internal focus is on Chinese Communist Party (CCP) ideology and how it relates to strategic deterrence, whereas external political considerations concern diplomacy in both peacetime and during crises. Taken together, the two traditional approaches and the domestic political approach provide a comprehensive picture of Chinese attitudes and policies regarding nuclear deterrence.

POLICY IMPLICATIONS

- Ideologically constituted nuclear ideas such as "no first use" are hard to decipher and change from the outside. Drastic changes to such ideas are more likely to come domestically when they are no longer useful to the broader foreign policy and diplomatic goals of the CCP.
- The U.S. may have room to shape external political considerations around diplomacy and strategic deterrence in China during peacetime and crises. To this end, it should continue to build up Chinese-language capabilities within the U.S. government and military to study China. It should also engage with middle- and lower-ranking Chinese military, scientific, and political diplomats on crisis management.
- The U.S. should not publicly state that it shares mutual vulnerability with China. This would be counterproductive in arms control terms and lock the bilateral relationship into an even more competitive trajectory. Moreover, it could provide a political exit for China to break away from restrictive ideologically constituted nuclear ideas such as no first use.

Chapter 2

How China's Nuclear Past Shapes the Present: Ideological and Diplomatic Considerations in Nuclear Deterrence

Nicola Leveringhaus

China's early thinking on nuclear deterrence was not strategic. Indeed, it is debatable whether China, which successfully tested a nuclear device in 1964, was able to practice and communicate credible nuclear deterrence until the late 1990s, if not the early 2000s. Today, two decades on, the picture is also breathtakingly different in capability terms. China is the third-largest nuclear weapons state, with an estimated 350 nuclear warheads.[1] The 2021 China Military Power Report predicts that Chinese nuclear forces may increase to 1,000 by 2030.[2] A 2021 analysis of commercial satellite imagery uncovered missile silos under construction in China with the potential to house over 250 intercontinental ballistic missiles.[3] With these growing capabilities in the nuclear domain, have traditional Chinese approaches to strategic deterrence shifted dramatically?

In deciphering whether continuity or change is underway in China's long-term thinking, analysis has tended to focus on either military

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[1] Hans M. Kristensen and Matt Korda, "Nuclear Notebook: Chinese Nuclear Forces, 2021," *Bulletin of the Atomic Scientists*, November 15, 2021, https://thebulletin.org/premium/2021-11/nuclear-notebook-chinese-nuclear-forces-2021.

[2] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021* (Washington, D.C., November 2021), viii, https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF.

[3] On these discoveries made by U.S.-based analysts, see Nicola Leveringhaus, "De-constructing Talk on Missile Silo Construction in China," Royal United Services Institute, August 3, 2021, https://rusi.org/explore-our-research/publications/commentary/de-constructing-talk-missile-silo-construction-china.

technologies or statements by senior Chinese elites. These two approaches have proved crucial to assessing the evolution of Chinese thinking about nuclear deterrence. Yet they risk overlooking prior domestic political considerations. To address this limitation, this chapter introduces a third approach, what I refer to as the domestic political approach. According to this approach, domestic political considerations have an internal and external focus. The internal focus is on Chinese Communist Party (CCP) ideology and how it relates to strategic deterrence. By contrast, external political considerations concern diplomacy, specifically how China's nuclear deterrent serves diplomatic goals in peacetime and at times of crisis.

The chapter is organized into three main sections. The first section starts with what we think we know about Chinese nuclear deterrence and lays out the two dominant approaches to assessing Chinese ideas. The second and third parts deal with the two main dimensions of the domestic political approach, namely ideology and diplomacy, respectively. This analysis is followed by a brief conclusion.

Long-Term Chinese Nuclear Traditions

The Technology-Centered Approach

Our understanding of long-term Chinese traditional thinking on nuclear deterrence is built on two main approaches. The first approach is centered on technology. This approach assumes that for decades China was constrained by technological backwardness, with little, if any, strategic options on which to base credible strategic deterrence. Indeed, in the 1980s and 1990s China had only a handful—roughly twenty—single-warhead DF-5 intercontinental ballistic missiles that could reach the United States. It had no sea-based deterrent and virtually no strategic air-based capabilities. Yet, according to this approach, following decades of People's Liberation Army (PLA) military modernization, China is now surmounting these technical constraints. In so doing, new, unprecedented strategic options for deterrence are becoming a reality for China's military planners. Certainly, not all military technologies and capabilities are created equal, and some offer more strategic options than others for deterrence. For example, some weapons systems clearly improve survivability and the assuredness of retaliation. The DF-31A deployed in 2006 is a case in point. These are mobile intercontinental ballistic missiles that do not need fixed silos, making it harder for an enemy to detect and track them. At the more provocative end of the spectrum, other technologies suggest bigger changes in nuclear ideas

and practices, such as an emerging first-use or damage limitation option for Chinese planners. An example is the hypersonic technology tested by China in summer 2021. Technology in this sense not only shapes what is possible operationally but also may reflect greater ambitions and intentions in Chinese nuclear deterrence.

Viewed in historical context, China has long been aware of its technological shortcomings, in not just the nuclear but also the wider strategic domain. The border clash and threat of war with the Soviet Union in 1969 politically mobilized China to an unprecedented degree to focus more on a nuclear "shield" in the form of civil defense with the Third Front Movement.[4] This was a massive project to relocate strategic defense industries and assets inland, reducing their vulnerability as targets in any future conflict. Later, in 1973, a PLA delegation was sent to Egypt and Syria to study the Arab-Israeli war. According to M. Taylor Fravel, the delegation took away the importance of anti-air as well as anti-tank operations.[5] In the late 1970s, Chinese military action in Indochina (including Deng Xiaoping's decision to go to war in 1979) was driven in part by a dire strategic need to address technical shortcomings and accelerate military modernization.[6] In essence, the technology-centered approach does much to explain dissatisfaction and frustration with an extremely limited set of technical options for Chinese strategic deterrence during the Cold War, and thus provides a relatively easy explanation as to why change through modernization is desired.

The Nuclear-Talk Approach

The nuclear-talk approach to explaining Chinese nuclear ideas and practices is centered on verbal and written declarations of authoritative domestic figures, what can be termed here the "nuclear speech act" or, more colloquially, "nuclear talk."[7] This approach emphasizes that nuclear weapons serve a minor role compared to advanced conventional capabilities (and non-nuclear strategic weapons such as cyber or space) for the purposes

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[4] A fantastic book on this topic is Covell F. Meyskens, *Mao's Third Front: The Militarization of Cold War China* (Cambridge: Cambridge University Press, 2020).

[5] M. Taylor Fravel, *Active Defense: China's Military Strategy since 1949* (Princeton: Princeton University Press, 2019), 146.

[6] Xiaobing Li, *The Dragon in the Jungle: The Chinese Army in the Vietnam War* (Oxford: Oxford University Press, 2020).

[7] This borrows from the "taboo talk" term used in Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945* (Cambridge: Cambridge University Press, 2007), 51–53.

of strategic deterrence. While military value may be de-emphasized in China's nuclear talk, the political value is not. Successive leaders, from Mao Zedong to Xi Jinping, tend to talk about nuclear deterrence in much the same way—these weapons are useful in reinforcing China's great-power status but less so in providing military utility. There are some exceptions to this, such as the internal debate around no first use (NFU) in the 1990s and the circumstances under which China would use nuclear weapons. Yet this debate has not resulted in a change to the official declaratory policy on NFU that has been in place since 1964.

Domestic expertise on nuclear deterrence (and how this expertise is communicated) has matured significantly since the 1970s and 1980s. Before then, as noted by Fravel, space for contestation of strategy and nuclear deterrence likely did not exist beyond the party and a small circle of scientists.[8] This relationship between science and the party may go some way in explaining why China publicly rejected the term "deterrence" for so long. The term was not embraced openly until the 2000 defense white paper, and even today China does not like to use the term "minimum deterrence," instead favoring "self-defensive counterattack strategy" (自卫核反击, preferred by the PLA), "retaliation" (核报复, preferred by politicians and diplomats), and "self-defensive nuclear strategy" (自卫防御核战略). In any event, in the 1980s and 1990s, China began to develop niche expertise around arms control and proliferation. The result is that today it has an array of scientific, military, diplomatic, and think tank or academic experts to communicate Chinese ideas on nuclear deterrence. Scientists still tend to dominate nuclear discourse in China, but there is an increasingly discernible nationalistic and popular level of nuclear talk as well, often on social media and driven by propaganda.[9] Deep academic debates in China on nuclear deterrence remain underdeveloped, especially philosophically and historically informed analysis.[10] This is unsurprising given the lack of accessible archives in China as well as the increased politicization of academia in the Xi Jinping era. As a result, published works in China tend to glorify past scientific achievements rather than cast a critical eye on

[8] M. Taylor Fravel and Evan S. Medeiros, "China's Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Structure," *International Security* 35, no. 2 (2010): 52.

[9] Naomi Egel and R. Lincoln Hines, "Chinese Views on Nuclear Weapons: Evidence from an Online Survey," *Research and Politics* 8, no. 3 (2021): 1–8.

[10] Professors Shen Zhihua and Chen Jian, two Cold War historians, are an important exception. A more generalized academic piece is Zhu Mingquan, Wu Chunsi, and Su Changhe, 威慑与稳定:中美核关系 [Deterrence and Stability: China-U.S. Nuclear Relationship] (Beijing: Shishi Chubanshe, 2005).

nuclear history.[11] National nuclear commemoration remains highly selective, focusing on scientific projects like the 1958 Two Bombs, One Satellite program and not much else.[12]

Methodologically, the nuclear-talk approach turns to official biographies of former CCP leaders, like Mao Zedong, or military figures, like Marshal Nie Rongzhen. Speeches by leaders are also useful, whether to PLA nuclear forces[13] or at forums like the United Nations.[14] Chinese military textbooks, which draw on the instructions of leaders, can also offer insight into the operational goals of China's nuclear forces, beginning with the 1987 *Science of Military Strategy* and later the 1996 *Science of Second Artillery Strategy* and the 2020 *Science of Military Strategy*. Yet there are limitations: official biographies are sanitized records of the past, and military textbooks are political educational documents, not war plans. As such, they tend to contain no major surprises but instead reaffirm the party line on long-term Chinese nuclear ideas.

Mind the Gap: China's Nuclear Past and Nuclear Tradition

The preceding discussion of the two main approaches to understanding Chinese thinking about nuclear deterrence leads to the conclusion that much of China's nuclear past remains understudied. This complicates any understanding of Chinese nuclear traditions inasmuch as the roots of these traditions cannot be fully appreciated, leaving references to past Chinese events open to misunderstanding. Certainly, some gaps in Chinese nuclear history remain unknowable until more sources become available, such as the depth of Soviet cooperation on China's nuclear program before 1958.[15]

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[11] Liang Dongyuan, 中国第一颗原子弹596 迷失 [China's First Atomic Bomb: The Secret History of 596] (Wuhan: Hubei Renmin Chubanshe, 2007).

[12] This was an important project resulting in three scientific and military achievements: the nuclear test in 1964, the hydrogen bomb test in 1967, and the satellite launch in 1970. For Chinese discussions, see Liu Hanfeng, Liu Yanqiong, and Xie Haiyan, 两弹一星工程与大科 [The Project of "Two Bombs, One Satellite": A Model of Big Science] (Jinan: Shandong Jiaoyu Chubanshe, 2004); and "两弹一星功臣致敬(社论)" [Editorial: Missiles Plus One Satellite, Heroic Tribute], *People's Daily*, September 19, 1999. See also Nicola Leveringhaus, "Politics of Nuclear Commemoration in Asia: The China Case," Australian National University, Coral Bell School of Asia Pacific Affairs, YouTube video, August 5, 2021, https://www.youtube.com/watch?v=B6o-TM-exUM.

[13] Xi Jinping, "习近平: 建设强大的信息化战略导弹部队" [Build a Strong Information-Based Strategic Missile Force], General Secretary of the Chinese Communist Party, December 5, 2012, http://cpc.people.com.cn/n/2012/1205/c64094-19804598.html.

[14] Hu Jintao, "Build towards a Harmonious World of Lasting Peace and Common Prosperity," statement before the UN Summit, New York, September 15, 2005, https://www.un.org/webcast/summit2005/statements15/china050915eng.pdf.

[15] Admittedly, there have been some attempts to do this. See, for example, Shen Zhihua, "援助与限制:苏联与中国的核武器研制, 1949–1960" [Aid and Restriction: The USSR and the Development of Atomic Weapons in China (1949–1960)], *Historical Research*, March 2004, 110–31.

Yet other gaps may soon be ripe for re-examination. For example, more information has come to light from U.S.[16] and Chinese[17] sources about the credibility and relevance of U.S. nuclear threats in deterring China over islands near Taiwan in the 1950s. Early Chinese (especially nationalist Chinese) political attitudes toward the bomb, particularly before 1949, can now be better appreciated using sources like Dacheng's Old Journal database (大成老旧刊全文数据库). How much these historical gaps may have shaped traditional Chinese thinking (and our own thinking about China's thinking) about the bomb remains unclear, but some pockets of Chinese nuclear history may be worthy of more research. With this caveat in place, the rest of this section attempts to piece together what we think we know about Chinese nuclear traditions.

One way to approach Chinese traditional nuclear thinking is to think of it as a set of interconnected ideas attached to a "grand nuclear idea." This grand nuclear idea is that China, since 1964, has pursued a defensive nuclear strategy. "Defensive" here means retaliation and a rejection of the first—preemptive and offensive—use of nuclear weapons. China's public NFU declaration since 1964, internal debates notwithstanding, has reflected this defensive take on nuclear deterrence. With NFU, China asserts that it would be willing to be attacked and suffer the consequences of being struck first with nuclear weapons.[18] Only after the enemy has struck (后发制人) would China use nuclear weapons. Retaliation was developed and integrated into operational doctrine in the 1980s under Deng Xiaoping and then defense minister Zhang Aiping. In the 1990s and 2000s, NFU and retaliation remained key aspects of declaratory nuclear strategy, reaffirmed in China's defense white papers and most recently by the Ministry of Foreign Affairs in October 2021, when it stated that "China maintains that nuclear-weapon states should…abandon nuclear deterrence policies based on preemptive moves, reduce the role of nuclear weapons in national security policy."[19]

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[16] William Burr, "Nuclear War with China? Tensions Over Taiwan Raise Profile of 1958 Crisis," National Security Archive, May 28, 2021, https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2021-05-28/nuclear-war-china-tensions-over-taiwan-raise-profile-1958-crisis.

[17] Pang Yang Heui, *Strait Rituals: China, Taiwan, and the United States in the Taiwan Strait Crises, 1954–1958* (Hong Kong: Hong Kong University Press, 2019); and Shen Zhihua, "无奈的选择:冷战与中苏同盟的命运 [No Other Choice: The Cold War and the Fate of the Sino-Soviet Alliance] (Beijing: Shehui Kexue, Wenxuan Chubanshe, 2012). See also Gregory Kulacki, "Nuclear Weapons in the Taiwan Strait Part I," *Journal for Peace and Nuclear Disarmament* 3, no. 2 (2020): 310–41.

[18] Sun Xiangli, "中国核战略性质与特点分析" [China's Nuclear Strategy: Nature and Characteristics] *World Economics and Politics*, no. 9 (2006): 23–29.

[19] Embassy of the People's Republic of China in the Republic of Iceland, "Position Paper on China's Cooperation with the United Nations," October 26, 2021, https://www.mfa.gov.cn/ce/ceis/eng/zbgx/t1916783.htm.

China's defensive version of nuclear deterrence is thus fundamentally different from preemptive forms practiced in other nuclear weapons states.

If a nuclear arsenal is purely for defensive and retaliatory purposes, then a small arsenal should arguably suffice, and a larger arsenal, credible and survivable across different platforms, may be unnecessary. In essence, China need not reach nuclear parity with other nuclear weapons states. It does not need to emulate the size and scope of nuclear forces in the United States or Russia and instead can practice nuclear minimalism and limited development. All that is needed is the ability to "counter-coerce," as Tsinghua University professor Li Bin argues.[20] However, if by 2030 Chinese nuclear forces have indeed quadrupled in size, would this be a violation of nuclear minimalism? Perhaps so in literal terms, though the size of China's nuclear arsenal would remain substantially small relative to the United States and Russia. China thus remains loyal to the idea of rejecting nuclear parity, even as it pushes the boundaries of nuclear minimalism.

What of the utility of these weapons and the likelihood of nuclear war? China's traditional thinking runs along similar lines to development: these weapons have little military value, and nuclear war is considered an extremely low-probability event. Historically, a first port of call for this view tends to be Mao's notion of a "paper tiger," dismissing the atomic bomb. Yet, as Chinese analysts have pointed out, Mao was not dismissive of the horrors of nuclear war, deeming such an event a crime.[21] He later explained that "paper tiger" was merely a "vivid metaphor" intended to counter exaggerated accounts of nuclear weapons in the 1940s and 1950s.[22] Deng also advanced the Chinese view that nuclear war was unlikely in 1981, noting that "in the future, there may not be a nuclear war…probably everyone will not dare to use them."[23] This became a more formal instruction for the Chinese military in 1985 when he stated that China no longer had to prepare to fight an early,

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[20] Li Bin, "中国核战略辨析" [Understanding Chinese Nuclear Strategy], *World Economics and Politics*, no. 9 (2006): 16–22; and Li Bin, "China's Potential to Contribute to Multilateral Nuclear Disarmament," *Arms Control Today*, March 2011, http://www.armscontrol.org/act/2011_03/LiBin.

[21] This Mao quote of nuclear war as a "crime" is used widely by Chinese analysts. See Xu Weidi, "China's Security Environment and the Role of Nuclear Weapons," in *Understanding Chinese Nuclear Thinking*, ed. Li Bin and Tong Zhao (Washington, D.C.: Carnegie Endowment for International Peace, 2016), 26; Pan Zhenqiang, "China's No First Use of Nuclear Weapons," in ibid., 53–54; Lu Yin, "Reflections on Strategic Stability," in ibid., 133; and Liu Chong, "The Relationship between Nuclear Weapons and Conventional Military Conflicts," in ibid., 153.

[22] Zhenqiang, "China's No First Use of Nuclear Weapons," 54; and Chong, "The Relationship between Nuclear Weapons and Conventional Military Conflicts," 152. In 1965, American journalist Edgar Snow asked Mao whether he still considered atomic bombs paper tigers, and Mao reportedly replied: "That had just been a way of talking…a kind of figure of speech. Of course the bomb could kill people."

[23] Quoted in Fravel, *Active Defense*, 240.

large-scale, and nuclear war. Recent research indicates that Chinese thinking on the utility and likelihood of nuclear war remains largely unchanged.[24]

In sum, long-term nuclear positions in China are focused on defense and retaliation. From this, several interrelated inferences about Chinese thinking on nuclear deterrence can be drawn, ranging from rejecting nuclear parity (and promoting nuclear minimalism or limited development instead) to believing in the low utility and likelihood of nuclear war.

The Domestic Political Approach: Party Ideology and Nuclear Weapons

Considerations of CCP ideology can potentially offer insight into several questions—above all why the grand idea of retaliation and associated ideas like NFU endure, but also why Mao applied derogatory terms like "paper tiger" to atomic weapons in the 1940s and 1950s, or "big fraud" to treaties like the Limited Test Ban Treaty in the 1960s. They can also clarify debates within China that fail to break through the nuclear party line, from periodic suggestions to adapt or abandon NFU to the failed attempts to develop certain technologies like the neutron bomb. The failure of dramatically new nuclear ideas to take hold in China may be explained by structural, organizational, and bureaucratic factors as well as the nature of party-military relations, but the role of ideology cannot be ignored.

Ideology is typically thought about in transformative terms, but it can also be about affirming the status quo and validating values.[25] In this case, it means affirming the status quo of the CCP and the party's own value system. The political cost of change, which gains currency over time, does not fit well with Maoist ideology. As a result, reform of grand and associated nuclear ideas might represent an assault on the very nature of CCP ideology, requiring a rewrite of ideological elements of the party's military story since 1949. In other words, major changes to nuclear policies would represent a potential threat to party ideas. Unlike the technological backwardness in the Cold War era that has been solved by decades of PLA military modernization, CCP party ideology remains much less developed. As such, unlike modern technology, party ideology continues to hold China

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[24] Recent research has been especially enlightening in this regard. See Fiona S. Cunningham and M. Taylor Fravel, "Assuring Assured Retaliation: China's Nuclear Posture and U.S.-China Strategic Stability," *International Security* 40, no. 2 (2015): 25.

[25] Roger Eatwell and Anthony Wright, eds., *Contemporary Political Ideologies*, 2nd ed. (London: Continuum International Publishing Group, 1999).

back on the nuclear front, limiting and restricting strategic choices in terms of deterrence.

A concrete example is evident in the low party morale in China around 1950–52 before the decision to develop nuclear weapons. Low morale is sometimes referenced in scholarly literature on early Maoist thinking about the bomb but never fully fleshed out. Available CCP documents of the time show that "defeatism" was considered a real problem for the party and needed to be countered. "Counter-defeatism" became an important aim for senior party members who had been largely dismissive of any new high-end military technology and weaponry. Ideologically, weapons and military technology did not mix well with the ethos of Mao's "people's war," which prioritized human resilience and endurance over the technical skills and hardware needed to win battles. Even if the CCP used technology in the civil war, the Communist victory declared in 1949 was narrated along ideological, not technological, lines. Similarly, when the United States dropped atomic bombs on Japan in August 1945, Communist China did not credit them with the subsequent Japanese surrender and were quick to argue that nuclear weapons did not undermine the CCP doctrine of people's war.

More evidence of counter-defeatism within the party is now coming to light. As early as August 1945, Mao identified the problem of atomic defeatism within the party, stating:

> Some of our comrades also believe in atoms. It's a big mistake. These comrades are not as good as a British aristocrat. There is a Lord in the United Kingdom called Mountbatten. He said that it is the biggest mistake to think that the atomic bomb can solve the war.[26]

The defeatist effect of the bomb, and the need to counter it within the party, is also reflected in a November 1950 CCP document that admits how fear of atomic weapons had come to affect military recruitment and the common sense of party cadres: "Some party members and progressive members have already asked to join the army on the front line. Some people still have many concerns, fearing three major wars. Afraid of American aircraft, atomic bombs, afraid of mobilizing to join the army."[27] A January 1951 CCP document offers an ideological rebuttal to these fears: "the world

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[26] Quoted in Wang Guangxin, "毛泽东与新中国核武器的发展" [Mao Zedong and the Early Development of Nuclear Weapons], *Party History* 12, no. 20 (2017).

[27] Central Committee of the Communist Party of China report of the Beijing Municipal Committee, "关于抗美援朝运动开展去情况报告" [On the Development of the Movement to Resist U.S. Aggression and Aid Korea Report], November 12, 1950, 267.

reactionary faction is a family, the people of the world are a family…as long as they work together, they can defeat the atomic bomb."[28]

Ultimately, in the 1940s and 1950s China saw the bomb as a political challenge to Maoist military ideas, damaging army recruitment and cadre morale. After the Korean War, there were fewer attempts to dismiss fears regarding the bomb, perhaps because by then the Soviet Union had developed nuclear weapons of its own,[29] and China had started to develop a nuclear "spear" (a weapons program).[30] The bomb was not simply an ideological and political liability to the CCP. It was also considered by some party members as an economic liability threatening wider national development and was contested in economic terms throughout the 1970s.[31] In sum, early on, the bomb presented not opportunities but a series of domestic challenges for the CCP and the development of the People's Republic of China.

In terms of contemporary relevance, the political counter-defeatism moment, however short-lived, put nuclear weapons on a negative domestic political trajectory in China. The party line on these weapons, first articulated by Mao, was that these weapons should not undermine the core ideas and unity of the CCP. As a result, there was no political space in which to glorify nuclear weapons as militarily transformative to PLA doctrine. When China developed its "nuclear talk" over the course of the 1980s and 1990s around a grand idea of defense and retaliation, and associated ideas of minimalism, it was aligning itself to ideologically acceptable concepts like active defense. Policies like NFU are thus ideologically constituted and restrict military options for deterrence.

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[28] Central Committee of the Communist Party of China, "薄一波, 刘澜涛给昂前花花被抗美援朝运动" [Bo Yibo and Liu Lantao's Forwarded Report on the Resist U.S. Aggression and Aid Korea Campaign], January 23, 1951, 53–44.

[29] A Communist document from May 1950 once again reaffirmed the doctrine of people's war, but now China also took comfort from the fact that the Soviet Union had developed the atomic bomb. Still, as before, the bomb's destructiveness was not dismissed. According to this document, "the atomic bomb is a weapon for mass killing and must be disabled. But the atomic bomb does not determine the outcome of the war, and the Soviet Union also has an atomic bomb, so it is not terrible." See Central Committee of the Communist Party of China, "Supporting the Defense of the World: Instructions of the Central Committee of the Communist Party of China on Supporting the Movement for the Defense of World Peace", May 23, 1950, 64.

[30] Mark Ryan, *Chinese Attitudes toward Nuclear Weapons: China and the United States during the Korean War* (Armonk: M.E. Sharpe, 1989).

[31] Nicola Horsburgh, *China and Global Nuclear Order: From Estrangement to Active Engagement* (Oxford: Oxford University Press, 2015).

The Domestic Political Approach: Diplomacy and Nuclear Deterrence

A second domestic political consideration is externally facing and relates to diplomacy. Wider Chinese foreign policy goals are relevant here. Historically, this can be seen in peacetime in terms of how China has consistently sought to project national distinctiveness, whether as a member of the Communist bloc or a rising power. This is also reflected in China's outright public rejection of the term "deterrence" until the late 1990s and continued resistance to terms like "minimum deterrence."[32]

In peacetime, NFU is perhaps the strongest example of Chinese diplomacy and deterrence working hand in hand. It matters to China that no other nuclear weapons state can claim to have held such a pledge for so long. This is a badge of honor on the international diplomatic stage that has stood the test of time. In the mid-1960s, China initially used NFU to deflect international pressure to join the Limited Test Ban Treaty.[33] Later, in 1971, when the Soviet Union called on China to engage in multilateral arms control, China saw NFU as a useful diplomatic card to play in rebuffing and rejecting the proposal by instead promoting an international NFU treaty. This diplomatic card has been played several times since, including during the negotiations for the Intermediate-Range Nuclear Forces Treaty in the 1980s.

During crises, China's wider diplomatic goals may matter more than whether deterrence failure is at stake or nuclear threats are present. For example, during the crisis with Taiwan between 1954 and 1958, China was not a nuclear-armed state but was allied to the nuclear-armed Soviet Union. The dominant narrative has been that China used the crisis to test its ally, the Soviet Union, and that the United States used it as an example of where nuclear threats could deter Mao. Yet recent scholarship throws this narrative into doubt. On the Chinese side, new diplomatic efforts beyond the Soviet Union have come to light in recent work by Pang Yang Heui, who argues that China was influential in developing different narratives to shore up diplomatic support, particularly with the United Arab Republic, where it was able to present tough rhetoric about the Communist struggle to liberate Quemoy and Matsu.[34] In other words, China was driven to the crisis not necessarily to test its Soviet ally but rather to open up diplomatic

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[32] Nicola Leveringhaus and Kate Sullivan de Estrada, "Between Conformity and Innovation: China's and India's Quest for Status as Responsible Nuclear Powers," *Review of International Studies* 44, no. 3 (2018): 482–503.

[33] Lewis, *Paper Tigers*, 21.

[34] Heui, *Strait Rituals*.

space in which to criticize the United States. Furthermore, recent research by Shen Zhihua argues that China was not swayed by U.S. nuclear threats.[35] This finding is even more surprising given revelations that during the crisis President Dwight Eisenhower contemplated nuclear threats more seriously than previously thought.[36] What this example shows is that at the height of a crisis with the United States over Taiwan, China saw and took advantage of diplomatic openings and was likely not deterred by a U.S. nuclear threat.

After the Taiwan crisis, PLA marshal Ye Jianying downplayed the usefulness of tactical nuclear weapons in a 1961 speech, noting that "the use of atomic weapons is subject to certain conditions. They cannot be used to strike at any time or at any target as one pleases."[37] He further observed that terrain, climate, and battlefield developments all influenced the employment of nuclear weapons. In 1964, once China was a nuclear-armed state, Ye said:

> Nuclear weapons cannot settle conflicts with the imperialists; neither can they change the aggressive nature of the imperialists and reactionaries. They will not retreat from Taiwan, South Korea, South Vietnam, and Japan…our nuclear detonation has not eased the situation along our periphery or made the world more peaceful or tranquil.[38]

Thus, recent scholarship and comments from Chinese elites at the time show that China did not view nuclear weapons as a game changer in confrontations with the United States over Taiwan in the 1950s.

The 1969 Sino-Soviet border clash is also instructive on diplomatic grounds. Recent work by Hyun-Binn Cho draws on Romanian archives to argue that Soviet nuclear threats were not decisive in bringing China to the negotiating table.[39] Instead, the timing of a positive diplomatic message from President Richard Nixon was crucial to border negotiations.[40] According to Cho, the Chinese side agreed to resume border talks shortly after it received (via a delegation from Bucharest) a clear message from Nixon to normalize

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[35] Shen, 无奈的选择.

[36] Burr, "Nuclear War with China?"

[37] Quoted in Fravel, *Active Defense*, 246.

[38] Ye Jianying, "进一步提高全军军事训练质量" [Further Improve the Quality of Military Training], in 叶剑英军事文选 [Selected Writings of Ye Jianying on Military Affairs] (Beijing: Jiefangjun Chubanshe, 1997), 613.

[39] Hyun-Binn Cho, "Nuclear Coercion, Crisis Bargaining, and the Sino-Soviet Border Conflict of 1969," *Security Studies* 30, no. 4 (2021): 550–77.

[40] This builds on research by Y. Kuisong, "The Sino-Soviet Border Clash of 1969: From Zhenbao Island to Sino-American Rapprochement," *Cold War History* 1, no. 1 (2000): 21–52. Planning in the United States and China for bilateral normalization predates the Zhenbao Island crisis. See Lorenz M. Lüthi, "Restoring Chaos to History: Sino-Soviet-American Relations, 1969," *China Quarterly*, no. 210 (2012): 378–97.

bilateral relations. As for nuclear deterrence, Cho argues that although China feared an impending Soviet nuclear attack (or at least an attack on its nuclear facilities), the threat lacked credibility and was unsustainable. This, together with U.S. efforts to normalize diplomatic relations, meant Beijing was able to weather the crisis. This scholarship, like recent scholarship on the Taiwan crisis in the 1950s, shows that third-party diplomacy may shape China's crisis behavior and reduce the effects of nuclear coercion.

Conclusion

This chapter has examined long-term positions on nuclear deterrence in China. Dominant approaches have focused on either technology or what is termed here the nuclear speech act to address this puzzle, but this chapter considers a third domestic political approach focused on the role of party ideology and diplomacy. By looking at ideology and diplomacy, one sees how nuclear ideas, especially those that limit or restrict what is possible from a deterrence perspective like NFU, are predated by an early political dismissal of the bomb and a sense that nuclear weapons presented serious political challenges to the CCP in the 1940s and 1950s. The bomb was seen as a political liability rather than an opportunity for strategic development and superiority.

Diplomatic considerations have also had the effect of promoting restrictive nuclear ideas, such as NFU. In peacetime, NFU communicates to the world that China considers itself to be different from other states in the nuclear club. At times of crisis involving nuclear threats during the Cold War, third-party diplomacy seems to have had a constraining effect, diluting the impact of nuclear coercion. In the case of Taiwan in the 1950s, China focused not on U.S. threats but on diplomatic opportunities afforded via the Geneva Conference. By contrast, in the case of the Sino-Soviet border clash in 1969, diplomatic opportunities with the United States, rather than the Soviet nuclear threat, may have pushed China to the negotiating table. What both examples of ideology and diplomacy in the nuclear context show is that China saw nuclear weapons as an internal political challenge to the CCP as well as an external political opportunity to score diplomatic points or showcase itself as different from (and better than) the Cold War superpowers.

What does this mean for the present situation? Will the grand idea of retaliation remain in place as China increases its strategic assets worldwide and its status rises in world affairs? The bomb is still not revered

in China on military and strategic grounds. It has no special mention in the CCP's historical resolutions, including in November 2021. Nuclear commemoration in China so far focuses on scientific achievements rather than military ones. The Chinese political story remains rooted in ideas and people, not technology and weapons. Loyalty to the party remains a key theme, especially in the Xi Jinping era. This loyalty extends to the core ideas of the party, even as the PLA develops ever more coercive nuclear capabilities.

In terms of diplomacy, NFU (and the periodic call for an international NFU treaty) remains a useful diplomatic tool to resist calls for China to join multilateral arms control, especially as its strategic arsenal grows. As such, policies like NFU are unlikely to change. Yet there are pathways for China to break away from its long-term nuclear positions. One such pathway is arguably a declaration of "mutual vulnerability" with the United States. While this may be a de facto reality, it has not yet been declared, and it should not be declared by the United States. Mutual vulnerability could offer a backdoor for China to break with old nuclear traditions like NFU. Once recognized as a nuclear peer with the United States, China would be publicly locked into a new type of nuclear relationship, with the goal of maintaining mutual vulnerability. This unprecedented external validation of China's strategic power could embolden nationalist elements to break with an internal ideological past in a way that was previously not possible. The moral of this story is that the United States should keep ideological strongholds over Chinese nuclear ideas in place or risk grand ideas like retaliation and NFU.

EXECUTIVE SUMMARY

This chapter examines how China engages in and conceives of deterrence and argues that the political guidance of the Chinese Communist Party (CCP) does not use the explicit language of deterrence or compellence but instead stresses the need for struggle and resolve.

MAIN ARGUMENT

Over the past decade, the People's Republic of China (PRC) has begun supplementing its long-standing suite of diplomatic and military deterrent signals with an increasingly diverse set of nonconventional tools for deterring or coercing other states and nonstate actors. A survey of the range of nonmilitary and nonconventional tools Beijing is deploying and of key CCP writings finds that CCP theory stresses the need for struggle and resolve in the face of challenges to China's interests. As a concept central to "Xi Jinping Thought on Socialism with Chinese Characteristics," engaging in struggle is a key means for PRC officials to signal fealty to the CCP and for the party to bolster its popular legitimacy. This can help explain why China persists in coercive campaigns that damage its international image and fail to change the behavior of the targets, as well as why CCP leaders may even judge such campaigns to be successful.

POLICY IMPLICATIONS

- Analysts of the PRC's approach to deterrence should look beyond conventional military actors and actions to examine how actors throughout the PRC party-state conduct coercion using diverse tools of statecraft across different domains.
- Analysts need to examine not only how the PLA conceptualizes deterrence in its doctrine, but also how other PRC actors, especially senior leaders and intellectuals in the CCP, theorize about how to respond to threats to China's interests.
- Beijing's growing reliance on coercive tools of statecraft to struggle against perceived affronts to its interests may lead it to alienate other countries. Thus, U.S. policymakers could bolster positive economic and diplomatic engagement with countries that have been alienated by PRC coercion or that are concerned about becoming targets in the future.

Chapter 3

"Struggle" as Coercion with Chinese Characteristics: The PRC's Approach to Nonconventional Deterrence

Rachel Esplin Odell

China's traditional warning calculus for deterring other states has consisted of a combination of diplomatic statements and military signals arrayed on a ladder of escalating seriousness.[1] China continues to employ this basic graduated approach to signaling resolve, especially in issues that could escalate to military conflict. However, over the past decade, the People's Republic of China (PRC) has also begun supplementing diplomatic and military deterrent signals with an increasingly diverse set of nonconventional tools for deterring or coercing other states and nonstate actors.[2] The PRC has used these tools to coerce multinational companies, international organizations' executive bodies, civil society organizations, and individuals, in addition to the governments of other states. Beijing has employed these tools in response to a broad range of issues, including those that do not directly relate to military matters, such as criticism over China's human rights record or its handling of the Covid-19 pandemic.

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This chapter relies solely on open sources, and the views expressed herein are the author's own and do not necessarily represent the views of the U.S. government or the Department of State.

[1] 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," National Defense University, Institute for National Strategic Studies, China Strategic Perspectives, no. 6, April 1, 2013, https://inss.ndu.edu/Media/News/Article/652936/chinas-forbearance-has-limits-chinese-threat-and-retaliation-signaling-and-its.

[2] "Deterrence" and "coercion" are used interchangeably in this chapter, reflecting the ways that the the PLA's and CCP's concepts of deterrence actually tend to resemble Thomas Schelling's broader concept of coercion, including both deterrence and compellence. This has been noted by multiple U.S. and Chinese scholars and is also discussed further below. Dean Cheng, "Chinese Views on Deterrence," *Joint Force Quarterly* 60, no. 1 (2011): 92–94; and Michael S. Chase and Arthur Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"* (Santa Monica: RAND Corporation, 2016).

This chapter begins by briefly reviewing China's evolving use of nonconventional coercive measures before delving more deeply into how the party-state conceives deterrence, especially in nonconventional or nonmilitary domains. U.S. scholarly studies of PRC attitudes toward deterrence have tended to focus on People's Liberation Army (PLA) doctrine, which develops theories of deterrence at length. However, when seeking to understand how China approaches "integrated deterrence"—i.e., the integration of various tools of deterrence across nonmilitary and military domains—it is essential to look beyond the PLA to the broader party-state, whose various organs will bear primary responsibility for economic, diplomatic, informational, political, legal, and paramilitary deterrence activities. This broader analysis must begin with an in-depth understanding of what Chinese Communist Party (CCP) theory and doctrine say about how China can or should seek to deter or coerce, what tools it uses to do so, and to what ends.

This chapter analyzes key CCP reports and speeches and argues that the party's political guidance does not use the explicit language of deterrence or compellence. Instead, CCP theory stresses the need for struggle and resolve in opposing affronts to China's interests. These concepts are similar but not identical to concepts of coercion in traditional U.S. political science and international relations theory. The differences could have important implications and explain the puzzle of why China persists in coercive nonconventional campaigns that do not succeed in changing the behavior of the targets, as well as why CCP leaders may even judge such campaigns to be successful despite a lack of change.

Before proceeding with the analysis, an important caveat is in order. As with any state, the PRC employs a wide range of means to protect and promote its national interests and to influence the ways that other states and nonstate actors in the international arena behave with regard to China's interests. These include efforts to not only deter or compel but also accommodate, reward, bargain, persuade, dissuade, shape, and control. This chapter does not provide a comprehensive account of how the PRC combines all these elements of strategy in its statecraft. Rather, this is a study of how Beijing engages in and conceives of deterrence—especially in nonmilitary or nonconventional arenas—that aims to shed light on this subset of PRC statecraft. This is an important subject of analysis: as Beijing's power and confidence have grown, its coercive toolkit has expanded significantly in ways that can adversely affect other states' interests.

Even so, it is important to keep in mind that although Beijing uses many nonmilitary tools of statecraft for coercion, it also uses those tools

in noncoercive ways, including for attracting, convincing, and bargaining with other states and shaping their perceptions and choices. By focusing on the use of these tools for coercion, this analysis does not imply that Beijing solely or primarily relies on coercive means for achieving its goals and protecting its interests. On the contrary, even as the PRC's use of coercion has expanded, so has its investment in economic, diplomatic, informational, political, and legal engagement and shaping efforts. A broader strategy for managing relations with China must consider the sum total of its efforts rather than coercion alone.

Beijing's Increased Use of Coercion

As China's power has grown, its coercive toolkit has expanded to include several areas of statecraft beyond standard diplomatic messaging and military signaling. This has perhaps been most notable in the realm of economic coercion. Prior to around 2010, the PRC had not traditionally relied extensively on economic punishment for signaling. However, late in the Hu Jintao era, China began imposing economic costs on countries that went awry of its preferences on issues that it perceived to be related to core interests. Prominent early cases include reported PRC limits on rare earth exports to Japan during a diplomatic row over the disputed Senkaku/Diaoyu Islands in 2010, restrictions on salmon exports to Norway in retaliation for the Oslo-based Nobel Committee's award of the Nobel Peace Prize to a Chinese human rights activist in 2011, and restrictions on Chinese tourism to South Korea, boycotts of South Korean products, and closure of most stores in a South Korean grocery chain after Seoul agreed to deploy a theater missile defense system over Beijing's objections.[3]

These early cases proved to be harbingers of a new approach to using economic coercion. China would go on to impose economic coercion in many additional instances, some of which were directed at companies or universities that offended Beijing.[4] Most recently, it has waged economic, diplomatic, informational, and political coercion campaigns against

[3] Gloria Xiong, "Beijing Increasingly Relies on Economic Coercion to Reach Its Diplomatic Goals," *Washington Post*, July 23, 2020, https://www.washingtonpost.com/politics/2020/07/23/beijing-increasingly-relies-economic-coercion-reach-its-diplomatic-goals; and Evan A. Feigenbaum, "Is Coercion the New Normal in China's Economic Statecraft?" MacroPolo, July 25, 2017, https://macropolo.org/analysis/is-coercion-the-new-normal-in-chinas-economic-statecraft.

[4] Peter Harrell, Elizabeth Rosenberg, and Edoardo Saravalle, "China's Use of Coercive Economic Measures," Center for a New American Security, June 11, 2018, https://www.cnas.org/publications/reports/chinas-use-of-coercive-economic-measures.

Australia in retaliation for Canberra's call for an independent investigation into Covid-19's origins and assorted other grievances, against Lithuania for opening a new Taiwan representative's office that used the term "Taiwanese" rather than the standard "Taipei," and against individuals and agricultural sectors in Taiwan as punishment for what Beijing views as "secessionist" activities.[5]

A pattern has emerged in these cases wherein Beijing has designed economic punishments to send symbolic signals of displeasure and inflict targeted pain on key interested parties (either parties involved in the offense or entities perceived to have political influence in the target state), while limiting harm to China's own economy.[6] In a closely related vein, China has tended to target smaller or weaker powers more aggressively, likely in part to limit collateral damage to its own interests and send a signal to other countries, including more powerful ones, about Beijing's preferences and resolve. Some scholars have called this tactic "killing the chicken to scare the monkey," citing a Chinese idiom.[7]

Beijing has also frequently imposed these punishments informally, usually as sanctions for alleged violations of health and safety or environmental regulations.[8] PRC leaders have often sought to maintain a veneer of deniability that their sanctions are politically motivated, though this veneer is often thin by design to ensure the sanctions are correctly interpreted as signals of displeasure. Indeed, in PRC Ministry of Foreign

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[5] Michael Walsh, "Australia Called for a Covid-19 Probe. China Responded with a Trade War," ABC News (Australia), January 2, 2021, https://www.abc.net.au/news/2021-01-03/heres-what-happened-between-china-and-australia-in-2020/13019242; Kath Sullivan, "China's List of Sanctions and Tariffs on Australian Trade Is Growing. Here's What Has Been Hit So Far," ABC News (Australia), December 16, 2020, https://www.abc.net.au/news/2020-12-17/australian-trade-tension-sanctions-china-growing-commodities/12984218; Matthew Reynolds and Matthew P. Goodman, "China's Economic Coercion: Lessons from Lithuania," Center for Strategic and International Studies (CSIS), May 6, 2022, https://www.csis.org/analysis/chinas-economic-coercion-lessons-lithuania; Konstantinas Andrijauskas, "An Analysis of China's Economic Coercion against Lithuania," Council on Foreign Relations (CFR), May 12, 2022, https://www.cfr.org/sites/default/files/pdf/Andrijauskas_An%20Analysis%20of%20China%E2%80%99s%20Economic%20Coercion%20Against%20Lithuania_0.pdf; Thompson Chau, "China Flexes Economic Muscle with Ban on Taiwanese Grouper," *Nikkei Asia*, June 15, 2022, https://asia.nikkei.com/Economy/Trade/China-flexes-economic-muscle-with-ban-on-Taiwanese-grouper; and "China Sanctions Three Taiwan Leaders in Retaliation Effort," Bloomberg, November 5, 2021, https://www.bloomberg.com/news/articles/2021-11-05/china-sanctions-three-taiwan-leaders-in-retaliation-effort.

[6] Ketian Vivian Zhang, "Chinese Non-military Coercion—Tactics and Rationale," Brookings Institution, January 22, 2019, https://www.brookings.edu/articles/chinese-non-military-coercion-tactics-and-rationale.

[7] Ketian Zhang, "Cautious Bully: Reputation, Resolve, and Beijing's Use of Coercion in the South China Sea," *International Security* 44, no. 1 (2019): 117–59; and Errol Mendes, "Why China Sees Canada as a Chicken," *Globe and Mail*, June 26, 2019, https://www.theglobeandmail.com/opinion/article-why-china-sees-canada-as-a-chicken.

[8] Harrell, Rosenberg, and Saravalle, "China's Use of Coercive Economic Measures."

Affairs (MFA) press conferences, spokespersons will sometimes feign ignorance or proffer nonpolitical reasons for the restrictions in the same breath that they complain about the targeted actor's offenses against China and admonish it to change course.[9]

Continuing Role of Diplomatic Sanctions

China has often imposed these economic costs in combination with diplomatic sanctions, including not only public complaints and démarches but also visa restrictions, cancellation of leader visits, and suspension of ongoing negotiations over trade deals or other bilateral agreements. Diplomatic sanctions are a long-standing feature of PRC deterrence behavior, but Beijing has shown an increased ability and willingness to deploy them against targets and integrate them with other coercive measures.[10] In an even more assertive vein, it has on occasion resorted to "hostage diplomacy" in recent years, as represented by the detention of the "two Michaels" in retaliation against Canada for the detention of Huawei CFO Meng Wanzhou.[11]

Diversified Information Operations

In addition to economic and diplomatic sanctions, China has expanded its use of efforts to shape the informational environment to influence public opinion and political calculations in other states and societies. These information operations have come in several forms. Some are not coercive in nature but are instead designed to boost positive news about China. Others

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[9] See, for example, Ministry of Foreign Affairs of the People's Republic of China (PRC), "Foreign Ministry Spokesperson Wang Wenbin's Regular Press Conference on November 2, 2020," https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/2511_665403/202011/t20201102_693465.html.

[10] As part of this behavior, China has continued to cancel military-to-military talks as retaliation for affronts. At the same time, there has been some evolution in PRC thinking regarding military-to-military diplomacy, as Beijing expanded such mechanisms for discussing crisis management and has become more willing to continue talks during times of tension. See "Risky Competition: Strengthening U.S.-China Crisis Management," International Crisis Group, Asia Report, no. 324, May 20, 2022, https://www.crisisgroup.org/asia/north-east-asia/china/324-risky-competition-strengthening-us-china-crisis-management; "China, U.S. in Talks on Military Relations amid Strained Ties," Associated Press, September 30, 2021, https://apnews.com/article/business-china-beijing-army-armed-forces-dcf25089bb195dcbc88a99d25c8b11d6; and "U.S. Department of Defense Hosts First Crisis Communications Working Group with the People's Republic of China People's Liberation Army," U.S. Department of Defense, Press Release, October 29, 2020, https://www.defense.gov/News/Releases/Release/Article/2398907/us-department-of-defense-hosts-first-crisis-communications-working-group-with-t.

[11] Fergus Hanson, Emilia Currey, and Tracy Beattie, "The Chinese Communist Party's Coercive Diplomacy," Australian Strategic Policy Institute, International Cyber Policy Centre, September 1, 2020, https://www.aspi.org.au/report/chinese-communist-partys-coercive-diplomacy. Hanson, Currey, and Beattie combine economic and diplomatic sanctions under the overall rubric of "coercive diplomacy" and count 152 cases since 2010, targeting 27 countries and the European Union.

directly criticize actors for behavior that harms China's interests, rejecting it as wrong or hypocritical. When such criticisms come in the form of overt statements by PRC officials in foreign media, they bear much in common with the diplomatic and media statements featured in China's traditional warning calculus and are simply presented on different platforms. When posted or boosted covertly, however, these information operations represent a new tool aimed at coercing other states by shaping attitudes in the target state and society.[12]

Another subtype of information operations that China has increasingly employed is overt and covert disinformation campaigns via both social media and more traditional media outlets. Although such PRC campaigns have long been used in Hong Kong and Taiwan, Beijing has accelerated such efforts in recent years both in those places and farther afield.[13] This is especially evident in its response to criticism over its handling of Covid-19, where Beijing has promoted conspiracy theories about the origins of the pandemic. Such theories have been boosted not only by quasi-official PRC media but also by MFA officials on social media and in public statements.[14] These campaigns are likely designed to influence political outcomes in Hong Kong and Taiwan, discredit actors that Beijing opposes, deflect criticisms of China, and deter future behavior along these lines.[15] Although the PRC has apparently not yet engaged on a large scale in the same type of disinformation and division operations as Russia, particularly not in a deliberate effort to influence the outcomes of U.S. elections, its initial work in this space suggests that Beijing is developing capabilities to expand these efforts in the future if such actions align with its interests. Even the development of the capability to conduct such campaigns may in and of itself have a deterrent effect. The danger that Beijing would deploy this

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[12] Marcel Schliebs et al., "China's Public Diplomacy Operations: Understanding Engagement and Inauthentic Amplification of PRC Diplomats on Facebook and Twitter," Oxford University, Programme on Democracy and Technology, May 11, 2021, https://demtech.oii.ox.ac.uk/research/posts/chinas-public-diplomacy-operations-understanding-engagement-and-inauthentic-amplification-of-chinese-diplomats-on-facebook-and-twitter.

[13] Jude Blanchette et al., "Protecting Democracy in an Age of Disinformation: Lessons from Taiwan," CSIS, January 27, 2021, https://www.csis.org/analysis/protecting-democracy-age-disinformation-lessons-taiwan.

[14] Christian Johnson and William Marcellino, "Bad Actors in News Reporting: Tracking News Manipulation by State Actors," RAND Corporation, April 29, 2021, https://www.rand.org/pubs/research_reports/RRA112-21.html; "Is China Succeeding at Shaping Global Narratives about Covid-19?" CSIS, ChinaPower, https://chinapower.csis.org/china-covid-disinformation-global-narratives; and Elen Aghekyan and Bret Schafer, "Deep in the Data Void: China's Covid-19 Disinformation Dominates Search Engine Results," Alliance for Securing Democracy, October 5, 2021, https://securingdemocracy.gmfus.org/data-void-china-covid-disinformation.

[15] Joshua Kurlantzick, "How China Is Interfering in Taiwan's Election," CFR, November 7, 2019, https://www.cfr.org/in-brief/how-china-interfering-taiwans-election.

latent capability could influence states' or parties' decisions about whether to counter PRC preferences.

Political Influence Operations

China has also expanded its overt and covert political influence operations. Again, not all such operations are necessarily coercive or deterrence-oriented. They can be designed to cultivate friendly partners, whether through legitimate exchanges or through bribery and special access. Such cultivation efforts can enhance PRC deterrence, though, if those partners share China's assessment of the situation and thus apply pressure on their own government not to take action that might threaten Beijing's interests. Moreover, some political operations are more directly coercive, including applying pressure to individuals in other countries that criticize China. This is most common for overseas PRC citizens or members of the Chinese diaspora with family still located inside China. Ministry of State Security officials often apply pressure to family still inside China to exercise leverage over family members living abroad. These political influence operations can also be targeted at or through political parties or civil society organizations.[16]

Legislation and Legal Interpretation

Beijing also employs legal tools to bolster deterrence. It does so using both domestic legislation—such as adopting a law in 2021 that authorized the China Coast Guard to use force to defend PRC sovereignty and jurisdiction—and the interpretation and application of international laws and pronouncements—such as leveraging the World War II–era Cairo and Potsdam declarations and the 1971 UN General Assembly Resolution 2758 to promote its "one China" principle.[17] Such measures are a form of both signaling and information operations, as they reveal where China might draw its red lines while also representing a propaganda effort to convince other countries of the legal rectitude of its position. Efforts to amass support in this way may enhance deterrence. Although China has long used legal declarations and interpretations to deter and signal to other states, especially regarding issues related to sovereignty and maritime jurisdiction, it has

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[16] Larry Diamond and Orville Schell, eds., *China's Influence and American Interests: Promoting Constructive Vigilance* (Stanford: Hoover Institution, 2018).

[17] "The Taiwan Question and China's Reunification in the New Era," Taiwan Affairs Office of the State Council and State Council Information Office (PRC), August 2022, https://english.news.cn/20220810/df9d3b8702154b34bbf1d451b99bf64a/c.html.

invested much more heavily in this domain in the past decade or two, especially in the wake of the arbitral tribunal's ruling in the *Philippines v. China* case concerning issues in the South China Sea.[18]

Paramilitary Maritime Presence Operations

One final type of nonconventional deterrence that Beijing has long deployed but has used with increasing frequency in recent years is the use of paramilitary forces in the maritime domain, known as the People's Armed Forces Maritime Militia. The PRC uses militia vessels that represent themselves as private fishing boats to exhibit a presence in disputed waters in the South and East China Seas and deter fishing by vessels from other countries.[19]

Organs of the Party-State That Shape and Execute Nonconventional Deterrence

The PRC party-state entity that has theorized and written at greatest length about deterrence (威慑) is the PLA. Most PLA doctrine about deterrence focuses on how to employ conventional and nuclear means to deter aggression or other behaviors that would harm China's interests. At the same time, the PLA embraces a concept of "integrated deterrence" (整体威慑) that aims to draw on and combine diverse "deterrence resources" (威慑资源), including political, diplomatic, economic, and legal means.[20] PLA writers and practitioners are also devoting more attention to nonconventional forms of deterrence, including refined formulations of the PLA's "three warfares" (三战)[21] and "cognitive domain operations" (认知域

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[18] Yaping Wang, "The Dog that Barks: Understanding Propaganda Campaigns on Territorial Disputes" (PhD diss., Department of Politics, University of Virginia, 2018); and Rachel Esplin Odell, "*Mare Interpretatum*: Continuity and Evolution in States' Interpretations of the Law of the Sea" (PhD diss., Department of Political Science, Massachusetts Institute of Technology, 2020).

[19] Gregory B. Poling, Tabitha Grace Mallory, and Harrison Prétat, "Pulling Back the Curtain on China's Maritime Militia," CSIS Asia Maritime Initiative and Center for Advanced Defense Studies, November 18, 2021, https://amti.csis.org/pulling-back-the-curtain-on-chinas-maritime-militia.

[20] Nathan Beauchamp-Mustafaga et al., "Deciphering Chinese Deterrence Signalling in the New Era: An Analytic Framework and Seven Case Studies," RAND Corporation, 2021, https://www.rand.org/pubs/research_reports/RRA1074-1.html; Chase and Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"*; and James Scouras, Edward Smyth, and Thomas Mahnken, "Cross-Domain Deterrence in U.S.-China Strategy," Johns Hopkins University, Applied Physics Laboratory, 2017, https://www.jhuapl.edu/Content/documents/CrossDomainWeb.pdf.

[21] The "three warfares" include public opinion warfare (舆论战), psychological warfare (心理战), and legal warfare (法律战). For further discussion, see Elsa Kania, "The PLA's Latest Strategic Thinking on the Three Warfares," Jamestown Foundation, China Brief, August 22, 2016.

作战), a concept that encompasses both overt traditional and social media engagement and covert disinformation campaigns.[22]

However, within the broader context of China's foreign affairs, other party and state organs—not the PLA—bear primary responsibility for executing the political, diplomatic, economic, informational, and legal dimensions of PRC strategy, including the coercive campaigns described above. Thus, in order to understand the PRC's approach to nonconventional deterrence, it is essential to cast a wider net, analyzing not only PLA attitudes and behavior but also those of the CCP and various responsible party-state organs.

This broader task is a challenging one. Contrary to the PLA, the CCP does not often use the explicit language of deterrence. The rhetorical mantras and formulations of CCP doctrine, as captured in party work reports, senior leader speeches, and study outlines, set out the broad political objectives that guide party organs and state agencies. These political objectives require a range of measures to influence other states' behavior, including efforts to accommodate, reward, bargain, persuade, dissuade, shape, deter, compel, and control. However, most of these concepts, studied at length in U.S. international relations theory and military strategy and doctrine,[23] do not feature explicitly in CCP doctrine. Instead, CCP doctrine is often phrased in narrative, descriptive, and exhortative terms, drawing on the language of Marxism-Leninism and Maoism, including rhetoric about contradictions and struggle, truth seeking, systems, and historical eras and trends. The party-state's guiding texts are particularly indirect when speaking about coercion. In general, these texts do not conceive of China as an agent of coercion but rather as a victim of it. Thus, understanding the PRC's approach to deterrence, including its use of nonconventional or nonmilitary means, requires careful excavation of CCP and PRC state discourse, coupled with analysis of PLA doctrine about integrated and nonmilitary deterrence.

The CCP and its top leadership bodies provide overarching guidance for how China should seek to influence the decisions of other states and nonstate actors. This guidance dictates when and why the PRC exercises deterrence and the means it uses to do so. The primary political guidance for

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[22] Nathan Beauchamp-Mustafaga and Michael S. Chase, "Borrowing a Boat Out to Sea: The Chinese Military's Use of Social Media for Influence Operations," Johns Hopkins School of Advanced International Studies, Foreign Policy Institute, 2019, https://www.fpi.sais-jhu.edu/borrowing-a-boat-out-to-sea-pdf; and Nathan Beauchamp-Mustafaga, "Cognitive Domain Operations: The PLA's New Holistic Concept for Influence Operations," Jamestown Foundation, China Brief, September 6, 2019.

[23] For one study of some of these concepts, see King Mallory, "New Challenges in Cross-Domain Deterrence," RAND Corporation, 2018, https://www.rand.org/content/dam/rand/pubs/perspectives/PE200/PE259/RAND_PE259.pdf.

the party-state can be found in the work reports, speeches, and study outlines of the most senior leadership, beginning with the CCP general secretary, who since the 18th Party Congress in 2012 has been Xi Jinping. Although the public versions of these documents do not necessarily represent the complete contents of the actual speeches or reports, they provide insight into how the CCP is seeking to shape and channel the attitudes and behaviors of the party rank and file.

Under the overarching leadership of the CCP Central Committee's Political Bureau (Politburo) and its Standing Committee, the Central Foreign Affairs Commission (CFAC) has come to play the central role in guiding PRC foreign policy over the past few decades.[24] The CFAC is administered by the director of the CFAC Office, who acts as the PRC's most senior diplomat. Yang Jiechi has filled this position since the 18th Party Congress in 2012, and he was also elevated to the Politburo at the 19th Party Congress in 2017. His speeches and writings provide another important authoritative source for PRC thinking on deterrence.

An array of party and state organs are responsible for executing the guidance of the Central Committee and CFAC regarding China's foreign affairs. In the political and informational domains, the CCP's Propaganda Department, International Liaison Department, and United Front Work Department—as well as related organizations under the State Council such as the MFA, Taiwan Affairs Office, Hong Kong and Macao Affairs Office, Overseas Chinese Affairs Office, Ministry of Education, and Xinhua News Agency—each play key roles. Other ministries and entities, including the Ministry of National Defense, also have propaganda offices that conduct public messaging. This political and informational work includes efforts designed to prevent or coerce other countries, groups, or individuals from taking action that harms the interests of China and the CCP.

The MFA, or in some cases the International Liaison Department, which conducts party-to-party exchange, is responsible for executing the diplomatic

[24] The Central Foreign Affairs Commission was known as the Central Foreign Affairs Leading Small Group until the 19th Party Congress. The conversion of this leading small group into a commission elevated the structural status of the body within the PRC system. In addition, Yang Jiechi's promotion to the Politburo at the 19th Party Congress was the first time that the PRC's top diplomat had served on the Politburo since Qian Qichen retired in 2003. Meanwhile, Wang Yi remained foreign minister after the 19th Party Congress but was also promoted to the State Council, taking Yang's previous spot as the council's foreign affairs official. These personnel promotions also elevated the seniority of the foreign affairs apparatus and its leaders in the PRC system. The elevation of the CFAC's structural status is likely to be a lasting shift, though it remains to be seen whether the decisions to promote the director of the CFAC Office to the Politburo and the foreign minister to the State Council are personally tied to Yang and Wang, respectively, or whether this is a new institutional norm. For more historical context, see Guoguang Wu, "The Emergence of the Central Office of Foreign Affairs: From Leadership Politics to 'Greater Diplomacy,'" Hoover Institution, China Leadership Monitor, September 2021.

element of China's foreign affairs strategy. Other state ministries also engage in international diplomacy and negotiation, though usually in more limited domains, such as environmental issues, trade and finance, agricultural regulation, and technology and cybersecurity. The MFA is particularly responsible for enacting diplomatic coercion, such as through public statements, démarches, and visa bans. It also bears principal responsibility for China's engagement with and application of international law, coordinating with other relevant agencies, such as the Ministry of Commerce on trade law and the Ministry of Natural Resources on maritime law. Meanwhile, the National People's Congress and its Standing Committee play a key role in legal deterrence through their role in enacting laws and statutes governing state organs and regulating interactions with other states and nonstate actors in domains ranging from commerce and finance to air and maritime space.

Finally, in the economic domain, the State Council and its various ministries, including the National Development and Reform Commission, the Ministry of Commerce, and the State Administration for Market Regulation, are responsible for economic coercion measures. These measures can include import bans and export restrictions and are often implemented in the form of increased regulatory hurdles and indefinite processing delays.

CCP Ideas Related to Deterrence: Resolve, Core Interests, and Struggle

Traditional Ideas: Resolutely Safeguarding China's Interests

Speeches by senior CCP leaders generally do not use the explicit language of deterrence. When they do discuss interstate coercion, it is usually in the context of criticizing the "bullying" (霸凌主义), "unilateralism" (单边主义), or "hegemonism" (霸权主义) of other countries, especially the United States, and affirming that China will never exhibit such behavior. Although CCP leaders hail the need for China to in effect deter such bullying, they do not explicitly use the term "deter." Instead, they call for China to "resolutely oppose" (坚决反对) and "struggle" (斗争) against such coercion and "resolutely safeguard national interests" (坚决维护国家利益).

During the Hu Jintao era (2002–12), China's approach toward deterrence revolved around the concept of safeguarding "core interests" (核心利益), sometimes referred to as "fundamental interests" (根本利益). PRC leaders used this concept to draw red lines and signal to other countries the issues where China would "never yield or compromise" (决不退让, 决不

妥协).[25] Substantively, this concept initially referred most often to China's sovereignty and territorial integrity, with frequent reference to the context of Taiwan. By the latter years of the Hu era, it had coalesced into a more solid three-part formula, including national security and regime security, sovereignty and territorial integrity, and economic development.[26]

This formulation of China's core interests has continued into the Xi Jinping era, even as officials use the term "core interests" less, instead referring to "national interests" more generally or to the phrase "sovereignty, security, and development interests." In his report at the 19th Party Congress, Xi emphasized the "holistic concept of national security" (总体国家安全观), which includes "putting national interests first" (坚持国家利益至上) and "resolutely safeguard[ing] China's sovereignty, security, and development interests" (坚决维护国家主权, 安全, 发展利益).[27] Although Xi's speech did not use the term "core interests," it used the long-standing tripartite formula for such interests, integrated within a broader concept that connected the "people's security" and "political security…internal and external security, homeland and public security, traditional and non-traditional security, and China's own and common security."

Complaints about coercion from other countries and an emphasis on the need for China to defend its core interests are long-standing features of China's foreign affairs and were prominent before Xi. However, the emphasis of Xi and other senior CCP leaders today on the need to "dare to fight" to defend China's interests was less prominent in the Jiang Zemin and Hu eras. When leaders in the Hu years did stress the need for struggle, such as then foreign minister Yang Jiechi in a 2008 article in the Central Committee's journal *Qiushi*, they coupled this appeal with a countervailing admonition to be "flexible and pragmatic" (灵活务实).[28]

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[25] Wen Jiabao, for example, stated that China "firmly upholds its national core interests. When it comes to sovereignty, national unity, and territorial integrity, China will not yield or compromise." See Wen Jiabao, "Statement by H.E. Wen Jiabao Premier of the State Council of the People's Republic of China at the General Debate of the 65th Session of the UN General Assembly: Getting to Know the Real China," Premier of the People's Republic of China, September 23, 2010, https://www.mfa.gov.cn/ce/ceit//ita/zl/yjjj/t807353.htm. See also Michael D. Swaine, "China's Assertive Behavior—Part One: On 'Core Interests,'" Hoover Institution, China Leadership Monitor, February 22, 2011, fn. 28.

[26] Swaine, "China's Assertive Behavior."

[27] "Full Text of Xi Jinping's Report at 19th CPC National Congress," *China Daily*, November 4, 2017, https://www.chinadaily.com.cn/china/19thcpcnationalcongress/2017-11/04/content_34115212.htm.

[28] In the article, Yang expounded on China's diplomacy, wherein he admonished, "On major issues involving core national interests, stand firm and clear-cut, dare to struggle, put up a good fight, and never trade principles. At the same time, pay attention to strategy, be flexible and pragmatic, insist on being just, advantageous, and restrained, and safeguard the long-term and fundamental interests of our country." Yang Jiechi, "China's Diplomacy since Reform and Opening," Ministry of Foreign Affairs (PRC), September 16, 2008. This is cited in Swaine, "China's Assertive Behavior," fn. 29.

Deterrence in the "New Era": A Renewed Emphasis on "Struggle" (斗争)

Since Xi Jinping became general secretary of the CCP at the 18th Party Congress in 2012, he has issued several significant speeches and reports that provide the overarching guidance for the party-state's approach to foreign affairs. The reports he delivered at the 18th and 19th Party Congresses provide the overall framework for China's strategy in what the CCP has come to call the "new era" (新时代). The speeches he delivered at the Central Foreign Affairs Work Conferences in 2014 and 2018 provide greater insight into how the CCP aims to carry out his vision in the domain of foreign affairs.[29]

When Xi first ascended to his position in 2012, he introduced an overarching vision for a "China dream" (中国梦), which he defined as the "great rejuvenation of the Chinese nation" (中华民族伟大复兴), a concept that had been hailed by earlier CCP leaders dating back to the early 1980s.[30] Xi's report at the 19th Party Congress five years later stressed the difficulties that China would encounter on the final leg of its journey toward national rejuvenation:

> Realizing our great dream demands a great struggle. It is in the movement of contradictions that a society advances; where there is contradiction there is struggle.
>
> Every one of us in the Party must do more to uphold Party leadership and the Chinese socialist system, and resolutely oppose all statements and actions that undermine, distort, or negate them. We must do more to protect our people's interests, and firmly oppose all moves that damage their interests or put distance between the Party and the people. We must do more to channel our energies toward the contemporary current of reform and innovation, and resolvedly address deep-rooted problems. We must do more to safeguard China's sovereignty, security, and development interests, and staunchly oppose all attempts to split China or undermine its ethnic unity and social harmony and stability. We must do more to guard against all kinds of risks, and work determinedly to prevail over every political, economic, cultural, social, and natural difficulty and challenge.
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> Every Party member must fully appreciate the long-term, complex, and onerous

[29] For an analysis of Xi's address at the 2014 Foreign Affairs Work Conference, see Michael D. Swaine, "Xi Jinping's Address to the Central Conference on Work Relating to Foreign Affairs: Assessing and Advancing Major-Power Diplomacy with Chinese Characteristics," Hoover Institution, China Leadership Monitor, March 19, 2015.

[30] Simone van Nieuwenhuizen, "Xi, Orwell and the Language of Chinese Politics," Lowy Institute, Interpreter, October 27, 2017, https://www.lowyinstitute.org/the-interpreter/xi-orwell-and-language-chinese-politics; and Jiang Zemin, "Hold High the Great Banner of Deng Xiaoping Theory for an All-Round Advancement of the Cause of Building Socialism with Chinese Characteristics to the 21st Century," General Secretary of the Chinese Communist Party, September 12, 1997, available at http://academics.wellesley.edu/Polisci/wj/308S/Readings/jzm15CCP.htm.

> nature of this great struggle; we must be ready to fight, build our ability, and keep striving to secure new victories in this great struggle.[31]

The concept of struggle is an important and long-standing one in Chinese Communist theory and has been used to describe how China would oppose violations of its core interests. However, the scope of the concept and the emphasis placed on it during the Xi era are distinctive.[32] In particular, Xi emphasizes the need to struggle against not only affronts to China's core interests but also any actions or even simply statements that "undermine, distort, or negate" party leadership and the Chinese socialist system.

Xi expounded on this vision at the 2018 Central Foreign Affairs Work Conference, where he introduced a new foreign policy doctrine called "Xi Jinping Thought on Diplomacy" (习近平外交思想). This concept elaborated on themes that he had begun articulating earlier, including at the 2014 conference, such as China's commitment to a "new type of major-power diplomacy" (新型大国外交), which stresses the importance of win-win cooperation with other states and the need for China to uphold the UN-based international order and "true multilateralism," strengthen its influence in international institutions, and deepen its international economic engagement. At the 2018 conference, however, these concepts were formalized around ten core principles, which include "upholding national sovereignty, security, and development interests with China's core interests as a red line," while also "developing a distinctive Chinese style of diplomacy by both drawing on fine traditions and adapting to the changing times."[33]

As noted previously, this reference to core interests as a red line was not new in and of itself. However, as officials have elaborated the themes of Xi Jinping Thought on Diplomacy, its details have clearly entailed a harder edge to China's statecraft. This is most evident in three core texts published in 2021, including an article by Yang Jiechi published in *Qiushi*, a book-length study outline of the doctrine published by the CCP, and a speech by Foreign

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[31] "Full Text of Xi Jinping's Report at 19th CPC National Congress."

[32] In addition, Xi placed an emphasis in his 19th Party Congress report on the need for China to enhance its international communication and discourse power through expert engagement in academic venues and intergovernmental organizations, as well as through media control. See Nadège Rolland, "China's Vision for a New World Order," National Bureau of Asian Research, NBR Special Report, no. 83, January 27, 2020, https://www.nbr.org/publication/chinas-vision-for-a-new-world-order.

[33] "Ten Core Principles of Xi Jinping Thought on Diplomacy," *Qiushi*, July 16, 2021, http://en.qstheory.cn/2021-07/16/c_643502.htm; "Ten Major Aspects of President Xi Jinping's Thought on Diplomacy," *Beijing Review*, July 5, 2018, http://www.bjreview.com.cn/Multimedia/Infographics/201807/t20180706_800134648.html; and "Xi Urges Breaking New Ground in Major Country Diplomacy with Chinese Characteristics," State Council Information Office (PRC), Press Release, June 25, 2018, http://english.scio.gov.cn/topnews/2018-06/25/content_53360648.htm.

Minister Wang Yi delivered at a study session acclaiming its key points. These three sources provide insight into how China seeks to engage in a struggle to "resolutely safeguard" its national interests using all available elements of national power.[34]

Yang's *Qiushi* article quoted a passage from Xi's 2017 Party Congress report and then expanded on it as follows:

> In the face of a constantly shifting international environment and external risks and challenges, the Party has always kept up its fighting spirit, always taken a holistic approach to national security and coordinated the development and security imperatives and has spared no effort to uphold China's fundamental interests. As China continues to grow stronger, we are to encounter still greater obstacles and risks and face even more arduous tasks in upholding our sovereignty, security, and development interests. This makes it all the more imperative that we undertake a great struggle with many new features of the times.[35]

Amplifying these themes, a summary of the "Xi Jinping Thought on Diplomacy Study Outline" published a few months later described "safeguarding national interests" as "the fundamental task of foreign affairs work." It emphasized Xi's imperative to "persistently enhance strategic self-confidence" (坚持增强战略自信).[36] It also included an admonishment to "engage in great struggles with many new historical characteristics; dare to fight and dare to win"—a rallying cry for PRC diplomats. "Dare to fight" (敢于斗争) uses the Chinese term for "struggle" (斗争).

In his speech commenting on the book's themes at the September 2021 study session, Wang Yi stated the following:[37]

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[34] See citations to these sources below. In addition, Yang Jiechi struck similar notes in an ensuing essay on Xi Jinping Thought on Diplomacy published in mid-2022. See Yang Jiechi, "Studying and Implementing Xi Jinping Thought on Diplomacy in a Deep-going Way and Opening Up New Horizons in China's External Work," Central Foreign Affairs Commission General Office, May 16, 2022, https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/zyjh_665391/202205/t20220516_10686371.html.

[35] These excerpts are from the English version: Yang Jiechi, "Foreign Affairs Work since the Founding of the Communist Party of China: A Century of Glorious Achievements and a Future of Bright Prospects," *Qiushi*, July 8, 2021, http://en.qstheory.cn/2021-07/08/c_641114.htm. The Chinese version is available at http://www.qstheory.cn/dukan/qs/2021-05/16/c_1127447088.htm.

[36] Yao Zhen, "新时代我国对外工作的根本遵循和行动指南—学习《习近平外交思想学习纲要》" [The Fundamental Compliance and Action Guidelines for Our Country's Foreign Affairs Work in the New Era—Studying 'Xi Jinping Thought on Diplomacy Study Outline'], Ministry of Education (PRC), November 3, 2021, http://www.moe.gov.cn/s78/A01/s4561/jgfwzx_xxtd/202111/t20211103_577297.html. See also 习近平外交思想学习纲要 [Study Outline for Xi Jinping Thought on Diplomacy] (Beijing: People's Publishing House and Xuexi Publishing House, 2021). For the announcement of publication, see "The Study Outline for Xi Jinping Thought on Diplomacy Published," Ministry of Foreign Affairs (PRC), Press Release, August 17, 2021, https://www.fmprc.gov.cn/eng/zxxx_662805/202108/t20210818_9133810.html.

[37] Translation by the author, with italics and original Chinese terms included for specific phrases emphasized by the author.

> In the face of the attacks and smears of anti-China forces on a series of issues such as Taiwan, Hong Kong, Xinjiang, Tibet, maritime, and human rights, and the rise of unilateralism, protectionism, and bullying in the world, we have launched a *tit-for-tat struggle* [针锋相对的斗争]. We have effectively defended our national sovereignty, security, and development interests, and created an overall favorable external environment for building a moderately prosperous society in an all-round way, and then building a modern socialist country in an all-round way.[38]
>
> Through in-depth study, we must fully carry forward the *spirit of struggle* [斗争精神] and have the courage to overcome all risks and challenges on the road ahead. As China moves closer to the center of the world stage, the risks and challenges we face have clearly increased, and we are bound to meet a great struggle with many new historical characteristics. As General Secretary Xi Jinping pointed out, the great rejuvenation of the Chinese nation cannot be achieved easily and with drums and gongs. We must always be prepared for danger in times of peace, increase our awareness of danger, deeply understand the new contradictions and challenges brought about by the complex international environment, throw away our illusions, dare to fight, dare to win, take a clear-cut stand in the face of major rights and wrongs, refuse to give way on issues of principle, and, with *firm determination and effective measures* [坚定的决心和有效的举措], further safeguard our country's sovereignty, security, and development interests.[39]

Wang's remarks draw a direct connection between the renewed emphasis on struggle and the coercive measures that China has been applying across multiple domains. The emphasis on "tit-for-tat struggle" and "effective measures" to safeguard China's interests is directly reflected in the growing range of economic, diplomatic, informational, legal, and paramilitary coercion methods China has deployed in recent years.

Struggle vs. Deterrence: Explaining the Puzzle of PRC Deterrence Failures

The concepts of struggle in the face of opposition and safeguarding interests in the face of threats are the closest analogues in CCP theory to the concept of deterrence. They are not identical to deterrence, especially

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[38] These two goals represent the two centenary goals of the CCP: the first for the one-hundredth anniversary of the founding of the CCP in 2021, and the second for the one-hundredth anniversary of the founding of the PRC in 2049.

[39] Wang Yi, "深入学习贯彻习近平外交思想 奋进新时代中国外交壮阔征程" [In-Depth Study and Implementation of Xi Jinping Thought on Diplomacy: Forging Ahead in the New Era on China's Diplomatic Journey], Ministry of Foreign Affairs (PRC), September 26, 2021, https://www.fmprc.gov.cn/wjbzhd/202111/t20211126_10453786.shtml.

as defined by Thomas Schelling.[40] Although the objective of engaging in struggle is ultimately to get other countries to refrain or desist from infringing on China's interests, the idea of struggle essentially assumes that such actions are likely a result of historical and societal contradictions. Ideally, through struggle others will stop engaging in harmful behavior (Schelling's idea of compellence) and will refrain from engaging in yet more harmful behavior (Schelling's idea of deterrence). In this sense, struggle is more analogous to coercion, as it contains elements of both deterrence and compellence.

Yet struggle is not a direct analogue for coercion, as it refers to both a structural tension and a normative relationship that is lacking in the concept of coercion. Coercion and its subcomponents, deterrence and compellence, are both rooted in the core question of power as conceived in U.S. political science—how actor A can get actor B to do something that actor B would not otherwise do.[41] Struggle, however, is a concept rooted in the Marxist-Maoist tradition, referring to the structural tension that exists between opposing forces and the conflict between those forces. To struggle is to resist the structural oppression of existing forces in order to overcome them.

In light of this structural connotation, the CCP's increased emphasis on struggle in its foreign affairs has important potential implications. At a theoretical level, behavior oriented around struggle may be less attuned to the perceptions and decisions of other actors since it is guided more by a structural concept than by a behavioral or psychological one. This concept may be more open-ended and less likely to have clear ends-means connections. Actions that do not have a clear causal impact may still be valued as instances of struggle, including for internal domestic political purposes. This could serve both bureaucratic purposes, such as lower-level officials signaling their resolve and loyalty to senior party leaders, and popular legitimacy purposes, such as the party evoking a rally-around-the-flag effect among the populace and establishing itself as the defender of the people's honor and pride against external attack.

This dynamic could explain some of the puzzles of China's coercive diplomacy and economic statecraft, especially the question of why Beijing

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[40] Thomas Schelling was a U.S. economist and international relations theorist who developed a now-standard definition of coercion as credibly signaling the ability and will to inflict harm on another to exercise power and leverage over them. He conceptualized coercion as encompassing both deterrence, defined as preventing another from taking undesirable action in the future through fear of consequences, and compellence, conceived as applying threats to induce another to stop taking undesired action that is already occurring. Thomas Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966).

[41] Robert A. Dahl, "The Concept of Power," *Behavioral Science* 2, no. 3 (1957): 201–15.

at times persists in coercive behavior that does not achieve its objective and instead damages its image or provokes counter-balancing by other states.[42] Some observers have hypothesized an informational-bureaucratic explanation for these puzzles—namely, that centralization of power under Xi Jinping, censorship of divergent views, anticorruption campaigns, promotion incentives, and reduced international exchange due to the Covid-19 pandemic have combined to create an environment wherein Xi and other top leaders are not hearing critical analysis and thus are not fully aware of China's foreign affairs failures.[43] While this is a plausible hypothesis, the imperative of struggle in Xi Jinping Thought on Diplomacy, promulgated throughout the PRC's foreign affairs apparatus by senior leaders, may suggest a related but differing mechanism at work.

To some extent, this imperative can explain PRC foreign policy failures through similar banal bureaucratic political incentives. Given the centrality of the concept of struggle to "Xi Jinping Thought on Socialism with Chinese Characteristics," performing a "tit-for-tat struggle" is an important way for PRC officials to signal fealty to the CCP, with Xi at its core. By employing "effective measures" across economic, diplomatic, informational, legal, and political domains to counter affronts to PRC interests, diplomats and other PRC officials are able to demonstrate "the spirit of struggle," thereby currying favor with senior officials, including Xi himself. At the same time,

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[42] Laura Silver, Christine Huang, and Laura Clancy, "Negative Views of China Tied to Critical Views of Its Policies on Human Rights," Pew Research Center, June 29, 2022, https://www.pewresearch.org/global/2022/06/29/negative-views-of-china-tied-to-critical-views-of-its-policies-on-human-rights; Reynolds and Goodman, "China's Economic Coercion"; Pratik Jakhar, "China's Economic Coercion Is More Bark Than Bite," *Foreign Policy*, October 5, 2021, https://foreignpolicy.com/2021/10/05/china-economic-coercion-taiwan; and Robert A. Manning and James J. Przystup, "How to Explain Xi Jinping's Mounting Foreign-Policy Failures," *Foreign Policy*, July 21, 2016, https://foreignpolicy.com/2016/07/21/how-to-explain-xi-jinpings-mounting-foreign-policy-failures. Examples of such failures of coercion campaigns include South Korea's decision to go ahead with deploying Terminal High Altitude Area Defense despite China's massive economic retaliation, Europe's rallying around Lithuania in the wake of China's coercive campaign against Vilnius, and Australia's doubling down on balancing against China in the form of the Quad and the AUKUS partnership, notwithstanding China's economic and diplomatic coercion. These examples are not complete failures on China's part, to be sure, and they may have bolstered China's general deterrence against these states going further than they otherwise would have or against other states undertaking similar decisions—deterrence successes that are less visible since they are the proverbial "dogs that didn't bark." Also, there is some evidence that Beijing may be attempting to thaw relations with Australia in the wake of a change in government in Canberra and with Europe in the wake of the chilly reception at the EU-China summit in April 2022. Richard McGregor, "China Thaw? It's from the Freezer to the Fridge for Albanese Government," *Sydney Morning Herald*, June 25, 2022, https://www.smh.com.au/national/china-thaw-it-s-from-the-freezer-to-the-fridge-for-albanese-government-20220624-p5aw9y.html; and Finbarr Bermingham, "China Sends Special Envoy to Brussels in Bid to Salvage Souring Ties with EU," *South China Morning Post*, May 19, 2022, https://www.scmp.com/news/china/diplomacy/article/3178404/china-sends-special-envoy-brussels-bid-salvage-souring-ties-eu.

[43] Jude Blanchette, "Xi Jinping's Faltering Foreign Policy: The War in Ukraine and the Perils of Strongman Rule," *Foreign Affairs*, March 16, 2022, https://www.foreignaffairs.com/articles/china/2022-03-16/xi-jinpings-faltering-foreign-policy.

the CCP can also burnish its legitimacy with the public by stoking a sense of threat, encirclement, and humiliation and then demonstrating the party's determination to struggle against those affronts as the defender of China's honor, pride, and safety.

In addition, there may also be logical and structural features embedded in the concept of struggle that make it not attuned to failure. Even though the objective of struggle is ultimately to change the way other countries treat China, this framework paradoxically seems to presuppose that deterrence will probably fail and the opponent will continue to engage in interest-harming behavior due to structural contradictions. This is, in fact, the basis for the need to commit to prolonged and difficult struggle that is resilient to such failure. In some sense, then, success is not measured by the behavior of other states but instead by how vigorously and self-confidently one's own nation resists threats from other actors. This could mean that deterrence failures actually validate the struggle mindset, given that resistance and counterbalancing are likely interpreted not as direct, short-term reactions to the PRC's coercive behavior, but rather as products of deeper structural contradictions.

At the same time, a couple of caveats are in order. Although the structural theory underlying the idea of struggle may account for some of China's puzzling foreign policy failures, other great powers that ostensibly orient themselves around concepts of deterrence and compellence, such as the United States, do not always behave in purely strategic ways either. This is particularly evident with economic sanctions: U.S. sanctions have increased significantly in the past two decades, despite their limited success in compelling the target to cease offending behavior.[44] Aside from using them to deter third countries from engaging in similar behavior (a strategic objective that the PRC also likely pursues), Washington often applies sanctions in order to signal displeasure and communicate values and priorities, even when they are unlikely to be effective in coercing the target to change its behavior. As with PRC coercion under the rubric of struggle, some U.S. policy coercion may be undertaken more for ideological, psychological, or domestic political reasons than purely strategic ones.

Moreover, struggle does not wholly define the PRC party-state's approach to diplomacy. There are other strands and concepts in PRC statecraft. These include the need to be "flexible and pragmatic" and

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[44] Gary Clyde Hufbauer et al., *Economic Sanctions Reconsidered*, 3rd ed. (Washington, D.C.: Peterson Institute for International Economics, 2009); and David A. Baldwin, "The Sanctions Debate and the Logic of Choice," *International Security* 24, no. 3 (1999/2000): 80–107.

exercise restraint.[45] The emphasis on struggle also persists alongside the longer-standing goal of creating a better external environment for China's peaceful development, now often framed as a "a better external environment for national rejuvenation" or the "China dream."[46] In addition, strategists in the PLA, as noted above, do write extensively about strategy and doctrine in terms of deterrence, which may imbue a clearer ends-means chain into the PRC's decisions about use of force. Although an emphasis on struggle is currently ascendant in CCP guidance, "the spirit of struggle" exists alongside these other persistent influences. In the future, the CCP could either de-emphasize struggle relative to those other ideas or strengthen the current emphasis.

[45] This is encapsulated in the following text: "At the same time, pay attention to strategy, be flexible and pragmatic, insist on being just, advantageous, and restrained, and safeguard the long-term and fundamental interests of our country" (同时讲究策略, 灵活务实, 坚持有理, 有利, 有节, 维护我国的长远和根本利益), articulated in the above-cited 2008 speech by Yang Jiechi and common in PRC strategic discourse, especially in earlier eras.

[46] In his report at the 19th Party Congress, Xi Jinping stated: "The dream of the Chinese people is closely connected with the dreams of the peoples of other countries; the China dream can be realized only in a peaceful international environment and under a stable international order" (中国人民的梦想同各国人民的梦想息息相通, 实现中国梦离不开和平的国际环境和稳定的国际秩序). See also Wang Yi, "国务委员兼外交部长王毅就中国外交政策和对外关系回答中外记者提问" [State Councilor and Foreign Minister Wang Yi Answers Questions from Chinese and Foreign Journalists on China's Foreign Policy and Foreign Relations], Ministry of Foreign Affairs (PRC), March 7, 2021, https://www.fmprc.gov.cn/web/ziliao_674904/zyjh_674906/202103/t20210307_9870773.shtml.

EXECUTIVE SUMMARY

This chapter argues that China is exponentially expanding its nuclear stockpile as part of its broader effort to develop a strategic deterrence offset to U.S. conventional superiority because of Xi Jinping's need to make political progress on Taiwan.

MAIN ARGUMENT

China is engaged in a historic and rapid buildup of its nuclear weapons as part of its broader effort to develop a strong integrated strategic deterrent. While there are several potential motivating factors, China's need to counterbalance U.S. military superiority and deter U.S. military conflict intervention is principal among these. This is because China is not confident that it can otherwise deny or manage U.S. military intervention, and it appears Xi is poised to use this emerging force posture to make progress toward resolving Taiwan's separation from the mainland.

POLICY IMPLICATIONS

- China is poised to engage in nuclear coercion in a conflict over Taiwan for the purpose of deterring a U.S. military intervention because Beijing is not confident it can otherwise prevent the U.S. from denying victory over Taiwan.
- Beijing's development of a strategic counterbalance is primarily intended to force Taiwan into a new normal whereby Taipei must engage in a political process toward unification because it can no longer be confident that the U.S. can come to its defense.
- China is uninterested in meaningful nuclear arms control because real "nuclear minimalism" no longer serves its national security needs.

Chapter 4

Xi Jinping's Strangelove: The Need for a Deterrence-Based Offset Strategy

Brandon J. Babin

The nuclear force of the People's Republic of China (PRC) is growing. The trajectory of Beijing's current nuclear modernization is unprecedented in both its public nature and size. The first such indications of a potential sea change came in May 2019, when then Defense Intelligence Agency (DIA) director Lieutenant General Robert Ashley publicly announced the agency's projection that China would "over the next decade, at least double the size of its nuclear stockpile in the course of implementing the most rapid expansion and diversification of its nuclear arsenal in China's history."[1] Two years later, the U.S. Department of Defense's annual China Military Power Report no longer projected a mere doubling of its previous estimate of over 200 warheads but instead a quadrupling by decade's end to "at least 1,000 warheads by 2030" and up to 700 by as early as 2027.[2]

There has been a lot of speculative commentary on why China's nuclear trajectory seems to have so radically changed and what it portends for a future notional Sino-U.S. conflict, but not much evidence-based analysis.[3] This chapter looks to fill that void. Drawing primarily on Chinese military

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The views presented reflect those of the author and not necessarily those of the U.S. government.

[1] Robert P. Ashley, "Russian and Chinese Nuclear Modernization Trends" (remarks at the Hudson Institute, Washington, D.C., May 29, 2019), available at https://www.dia.mil/Articles/Speeches-and-Testimonies/Article/1859890/russian-and-chinese-nuclear-modernization-trends.

[2] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2020* (Washington, D.C., September 2020), ix, https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021* (Washington, D.C., November 2021), viii, https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF.

[3] See, for example, Thomas Newdick, "Is China Reviving America's Cold War–Era 'Shell Game' ICBM Deployment Strategy?" Drive, July 1, 2021; and Tong Zhao, "China's Silence on Nuclear Arms Buildup Fuels Speculation on Motives," *Bulletin of the Atomic Scientists*, November 12, 2021.

writings and official media, it argues that Beijing began a significant nuclear buildup by early 2016 as part of a broader effort to increase "integrated strategic deterrence" capabilities in order to deter the United States from intervening in a regional conflict that Beijing is not confident it can win. Though not covered here, and beyond the scope of this chapter, there are at least five potential parallel drivers that exist, with varying degrees of significance. These include China's pursuit of peer status with the United States, strategic competition with the United States, U.S. ballistic missile defense, U.S. strategic strike capabilities, and Washington's 2020 arms control push. Evidence of some of these other drivers is referenced in this chapter, but they appear less compelling.

Chinese Military Deficiencies Prompt a Deterrent Offset Strategy

As early as 2013, evidence emerged indicating that Xi Jinping recognized that the People's Liberation Army (PLA) had endemic human capital problems that would bring into question whether it could actually "fight and win a war."[4] Some of these problems were documented first in a 2015 RAND study and later, more thoroughly, by Dennis Blasko in a series of 2019 publications.[5] Newer PLA commentary suggests that these problems persist into the present.[6] In his 2019 testimony before the U.S.-China Economic and Security Review Commission, Blasko noted that in PLA media, critiques of the military take two forms: "(1) general assessments of capabilities, and (2) specific critiques of discrete functions of individual units, with the former being frequently attributed to the CMC [Central Military Commission] chairman." He also noted that such general critiques appear as "slogans or formulas."[7] Blasko observed that between 2013 and 2015 (i.e., in the

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[4] China Aerospace Studies Institute, trans., *In Their Own Words: Foreign Military Thought—Science of Military Strategy 2013* (Montgomery: China Aerospace Studies Institute, 2020), 323, 325; and Dennis J. Blasko, "The Chinese Military Speaks to Itself, Revealing Doubts," War on the Rocks, February 18, 2019, https://warontherocks.com/2019/02/the-chinese-military-speaks-to-itself-revealing-doubts.

[5] See Michael S. Chase et al., *China's Incomplete Transformation: Assessing the Weaknesses of the People's Liberation Army* (Santa Monica: RAND Corporation, 2015), 69–74; and Blasko, "The Chinese Military Speaks to Itself, Revealing Doubts."

[6] See David M. Finkelstein, "The PLA's New Joint Doctrine: The Capstone of the New Era Operations Regulation System," CNA, September 1, 2021, 19: "In a long discourse in China Social Science News, Major General Chen Rongdi of the PLA Academy of Military Science…cautioned that the ability to *successfully prosecute joint operations* will be a long-term endeavor" (emphasis added).

[7] Dennis J. Blasko, "PLA Weaknesses and Xi's Concerns about PLA Capabilities," testimony before the U.S.-China Economic and Security Review Commission, Washington, D.C., February 7, 2019, 3.

early Xi era) a number of new "general assessments" were either revived or introduced for the first time, with the "two inabilities" and the "five incapables" being the most prolific. What was common among them was the inability of PLA officers to execute joint command at multiple echelons or function in the uncertain environments of modern warfare. The third most prolific narrative instituted under Xi—the "two big gaps"—compares the PLA to other world militaries, noting not just a general deficiency but a "relative capability gap," with the United States presumably being weighted as the gold standard.[8] Blasko concluded that "this lack of confidence in PLA capabilities contributes to Beijing's preference to achieve China's national objectives through *deterrence* and actions short of war" (emphasis added).[9] **Table 1** provides an overview of references in the *PLA Daily* to five general assessments of PLA deficiencies.[10]

In the midst of these documented shortcomings, the PLA's National Defense University (NDU) asserted a novel deterrence-based antidote that over time looks less like a recommendation and more like a reflection of intent. The NDU's April 2015 *Science of Military Strategy* asserts that the PLA can offset its military weakness by adopting powerful strategic deterrence: "Under circumstances where the two sides in war exhibit an imbalance of power…if the weaker side has adopted powerful strategic deterrence measures, then it can undergo a conversion from weakness to strength."[11] The choice of language here is unique in that it parallels, if not mirrors, how earlier Chinese writings on "people's war" and "assassin's mace" discussed compensating for China's relative weakness against a superior foe by using select advanced weaponry, innovative tactics, or a combination of both to target an adversary's critical vulnerabilities such that the "weak" might defeat the "strong." In this case, the targeted vulnerability appears to be the United States' perceived unwillingness to endure the potential strategic costs of military intervention as opposed to the more tactical and operational focus of assassin's mace.[12] The resulting corollary then is that China would seek

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[8] Blasko, "PLA Weaknesses and Xi's Concerns about PLA Capabilities," 5–9.

[9] Blasko, "The Chinese Military Speaks to Itself, Revealing Doubts."

[10] For a graph drawing on research by Alastair Iain Johnston into the number of *PLA Daily* articles featuring the five general assessments of PLA deficiencies that appeared from 2006 to 2018, see Blasko, "The Chinese Military Speaks to Itself, Revealing Doubts." Notably, the spike in articles begins when Xi became CMC chairman.

[11] Xiao Tianliang, ed., 战略学 [Science of Military Strategy] (Beijing: National Defense University Press, 2015), 125. Special thanks to RAND's Nathan Beauchamp-Mustafaga for providing access to this text.

[12] Jason Bruzdzinski, "Demstifying Shashoujian: China's 'Assassin's Mace' Concept," MITRE Corporation, December 2005, 335–36, https://www.mitre.org/publications/technical-papers/demystifying-shashoujian-chinas-assassins-mace-concept.

TABLE 1 Assessments of deficiencies from the *PLA Daily* (2006–18)

Slogan	Two inabilities	Five incapables	Two incompatibles	Two big gaps	Three whethers
Components	(1) The PLA's ability to fight a modern war is insufficient, and (2) the ability of cadres (officers) at all levels to command modern war is insufficient.	Some commanders cannot (1) judge the situation, (2) understand the intention of higher headquarters, (3) make operational decisions, (4) deploy troops, or (5) deal with unexpected situations.	(1) The PLA's level of modernization does not meet requirements for winning local war under informatized conditions, and (2) the military capability does not meet the requirements of carrying out its historic mission at the new stage of the new century.	There are big gaps between the PLA's modernization level and (1) the requirements of national security and (2) the level of the world's advanced militaries.	(1) Whether China's armed forces can constantly maintain the party's absolute leadership, (2) whether they can vigorously fight when needed by the party and the people, and (3) whether commanders at all levels are competent to lead forces and command in war.
# of articles (starting year)	169 (2013)	163 (2015)	120 (2006)	78 (2013)	27 (2014)
Notes	Originated with Deng Xiaoping and revived by Xi in 2013.	–	Noted as declining in use with Xi.	–	First seen in 2014, but "less frequently seen."

SOURCE: Dennis J. Blasko, "The Chinese Military Speaks to Itself, Revealing Doubts," War on the Rocks, February 18, 2019, https://warontherocks.com/2019/02/the-chinese-military-speaks-to-itself-revealing-doubts; and Dennis J. Blasko, "PLA Weaknesses and Xi's Concerns about PLA Capabilities," testimony before the U.S.-China Economic and Security Review Commission, Washington, D.C., February 7, 2019.

NOTE: These deficiencies persisted into at least 2019. See David M. Finkelstein, "The PLA's New Joint Doctrine: The Capstone of the New Era Operations Regulation System," CNA, September 1, 2021, 19.

to dissuade—or deter—U.S. wartime intervention by threatening to impose unacceptable costs in the principal domains where Beijing believes strategic deterrence occurs.

Complementing the above assertion, this text also seems to introduce another new dynamic over the PLA's authoritative writings on deterrence in the 2004–5 time frame. Instead of relying on inducing uncertainty to deter, it recommends that the PLA engage in clear cost imposition: "the greater the costs and losses foreseen by the adversary…the more effective…the deterrence."[13] This seems to be a significant development in PLA deterrence thinking, because it would appear to more closely correlate a quantitative factor with deterrent effectiveness. What is common, though, across the decade of conceptual evolution is that all these texts assert that military strength is the basis of strategic deterrence—with nuclear weapons at its core—and that there are essentially five types or domains of deterrence: nuclear, conventional, space, network/information, and people's war.[14] These same texts warn that individually executing any one type of deterrent would be insufficient, but that collectively (including nuclear deterrence) they can achieve an additive effect when combined into what is referred to as "integrated strategic deterrence."[15] As with the 2015 edition, the 2005 English-language version of the *Science of Military Strategy* published by the Academy of Military Science (AMS) noted that China's weak conventional forces had to be combined with other strategic deterrence domains to compensate.[16]

Whether China's nuclear deterrent could be part of a new offset strategy is seemingly contradicted within these texts but might be explained by the exceptional nature of the future conflict China expects to fight—thus allowing an exception to policy—and through a more nuanced understanding of the texts' proscriptions. The AMS's 2013 *Science of Military Strategy* and the NDU's 2015 *Science of Military Strategy* attribute a role to Chinese nuclear weapons in deterring "aggressive wars" and invasions and

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[13] Xiao, 战略学, 120. See also China Aerospace Studies Institute, trans., *In Their Own Words*, 169; and Yu Jixun, ed., *Science of Second Artillery Campaigns* (Beijing: People's Liberation Army Press, 2004), 277, 281. Using uncertainty and stratagems are how the weak deter the strong, but should not be taken as an absolute as China accrues more relative power to its adversary.

[14] Xiao, 战略学, 121–24, 127; Peng Guangqiang and Yao Youzhi, eds., *Science of Military Strategy* (Beijing: Military Science Publishing House, 2005), 215, 219, 222; and China Aerospace Studies Institute, trans., *In Their Own Words*, 169, 177, 184–85.

[15] For more on "integrated strategic deterrence," see Michael S. Chase and Arthur Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"* (Santa Monica: RAND Corporation, 2016).

[16] Peng and Yao, *Science of Military Strategy*, 218–19. This text notes China's conventional deterrent was then insufficient and had to be compensated for by combining it with other forms of strategic deterrence.

defending China's core interests.[17] However, in separate sections, these same texts limit the role of China's nuclear weapons to something more akin to a sole-purpose policy, with the 2013 *Science of Military Strategy* being the most emphatic: "China's nuclear deterrence may not be used for deterring non-nuclear hostile military activities."[18] It is unclear what is meant by "non-nuclear hostile military activities," but this would seem to include any hostile non-nuclear act against China. Conversely, it could merely reflect a prohibition against using nuclear weapons to deter peacetime adversary probing "military activities" that are short of "wartime activities."

Here a parallelism potentially exists with China's characterization of "active defense." Despite the literal definition suggesting that the preemptive use of force is proscribed, this is not the case. China has defined its active defense national military strategy as "striking only after the enemy has struck," which literally suggests that it would have to absorb the first physical blow before responding.[19] However, the AMS's 2005 *Science of Military Strategy* clarifies that an adversary "firing the first shot" can mean that it demonstrates hostile intent on the "plane of politics," which then allows for preemptive Chinese kinetic action at the operational or tactical level of war.[20] Similar nuances exist with China's "no first use" policy. While prohibiting first use against all countries, it only prohibits issuing nuclear threats against non-nuclear countries and nuclear-weapon-free zones, but not other nuclear powers. As an example, a former deputy commander of China's Second Artillery Corps (now the PLA Rocket Force) claimed that Beijing conducted two domestic nuclear tests—thus constituting actual use—during the 1969 Sino-Soviet border skirmish due to fears Moscow was contemplating a first strike.[21] Given that China's existing no-first-use policy

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[17] Xiao, 战略学, 367; and China Aerospace Studies Institute, trans., *In Their Own Words*, 184, 189.

[18] China Aerospace Studies Institute, trans., *In Their Own Words*, 216.

[19] "China Eyes Defensive Capability in Building Up Military," Xinhua, October 1, 2009, http://en.people.cn/90001/90776/907785/6774796.html.

[20] Peng and Yao, *Science of Military Strategy*, 426.

[21] In a 2005 PLA National Defense University text, a former Chinese missile force deputy commander, Lieutenant General Zhao Xijun, claimed that China's two September 1969 nuclear tests were intended as a deterrent signal against Russia's expressed interest in conducting a "surgical nuclear strike" against China's nuclear weapons program. See Zhao Xijun, *Coercive Deterrence Warfare: A Comprehensive Discussion on Missile Deterrence* (Beijing: National Defense University Press, 2005), 110. Chinese concern with the Soviet first-strike threat during the Sino-Soviet border crisis is confirmed in *Statement of the Government of the People's Republic of China* (Beijing: Peking Foreign Language Press, 1969), 2–3. China's two September 1969 tests were unusual in that they marked the first time China conducted two nuclear tests within days of each other instead of months apart. The press release not only was the first since October 1966 to not directly challenge the Soviet Union but also marked the first nuclear test to note war preparations, thus implicating the Soviet Union by exclusion. See "China Victoriously Conducts a New Hydrogen Bomb Test, Successfully Conducts First Underground Nuclear Test," Xinhua, October 4, 1969. For further discussion, see John Wilson Lewis and Xue Litai, *Imagined Enemies: China Prepares for Uncertain War* (Stanford: Stanford University Press, 2006), 60.

seemingly allows for such uses as threats, and nuclear threats more generally, and because the PLA is reportedly considering "operational workarounds," it seems unnecessary for Beijing to clarify the policy in peacetime given the potential reputational costs.[22]

In wartime, the *Science of Second Artillery Campaigns* by the PLA General Staff Department (now Joint Staff Department) specifically notes that China could condition its nuclear policy—thus adding exceptions to the baseline policy referenced throughout the text—to allow nuclear retaliation in response to specific enemy action, such as when the United States engages in medium- to high-strength raids against China or when Beijing "lack[s] a brilliant plan for resisting the enemy."[23] This in essence would be Beijing issuing nuclear threats to curtain enemy conventional action. Blasko's analysis notes that the PLA's own self-assessments indicate that it lacks the conventional capabilities—or a "brilliant plan"—to "resist the enemy" today. Texts like the AMS's 2013 *Science of Military Strategy* indicate that the PLA is expecting a "high-intensity war" with the United States over Taiwan and acknowledge that what is needed is a "high-intensity deterrent" posture made of "powerful, actual strength."[24] Notably, authoritative PLA military texts from the mid-2000s indicate that adding new caveats to the no-first-use policy—and thus presumably threatening an adversary with conditional use—is a form of "high intensity" nuclear deterrence.[25] Against this backdrop, by the end of 2015, China appeared to be putting the PLA NDU's edict for a deterrence offset into practice.

Beginning in December 2015, it was becoming clear that Xi was focused on expanding China's nuclear forces as part of an effort to develop a counterbalance capability—literally rendered "checks and balances" (制衡)—against the United States. This counterbalance seems to require a buildup of China's means of strategic deterrence—including nuclear deterrence—to offset the U.S. conventional military advantage and deter

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[22] Demetri Sevastopulo, "China's Nuclear Build-up: 'One of the Largest Shifts in Geostrategic Power Ever,'" *Financial Times*, November 14, 2021, https://www.ft.com/content/d7c50283-18c8-4f2e-8731-970d9a547688. For examples of Western alarm to a possible change, see James M. Acton, "Is China Changing Its Position on Nuclear Weapons," *New York Times*, April 18, 2013, https://www.nytimes.com/2013/04/19/opinion/is-china-changing-its-position-on-nuclear-weapons.html; Yao Yunzhu, "China Will Not Change Its Nuclear Policy," China-US Focus, April 22, 2013, https://www.chinausfocus.com/peace-security/china-will-not-change-its-no-first-use-policy; and Danny Gittings, "General Zhu Goes Ballistic," *Wall Street Journal*, July 18, 2005, https://www.wsj.com/articles/SB112165176626988025.

[23] Yu, *Science of Second Artillery Campaigns*, 294. Another Chinese missile force publication, released around the same time, similarly discusses altering or reducing the threshold for use. See Zhao, *Coercive Deterrence Warfare*, 34, 64, 76, 139.

[24] China Aerospace Studies Institute, trans., *In Their Own Words*, 122, 137, 147, 190.

[25] See Yu, *Science of Second Artillery Campaigns*, 294–96; and Zhao, *Coercive Deterrence Warfare*, 170.

Washington's entry into a conflict Beijing is not sure it can win. The first evidence of this came with Xi's establishment of the PLA Strategic Support Force as a new service responsible for space and cyber warfare and the upgrading of the Second Artillery Corps missile force into the new PLA Rocket Force as a coequal service.[26] At the founding ceremony for these two services, Xi gave a speech in which he conferred new requirements on the PLA Rocket Force, including what appears to be his first directive calling for a departure from a "lean and effective" to a larger and stronger nuclear force and a requirement for the service to enhance its "checks and balances" capability as something distinct and different from deterring adversary nuclear use or the service's conventional missions:

> The entire body of officers and soldiers in the Rocket Force must grasp the function, orientation, mission, and tasks of the Rocket Force, in accordance with the strategic requirements of having both nuclear and conventional global intimidation warfare, *strengthening the trustworthy and reliable nuclear deterrence and nuclear counterstrike capabilities*, reinforcing the construction of mid- to long-range precision-strike forces, *enhancing strategic check-and-balance capabilities*, and endeavoring *to build a powerful modernized Rocket Force* [emphasis added].[27]

Three months later, the *PLA Daily* provided more details on Xi's speech, noting that he issued directives to the PLA Rocket Force calling for "new structures, new functions, and *new missions*" (emphasis added) but still not clarifying what this new mission of checks and balances might include or which elements of the force—nuclear or conventional—were tasked with it.[28] Subsequent *PLA Daily* articles have generally discussed compensating for Washington's strengths and weaknesses with a "counterbalance," while other official media reporting indicates that this counterbalance includes China's nuclear deterrent, long-range conventional, and dual-capable missiles, as well as that it is intended for the United States:

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[26] "China Upgrades Missile Force, Adds Space and Cyber War Forces," *Global Times*, January 1, 2016, http://english.chinamil.com.cn/news-channels/pla-daily-commentary/2016-01/01/content_6840097.htm.

[27] *Xi Jinping on the Holistic Approach to National Security* (Beijing: Central Party Literature Press, 2018), 59. The 2015 Chinese defense white paper was the last to pledge a commitment to maintaining a "lean and effective" nuclear force. See State Council Information Office of the People's Republic of China (PRC), *China's Military Strategy* (Beijing, May 2015), http://english.chinamil.com.cn/view/2021-06/23/content_10053010.htm.

[28] "Promote the Study and Implementation of President Xi's Dictation into Work," *Jiefangjun Bao*, March 27, 2016, http//www.81.cn/jfjbmap/content_138943.htm. Notably, "counterbalance" appears as a PLA Rocket Force mission for the first time in the PLA's 2019 defense white paper. This was the first white paper following the establishment of the PLA Rocket Force as an independent service with new missions, as the 2015 defense white paper was published prior to these events. See State Council Information Office (PRC), *China's Military Strategy in the New Era* (Beijing, July 2019), http://english.chinamil.com.cn/view/2019-07/24/content_10053011.htm; and State Council Information Office (PRC), *China's Military Strategy*.

> From nuclear missiles, to conventional missiles, to both nuclear and conventional missiles; from medium-range missiles to intercontinental missiles, [they] demonstrate my country's strong strategic checks and balances of deterrence and warfare.[29]
>
> [T]he current world situation is erratic. In order to enhance the effectiveness of our country's strategic deterrence, support China's status as a major power, and maintain China's national security, we must enhance credible and reliable nuclear deterrence and nuclear counterattack capabilities, and *strengthen strategic checks and balances* [制衡] [emphasis added].[30]
>
> Dongfeng-41 missiles, the mainstay of China's strategic nuclear strength, *play a vital role in strategic counterbalance, deterrent control, and winning decisive victory* [emphasis added].[31]

The third quote from the official Chinese media's coverage of the 2019 parade is interesting because it suggests that China's nuclear weapons have a role in escalation control and are key to winning a war, which has traditionally not been a role Beijing has willingly publicly ascribed to nuclear weapons.[32] The official English narration of the parade on CGTN used a slightly different characterization of "counterbalance," describing its purpose as a "balancing power," which more clearly reflects a nuclear weapon offset role needed to check a powerful adversary.[33] The counterbalance mission would not be limited to the PLA Rocket Force.

In 2016, Xi would go on to make three important speeches that suggest the development of a strategic counterbalance includes all elements of China's "integrated strategic deterrent" and is intended to offset the PLA's deficiencies and achieve victory against the U.S. military by way of deterrence. The first of these occurred in a speech in mid-April 2016, when Xi called for

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[29] Zhang Xuanjie, Cai Ruijin, and Li Bingfeng, "神剑啸天扬军威——火箭军加快提升战略能力纪事" [The Divine Sword Roars to the Sky and Raises the Power of the Army: A Chronicle of the Rocket Force's Accelerating the Improvement of Strategic Capabilities], Xinhua, September 25, 2017, http://www.xinhuanet.com/politics/2017-09/25/c_1121722035.htm.

[30] Li Xianrong and Yang Min, "铸造国家安全战略支柱的海外样本" [Overseas Samples of National Security Strategy Pillars Cast], *Jiefangjun Bao*, January 30, 2018, http://www.81.cn/jfjbmap/content/2018-01/30/content_198321.htm.

[31] Li Jiayao, ed., "China Unveils Most Advanced Dongfeng-41 Intercontinental Strategic Nuclear Missiles," China Military Online, October 1, 2019, http://english.chinamil.com.cn/view/2019-10/01/content_9642096.htm. The "about us" section of China Military Online describes the website as "authorized by the Central Military Commission of the People's Republic of China (PRC) and sponsored by the Chinese People's Liberation Army (PLA) News Media Center." It further states that "China Military Online is the only official English-language military news website of the Chinese Armed Forces and an important platform for building up the online international communication capacity of the Chinese military."

[32] An alternative interpretation might be that the DF-41 and other Chinese nuclear weapons enable China to counter a losing United States from resorting to nuclear coercion; however, Blasko's research and the earlier RAND study make it clear that Beijing is not confident in the PLA's ability to win.

[33] "Live: Grand Celebration Honoring 70th Anniversary of PRC's Founding," CGTN, YouTube video, 3:21:25, https://www.youtube.com/watch?v=X_Z9QE4EblY.

the accelerated development of China's cybersecurity systems in order to "strengthen cyber defense and cyber deterrence capabilities." He went on to note that only "when China is equipped with deterrence powers, it will be able to counterbalance the influence of other countries, and therefore maintain peace," making a clear reference to the out-of-domain use of cyber as an asymmetric offset to an adversary's intent. Xi also stated that "the best defense is offense," indicating that the capabilities he sought to accelerate for a deterrent offset were offensive in nature.[34] Then, in August, Xi made a speech before elements of the PLA Strategic Support Force—the service responsible for cyber and counterspace capabilities—in which he directed them to "enhance their deterrence and warfighting capabilities."[35] One month later, Xi visited the PLA Rocket Force with a message paralleling the two prior speeches in themes, but with more clarity in his aims. He directed the force to accelerate its development from a "new starting point," enhancing its strategic capabilities, and to make new breakthroughs in strategic containment capabilities.[36] More specifically, a *PLA Daily* commentary on the speech asserted that the "strategic capabilities" underwriting these concepts could provide the counterbalance needed to offset one of the "three whethers" (i.e., "deter and defeat enemies when required by the people") and achieve victory:

> Throughout modern warfare, the long-range strike capability, precision penetration [cap]ability, and *strategic deterrent capability have increasingly become a decisive force and a dominant force* in war deterrence, war readiness, war suppression, and *war triumph*.
>
> *Strategic capabilities determine our success or failure, and army building must first serve the issue of strategic capabilities*. The stronger we build and develop the PLA Rocket Force, as a strategic military service branch, a symbol of China's military power, and an ace trump card that deters the enemies, the more powerful our strategic capabilities will be, *the more guarantee we will have for the strength to carry out strategic rivalry with and strategic counterbalance against military powers, and the more we will have for the strength of safeguarding national sovereignty, security, and development interests*.
>
> Only by firmly grasping the…mission and task of the Rocket Force in accordance with being equipped with both nuclear and conventional capabilities as well as

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[34] Catherine Wong, "China Will Boost Cyber Deterrence Powers, Vows President Xi Jinping," *South China Morning Post*, April 19, 2016, https://scmp.com/news/china/policies-politics/article/1937224/china-will-boost-cyber-deterrence-powers-vows-president.

[35] Zhang Tao, "Strive to Build a Strong, Modern Strategic Support Force: Xi," China Military Online, August 29, 2018, http://eng.chinamil.com.cn/view/2016-08/29/content_7231309.htm; and "Build a Strong, Modern Strategic Support Force: Xi," *Global Times*, August 30, 2016, http://www.globaltimes.cn/content/1003618.shtml.

[36] Wang Shibin and Wang Weidong, "Keeping in Mind the Historical Mission, Improving the Stability Ability, and Striving to Build a Strong Modern Rocket Army," *Jiefangjun Bao*, September 27, 2016, http://www.81.cn/jfjbmap/content/2016-09/27/content_157590.htm.

> global deterrent power, strengthening credible and reliable nuclear deterrent and nuclear counterattack capabilities, strengthening the building of medium-to-long-range precision strike power, *and strengthening strategic counterbalance power, can we deter and defeat the enemies, when required by the people* [emphasis added].[37]

In addition to reaffirming that China is building up nuclear weapons as part of its strategic capabilities needed to counterbalance the United States, the commentary makes it clear that the requirements for "strategic rivalry" are different from "strategic counterbalance." This distinction seems to suggest that capabilities for strategic rivalry possibly reflect peacetime requirements and thus that strategic counterbalance is a wartime role. The PLA commentary suggests that nuclear weapons have a role in supporting both requirements and that these requirements are being driven by increasing threats to China's territorial interests during a period when the PLA leadership is concerned that the military cannot prevail conventionally over the United States and that U.S. intervention in China's regional disputes is more likely.[38]

Early Evidence of a Sea Change in Nuclear Force Building

In 2016, tangible evidence of a fundamental shift in Chinese nuclear force development began to emerge. Xi Jinping's directive for "new structures" seems to have begun materializing in the PLA Rocket Force's road-mobile intercontinental ballistic missile (ICBM) units. According to independent open-source analyst Decker Eveleth, the PLA started expanding garages, enabling DF-31A/AG ICBM units to transition from operating six to twelve ICBM launchers per brigade, a trend that would also be replicated when constructing DF-41 road-mobile ICBM units.[39]

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[37] Wang and Wang, "Keeping in Mind the Historical Mission."

[38] Ibid.

[39] Decker Eveleth, Twitter, April 29, 2022, https://twitter.com/dex_eve/status/1520109752818098183. In my correspondence with Eveleth, he noted that the 663rd Brigade (formerly 812th) upgraded to twelve launchers in 2010 and that the 642nd Brigade (formerly 809th) may have always had twelve launchers. Rather than contradicting the assertion on the significance of 2016 in favor of a hypothesis of this always being China's plan, Project 2049 executive director Mark Stokes provides alternatives consistent with the counterbalance build hypothesis. He discusses the PLA Rocket Force's use of "seed units," which appear to be brigades from which new brigades grow that might explain why those units would have extra equipment on hand. He notes that the 663rd Brigade was the first unit to get the DF-31A ICBM and seems to have had an additional role as an operation test and evaluation unit. See Mark Stokes, "PLA Rocket Force Leadership and Unit Reference," Project 2049 Institute, November 30, 2018, 4, 9. An additional explanation for some units having double the standard set of six DF-31 or DF-31A ICBM launchers prior to 2016 is that China was producing launchers more quickly than it was building physical units and thus may have been storing launch equipment at other units without the intent, at that time, of permanently expanding those units to twelve launchers. See Decker Eveleth, "China's Mobile ICBM Brigades: The DF-31 and DF-41," A Boy and His Blog, July 2, 2020, 4, 14, https://www.aboyandhis.blog/post/china-s-mobile-icbm-brigades-the-df-31-and-df-41.

This doubling was later confirmed by the commander of U.S. Strategic Command in his 2021 U.S. Senate testimony.[40] It was also in 2016 that the PLA Air Force commander announced China's plans to build a stealth bomber, and media related to this event suggested that it would be dual conventional/nuclear capable, intimating that China would be pursuing a nuclear triad once again.[41]

Following these initial developments, by 2017 it was becoming increasingly clear that China's strategic capability building, to include nuclear forces, was on a new trajectory. A Xinhua article in September of that year confirmed that the accelerated strategic capabilities buildup of counterbalance capabilities would include both China's nuclear weapons and longer-range conventional missiles.[42] The hallmark event of 2017, however, was Xi's 19th Party Congress speech, when he formally announced to the world his aspiration to make the PLA a "world-class military" by 2049 and to have strategic capabilities make a "big improvement by 2020."[43] U.S. civilian defense analysts, citing authoritative PLA commentary, have noted that Xi's goal sought to achieve qualitative military parity with the United States by midcentury, including "having the…deterrent force to match the militaries of world powers," as well as a force capable of "competing with world-class rivals."[44] Similarly, the senior China analyst at the DIA would later testify that the world-class military goal included a nuclear force component in which the PLA was pursuing qualitative nuclear parity, "if not [seeking] to

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[40] Charles A. Richard, statement before the U.S. Senate Committee on Armed Services, April 20, 2021, 6, https://www.armed-services.senate.gov/imo/media/doc/Richard04.20.2021.pdf.

[41] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2017* (Washington, D.C., May 2017), 61, https://dod.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF. A late 1980s publication released by the Commission for Science, Technology and Industry for National Defense notes that "now China possesses nuclear weapons for the Army, Navy, and Air Force." Whether true or not, it at least appears to be the case that China wanted the world to believe it had the capabilities of a nuclear triad. See Rongjun Sen, *China Defense Research & Development* (Beijing: China Defense Science and Technology Information Center, 1988), 12. While the air leg of China's original triad pursuit is often ignored by scholarly work on the country's original nuclear build, the aviation volume in a late-1980s series of publications on China's defense industry noted that at least some H-5 bombers had an "operational" nuclear mission. See Duan Zijun, *China Today: Aviation Industry* (Beijing: China Aviation Industry Press, 1988), 146.

[42] Zhang, Cai, and Li, "神剑啸天扬军威——火箭军加快提升战略能力纪事."

[43] Xi Jinping, "Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era," Xinhua, October 18, 2017, 48–49, http://www.xinhuanet.com/english/download/Xi_Jinping's_report_at_19th_CPC_National_Congress.pdf.

[44] Derek Grossman, "Envisioning a 'World-Class' PLA: Implications for the United States and the Indo-Pacific," RAND Corporation, June 20, 2019, 2, https://apps.dtic.mil/sti/pdfs/AD1084774.pdf; and M. Taylor Fravel, "China's 'World-Class Military' Ambitions: Origins and Implications," *Washington Quarterly* 43, no. 1 (2020): 90.

exceed…qualitative equivalency with the U.S. in some areas."[45] U.S. scholar Taylor Fravel notes that Xi's goal was associated with "a grand blueprint for comprehensively advancing national defense and military modernization."[46] One month prior to the 19th Party Congress, the PLA Rocket Force held a conference confirming that its buildup was seemingly a subset of this same blueprint and on a new trajectory set during Xi's visit in September 2016.

In September 2017, official PLA media provided extensive coverage of the PLA Rocket Force's fourth Long Tassel Forum. The conference's focus reportedly included the strategic use of deterrence and strategic capabilities building, while noting that the force's development was proceeding forward from the "grand blueprint" Xi had laid out during his visit in 2016. Also mentioned in the coverage of the forum was an unidentified PLA Rocket Force nuclear unit engaged in training and contending with "strong enemy intervention."[47] With no mention of countering enemy nuclear coercion in the forum's stated focus, the inclusion of this exercise in media coverage would seem to suggest that the forum examined how the PLA Rocket Force's nuclear forces could counter U.S. military wartime intervention, affirming a function later asserted in the U.S. Department of Defense's 2020 China Military Power Report: "The PLARF is a critical component of the PRC's nuclear deterrence strategy to deter and counter third-party intervention in regional conflicts."[48] The attendee list for the forum was as interesting as the content. PLA press stated that more than three hundred experts from high-end think tanks, the PLA's AMS, and the PLA's NDU, as well as the PLA's regional theater commands and all of the PLA's services attended.[49] The implication of the last two entities attending suggests the possibility that some coordination was occurring between the PLA Rocket Force, the theater commands responsible for fighting regional wars, and the other services responsible for strategic deterrence in the nuclear and non-nuclear domains.[50]

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[45] U.S.-China Economic and Security Review Commission, "Hearing on a 'World-Class' Military: Assessing China's Global Military Ambitions," June 20, 2019, 33–36, https://www.uscc.gov/sites/default/files/2019-10/June%2020,%202019%20Hearing%20Transcript.pdf.

[46] Fravel, "China's 'World-Class Military' Ambitions," 89.

[47] Xing Yong and Cai Ruijin, "The Fourth Army Forum of Long Rockets held in Beijing," September 28, 2017, http://www.81.cn/jfjbmap/content/2017-09/28/content_189010.htm.

[48] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2020*, 55.

[49] Xing and Cai, "The Fourth Army Forum of Long Rockets held in Beijing."

[50] Phillip C. Saunders et al., eds., *Chairman Xi Remakes the PLA: Assessing Chinese Military Reforms* (Washington, D.C.: National Defense University Press, 2019), 233, 249.

Beyond the intentions laid out at the Long Tassel Forum and the 19th Party Congress, 2017 marked the first year when more tangible proof, mixed with rhetoric, emerged that a sea change was underway in China's nuclear force modernization. Evidence suggested that China was pursuing a triad again, developing low-yield nuclear weapons, and beginning a significant expansion of the PLA Rocket Force that was consistent with Xi's 2015 directive for a new force "structure."

By mid-2017, the PLA Rocket Force had begun an expansion that would ultimately lead to the creation of ten to eleven new brigades, though not exclusively nuclear.[51] P.W. Singer and Ma Xiu revealed a 35% increase in units and documented at least three new nuclear or dual nuclear/conventional units relying on BluePath Labs data. BluePath Labs provided an updated order-of-battle assessment in 2021. That study noted a near doubling in nuclear or dual-capable units from just ten years prior.[52] Beyond the unit growth, 2017 provided the first evidence that China intended to expand its silo-based forces contrary to its prior modernization goals.

Independent imagery analysts associated with the Middlebury Institute of International Studies were the first to discover that China was building new silos.[53] These would not be the solid-fueled ICBM silos that later garnered much media attention in 2021 but rather silos for the DF-5 ICBMs built in Sundian, home to China's last DF-4 ICBM unit. Shelters used to construct the silos match those of a new silo built at the Wuzhai test facility, which features an outer door and exhaust ports adjacent to the silo's launch shaft, consistent with the configuration of China's existing DF-5 ICBM silos.[54] Eight silos in total have been identified as being constructed at Sundian and

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[51] P.W. Singer and Ma Xiu, "China's Missile Force Is Growing at an Unprecedented Rate," *Popular Science*, February 25, 2020, https://www.popsci.com/story/blog-eastern-arsenal/china-missile-force-growing; and Decker Eveleth, "Mapping the People's Liberation Army Rocket Force," A Boy and His Blog, July 2, 2020, https://www.aboyandhis.blog/post/mapping-the-people-s-liberation-army-rocket-force.

[52] Peter Wood and Alex Stone, *China's Ballistic Missile Industry* (Montgomery: China Aerospace Studies Institute, 2021), 66. A second DF-41 brigade is not accounted for in the BluePath Labs data, though the 2019 PLA parade indicated that at least two units existed. Li, "China Unveils Most Advanced Dongfeng-41 Intercontinental Strategic Nuclear Missiles."

[53] Scott LaFoy and Decker Eveleth, "Possible ICBM Modernization Underway at Sundian," Arms Control Wonk, February 5, 2020, https://www.armscontrolwonk.com/archive/1208828/possible-icbm-modernization-underway-at-sundian.

[54] LaFoy and Eveleth, "Possible ICBM Modernization Underway at Sundian"; and Catherine Dill, "Open Silos," Arms Control Wonk, August 22, 2018, https://www.armscontrolwonk.com/archive/1205826/open-silos.

are probably intended for the DF-5C.[55] China may, however, ultimately elect to build twelve silos at this site, as it appears the new standard for ICBM units is twelve launchers. This development was somewhat surprising, given that China had historically characterized ICBM silos as highly vulnerable and seemed poised to transition away from them during the modernization effort begun in the mid-1980s in order to field more survivable road-mobile systems.[56]

The U.S. Department of Defense's assertion, by 2017, that China has potentially developed lower-yield warheads marks another significant shift from where Chinese thinking was during the mid-1980s. At that time, China did not believe nuclear war was controllable and saw less utility in the development of a neutron bomb (an enhanced radiation weapon), despite having tested one, that might siphon resources away from its strategic nuclear weapons development.[57] However, in 2012 the PLA Missile Force's encyclopedia asserted that there was no longer unanimity that nuclear war was uncontrollable. Instead, the text asserted that "limited nuclear war had limited risk" because a new class of small special effect tactical nuclear weapons could be used on the battlefield to warn and deter an opponent—implying that utility may exist in limited nuclear first use—with only "some military theorists" now believing that their use risked triggering a possible larger strategic exchange.[58] The U.S. Department of Defense subsequently found evidence in a 2017 Chinese defense industry publication claiming that a lower-yield weapon had been developed for use against campaign and tactical targets that would reduce collateral damage. The PLA Rocket Force's precision-guided DF-26 intermediate-range ballistic missile was

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[55] Decker Eveleth, Twitter, July 4, 2021, https://twitter.com/dex_eve/status/1411773080985161729?s=21&fbclid=IwAR0teV7iA92rlXbxxDmZ75avSoiuKOiCuZgKud9Z_wZd2Ua4HSG4TsAXB54; "DF-5C Missile Test Targeted at No Specific Country: China's Defense Ministry," *People's Daily*, February 6, 2017, http://en.people.cn/n3/2017/0206/c90000-9174537.html; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2020*, 93.

[56] John W. Lewis and Hua Di, "China's Ballistic Missile Programs: Technologies, Strategies, Goals," *International Security* 17, no. 2 (1992): 24, 29; and "1999 National Day Military Parade," *China Daily*, August 27, 2009, https://www.chinadaily.com.cn/60th/2009-08/27/content_8623814.htm.

[57] See, for example, Liu Huaqiu, *China and the Neutron Bomb* (Stanford: Stanford University Press, 1988), 14; Jonathan Ray, "Red China's 'Capitalist Bomb': Inside the Chinese Neutron Bomb Program," National Defense University, China Strategic Perspectives, no. 8, 18; Banning N. Garrett and Bonnie S. Glaser, *War and Peace: The Views from Moscow and Beijing* (Berkeley: University of California Press, 1984), 125; and Tong Zhao, "Narrowing the U.S.-China Gap on Missile Defense: How to Help Forestall a Nuclear Arms Race," Carnegie Endowment for International Peace, June 30, 2020, 24.

[58] *Encyclopedia of China's Strategic Missile Force,* vol. 1 (Beijing: Encyclopedia Publishers of China, 2012), 38. Special thanks to U.S. Department of Defense analyst Dan Gearin for providing me access to his personal copy of this text.

suggested as an optimal delivery system.[59] This development also portends China's transition away from a more simplistic retaliatory posture to a more graduated nuclear deterrent.

The final development in 2017—marking a break with China's mid-1980s modernization efforts—was direct evidence that China was pursuing a triad, with the PLA Air Force being reassigned a nuclear mission.[60] Though there had been some prior inklings of this in recent years, the DIA director's 2017 testimony that China was developing a nuclear-capable air-launched ballistic missile and the PLA Air Force's reassignment of a nuclear mission that same year provided the strongest evidence to date.[61] Subsequent editions of the China Military Power Report identified the air-refuelable H-6N as the intended delivery vehicle for that air-launched ballistic missile and declared the first unit as operational as of 2020.[62] Open-source information indicates the first unit is located at Neixiang Airfield.[63] Those reports also stated that China was developing a dual-capable stealth bomber that could be operational by the end of this decade, and thus the H-6N may just be a stop-gap program to give China a triad capability sooner, suggesting a possible sense of urgency.[64]

The following year, Xi's attention appears to have shifted to changing the trajectory of the naval component of China's soon-to-be triad. During a June 2018 inspection of a submarine in the PLA's Northern Theater Command, Xi declared, "our sea-based nuclear forces must get a stronger boost and achieve stronger growth," and that China "pinned its hopes" on the "rapid

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[59] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 93.

[60] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2017*, 61; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2018* (Washington, D.C., May 2018), 77, https://media.defense.gov/2018/Aug/16/2001955282/-1/-1/1/2018-CHINA-MILITARY-POWER-REPORT.PDF.

[61] Vincent R. Stewart, "Worldwide Threat Assessment," statement for the record before the U.S. Senate Armed Services Committee, May 23, 2017, 10, https://www.armed-services.senate.gov/imo/media/doc/Stewart_05-23-17.pdf; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2018*, 77.

[62] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 56, 91.

[63] Roderick Lee, "China's Air Force Might Be Back in the Nuclear Business," *Diplomat*, September 9, 2020, https://thediplomat.com/2020/09/chinas-air-force-might-be-back-in-the-nuclear-business; and Joseph Trevithick, "New Images of Chinese Bomber Carrying Huge Mystery Missile Point to Hypersonic Capability," Drive, November 5, 2020, https://www.thedrive.com/the-war-zone/37465/new-images-of-chinese-bomber-carrying-huge-mystery-missile-point-to-hypersonic-capability.

[64] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 56; U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2018*, 77; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2020*, 61.

improvements" of the PLA Navy's submarine forces.[65] That same year, the U.S. Department of Defense's annual China Military Power Report intimated that China may be constructing more than five Type 094 Jin-class nuclear-powered ballistic missile submarines (SSBNs), with a sixth later confirmed in the 2019 edition.[66] Six is a significant number because the U.S. Office of Naval Intelligence had originally estimated that China would field five SSBNs to maintain one Jin SSBN on constant at-sea deterrence patrols.[67] Both the 2018 and 2019 reports were also noteworthy in that they predicted, based on the 40-year service life of China's first generation of nuclear submarines, that these six Jin SSBNs would operate concurrently with the follow-on Type 096 SSBN. Construction on the Type 096 was expected to begin in the early 2020s. As such, it seemed possible that China could have a future fleet capable of supporting two continuous peacetime deterrent patrols. Further evidence of this probable intent was discovered in 2020, when independent imagery analyst H.I. Sutton discovered that China was producing an additional nuclear submarine construction hall at Huludao, just two years after Xi stated his intentions for China's SSBN forces.[68] With this expansion, Hutton believes the facility could produce up to five nuclear submarines at a time, with an estimated construction time of five years to produce one nuclear submarine. The Federation of American Scientists' Hans M. Kristensen believes this could result in a PLA Navy SSBN fleet of ten boats in 2030—a number sufficient to allow for two continuous deterrent patrols—while the U.S. Department of Defense has estimated at least eight, probably owing to competing production demands for nuclear attack submarines.[69]

Finally, in 2018, Chinese state media suggested that the PLA Navy's nuclear developments were coordinated with other elements of China's

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[65] Zhao Lei, "Xi Stresses Building Elite Maritime Force During Navy Inspection," *China Daily Asia*, June 16, 2018, https://www.chinadailyasia.com/articles/122/252/130/1529115558255.html.

[66] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2018*, 76; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2019* (Washington, D.C., May 2019), 66, https://media.defense.gov/2019/May/02/2002127082/-1/-1/1/2019_CHINA_MILITARY_POWER_REPORT.pdf.

[67] U.S. Office of Naval Intelligence, "Seapower Questions on the Chinese Submarine Force," December 20, 2006, https://www.fas.org/nuke/guide/china/ONI2006.pdf; and U.S. Office of Naval Intelligence, *The PLA Navy: New Capabilities and Missions for the 21st Century* (Washington, D.C., January 2015), 20, https://www.oni.navy.mil/Portals/12/Intel%20agencies/China_Media/2015_PLA_NAVY_PUB_Print.pdf?ver=2015-12-02-081247-687.

[68] H.I. Sutton, "Chinese Increasing Nuclear Submarine Shipyard Capacity," USNI News, October 12, 2020, https://news.usni.org/2020/10/12/chinese-increasing-nuclear-submarine-shipyard-capacity.

[69] Hans M. Kristensen and Matt Korda, "Chinese Nuclear Forces, 2019," *Bulletin of the Atomic Scientists* 75, no. 4 (2019): 175; Hans M. Kristensen and Matt Korda, "Chinese Nuclear Forces, 2020," *Bulletin of the Atomic Scientists* 76, no. 6 (2020): 16; and U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2020*, 45.

then emerging triad at the PLA Rocket Force's fifth Long Tassel Forum in 2018. As with the reporting on the fourth session in 2017, other services and think tanks participated, but the noteworthy new addition was reported participation by the Chinese defense industry. Defense industry participation made sense if the focus was less on employment—the focus of the 2017 session—and more on PLA Rocket Force expansion and capabilities production.[70] If that was a theme, the 2018 forum probably coordinated strategic missile production among the three services that would provide China its triad to ensure that production rates met Xi's grand blueprint.

The next observable benchmark in China's nuclear development was the military parade for the 70th anniversary of the PRC in 2019. While Chinese state media had said the 2009 parade was meant to show "restraint" in nuclear capability building, the 2019 iteration was clearly meant to show off Xi's pledge at the 2017 19th Party Congress of making "great improvements" in strategic capabilities by 2020.[71] Consistent with these themes, the 2009 parade had only one nuclear system, the DF-31A ICBM, while five out of the seven missiles at the 2019 parade were nuclear or dual-use.[72] PRC Ministry of National Defense coverage of the 2019 parade noted the strategic missile portion of the parade demonstrated China's "powerful strategic checks and balances [制衡]…ability to deter, fight, stop, and win wars."[73] Again, nuclear deterrence is accredited with being able to win a war.

The year 2019 was also significant because Beijing released its first defense white paper since establishing the PLA Rocket Force as an independent service and articulating the requirement for a counterbalance capability. "Counterbalance" (制衡) appears in the white paper once as a PLA Rocket Force mission, but it is not yet mentioned in other service sections as a mission. The white paper also does not acknowledge that the PLA Air Force is to become a nuclear service, denoting some sensitivity by Beijing about potentially creating foreign headlines.[74] Also noteworthy is

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[70] Li Bengfent and Li Yongfei, "火箭军15日在京举行第五届'长缨论坛'" [Rocket Force Held Fifth "Long Tassel" Forum in Beijing on the 15th], Ministry of National Defense (PRC), Press Release, June 15, 2018, http://www.mod.gov.cn/power/2018-06/15/content_4817017.htm.

[71] "China National Day Parade Crescendoed When Nuclear Weapon Appears," *China Daily*, October 1, 2009, https://www.chinadaily.com.cn/60th/2009-10/01/content_8759586.htm; and Xi, "Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era," 48–49.

[72] "Live: Grand Celebration Honoring 70th Anniversary of PRC's Founding"; and "04 Naval Weapons, Missiles [China's National Day, Chinese Military Parade]," ChinaWelcomeU, YouTube video, October 1, 2009, https://www.youtube.com/watch?v=CnukpFoOiOk.

[73] "Chinese Rocket Army's Strategic Strike Capability Leapt to a New Level," Ministry of National Defense (PRC), October 4, 2019, http://www.mod.gov.cn/power/2019-10/04/content_4852186.htm.

[74] State Council Information Office (PRC), *China's Military Strategy in the New Era*.

the fact that this is the first defense white paper to abandon the "lean and effective" language regarding the PLA Rocket Force's modernization goal and instead state that the service intends "to build a strong…Rocket Force." It does, however, use the language from the 2015 defense white paper stating "that China…keeps its nuclear capabilities at the minimum level required for national security."[75] The PRC foreign ministry's arms control director would later equate this statement to China's interpretation of "minimum deterrence."[76] As Kristensen notes, that assurance is basically meaningless because all nuclear states claim they maintain the minimum number of nuclear forces for their national security.[77] Thus, by 2019, China's substantive pledge to nuclear minimalism was gone.

Taiwan and the South China Sea as Possible Catalysts for Nuclear Force Growth

In 2020 the context for China's strategic forces buildup would become clearer and suggest that ongoing concerns over territorial disputes may have added new dimensions to the nuclear buildup already underway.[78] The defining event that year was the Fifth Plenum of the 19th Central Committee in October. At the plenum, China unveiled details of the 14th Five-Year Plan and established a new centenary goal of 2027 for the PLA that included at least a partial accelerated modernization effort.[79] More specifically, it called

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[75] State Council Information Office (PRC), *China's Military Strategy in the New Era*.

[76] "Director-General Fu Cong's Interview with Kommersant," Ministry of Foreign Affairs (PRC), Press Release, October 16, 2020, https://www.fmprc.gov.cn/mfa_eng/wjb_663304/zzjg_663340/jks_665232//jkxw_665234/202010/t20201016_599378.html.

[77] Hans M. Kristensen and Matt Korda, "China's Nuclear Missile Silo Expansion: From Minimum Deterrence to Medium Deterrence," *Bulletin of the Atomic Scientists*, September 1, 2021, http://thebulletin.org/2021/09/chinas-nuclear-missile-silo-expansion-from-minimum-to-medium-deterrence.

[78] In mid-June, during a visit with PLA Air Force leaders, Xi Jinping said that "protecting national sovereignty, security and development is a must-do requirement under the new situation." David Bradley, "A 'New Situation': China's Evolving Assessment of its Security Environment," Jamestown Foundation, China Brief, July 31, 2014, https://jamestown.org/program/a-new-situation-chinas-evolving-assessment-of-its-security-environment.

[79] Prior centenary goals had been established for the founding of the PRC and the Chinese Communist Party. See State Council Information Office (PRC), "中共中央关于制定国民经济和社会发展第十四个五年规划和二〇三五年远景目标的建议" [Proposal of the Central Committee of the Communist Party of China on Formulating the 14th Five-Year Plan for National Economic and Social Development and the Long-Term Goals for the Year 2035], November 3, 2020, http://www.gov.cn/zhengce/2020-11/03/content_5556991. This same source notes the "proposal," as released, was adopted at the plenum. While there is no evidence that Xi has abandoned his previously articulated 2035 military modernization goal, the PRC Ministry of Defense press conference makes it fairly clear that the development of some capabilities is being accelerated. See "Regular Press Conference of the Ministry of National Defense on November 26," Ministry of National Defense (PRC), November 29, 2020, http://eng.mod.gov.cn/news/2020-11/29/content_4874839.htm.

for improving "strategic capabilities"—a term previously tied to the PLA Rocket Force's nuclear weapons and long-range strike capabilities—to defend national sovereignty, security, and development interests. Chinese leaders at the plenum also called for "strengthening strategic forces and new combat forces" while "creating high-level strategic deterrence."[80] Notably, the language on the growth of strategic capabilities mirrors language used during Xi Jinping's visit to the PLA Rocket Force in 2016 and is consistent with his guidance to China's other strategic forces, but it does seem to mark a new requirement. The 2017 19th Party Congress identified 2020 as a milestone to already deliver on major improvements to strategic capabilities. As such, new concerns over China's territorial disputes may have added an accelerant as well as new growth requirements.

Concerns over Taiwan and the South China Sea seem to be the most proximate causes for any new nuclear growth or accelerated build requirements. Both have been identified by Beijing as territorial "core interests" in the past, and in the days prior to the Fifth Plenum, senior Chinese military officers feared the United States was planning an attack against China in the South China Sea.[81] Writing on the plenum's outcome, a scholar at the PLA National University of Defense Technology noted that "a strong military was the best guarantee of safeguarding sovereignty" and that "a country without strong defense capabilities could be bullied by stronger powers." The article also noted that "separatist forces still pose a big challenge to China's sovereignty" and that China "need[ed] to build a strong military to deter and subdue such forces." The author claimed that these two scenarios were what ultimately prompted the Fifth Plenum's communiqué to call for acceleration.[82] While the heightened concerns with the South China Sea seem to have abated, concerns over Taiwan—articulated immediately after the plenum—have not.

Beyond preventing coercion in the South China Sea, China's revised nuclear buildup may now be intended to increase coercive leverage to force Taiwan into a political process with the ultimate end of unification.

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[80] State Council Information Office (PRC), "中共中央关于制定国民经济和社会发展第十四个五年规划和二〇三五年远景目标的建议"; and Zhang, Cai, and Li, "神剑啸天扬军威——火箭军加快提升战略能力纪事." "New combat forces" has been a term used to apply to China's cyber and space means of strategic deterrence, thus suggesting that "strategic forces" here is a reference to nuclear forces and the PLA Rocket Force's long-range conventional strike. See State Council Information Office (PRC), *China's Military Strategy*.

[81] Bill Chappell, "Gen. Milley Defends His Call to a Chinese General about Trump's Rhetoric and the U.S.," NPR, September 15, 2021, https://www.npr.org/2021/09/15/1037454733/milley-defends-call-to-chinese-general-about-trump.

[82] Liu Qiang, "Military Development to Promote Peace," China Military Online, November 9, 2020, eng.chinamil.com.cn/view/2020-11/09/content_9933106.htm.

Xi previously stated in 2013 that the Taiwan issue could not be passed "generation to generation" and that he expected a step-by-step political process leading to a final settlement.[83] Xi, however, has made no such progress, but in 2019 he said it was essentially a requisite for China to achieve "national rejuvenation" by 2049.[84] Consistent with this state of affairs, a PRC Taiwan Affairs Office press conference, on the heels of the Fifth Plenum, described the state of the mainland's relations with Taiwan as "grim"—a characterization Xi would later use himself—while noting that "reunification of the motherland is an important part of the 14th Five-Year Plan and the long-term goal of 2035."[85] Although there has been much discussion that China's accelerated military buildup during the 14th Five-Year Plan might be setting up for a 2027 invasion of Taiwan—thus giving Xi a major political achievement by the end of his soon to be unprecedented third term—another alternative is equally possible: Beijing may be seeking to leverage the same accelerated buildup of capabilities to convince Taipei that it has no choice but to engage in a political process toward unification.[86] The former commander of U.S. Indo-Pacific Command, who previously projected a possible Chinese attack on Taiwan by 2027, stated in an interview that the PLA's war plans for Taiwan all aim to prevent the United States from coming to Taiwan's aid.[87] This exact reason was identified as the principal driver for China's new nuclear force goal in a 2022 *Wall Street Journal* article citing "people with knowledge of the Chinese leadership's thinking."[88] Dovetailing with this explanation, an earlier interview with a former Taiwan premiere

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[83] "China's Xi Says Political Solution for Taiwan Can't Wait Forever," Reuters, October 6, 2013, https://www.reuters.com/article/us-asia-apec-china-taiwan/chinas-xi-says-political-solution-for-taiwan-cant-wait-forever-idUSBRE99503Q20131006.

[84] "Xinhua Headlines: Xi Says 'China Must Be, Will Be Reunified' as Key Anniversary Marked," Xinhua, January 2, 2019, http://www.xinhuanet.com/english/2019-01/02/c_137714898.htm.

[85] "Press Conference of Taiwan Affairs Office of the State Council," Taiwan Affairs Office of the State Council (PRC), Press Release, November 11, 2020, http://www.gwytb.gov.cn/xwfbh/202011/t20201111_12306163.htm; and Ben Blanchard, "China's Xi Warns of 'Grim' Taiwan Situation in Letter to Opposition," Reuters, September 26, 2021, https://www.reuters.com/world/asia-pacific/chinas-xi-warns-grim-taiwan-situation-letter-opposition-2021-09-26.

[86] See, for example, Keoni Everington, "China Could Invade Taiwan by 2027: U.S. Admiral," *Taiwan News*, March 10, 2021, https://www.taiwannews.com.tw/en/news/4146897; and Oriana Skylar Mastro, "The Taiwan Temptation: Why Beijing Might Resort to Force," *Foreign Affairs*, July/August 2021, https://www.foreignaffairs.com/print/node/1127523.

[87] Liam Gibson, "Former U.S. Admiral Clarifies 'China Attacking Taiwan within Six Years' Statement," *Taiwan News*, December 22, 2021, https://www.taiwannews.com.tw/en/4835080.

[88] Alastair Gale, "China Is Accelerating Its Nuclear Buildup over Rising Fears of U.S. Conflict," *Wall Street Journal*, April 9, 2022, https://www.wsj.com/articles/china-is-accelerating-its-nuclear-buildup-over-rising-fears-of-u-s-conflict-11649509201.

noted that Beijing will not have coercive leverage against Taipei until China is capable of keeping the United States from rallying to Taiwan's defense.[89]

Since late 2016, official Chinese media has tied Beijing's accelerated strategic forces buildup to the defense of sovereignty issues. At least one PLA officer indicated in the aftermath of the Fifth Plenum that the intent of the new 2027 goal was to acquire the ability to "fend off any interventions in Taiwan's reunification, allowing the mainland to force Taiwan to return to the negotiating table."[90] Similarly, the Taiwan Affairs Office's unveiling of Xi's new strategy on Taiwan made it clear that Beijing's increasing comprehensive strength—probably a reference to comprehensive national power, which includes the military—is key to advancing the Taiwan issue, as is curbing external interference.[91] Should talks fail, Beijing may feel confident that its post–Fifth Plenum strategic forces buildup will provide the counterbalance necessary to keep the United States at bay long enough to resolve the Taiwan issue by force.

Silo Expansion for Counterbalance, Not Shell Games

Just six months after the Fifth Plenum, evidence emerged consistent with the theory that China was seeking a significant buildup in its nuclear counterbalancing capabilities, in time for 2027, in a way that marked a fundamental break from the past. In March 2021, Xi Jinping met with PLA and People's Armed Police Force delegates to the 13th National People's Congress, where he delivered a speech on implementing the 14th Five-Year Plan. This reportedly included "accelerating the creation of high-level strategic deterrence and the joint combat system."[92] In the same time frame,

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[89] Minnie Chan, "Beijing Should Stop Threatening Taiwan Because It's Not Strong Enough to Fight the U.S., Island's Ex-Premier Says," *South China Morning Post*, May 28, 2018, https://www.scmp.com/news/china/policies-politics/article/2147909/beijing-should-stop-threatening-taiwan-because-its-not.

[90] Minnie Chan and William Zheng, "Why Taiwan May Be a Key Factor in China's Military Modernisation Plan," *South China Morning Post*, October 30, 2020, https://www.scmp.com/print/news/china/military/article/3107867/why-taiwan-may-be-key-factor-chinas-military-modernisation-plan.

[91] Liu Jieyi, "在新时代新征程上奋力推进祖国统一进程 (深入学习贯彻习近平新时代中国特色社会主义思想)" [Strive to Advance the Process of Reunification of the Motherland in the New Era and New Journey], Taiwan Affairs Office of the State Council (PRC), July 7, 2022, http://www.gwytb.gov.cn/xwdt/zwyw/202207/t20220707_12450238.htm.

[92] "Xi Jinping Attended the Plenary Meeting of the Delegation of the People's Liberation Army and the Armed Police Force and Delivered an Important Speech," Ministry of National Defense (PRC), Press Release, March 9, 2021, http://www.mod.gov.cn/topnews/2021-03/09/content_4880723.htm.

independent imagery analysis was able to correlate construction beginning on two of three new massive ICBM silo fields.[93]

Some scholars in the open-source community were quick to dismiss the interpretation of this massive development as a paradigm shift. Instead, they asserted that this unprecedented silo buildout likely represented a move toward implementing a Cold War–styled "shell game" associated with the United States considering basing options for the MX ICBM (later designated the LGM-118 Peacekeeper)—the logic of which includes building "a significant number of silos, but only loading a few with ICBMs." This, in turn, would force an opponent "to target every silo if they hoped to destroy all of the missiles before they were launched." The intent is to "sap an enemy's resources in any exchange without having to actually procure and maintain large numbers of ICBMs," thus deterring an enemy's first strike.[94] This hypothesis is problematic for at least two reasons.

The first problem with this hypothesis is that it seems to assume that China is not discarding "minimum deterrence," which is challenged by the research presented in this chapter. This hypothesis also depends on the faulty claim that U.S. Department of Defense estimates make it "impractical" for Beijing to fill every silo with a warhead-equipped missile.[95] A 2018 DIA publication, however, notes that China's "highly enriched uranium and plutonium [stockpiles] are probably sufficient for a potential nuclear warhead stockpile in the high hundreds to low one thousands."[96] Further invalidating this assertion, from late 2020 to the same month the first two new ICBM fields were discovered (June 2021), U.S. government officials had already been signaling that China's nuclear force growth would be relying on new fissile material production infrastructure.[97] The 2021 China Military Power

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[93] "Nuclear Silos in the Chinese Desert," Arms Control Wonk, ACW Podcast, June 30, 2021, https://www.armscontrolwonk.com/archive/1212307/nuclear-silos-in-the-chinese-desert; Matt Korda and Hans M. Kristensen, "China Is Building a Second Nuclear Missile Silo Field," Federation of American Scientists, July 26, 2021, https://fas.org/blogs/security/2021/07/china-is-building-a-second-nuclear-missile-silo-field; and Jeffrey Lewis, "China Is Radically Expanding Its Nuclear Missile Silos," *Foreign Policy*, June 30, 2021, https://foreignpolicy.com/2021/06/30/china-nuclear-weapons-silos-arms-control.

[94] Newdick, "Is China Reviving America's Cold War–Era 'Shell Game' ICBM Deployment Strategy?"

[95] "Nuclear Silos in the Chinese Desert."

[96] U.S. Defense Intelligence Agency, *Global Nuclear Landscape 2018* (Washington, D.C., March 2018), 16, https://dod.defense.gov/portals/1/features/2018/0218_NPR/img/Global_Nuclear_Landscape_2018_Final.pdf.

[97] Bill Gertz, "China Expanding Nuclear Arms Plants Revealed," *Washington Times*, November 12, 2020, https://www.washingtontimes.com/news/2020/nov/12/china-expanding-nuclear-arms-plants-revealed; and Henry D. Sokolski, ed., "China's Civil Nuclear Sector: Plowshares to Swords?" Nonproliferation Policy Education Center, Occasional Paper, no. 2102, March 2021, 1–2, https://npolicy.org/article_file/2102_Chinas_Civil_Nuclear_Sector.pdf.

Report would confirm this new infrastructure.[98] The final problem with this argument is the estimate that if China had 246 silos, with 25 missiles moved among them, only about three Chinese ICBMs would survive if two LGM-30 Minuteman III W78 warheads were expended against each silo.[99] This thought experiment would require the use of more than the number of W78 warheads fielded (i.e., each LGM-30 is currently equipped with one warhead, and only 400 ICBMs are fielded under New START). Moreover, the number of surviving warheads on these Chinese missiles seems inadequate to address China's missile defense penetration concerns incorporated in that same modernization effort, if taken at face value, because too few would survive to make any difference against U.S. missile defense.

The second problem with the shell game hypothesis is that it is based on a faulty analogy and a number of counterfactuals. First and foremost among these is that the identified Chinese silo layout resembles what was initially sought for Peacekeeper ICBM basing, but this is not the case.[100] Proponents of the shell game theory note that the silos identified appear to be grouped in sets of ten, with each of these being cable-connected to a "cut and cover" underground launch-control facility, which is actually how the Minuteman ICBM force was fielded.[101] As such, Washington would not need to attack every Chinese silo to defeat the shell game, but rather would only need to destroy 25 launch control centers (LCCs) for a force of 246 ICBM silos. In fact, the whole reason the U.S. Department of Defense sought alternative basing modes for the MX was driven by this specific problem, as demonstrated in its 1980 study on alternate ICBM basing: "the search for survivable ICBM basing…received initial emphasis when the Soviets deployed the SS-9 missile aimed at destroying our launch control centers."[102] Regarding the Minuteman ICBM force, this same study admittedly does include references to a shell game strategy using existing silos, but while

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[98] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 92.

[99] "A Second Silo Field," Arms Control Wonk, ACW Podcast, August 13, 2021, https://www.armscontrolwonk.com/archive/1212970/a-second-silo-field.

[100] 50 Peacekeeper ICBMs were ultimately deployed in Minuteman ICBM silos. This, however, was not the shell game, but rather just the most expedient means of basing. See Steven A. Pomeroy, *An Untaken Road: Strategy, Technology, and the Hidden History of America's Mobile ICBMs* (Annapolis: Naval Institute Press, 2016), 194–95.

[101] Peacekeeper ICBMs were later fielded in Minuteman silos. See Newdick, "Is China Reviving America's Cold War–Era 'Shell Game' ICBM Deployment Strategy?"; and "Nuclear Silos in the Chinese Desert."

[102] U.S. Defense Technical Information Center, "ICBM Basing Options: A Summary of Major Studies to Define a Survivable Basing Concept for ICBMs," August 31, 1993, i, https://apps.dtic.mil/sti/pdfs/ADA956443.pdf.

adding another 7,800 silos. If the silos were kept in groups of 10 per LCC, this would have given the Soviet Union an additional 780 aim points if it only sought to target the LCCs—a number of targets much larger than the number of shelters considered for the MX.[103]

Recognizing this problem, most of the alternative basing modes for the MX involved having one launch crew per missile with either the ability to launch it directly or the ability to launch from an airborne command post, for which there is no evidence China is seeking something comparable.[104] These same studies on survivable MX basing ultimately gave up the "vertical shelter basing" (i.e., silos) in favor of horizontal shelters because they believed it would take too long to extract decoy missiles and insert real ICBMs into silos without Soviet satellite imagery capturing the operation. As such, horizontal shelters were favored for the MX.[105] Notably, former Chinese strategic weapons program official Hua Di asserted that China's transition from liquid-fuel to solid-fuel nuclear missiles was similarly prompted by fear of adversary satellite collection due to the long observable preparation times for the former.[106] Proponents of the shell game hypothesis have attributed China's one-time interest in a derivative of the MX shell game to this same official, but they neglect to mention the shell game was only one of several basing strategies that Hua Di indicated China had considered. Those other options included the more commonly accepted way to ensure silo-based ICBM survivability—launch on warning (LOW) and launch under attack (LUA)—but China bypassed the option at the time because it could not build a reliable early-warning system.[107] That limitation no longer exists. Additionally, given the requirements for counterbalance, China's increasing fissile material production capability, and long-standing concerns with U.S.

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[103] U.S. Defense Technical Information Center, "ICBM Basing Options," 76–77.

[104] Pomeroy, *An Untaken Road*, 112, 114–16, 155–56, 171, 181–83.

[105] Ibid., 154, 157, 180, 186.

[106] Lewis and Di, "China's Ballistic Missile Programs," 23.

[107] Ibid., 24–25. Hua Di notes that LOW/LUA was dismissed at the time because of China's inability to develop a "reliable" early-warning system. This does not mean China had no early-warning system or abandoned the idea out of some moral opposition to LOW/LUA. For more on China's early ballistic missile early-warning effort, see U.S. Central Intelligence Agency, "PRC Ballistic Missile Early Warning System," December 1, 1979.

missile defense, it seems likely that China does not need a shell game but instead many more ICBMs.[108]

Available evidence suggests that China will ultimately fully field a silo-based solid-fueled ICBM force of 360. This estimate is in part based on the first silo field having 120 silos arranged in 12 groups of 10 silos each, which mimics the road-mobile ICBM force having 12 launch units (company-sized element) per brigade. In this case, each Chinese control center would be assigned to launch 10 ICBMs. To put this in perspective, the U.S. Air Force has a two-person crew charged with launching 10 ICBMs from a single LCC.[109] Groupings of 10 also match how the United States fielded its solid-fueled Peacekeeper and Minuteman ICBMs and how the PLA Rocket Force believes that Russia has fielded at least some silo-based ICBMs.[110] This is noteworthy because exploratory findings by RAND researcher Nathan Beauchamp-Mustafaga indicate an uptick in Chinese research, especially by PLA Rocket Force entities, into silo-based ICBMs between 2018 and 2020 that suggests U.S. and Russian silo basing influenced how China is constructing these silos. At least one of his findings indicated interest in Russian silo door covers, which may explain why these new solid-fueled silos resemble Russian SS-27 silos, as noted by Kristensen.[111] One of the most interesting findings among this body of research was an article published by an advisory body of the PLA Rocket Force's Equipment Development Department, which indicated that China was base-lining its future silo deployment effort in response to the U.S. Peacekeeper and Minuteman deployment schemes that ultimately relied on LOW/LUA in

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[108] Of note, due to disparities between silo construction and missile production, some of China's solid-fueled ICBM silos may remain empty for a time, but this does not mean there is evidence China intends to rotate missiles around to create a shell game in the interim. The United States fields its Minuteman III ICBMs in groups of ten silos controlled by a single underground LCC (i.e., a missile alert facility). While U.S. ICBM silos are generally spaced several kilometers from each other and their LCC, the fact that China's are only spaced about two to three kilometers apart further suggests that Beijing is primarily relying on LOW to ensure their survivability. For a map of the United States' Flight F missile silo, see Geoff Brumfiel, "To Find America's Nuclear Missiles, Try Google Maps," NPR, July 31, 2014, https://www.npr.org/sections/thetwo-way/2014/07/31/336847318/to-find-america-s-nuks-try-google-maps.

[109] Eveleth, "China's Mobile ICBM Brigades," 4–5.

[110] Zhang Shutao, Bi Yiming, and Qi Changxing, "美俄井基核力量生存防护建设探究及启示" [Exploration and Enlightenment on Survival and Protection Construction of Silo-Based Nuclear Forces of the United States and Russia], *Aerodynamic Missile Journal* (2019). The article was authored by members of the PLA Rocket Force Engineering University.

[111] Zhang, Bi, and Qi, "美俄井基核力量生存防护建设探究及启示." See also Deng Biao et al., "俄罗斯发射井盖的发展历程" [The Development History of Russian Silo Covers], *Aerodynamic Missile Journal* (2019). The authors are from the PLA Rocket Force Engineering University. Kristensen was the first to notice the external similarities between China's solid-fueled ICBM silos and the configuration of Russian SS-27 silos. See Hans M. Kristensen, "Nuclear Missile Silo and DF-41 Launchers Seen in Chinese Nuclear Missile Training Area," Federation of American Scientists, September 3, 2019, https://fas.org/blogs/security/2019/09/china-silo-df41.

Minuteman silos.[112] If China were capable of protecting these silos with an LOW/LUA posture, it would be incentivized to fill all of the silos as it would be able to ensure that more survived to be thrown against U.S. missile defense not by a shell game but by the fact that the silos would be empty before an adversary's ICBMs arrived for a damage-limiting counterforce first strike. Silo building also offers the cheapest and most expedient way for China to increase its strategic nuclear deterrent over the shortest period of time and not later than 2027.[113] Additionally, there is less complexity involved in the launch of silo-based ICBMs. This means that a single crew can launch multiple missiles, whereas a road-mobile ICBM crew usually is only capable of launching one missile.

The evidence is clear that, since at least 2015, China intends to move to the LOW/LUA employment concept to protect its burgeoning silo-based ICBMs.[114] One requirement for LOW/LUA—referred to by China as "early-warning counterstrike" (预警反击)—dates back to at least the PLA NDU's 2015 *Science of Military Strategy*. Thus, it may have been intended as a protective measure for China's existing silo-based forces, and even some road-mobile ICBMs, prior to a later decision to engage in a massive buildout of solid-fueled ICBM silos.[115] Between 2016 and 2019, the PLA Rocket Force Engineering University published a couple of articles on early-warning counterstrike, with one noting that it would be an "important combat pattern" of the PLA in the future.[116] As early as mid-2020, at least one former PLA Rocket Force officer claimed that China had an LOW/

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[112] Liu Fang, Wang Yu, and Ren Jun, "美国陆基洲际弹道导弹部署方案的研究" [Research on the Deployment Plan of U.S. Land-Based Intercontinental Ballistic Missiles], Proceedings of the 8th China Command and Control Conference, September 2020, https://wap.cnki.net/touch/web/Conference/Article/ZHKZ202009001014.html. The authors are members of PLA Rocket Force Unit 996901, which Mark Stokes notes is a "direct reporting entity under the PLARF Equipment Development Department." See Stokes, "PLA Rocket Force Leadership and Unit Reference." The full posting by the China National Knowledge Infrastructure is available at http://cpfd.cnki.com.cn/Article/CPFDTOTAL-ZHKZ202009001014.htm.

[113] "Nuclear Silos in the Chinese Desert."

[114] "Frequently Asked Questions about Taking Nuclear Weapons Off Hair-Trigger Alert," Union of Concerned Scientists, Fact Sheet, January 2015, https://www.ucsusa.org/sites/default/files/attach/2015/01/Hair-Trigger%2520FAQ.pdf.

[115] Xiao, 战略学, 238–39. The requirement is listed in a section entitled "Developing New Types of Operational Strength."

[116] Meng Yanlei, Chen Guiming, and Han Runfan, "预警反击作战装备体系能力贡献率评估问题" [The Assessment of the Capability Contribution Rate of the Early Warning Counterattack Combat Equipment System], *Firepower and Command and Control*, no. 7 (2019). The article was authored by PLA Rocket Force Engineering University. See also Guo Xiaochuan et al., "导弹预警反击作战体系构建与效能评估研究" [Research on the Construction and Efficiency Evaluation of Missile Early Warning Counterattack Combat System], *Journal of Equipment College* (2016). The article was authored by the Equipment Management Department of the PLA Rocket Force Engineering University under a PRC National Natural Science Foundation grant.

LUA capability.[117] The finding of the 2021 China Military Power Report that China has been training on LOW/LUA since 2017 and has at least one early-warning satellite in orbit seems consistent with this claim.[118] The U.S. Department of Defense had previously revealed that China already had fielded the necessary terrestrial large phased-array radars and that it was receiving Russian assistance to make this force posture a reality.[119]

With many of these developments now accessible to the public, the U.S. Department of Defense has since changed its estimate of China's intentions for nuclear force growth. The 2021 China Military Power Report now estimates a near tripling of China's operational nuclear warhead stockpile to 700 in time for the PLA's centenary in 2027 and a quadrupling to 1,000 by 2030.[120] Given China's pursuit of capabilities and warhead numbers comparable to the United States and Russia, Beijing can no longer be said to be pursuing a minimum deterrent but instead appears to seek a force posture with rough equivalency to the world's two great nuclear powers.[121] The evidence presented here suggests that this shift has been driven in part by the need for a strategic deterrence offset strategy (i.e., counterbalance) because, as the 2013 AMS *Science of Military Strategy* notes, "the U.S. avoids having direct military conflict and confrontation with great nations, in particular nuclear great nations."[122]

Conclusion

This chapter began by noting that China's nuclear force is growing in unparalleled ways. The PRC defense minister's statement to the contrary at the 2022 Shangri-La Dialogue serves as the most recent attempt by Beijing to falsely claim continuity and obfuscate this reality. The reality, however, is that by late 2015, and into 2016, China had altered course.[123] It would be

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117 "China Can Launch Nuclear Counterattack within Minutes, Ex-PLA Officer Says," *Japan Times*, August 3, 2020, https://www.japantimes.co.jp/news/2020/08/03/asia-pacific/china-nuclear-weapons.

118 U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 93–94.

119 U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2020*, 88–89.

120 U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 90, 92.

121 Richard, statement before the U.S. Senate Committee on Armed Services.

122 China Aerospace Studies Institute, trans., *In Their Own Words*, 110.

123 "Chinese Nuclear Force Development Impressive; New Weapons Commissioned: Defense Minister," *Global Times*, June 12, 2022, https://www.globaltimes.cn/page/202206/1267860.shtml.

from that point of departure that the evidence began to emerge that China had dispensed with nuclear minimalism and instead was seeking to build a triad and a probable graduated deterrent with more sophisticated response options than it previously had possessed. With Xi Jinping having fulfilled his pledge to make major strides in China's development of strategic capabilities in time for the military parade celebrating the PRC's 70th anniversary, the Fifth Plenum in October 2019 appears to have marked a second inflection point in this revised modernization effort. After this event, and the related National People's Congress in March 2020, China began its rapid silo-based ICBM buildup. This was also the point where it became clear that China was no longer only pursuing qualitative parity with the United States and Russia—as would be evidenced by its pursuit of intercontinental hypersonic missiles, a fractional orbital bombardment system, and autonomous naval and aerial nuclear-powered weapons—but also looking to part ways with being a second-tier nuclear power and instead be counted in the same class as Russia and the United States.[124]

While the drivers of this altered modernization are multifaceted, this chapter presents the case that the requirement for a strategic deterrent offset was a new driver that had not previously garnered much attention. The evidence presented here, however, clearly shows that the PLA is no longer circumscribing the role of nuclear weapons in official print to merely responding to U.S. nuclear blackmail and first use. Instead, these weapons have a role in deterring conventional war, counterbalancing a superior foe, and supporting the PLA's achievement of victory, thus remedying one of Xi's "three whethers." While a contrarian argument might assert that these developments were necessitated as a response to U.S. nuclear force and policy developments, the problem with such reasoning is twofold. First, Beijing previously accepted an asymmetric balance, despite the U.S. missile defense and conventional strike threat, while forgoing the opportunity to lock in a form of stasis by accepting the Obama administration's offer to reach a form of strategic stability.[125] The second problem is that the nuclear forces Beijing is pursuing do not align with the U.S. threat that the PLA believes it will face. Chinese military writings—from the 2012 *Encyclopedia of China's Strategic Missile Force* to the publicly available 2013 *Science of Military Strategy*—are

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[124] James Keaten, "U.S. Envoy Warns China 'Looking At' New Nuclear Technologies," Associated Press, July 8, 2021, https://apnews.com/article/europe-china-technology-government-and-politics-39029491f5863f10809dbbfc40862693; and David E. Sanger, "China's Weapons Test Close to a 'Sputnik Moment,' U.S. General Says," *New York Times*, October 27, 2021, https://www.nytimes.com/2021/10/27/us/politics/china-hypersonic-missile.html.

[125] Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century* (Stanford: Stanford University Press, 2015), 148–50.

clear that the most likely form of nuclear war that China expects to face from the United States is from the integration of a new generation of tactical nuclear weapons into conventional U.S. combat operations. Yet the new Chinese nuclear force buildup that has been documented in this chapter has been disproportionately focused on strategic nuclear weapons that can hit the U.S. homeland and not U.S. forward forces.[126] This appears to be in part because Beijing hopes that by building up its nuclear forces, along with other means of strategic deterrence in the space and cyber domains, it can keep the United States from intervening in a crisis or at least buy the time needed to accomplish its objective by threatening to impose massive societal damage on the U.S. homeland—a capability the PLA previously lacked.[127]

The principal objective that appears to be driving this is unification with Taiwan. The earliest indications that Xi sought to make progress on Taiwan part of his political legacy appeared in 2013. During the 2013 Asia-Pacific Economic Cooperation Summit, he told Taiwan's envoy that the "two sides must reach a final resolution, step by step"—implying a process—"and these issues cannot be passed on from generation to generation"; yet Xi has nearly completed two terms as China's paramount leader without any progress.[128] His general assessments of the PLA's inferiority began peaking that same year. Similarly noteworthy is that as Xi has publicly commented that the Taiwan situation is grim, Beijing has increased its military pressure campaign around the island with the intent to "isolate Taiwan from the international community in an attempt to force submission," according to testimony in March 2022 by the commander of U.S. Indo-Pacific Command.[129] Whether by war or by negotiation, it is clear that both sides of the Taiwan Strait understand that force has a role to play, and that Taiwan's options are limited if Beijing can convince Taipei that Washington will not

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[126] For the first time, the 2011 edition of the PLA's book of military terms (军语) delineates a difference between "strategic" and "tactical" nuclear missiles in its definition of "land-based nuclear missiles." Previous editions made no such distinction and reflect acceptance of gradations in nuclear force employment. See All Army Military Terminology Committee (PRC), *Chinese People's Liberation Army Military Terms* (Beijing: Military Science Publishing House, 2011), 1038.

[127] For a discussion of time dynamics, see Tariq Tahir, "RED DAWN: How U.S. Could Lose War with China in a Week as Every 'Simulation' Shows It Being Crushed Over Taiwan," *Sun*, June 30, 2022.

[128] "China's Xi Says Political Solution for Taiwan Can't Wait Forever."

[129] John C. Aquilino, statement before the U.S. Senate Armed Services Committee, March 10, 2022, 6, https://www.armed-services.senate.gov/imo/media/doc/INDOPACOM%20Statement%20(ADM%20Aquilino)%20_SASC2.PDF.

come to its aid.[130] To this end, Xi's "strangelove" for building up nuclear weapons to establish strategic counterbalance seems intended to make unification a reality, thus cementing a lasting legacy.

[130] Chan, "Beijing Should Stop Threatening Taiwan"; "Military Pressure Essential for Reunification with Taiwan: Experts," *Global Times*, December 6, 2020, https://globaltimes.cn/content/1209125.shtml; and "Press Conference of the Taiwan Affairs Office of the State Council," Taiwan Affairs Office of the State Council (PRC), December 16, 2020, http://www.gwytb.gov.cn/xwfbh/202012/t20201216_12312348.htm.

EXECUTIVE SUMMARY

This chapter assesses Chinese military thinking on space and cyber deterrence and draws implications for the U.S.

MAIN ARGUMENT

Besides nuclear deterrence, the space and cyber domains are viewed by China as its main means of strategic deterrence. A key commonality between these two domains is the nearly universal Chinese perception that the U.S. dominates and seeks to further entrench its hegemony. Combined with the broader perception of U.S. hostility, this reinforces a notion that the People's Liberation Army (PLA) is weak, vulnerable, and at risk of coercion by the U.S., requiring a strong Chinese deterrence response. Chinese thinking on space and cyber deterrence is evolving. For space, China's deterrence requirements are likely increasing. Early strategy was likely focused solely on the U.S., but current policy must also account for an India with anti-satellite capabilities. For the cyber domain, recent updates to Chinese military teaching materials suggest that the PLA has come to believe that deterrence requires demonstrating not only an ability to penetrate networks but also an ability to generate real effects. The space and cyber domains are thus key parts of "integrated strategic deterrence"—China's conceptualization of the highest level of deterrence that draws on comprehensive national power.

POLICY IMPLICATIONS

- China views space and cyber as strategic domains and critical components of its overall deterrence strategy.
- China may increase its reliance on space and cyber deterrence if U.S.-China relations continue to worsen and the risk of conflict heightens.
- China's approach to cyber deterrence may shift to demonstrating more real-world effects instead of merely revealing capabilities.
- The space and cyber domains are both at risk for misunderstanding during a future U.S.-China crisis due to likely differences in intentions versus perceptions of certain actions.
- The U.S. should include the space and cyber domains in its broader dialogue with China on strategic issues.

Chapter 5

Exploring Chinese Thinking on Deterrence in the Not-So-New Space and Cyber Domains

Nathan Beauchamp-Mustafaga

The Chinese military's growing space and cyber capabilities have garnered much attention for their wartime operational impact.[1] Yet how China could leverage these capabilities short of conflict, for deterrence in peacetime or crisis, is still ripe for exploration. This chapter assesses Chinese military thinking on space and cyber deterrence. It provides a summary of Chinese thinking on deterrence in both domains, explores how China balances the risks versus rewards of actions and how they integrate into its broader strategy on deterrence, considers the role of civilian society vulnerability, and draws implications for the United States.

Several caveats are needed when addressing deterrence and the space and cyber domains, especially in combination. This chapter is based only on publicly available Chinese primary sources and public media reports of Chinese behavior, meaning that it does not necessarily reflect all Chinese thinking and actions, only those in the public domain. Second, this chapter does not explore all relevant Chinese writings; specifically, more recent Chinese military research articles are not discussed.

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[1] In particular, see U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021* (Washington, D.C., November 2021), https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF. For other recent U.S. government reports on China and space, see National Air and Space Intelligence Center, "Competing in Space," December 2018, https://www.nasic.af.mil/Portals/19/documents/Space_Glossy_FINAL--15Jan_Single_Page.pdf?ver=2019-01-23-150035-697; and Defense Intelligence Agency, *2022 Challenges to Security in Space: Space Reliance in an Era of Competition and Expansion* (Washington, D.C.: Military Power Publications, 2022).

Chinese Thinking on Space and Cyber Deterrence

Chinese thinking about deterrence and crisis management is broadly familiar to Western policymakers and analysts, since it is largely drawn from Western sources, but several aspects are worth noting.[2] First, for China, deterrence is not just about dissuading an adversary from doing something (maintaining the status quo) but also about compelling an adversary to do something (changing the status quo).[3] Second, Chinese deterrence theory holds that it becomes more credible the more realistic (and thus closer to war) it is, which extends to deterrence signaling. Third and relatedly, Chinese deterrence signaling actions can include actual (kinetic or cyber) attacks that are intended as "warning strikes" to convey maximum resolve about a given issue. Fourth, there is a general perception by Western analysts that the Chinese military understates the risks of escalation, under the belief that escalation can be mechanistically managed.[4]

Besides nuclear deterrence, space and cyber deterrence are viewed by China as the primary means of strategic deterrence (see **Figure 1**).[5] Indeed, the 2013 *Science of Military Strategy*, published by the People's Liberation Army (PLA) Academy of Military Science (AMS) describes these three domains as the new strategic "triad,"[6] and they are often viewed as explicitly advantageous for a future conflict or crisis with the United States. As the book relays, in a future war with a superior adversary (i.e., the United States), China can improve its chances by creating "a favorable posture for the initiative prior to combat, adopt[ing] an integrated-whole favorable posture to make up for inferiority in weapons and equipment, and actively seek[ing] the initiative in war." This includes "daring to apply military deterrence means—in particular, applying the means of struggle in new fields such as outer space and cyberspace—to sabotage

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[2] This discussion draws from Nathan Beauchamp-Mustafaga et al., *Deciphering Chinese Deterrence Signalling in the New Era: An Analytic Framework and Seven Case Studies* (Santa Monica: RAND Corporation, 2021).

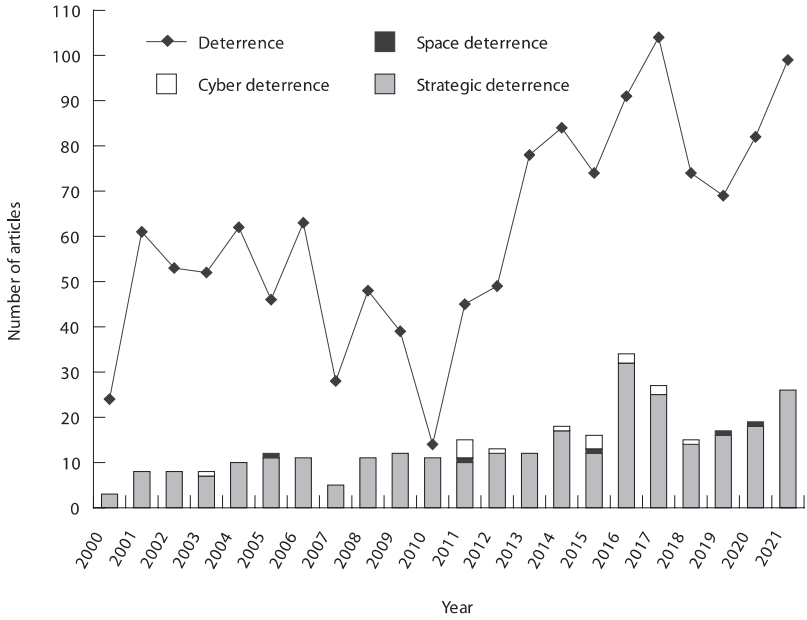
[3] Some Western analysts thus prefer to translate 威慑 as "coercion."

[4] Alison A. Kaufman and Daniel M. Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control," CNA, February 1, 2016, https://apps.dtic.mil/sti/pdfs/AD1005033.pdf; Burgess Laird, "War Control: Chinese Writings on the Control of Escalation in Crisis and Conflict," Center for a New American Security, March 30, 2017, https://www.cnas.org/publications/reports/war-control; and Fiona S. Cunningham and M. Taylor Fravel, "Dangerous Confidence? Chinese Views on Nuclear Escalation," *International Security* 44, no. 2 (2019): 61–109.

[5] Fiona S. Cunningham; "Strategic Substitution: China's Search for Coercive Leverage in the Information Age," *International Security* 47, no. 1 (2022): 46–92.

[6] Shou Xiaosong, ed., 战略学 [Science of Military Strategy] (Beijing: Academy of Military Sciences, 2013), 73.

FIGURE 1 *PLA Daily* articles referencing various deterrence forms (2000–21)



SOURCE: Author's count of CNKI data.

NOTE: Data for 2021 is through December 1, 2021. Articles may be double-counted if they mention multiple terms.

the enemy's war command system-of-systems." If this deterrence fails, then "a future war might first begin with attack-defense confrontation in space and cyberspace, and seizing command of space [制天权] and cyber dominance [制网权] will become the crux to obtaining comprehensive dominance rights on the battlefield to further conquer the enemy and gain victory."[7]

Space deterrence (太空威慑 or occasionally 空间威慑, 外空威慑) is defined by the 2013 AMS *Science of Military Strategy* as "deterrence

[7] Shou, 战略学, 96.

implemented by means of space military forces."[8] A separate 2013 AMS book on space operations explains the basic theory:

> Threatening the use or limited use of space operations strengths often can have a major deterrent effect on the enemy, producing psychological fear and forcing him to abandon his operational intentions or controlling the scale and intensity of [his] operations and means of operations, thus creating a beneficial environment and situation for your own side's joint operations.[9]

It later adds:

> Space deterrence signifies having powerful space forces as backing and threatening to use or actually using limited space forces to awe and contain the opponent's military activities. The goal of this activities pattern is to make a show of strength combining deterrence and combat and conduct activity to create a favorable posture, thus showing the real strength and resolve of the friendly space operations; generate doubt, fear, and wavering in the enemy; force him to abandon his operational intention; control the operational scale and intensity, plus the operational means; and thus achieve the goal of breaking the enemy's resistance without fighting or with minimal fighting.[10]

According to China, its approach to space deterrence is merely defensive and "does not seek space hegemony,"[11] a clear but implicit contrast to the United States:

> [O]nly when another state conscientiously infringes upon China's space rights and interests and causes harm to national space security, may China implement space deterrence against the enemy, and launch a space counterattack. In the space domain, what China still follows is the principle of we will not attack unless we are attacked.[12]

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[8] Shou, 战略学, 181. For another key Chinese military text on space deterrence, see Jiang Lianju, ed., 空间作战学教程 [Lectures on the Science of Space Operations] (Beijing: Military Science Press, 2013). For recent Western research, see Dean Cheng, "Space Deterrence, the U.S.-Japan Alliance, and Asian Security: A U.S. Perspective," in *The U.S.-Japan Alliance and Deterring Gray Zone Coercion in the Maritime, Cyber, and Space Domains*, ed. Scott Harold (Santa Monica: RAND Corporation, 2017); "Hearing on China in Space: A Strategic Competition?" U.S.-China Economic and Security Review Commission, April 25, 2019, https://www.uscc.gov/sites/default/files/2019-10/April%2025%202019%20Hearing%20Transcript.pdf; and Christopher Fabian, "Psychology of Deterrence in Sino-U.S. Space Relations," *Space Force Journal*, January 31, 2021, https://spaceforcejournal.org/psychology-of-deterrence-in-sino-u-s-space-relations. On U.S. deterrence of China in space, see Steve Lambakis, "A Guide to Thinking about Space Deterrence and China," National Institute for Public Policy, July 2019, https://nipp.org/wp-content/uploads/2021/03/Lambakis-Guide-to-Thinking-About-Space-for-web.pdf; and Krista Langeland and Derek Grossman, *Tailoring Deterrence for China in Space* (Santa Monica: RAND Corporation, 2021).

[9] Jiang, 空间作战学教程, 69.

[10] Ibid., 126.

[11] Shou, 战略学, 185.

[12] Ibid.

Space deterrence is first about protecting one's own space assets, including deterrence by a mix of denial and punishment. As the 2013 AMS *Science of Military Strategy* relays, "space systems mainly provide space information assisting support for friendly military activity, and prevent or block the adversary's jamming and sabotage, to ensure the normal operation of friendly space systems. This completely conforms to the deterrent mechanism of 'blocking the adversary from doing a certain thing' in order to maintain the current state."[13] It later adds that China should "continue to enhance the capability to safeguard the nation's space security so as to effectively contain and deter an enemy's intention of conducting space deterrence and attack against us."[14] However, deterrence by punishment also plays a role:

> [We] also must in a directed [focused] manner 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 with initiative.[15]

Cyber deterrence (网络威慑 or 网络空间威慑 or 赛博威慑) is defined by the 2013 AMS *Science of Military Strategy* as "actions which display network attack and defense operational capability, as well as implementing a firm resolve for retaliation, to forcibly prevent the adversary from daring to willfully carry out large-scale network attacks, and to prevent causing a severe aftermath."[16] This domain is mostly one of deterrence by punishment, since denial is difficult.

In China's view, there are several unique characteristics of deterrence in cyberspace. First, cyber deterrence is strategic because it seeks to deter "network attack actions which can cause severe sabotage, and what it protects in reality is the security and development interests of the major nations," and it generally focuses on other countries (instead of nonstate actors). Second, there are many ways to accomplish cyber deterrence, including with kinetic attacks. Third, it is difficult to know if cyber deterrence is working because

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[13] Shou, 战略学, 181–82.

[14] Ibid., 148.

[15] Ibid., 182.

[16] Ibid., 193. For related research, see, for example, Jon R. Lindsay, Tai Ming Cheung, and Derek S. Revero, *China and Cybersecurity: Espionage, Strategy, and Politics in the Digital Domain* (Oxford: Oxford University Press, 2015); Elsa Kania, "The Latest Indication of the PLA's Network Warfare Strategy," Jamestown Foundation, China Brief, December 21, 2015, https://jamestown.org/program/the-latest-indication-of-the-plas-network-warfare-strategy; Jake Bebber, "Beijing's Views on Norms in Cyberspace and Cyber Warfare Strategy," Center for International Maritime Security, July 6 and 26, 2017; and Michael Kolton, "Interpreting China's Pursuit of Cyber Sovereignty and Its Views on Cyber Deterrence," *Cyber Defense Review* 2, no. 1 (2017): 119–54.

the absence of a cyberattack does not mean adversaries are not trying; it simply means they have yet to succeed. Another point is the "fuzziness of peacetime-wartime boundaries in cyber warfare."[17] Last, while the 2013 AMS *Science of Military Strategy* appears to focus only on deterring large-scale cyberattacks, the 2020 National Defense University (NDU) version clarifies that this is "strategic-level cyber deterrence" (战略级网络威慑) and that "tactical-level cyber deterrence" (战术级网络威慑) is focused on small-scale peacetime cyberattack and defense.[18]

A key commonality between these two domains is the nearly universal Chinese perception that the United States dominates and seeks to further entrench its hegemony, and thus is the most aggressive actor for space and cyber deterrence. Whenever Chinese military texts do assess China in these domains, its capabilities are almost always ranked behind those of the United States. Combined with the broader perception of U.S. hostility, this reinforces a notion that the PLA is weak, vulnerable, and at risk of coercion by the United States, requiring a strong Chinese deterrence response.

One important caveat is that Chinese thinking on space and cyber deterrence is very likely evolving. PLA capabilities in both domains have improved dramatically, and the creation of the PLA Strategic Support Force (PLASSF) in 2015 established new organizational structures and bureaucratic politics. One basic consequence of the PLASSF's existence that immediately deviates from the 2013 AMS *Science of Military Strategy* is the PLA Air Force's mission for "air and space deterrence" (空天威慑), which is now likely disaggregated into air deterrence and space deterrence, since the PLA Air Force lost running the space domain to the PLASSF.[19]

For cyber deterrence, the 2013 AMS *Science of Military Strategy* states this explicitly: "Although deterrence is important content of military struggle in the cyber domain, there is nonetheless very great diversity in the various understanding of cyber deterrence, and both the theory and practice of network deterrence await further development and perfection."[20] One benchmark is the recent Chinese NDU editions of the *Science of Military Strategy* (2015, 2017, and 2020). While all three editions are similar, the 2020 edition adds a noteworthy clause to the definition of

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[17] Shou, 战略学, 131.

[18] Xiao Tianliang, ed., 战略学 [Science of Military Strategy] (Beijing: National Defense University Press, 2020), 152–53.

[19] Shou, 战略学, 129. See also Kevin L. Pollpeter, Michael S. Chase, and Eric Heginbotham, *The Creation of the PLA Strategic Support Force and Its Implications for Chinese Military Space Operations* (Santa Monica: RAND Corporation, 2017).

[20] Shou, 战略学, 193–94.

"strategic-level cyber deterrence." All three mention how "to contain the opponent's network attack intention through the display of network attack capability," but the 2020 edition adds "and strategic destruction effect."[21] This suggests that the PLA has come to believe that cyber deterrence requires demonstrating not only an ability to penetrate networks but also an ability to generate real effects.

Another question is who within China is shaping its approach to cyber deterrence. Although the PLASSF's creation was certainly intended to centralize cyber capabilities within the PLA, the Ministry of State Security (MSS) also has robust capabilities outside direct PLA control. PLA-MSS coordination on cyber issues is beyond the scope of this chapter, but MSS-affiliated organizations have an equal or higher number of top-ten Chinese organizations publishing on the topic.[22] With divergent operational focuses, it is possible MSS and PLA thinking on cyber deterrence is different. Observed published joint research between the PLASSF and MSS has been on practical cyber operational issues (identifying vulnerabilities), not strategy.[23]

Chinese thinking on space deterrence is likely changing as well. One factor is that the number of China's potential adversaries in space is growing. When the 2013 AMS *Science of Military Strategy* was published, only the United States had demonstrated the capability to conduct space attacks. It was also the only country China might face that heavily relied on space for its operations. This meant that Chinese thinking on space deterrence was probably specific to the United States over conflicts in the region overseen by Indo-Pacific Command, where China in 2013 was still focusing its energy and thus had little reliance on space systems. Much has changed since then. India is now a more obvious adversary and has its own anti-satellite (ASAT) capability. This means that China has to implement space deterrence against India too. Other adversaries,

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[21] Xiao, 战略学, 2015, 2017, and 2020 editions, 152.

[22] MSS affiliation is for Bureau 13 (中国信息安全测评中心 and 中国信息安全产品测评认证中心) and Bureau 8 (中国现代国际关系研究院). I could not determine if 国家信息技术安全研究中心 is PLA or other.

[23] For PLA cyber research cooperation with the MSS before and after establishment of the PLASSF in 2015, see Wei Qiang, Wei Tao, and Wang Jiajie, "软件漏洞利用缓解及其对抗技术演化" [Evolution of Exploitation and Exploit Mitigation], *Journal of Tsinghua University (Science and Technology)* 51, no. 10 (2011): 1274–80. The authors are from the PLA Information Engineering University, Peking University Institute of Computer Science and Technology, and MSS China Information Technology Security Evaluation Center. See also Ouyang Yong Li et al., "基于脆弱点特征导向的软件安全测试" [Guided Software Safety Testing Based on Vulnerability Characteristics], *Journal of Tsinghua University (Science and Technology)* 57, no. 9 (2017): 903–8. The authors are affiliated with the State Key Laboratory of Mathematical Engineering and Advanced Computing, PLASSF NSD, PLA Information Engineering University, and MSS China Information Technology Security Evaluation Center.

however, such as Taiwan, Japan, or South China Sea claimants, still lack ASAT capabilities. The other big change is that China now increasingly relies on space for its own operations, especially those farther abroad as the country builds out its Djibouti base and explores others. Small changes in the NDU *Science of Military Strategy* are also apparent for space deterrence. For example, the 2020 edition removes the following text from the discussion of space deterrence and specifically prioritizes deterrence over warfighting: "This not only conforms to the interests of international society, it also conforms to the fundamental interests of China." It is important, however, not to overinterpret this change. Key text remains, and the omission could be the result of an editor and not intentional. It is also interesting to note what is still missing from authoritative PLA texts on space—serious discussion of Chinese vulnerabilities in space or the importance of improving space domain awareness.[24]

Balancing Risk in Emerging Domains

As China seeks to operationalize space and cyber deterrence, especially for coercive purposes, it will have to balance the risks inherent in building and demonstrating these capabilities while avoiding instigation of the conflicts it seeks to deter. Chinese thinking on deterrence signaling in the space and cyber domains generally follows the broader doctrinal escalation ladder, but it is worthwhile relaying from a recent RAND report:

1. "Displays of space forces," which can be done during peacetime and early in a crisis. This "low-intensity deterrence action" can be achieved through testing (disclosed publicly or not), propaganda, displaying equipment at exhibitions, and inviting foreign attachés to visit unspecified facilities. It is usually coordinated with political and diplomatic activities and can be communicated through TV, radio, computers, or newspapers.
2. "Space military exercises," which can be conducted if the crisis escalates. Exercise types include "anti-spacecraft exercises," "space assault exercises," and "space information support exercises," all across offense and defence with either actual troops, computer simulation, or live ammunition. These serve not only to communicate capability and resolve but also to actually prepare PLA forces for combat, if it occurs. As with some other examples, it is worth noting that such space exercises could fit into multiple categories of types of deterrence actions, and could also be conducted primarily (or even solely) for training purposes, potentially complicating their interpretation as deterrence signals.

[24] The author thanks Kevin Pollpeter for these points.

3. "Deployment of space forces," which can be conducted if the crisis further worsens and the adversary is preparing for war. This "medium- or high-intensity" deterrence action can be achieved through either the "projection of space forces," namely spacecraft launch and recovery (which would presumably rely on the rapid space launch capabilities and other advanced capabilities China is developing), or the "deployment and adjustment of space forces," namely adjusting space-based and ground-based information and firepower networks. This serves not only to communicate capability and resolve but also to actually prepare PLA forces for combat.
4. "Space shock and awe strikes," which are warning strikes and a "last resort" as the "highest form of space deterrence." These are divided into "soft strikes," namely information-based attacks through cyber or other means to disrupt the adversary's C4ISR, and "hard strikes," namely sudden and limited kinetic attacks on "sensitive" adversary systems.[25]

Chinese thinking about cyber deterrence signaling is similar:

1. demonstration of cyberattack technology testing,
2. partial disclosure of cyber weapons and equipment through the media,
3. [staging of] operational exercises in cyberspace, and
4. disclosure of cyberattacks that were conducted.[26]

While all three are strategic domains, one of the key advantages of space and cyber over nuclear is that—in the PLA's view—one can actually use space capabilities, whereas nuclear weapons are for all practical purposes unusable in war.[27] The 2013 AMS volume on space operations explains this as follows:

> [W]here [space capabilities] differ from nuclear strengths is that the threshold for using space strategic strengths is much lower than that for nuclear strengths… Some space weapons are similar to nuclear weapons; they have a strategic deterrence role, but they cannot be lightly used. Although the possibility that these space weapons will be used in actual warfare is not great, their value as strategic deterrence is quite big, and by bringing into play the benefits of their deterrence it is often possible to get the effects of "subduing the enemy without fighting." However, deterrence is not bluster; if you want to truly get the effects of deterrence, it is necessary to have a certain ability for actual warfare and to make solid preparations for actual warfare. Prior to a war breaking out, it is possible, by displaying necessary space strategic strengths that have deterrence as their goal, to restrain the outbreak of the war.[28]

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[25] Beauchamp-Mustafaga et al., *Deciphering Chinese Deterrence Signalling in the New Era*, 35; and Jiang, 空间作战学教程, 126–29, 135.

[26] Zhang Shibo, 战争新高地 [New Highland of War] (Beijing: National Defense University Press, 2016), 67, 84–85. This is summarized in National Institute for Defense Studies (Japan), *China Security Report 2021: China's Military Strategy in the New Era* (Tokyo, 2020).

[27] The PLA generally believes that any nuclear use would lead to nuclear war, and thus the employment of nuclear weapons is unlikely. See Cunningham and Fravel, "Dangerous Confidence?"

[28] Jiang, 空间作战学教程, 45–48.

The 2013 AMS volume later adds that "space deterrence, compared to nuclear deterrence, information deterrence, and conventional deterrence, is flexible in its use, has a high degree of credibility, and is characterized by its global, rapid, and highly effective nature."[29] This is evident in the above signaling discussion, as space and cyber deterrence can be modulated for both employment and graduated deterrence signaling, though Beijing is still reportedly interested in low-yield nuclear weapons.[30]

There are two key questions about China's approach to space and cyber for deterrence and crisis management. First, does China believe that some of these deterrence signaling options could be problematic for crisis stability? Second, what is its calculus for actually moving up the signaling ladder in these domains?

Chinese military texts do not explicitly view China's approach to space and cyber deterrence, including deterrence signaling, as problematic for crisis stability, though they suggest some general awareness of the risks of escalation. Following broad Chinese deterrence doctrine and mirroring the signaling options above, the 2013 AMS *Science of Military Strategy* calls for warning strikes as the high end of space deterrence: "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."[31] However, it separately notes that "[we] must carefully adopt the mode of warning space hard destruction, to prevent losing control of the situation and prevent escalation of the confrontation."[32] Nevertheless, it generally touts the importance of an offensive space capability for deterrence:

> First is using space attack and defense operations to boost space deterrence effectiveness. Space deterrence is, in the present phase, the main mode for safeguarding China's space rights and interests, so space attack and defense operations first of all must be able to meet the needs and requirements of space deterrence and contribute to the boosting of space deterrence effectiveness.[33]

Thus, at least this book suggests some limited concern about escalation, but overall it appears to see a net benefit if such actions are necessary.

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[29] Jiang, 空间作战学教程, 69.

[30] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 93.

[31] Shou, 战略学, 182.

[32] Ibid., 186.

[33] Ibid.

Chinese military texts do acknowledge the risks of initiating a conflict with the United States in the space and cyber domains, given China's self-assessed weak capability. Yet they appear to believe that the United States' relatively greater reliance on these domains represents a net advantage for Beijing, thereby giving it more leverage for deterrence (and perhaps thus escalation management).[34] The 2013 AMS *Science of Military Strategy* makes clear that China must be careful if picking a fight because the United States has an advantage in the space domain (as of 2013):

> In general, [we] should not take initiative to escalate a space confrontation posture, and not carry out direct space attack and defense confrontation with the strong enemy [the United States]. Only under circumstances where the space deterrence is of no avail and where our space systems encounter enemy harassing attacks or are faced with space strikes can [we] consider conducting space counterattack operations against the enemy. Third is trying our best to avoid engaging in an all-around space confrontation with the strong enemy. The space basic posture where the enemy is strong and we are weak has decided that our side should not engage in an all-around space confrontation with the strong enemy. [We] can focus on the characteristics of the space systems being easy to attack and difficult to defend, and of the enemy's even greater reliance on space systems; select attacks against the critical node targets of the enemy space systems; and sabotage the enemy space operational system of systems.[35]

This would appear at first glance to contradict other passages that emphasize seizing the initiative in space. A reasonable explanation, however, is that this passage is urging restraint on the use of force, whereas if China judges action necessary, it would move to quickly seize the initiative, not just for deterrence but also for warfighting. The long-standing question of whether China's growing reliance on space will change any of this initial restraint remains to be answered.

There is also some awareness by Chinese PLA and MSS researchers that space and cyber operations can lead to escalation. A 2018 article by a retired NDU researcher on the implications of nuclear, space, and cyber domains for strategic stability argued that a "no first use, or no first attack," pledge by the United States, Russia, and China for the nuclear and space domains would be beneficial for several reasons, including by helping "control crisis escalation," which suggests some awareness of these risks.[36] A 2020 article by a researcher affiliated with the MSS Bureau 13 on the new U.S. concept

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[34] Shou, 战略学, 186, 247.

[35] Ibid., 186–87.

[36] Cyber "no first use" was seen as too hard. See Xu Weidi, "战略稳定及其与核、外空和网络的关系" [Strategic Stability and Its Relationship to Nuclear, Outer Space, and Cyber], *Information Security and Communications Privacy* (2018): 20–24.

of "layered cyber deterrence" notes that such cyber deterrence is difficult to realize for two reasons—attribution is hard, and escalation is easy:

> Cyber retaliation may result in crisis escalation. Deterrence requires the principle of proportionality that matches punishment and crime. However, cyberattacks are often asymmetrical and uncontrollable. In addition, [the U.S. concept of] layered cyber deterrence requires "collecting the power of the country" to confront opponents, making it very easy to cause conflict escalation.[37]

It is unclear how representative these views are within the broader Chinese security community.

The diversification of PLA counterspace capabilities over the last decade demonstrates one way that China's continued military modernization is creating new deterrence dynamics. The U.S. Department of Defense reports on China in the late 2000s found that "in recent years Beijing has pursued a robust, multidimensional counterspace program" and that in addition to "the 'kinetic kill' capability demonstrated by the [2007] ASAT test, the PLA is developing the ability to jam, blind, or otherwise disable satellites and their terrestrial support infrastructure."[38] A 2022 Defense Intelligence Agency report updates this finding to cover Chinese counterspace developments that span electronic warfare, cyber, directed energy weapons (e.g., lasers), co-orbital, and kinetic capabilities.[39] Having these options at Beijing's disposal will help realize the PLA's intention to employ graduated deterrence signaling tailored to specific adversaries.

In the cyber domain, China's improving capabilities not only allow it to better conduct sophisticated operations but also bolster deterrence. The 2021 hack of the Microsoft Exchange email system, attributed to Beijing, was only the latest in a long string of notable cyberattacks.[40] However, these types of attacks are likely to have less deterrence effect than something that is both targeted at broader society and publicly known (or at least known to adversary governments). One real-world example is China's apparent use of cyber-deterrence signaling during its 2020 border standoff with India. Recorded Future reported that China had inserted malware

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[37] Gui Changni, "美国'分层网络威慑'战略的主要内容及影响分析" [Analysis of the Main Content and Impact of the U.S. "Layered Cyber Deterrence" Strategy], *China Information Security* (2020): 82–86. For the U.S. concept, see U.S. Cyberspace Solarium Commission, *U.S. Cyberspace Solarium Commission Report* (Washington, D.C., March 2020).

[38] U.S. Department of Defense, *Military Power of the People's Republic of China 2007* (Washington, D.C., 2007), 21; and U.S. Department of Defense, *Military Power of the People's Republic of China 2009* (Washington, D.C., 2009), 14.

[39] Defense Intelligence Agency, *2022 Challenges to Security in Space*, 17–18.

[40] Zolan Kanno-Youngs and David E. Sanger, "U.S. Accuses China of Hacking Microsoft," *New York Times*, July 19, 2021, https://www.nytimes.com/2021/07/19/us/politics/microsoft-hacking-china-biden.html.

into India's electrical grid, which could have been the cause of Mumbai's widespread power outage in October of that year.[41] This would generally align with prescribed Chinese deterrence signaling in the cyber domain. Moreover, Beijing's decision to use more aggressive signaling with New Delhi is plausible since India is generally understood to have weaker cyber capabilities than China, leaving it fewer options to respond. This would also align with the NDU *Science of Military Strategy*'s update in 2020 to include the value of demonstrating cyber effects.

Integrating with Integrated Deterrence

According to a 2016 RAND report, China conceptualizes the highest level of deterrence as "integrated strategic deterrence," drawing not just on all domains of military power but also on its comprehensive national power to include diplomatic, economic, technological, and cultural power.[42] Moreover, as Dean Cheng has argued, China views space not primarily as a domain where it needs to deter other attacks but more as an opportunity to asymmetrically coerce adversaries: "Space deterrence, by contrast, is about employing space capabilities in order to achieve broader political ends, rather than deterring an adversary from engaging in space activities…This underscores the fact that the Chinese think of space deterrence as a means of achieving a pre-determined political goal, not to prevent actions in the space domain."[43] Indeed, the 2013 AMS *Science of Military Strategy* explicitly calls for using space for broader deterrence (i.e., coercion):

> The development of space forces also consolidates and boosts our strategic deterrence capability; ensures an important brace-support for the expansion of state interests; and is of important significance for building informationized armed forces, for winning informationized wars, and for propelling the PLA's strategic transformation…[and] synthetically applying space attack and defense

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[41] David E. Sanger and Emily Schmall, "China Appears to Warn India: Push Too Hard and the Lights Could Go Out," *New York Times*, February 28, 2021, https://www.nytimes.com/2021/02/28/us/politics/china-india-hacking-electricity.html; and "China-Linked Group RedEcho Targets the Indian Power Sector amid Heightened Border Tensions," Recorded Future, February 28, 2021, https://www.recordedfuture.com/redecho-targeting-indian-power-sector.

[42] Michael S. Chase and Arthur Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"* (Santa Monica: RAND Corporation, 2016).

[43] Dean Cheng, "Evolving Chinese Thinking about Deterrence: What the United States Must Understand about China and Space," Heritage Foundation, Backgrounder, March 29, 2018, https://www.heritage.org/sites/default/files/2018-03/BG3298_0.pdf.

forces and other military and nonmilitary means to form integrated-whole composite strength for strategic deterrence.[44]

PLA authoritative texts on space also highlight the importance of integrated deterrence. The 2013 AMS volume on space operations asserts that "space deterrence is an integrated-whole confrontation of the opposing sides' comprehensive real strength."[45] This integrated deterrence requires three components. First, "unified activities" must be conducted, namely high-level coordination "at the periphery of the supreme decision-making level" of everyone involved in space deterrence. Second, "adjusting-coordination and complementation of multiple forms of deterrence" are needed. Because "military deterrence by a single means or a single avenue will have increasing difficulty in forming effective deterrence of the enemy," space deterrence is only effective when combined and coordinated with not just other types of military deterrence (both nuclear and conventional) but also "struggle in the political, economic, and diplomatic fields." Third, a "tight combination of all means of deterrence" is required in order to "form integrated-whole deterrent effects" and thus better tailor space deterrence.[46]

This emphasis on integrated deterrence is supported by the creation of the PLASSF in 2015, which centralized previously dispersed PLA capabilities for cyber, space, electronic warfare, and psychological warfare.[47] This decision suggests that the Chinese military leadership saw space and cyber as key strategic and interrelated domains. The PLASSF thus provides better command and control, and perhaps oversight, for these potentially strategic operations, as well as achieves enhanced effects through integrating operations.

However, it is difficult to assess what tangible impact the PLASSF has had on Chinese approaches to space and cyber deterrence over the last seven years. In theory, the PLASSF should be developing strategic and operational plans that leverage its unique combined command-and-control structure to create cross-domain effects, including for deterrence. However, organizationally it has retained separate bureaucracies for the space and cyber domains, with the PLASSF Space Systems Department (SSD) in charge of space operations and the PLASSF Network Systems Department (NSD) in

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[44] Shou, 战略学, 178, 186.

[45] Jiang, 空间作战学教程, 131.

[46] Ibid., 131–32.

[47] Kevin L. Pollpeter, Michael S. Chase, and Eric Heginbotham, *The Creation of the PLA Strategic Support Force and Its Implications for Chinese Military Space Operations* (Santa Monica: RAND Corporation, 2017); and John Costello and Joe McReynolds, *China's Strategic Support Force: A Force for a New Era* (Washington, D.C.: National Defense University Press, 2018).

charge of cyber operations. This means there is a potential for a continued siloed approach to these domains if leadership does not force integration.

In another sense, China may be improving its integrated deterrence for space in a small way. China's 2007 ASAT test appears to be one example of a missed opportunity for integrated deterrence. For such an explicit space deterrence signal that likely took much time to prepare, the Ministry of Foreign Affairs waited twelve days to acknowledge the test, and even then its messaging was muddled.[48] More recently, China's September 2020 test flight of its "reusable experimental spacecraft," assumed to be similar to the U.S. X-37B, was confirmed by Xinhua on the same day.[49] However, it appears to have never been addressed by the Ministry of Foreign Affairs or Ministry of Defense. Obviously, these tests serve as scientific validation and could be intended as private government-to-government signals, thus not requiring integrated deterrence. Still, this appears to fall short of realizing the PLA's intentions.

Operationally, one notional example is the improved effectiveness of cyberattacks against an adversary's space capabilities, broadly defined. While this was already happening as early as 2007, combining operational units for the separate domains should optimize efficacy.[50] Though it is difficult to accurately tally cyberattack activity, reports of Chinese cyberattacks against foreign space systems, including U.S. satellites, continue.[51]

In terms of strategy, one proxy for understanding this short of public doctrine is the research conducted by the PLASSF SSD and NSD. According to a search of all published research on China National Knowledge Infrastructure (CNKI), PLA researchers at the SSD's and NSD's main academic institutions, the Aeronautical Engineering University (AEU) and the Information Engineering University (IEU), respectively, have never coauthored an article.[52] While the AEU has dramatically reduced its overall publishing since 2018, including on deterrence, the IEU has increased its publications on deterrence (see **Figure 2**). One interesting case study, though largely imperceptible to the outside world, will be how the PLA continues to conduct its analysis of foreign space thinking, since at least some of

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[48] Joseph Kahn, "China Confirms Test of Anti-satellite Weapon," *New York Times*, January 23, 2007, https://www.nytimes.com/2007/01/23/world/asia/23cnd-china.html.

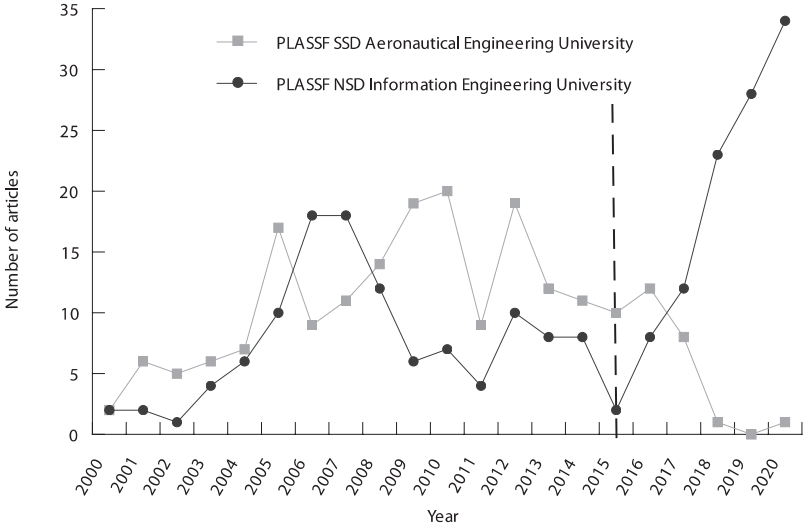
[49] "China Launches Reusable Experimental Spacecraft," Xinhua, September 4, 2020, http://www.xinhuanet.com/english/2020-09/04/c_139342853.htm.

[50] U.S.-China Economic and Security Review Commission, *2011 Report to Congress of the U.S.-China Economic and Security Review Commission* (Washington, D.C., November 2011), 2016.

[51] "Thrip: Espionage Group Hits Satellite, Telecoms, and Defense Companies," Broadcom Software, June 19, 2018, https://symantec-enterprise-blogs.security.com/blogs/threat-intelligence/thrip-hits-satellite-telecoms-defense-targets.

[52] This finding is based on the author's review of CNKI data.

FIGURE 2 Articles by PLASSF researchers mentioning deterrence



SOURCE: Author's count of CNKI data.

NOTE: Dashed line indicates the creation of the PLASSF.

that responsibility was housed in the PLA's Foreign Languages University in Luoyang, which is now part of the IEU.[53] Depending on bureaucratic dynamics, one possibility is that the NSD takes the lead on the PLASSF's overall deterrence thinking and pushes China to favor cyber over space, or alternatively loses nuance for the latter and pursues space deterrence in a clumsy way. As of July 2021, the new PLASSF commander is from the NSD, so this is one area to watch.[54]

The Value of a Vulnerable Civilian Society

Chinese military texts view integrated deterrence as extending beyond the commonly defined military domains and into civilian society. The 2013

[53] For one example, see Gaoyang Yuxi, "美国太空威慑战略调整及其影响" [The Adjustment of U.S. Space Deterrence Strategy and Its Impact], *Peace and Development* (2018): 116–30, 135.

[54] Marcus Clay, "General Ju Qiansheng Takes Command of the PLA Strategic Support Force," *Diplomat*, July 27, 2021, https://thediplomat.com/2021/07/general-ju-qiansheng-takes-command-of-the-pla-strategic-support-force.

AMS *Science of Military Strategy* notes that "in recent years, militarily strong Western nations have vigorously developed new deterrence resources such as informationized conventional deterrence, space deterrence, and information deterrence, and have attached importance to applying multiple means in politics, the economy, science and technology, culture, stratagem, etc., to achieve deterrence goals."[55] The PLA, as the armed wing of an authoritarian political party, understands that all war creates a strain on society but likely believes there is more strain on democracies. Thus, adversary civilian society can be targeted as a weak link. A less escalatory approach is through information operations (public opinion warfare), but crippling cyberattacks against critical infrastructure appear to be another option.[56]

One of the unique attributes of both the space and cyber domains is their inherent relationship with broader civilian society. As the 2013 AMS *Science of Military Strategy* explains, "Outer space and network space serve as new domains; they have already become important brace-supports which the normal functioning of human society and military activity cannot do without even for a moment, and have an overall-situation-quality influence on economic sociology and national security."[57] PLA texts remark that one of the main advantages of space deterrence is that society is now reliant on space, suggesting that threatening an adversary's space assets would deter it from starting a war. The 2013 volume states:

> The reason why space systems and space military forces can be used for the goal of deterrence and generate significant deterrent effects is closely correlated to the rapid development and wide-ranging application of space technology, as well as its far-reaching influence. Due to human daily life, the operating of society, and the unfolding of military activity, there is an ever greater reliance on assisting support and safeguarding support by space systems, and human society has ever greater difficulty bearing the grave aftermath when space systems fail to work, become disordered, and are incapacitated. The means and activity which potentially can cause jamming and sabotage of the normal operation of space systems, even if they do not cause actual sabotage, still can create psychological fear to a certain extent, and have an influence on national decision-makers and the associated strategic decision-making activity.[58]

This may be a problem for China too, though this is not quite explicit: "The development of space forces, and in particular military space forces, already

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[55] Shou, 战略学, 139.

[56] Li Qiang et al., "社会认知战: 时代背景, 概念机理及引领性技术" [Social Cognition Operations: Backgrounds, Concepts, Mechanisms, and Leading Technologies], *Journal of Command and Control* 7, no. 2 (2021): 97–106.

[57] Shou, 战略学, 169.

[58] Ibid., 181.

has become an important foundation for pulling China's economic and science and technology development and protecting the safety of our space assets."[59]

PLA texts also extend this logic of societal vulnerability to the cyber domain. The 2020 NDU *Science of Military Strategy* states the following:

> Because network attack will produce a tremendous destructive power against the enemy's political military economic targets such as the C4ISRK systems of the armed forces, the traffic and transport hubs and communication centers of the nation, etc., [one can] force the opponent to give up their intention of launching network attacks by displaying the effects of attacking these strategic targets.[60]

This follows the AMS 2013 *Science of Military Strategy*:

> In the Information Age, information networks are the foundation and conditions which human living and social activity cannot do without even for a moment.… The ambiguity and uncertainty in network attack and defense operations, as well as the determinacy and foreseeability of the difficult-to-bear aftermath created by a large-scale network war, result in network deterrence to a certain extent having the feature of similarity to nuclear deterrence. Based on the terrifying aftermath of a network war, as well as the indefiniteness of whether it is possible to avoid encountering an adversary's network attacks, no nation ever dares to lightly launch a network war. In regard to network problems, the first thing people consider is how to avoid setting off a network war, and not how to win a network war.[61]

This is borne out in other PLA writings. According to at least one 2014 article, the targets for cyber operations are likely twofold: undermining an enemy's will to fight and reducing an adversary's war potential.[62] A 2016 *China Military Science* article on cross-domain synergies argues that one of the changing characteristics of modern warfare is the mixing of military and civilian targets: "in cyber warfare, the main targets are civilian infrastructure, especially information infrastructure and critical business networks."[63] As a 2021 PLA article surveying various cyber strategies argues, "From a cost-benefit point of view, attacks on key national critical infrastructure [defined as electrical and water, transportation, communications, air, and nuclear power] and military targets can be most effective, and they are the best

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[59] Shou, 战略学, 178.

[60] Xiao, 战略学 (2020), 152–53.

[61] Shou, 战略学, 189, 196.

[62] Si Guangya, Hu Xiaofeng, and Wang Yanzheng, "新型作战空间建模仿真实践与体会" [Practice and Experience of Modeling and Simulation of New Type of Combat Space], *Military Operations Research and Systems Engineering* 28, no. 4 (2014): 5–10; and Ji Ming, "全域作战能力评估相关问题研究" [Research on Related Questions of Assessing Whole-Domain Operations], *Military Operations Research and Systems Engineering* 32, no. 1 (2018): 15–19.

[63] Li Yanlin and Xu Xin, "论跨域协同" [On Cross-Domain Synergy], *China Military Science* (2016): 104–10.

choice for coercing the target country through cyberattacks."[64] Indeed, U.S. Department of Defense reports on the Chinese military's cyber strategy and peacetime hacking recognize that some of the PLA's cyber targets during a conflict may well be civilian, namely critical infrastructure.[65]

There are few PLA texts that explicitly deal with the civilian societal collateral damage (附带损害) of these space or cyber operations. Instead, some PLA cyber strategy texts place greater emphasis on the ultimate focus of operations affecting an adversary's decision-making, which requires a societal impact. As one 2013 article states, "The judgment and decision-making in the OODA [observe-orient-decide-act] ring are transferred to the societal cognitive domain, but the action still occurs and acts in the physical domain, and the purpose of the confrontation is still to weaken its ability to act by destroying the enemy's vital forces [有生力量]."[66]

The PLA, and likely the broader Chinese government, appears to be more concerned about how a crisis or war might affect China's domestic population. This appears to be an especially salient concern for the cyber domain, namely regarding cyber-enabled information attacks against Chinese society.[67] At least some researchers in the PLA have attempted to model various aspects of the societal domain during crisis or wartime.[68] A 2014 article exploring new domains for operational modeling covered critical infrastructure, which included power grids, communication networks, transportation networks, and natural gas pipeline networks, and social group behavior.[69] A 2021 article on system-of-systems warfare identified society as a key focus of deterrence via the three warfares in order

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[64] Wang Zhiyong and Liu Yangyue, "网络空间安全博弈的策略分析" [Analysis of Strategies for Interactions in Cybersecurity], *National Defense Technology* 42, no. 5 (2021).

[65] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*.

[66] Deng Zhihong and Lao Songyang, "赛博空间概念框架及赛博空间作战机理研究" [Cyberspace Conceptual Framework and Cyberspace Combat Mechanism Research], *Military Operations Research and Systems Engineering* 27, no. 3 (2013): 28–31, 58.

[67] Ji, "全域作战能力评估相关问题研究."

[68] For PLA efforts to model large-scale crowds in wartime, see Yang Zhimou et al., "虚拟社会中大规模民众群体行为建模研究" [Modeling of Large-Scale People Group Behavior in Virtual Society], *Journal of System Simulation* 21, no. S1 (2009): 10–14; and Yang Zhimou et al., "大规模群体行为仿真模型设计与实现" [Design and Implementation of Large-Scale Crowd Behavior Simulation Model], *Journal of System Simulation* 22, no. 3 (2010): 724–27. For related modeling efforts, see Si Guangya et al., "虚拟战争空间模型研究" [Research on Virtual War Space Model], *Computer Simulation* 26, no. 1 (2009): 28–31, 45.

[69] Si, Hu, and Wang, "新型作战空间建模仿真实践与体会."

to achieve "effect superiority" (see **Table 1**).[70] The catch is that society is difficult to model.[71]

TABLE 1 Value chain of system-of-systems-centric warfare

Domain	Information	Cognitive	Physical	Societal
Core capability	Accurate collection of information, quick information sharing	Accurate judgment, scientific decisions	Quick strike, precision strike	Deterrence
Combat method (operational concept, supporting concept)	Cooperative engagement capability, integrated air and missile defense	Algorithmic warfare, decision-centric warfare, mosaic warfare	Unmanned swarm operations, multi-domain warfare, quick decisive operations	Psychological warfare, public opinion warfare, legal warfare
Value	Information superiority	Decision superiority	Operational superiority	Effect superiority

SOURCE: Zhao Guohong, "体系中心战: 未来战争的顶层作战概念" [SoS-Centric Warfare: Capstone Operational Concept for Future War], *Journal of Command and Control* 7, no. 3 (2021): 225–40.

Implications

The preceding analysis suggests two key implications for the United States. First, if Beijing views the cyber and space domains as offering the most valuable asymmetric advantages it has over Washington and becomes more concerned about a potential conflict as its ambitions grow amid worsening U.S.-China relations, then China could increase deterrence against the United States. This is one possible explanation for the reported test of a fractional orbital bombardment system in 2021 (though whether this counts as space deterrence is debatable).[72] As one 2019 article by PLA

[70] Zhao Guohong, "体系中心战: 未来战争的顶层作战概念" [SoS-Centric Warfare: Capstone Operational Concept for Future War], *Journal of Command and Control* 7, no. 3 (2021): 225–40.

[71] Ji, "全域作战能力评估相关问题研究."

[72] Demetri Sevastopulo and Kathrin Hille, "China Tests New Space Capability with Hypersonic Missile," *Financial Times*, October 16, 2021, https://www.ft.com/content/ba0a3cde-719b-4040-93cb-a486e1f843fb.

researchers argued, China can increase its space deterrence by overcoming its traditional secrecy to reveal more capabilities as well as by conducting space exercises, testing, and even implementing new policies (much as the United States does).[73]

Second, space and cyber deterrence are likely to be the most fraught issues—outside nuclear deterrence—for U.S.-China crisis stability in the future. China's emphasis on seizing the initiative (first-mover advantage) in a conflict, combined with a deterrence doctrine that emphasizes realistic warlike actions for credible signaling and warning strikes that are intended to communicate resolve short of starting a war, presents a heady combination for crisis dynamics. From a U.S. perspective, this is a recipe for disaster, especially given the lack of strategic "history" compared with Russia from the Cold War. From a Chinese perspective, U.S. superiority requires such a course—one that does not appear inherently risky. This suggests that as the Biden administration pursues crisis stability and broader military-to-military dialogue with Beijing, it should include conversations about the space and cyber domains.

[73] Wu Ming and Ling Shengyin, "加强我国太空威慑能力建设的战略思考(上)" [Strategic Thinking on Strengthening the Construction of China's Space Deterrence Capability], *Defence Industry Conversion in China* (2019): 14–16. For another article by an Information Engineering University researcher, see Gaoyang Yuxi, "美国太空威慑战略的历史演进" [The Historical Evolution of U.S. Space Deterrence Strategy], *International Study Reference* (2017): 27–34.

EXECUTIVE SUMMARY

This chapter examines China's evolving approach to strategic deterrence and explores newer concepts and potential emerging capabilities that could reshape the PLA's strategic deterrence system.

MAIN ARGUMENT

The People's Liberation Army (PLA) has accelerated its efforts to introduce disruptive technologies and emerging capabilities that will enhance its future strategic deterrence. These new domains and frontiers of military technology have the potential to be transformative and include advances in fields ranging from artificial intelligence to biotechnology. The success of the PLA in leveraging such novel and unproven systems to enhance its deterrence posture will hinge on the true credibility of these capabilities, which has been and will continue to be difficult to assess accurately. Chinese military strategists and scientists have highlighted asymmetric and innovative capabilities, ranging from drone swarms and hypersonic missiles to the possibility of genetic or biological weapons, as potentially advantageous to strategic deterrence. The PLA may seek to bolster its posture and system for deterrence based on displays, deliberate disclosure, and demonstrations, as well as propaganda highlighting technological advancements. However, the PLA's actual capacity to realize an integrated, innovative paradigm for strategic deterrence remains unproven. Going forward, these trends merit ongoing analysis, given the risks and the uncertainty, which may have adverse impacts on strategic stability.

POLICY IMPLICATIONS

- Amid intensifying U.S.-China competition, exaggerated expectations about new strategic technologies (fueled by hype cycles) risk provoking or worsening dynamics of arms racing. Under these conditions, there may be incentives to rapidly introduce new weapons systems, which could increase the risk of an accident or inadvertent escalation.
- Meanwhile, mistrust in U.S.-China relations, exacerbated by misinformation and conspiracy theories, could justify the development or deployment of weapons systems that are dangerous, destabilizing, or directly contravening norms in international humanitarian law.
- Given the risks and stakes, the U.S. and Chinese governments should incorporate discussions of these issues into future dialogues and work to adapt existing mechanisms for crisis management.

Chapter 6

Designing Deterrence: The PLA's Outlook on Disruptive Technologies and Emerging Capabilities

Elsa B. Kania

The People's Liberation Army (PLA) is exploring options to leverage disruptive technologies and emerging capabilities to enhance its strategic deterrence system. As the United States promotes "integrated deterrence" as a new framework, the PLA's approach to deterrence is already relatively integrated conceptually and continues to integrate new domains and weapons systems.[1] As the People's Republic of China (PRC) prioritizes innovation and concentrates on "strengthening the military through science and technology" (科技强军) in its quest to become a "world-class military," the PLA's approach to strategic deterrence will likely be further transformed.[2] While China's nuclear arsenal remains foundational to its deterrence system, the PLA also intends to exploit emerging capabilities that are perceived to possess unique utility due to their disruptive or destructive potential. For decades, Chinese military scientists and strategists have explored concepts of space, cyber, or information deterrence.[3] Today, the PLA is also looking to new frontiers of military technology, including potential advances

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[1] For reference on the previous literature on China's concepts for deterrence, see Michael S. Chase and Arthur Chan, "China's Evolving Strategic Deterrence Concepts and Capabilities," *Washington Quarterly* 39, no. 1 (2016): 117–36. For reference on U.S. thinking, see C. Todd Lopez, "Integrated Deterrence at Center of Upcoming National Defense Strategy," DOD News, March 4, 2022, https://www.defense.gov/News/News-Stories/Article/Article/2954945/integrated-deterrence-at-center-of-upcoming-national-defense-strategy.

[2] Ma Jianguang, Yang Yang, and Huang Zijuan, "强军征途|科技强军 制胜未来" [The Journey of a Strong Army: Strengthen the Army with Science and Technology; Win the Future], *People's Daily*, July 31, 2022, http://military.people.com.cn/n1/2022/0731/c1011-32490253.html.

[3] There is extensive literature on these topics. See, for example, Dean Cheng, "Prospects for Extended Deterrence in Space and Cyber: The Case of the PRC," Heritage Foundation, January 21, 2016, https://www.heritage.org/defense/report/prospects-extended-deterrence-space-and-cyber-the-case-the-prc.

in artificial intelligence (AI) and biotechnology, which are expected to transform future warfighting and deterrence.[4] The PLA has pursued a range of advances, from drone swarms to railguns, in its research, development, acquisitions, and experimentation.[5] As the PLA looks to introduce novel, unproven systems to enhance deterrence, the realization of the effects intended will hinge on the credibility of these capabilities, which could be bolstered through displays, deliberate disclosure, and demonstrations.[6] Such efforts can exercise psychological influences on adversary decision calculus, even when the operational implications remain unproven and ultimately unknown. The PLA's capacity to realize a truly integrated and innovative paradigm for strategic deterrence remains uncertain and will merit continued analysis.

This chapter starts by providing an overview of the PLA's outlook on technology and deterrence in historical perspective. It then examines recent official and relatively authoritative articulations of China's evolving approach to strategic deterrence and explores newer concepts and potential emerging capabilities that could reshape the PLA's strategic deterrence system. The chapter concludes by raising policy concerns and discussing potential strategic implications of these trends.

Historical Influences on China's Deterrence

The PLA's drive to develop strategic technologies and introduce advanced capabilities is influenced by historical experiences that provide powerful impetus for current efforts. Today's initiatives build on the legacy of the Two Bombs, One Satellite initiative, which had created China's first

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[4] Note the inclusion of biology and (artificial) intelligence as "domains" for military conflict in the *Science of Military Strategy*. See Xiao Tianliang, ed., 战略学 [*Science of Military Strategy*] (Beijing: National Defense University Press, 2020), 167–80. See also the discussion of emerging technologies in the latest national defense white paper: State Council Information Office of the People's Republic of China (PRC), *China's National Defense in the New Era* (Beijing, July 2019), https://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html.

[5] In fact, PRC progress in railguns appears to have outpaced U.S. efforts on this front by some accounts. See Gabriel Honrada, "China's Railgun Tech on a Surprising Fast Track," *Asia Times*, February 21, 2022, https://asiatimes.com/2022/02/chinas-railgun-tech-on-a-surprising-fast-track.

[6] There can be tension between the advantages of secrecy relative to the rationales for the disclosure of new weapons systems. For reference to these debates in historical context, see Bernard Brodie, "Military Demonstration and Disclosure of New Weapons," *World Politics* 5, no. 3 (1953): 281–301. For a more recent assessment on the subject, see Evan Braden Montgomery, "Signals of Strength: Capability Demonstrations and Perceptions of Military Power," *Journal of Strategic Studies* 43, no. 2 (2020): 309–30.

nuclear weapons and satellite.[7] After the country struggled to overcome the disadvantages of previous technological backwardness, China's capacity to close the gap with and join the ranks of nuclear powers through its first test in 1964, which occurred earlier than generally had been anticipated, provides a powerful exemplar.[8] This history is often invoked to this day as a paradigm to follow for contemporary "megaprojects." In recent decades, China has pursued a range of plans and programs to promote advances in critical domains of science and militarily relevant technologies. Of note, the 863 Program, created in 1986 in response to Ronald Reagan's Strategic Defense Initiative and ultimately concluded in 2016, facilitated advances in supercomputing and supported early efforts in robotics and directed energy.[9] Fearful of falling further behind relative to the United States, China's leaders have consistently emphasized innovation as a national imperative.[10]

The PLA too has proceeded with urgency in seeking to catch up with once superior U.S. technology. Beyond the Cold War paradigm of deterrence as centered on nuclear weapons, conventional deterrence has taken on increased importance for the PLA. In particular, advances in precision weapons systems, which the U.S. military initially employed to great effect in the first Gulf War (1990–91), had drawn the PLA's attention to the significance of these developments.[11] Since then, the PLA Rocket Force has introduced unique capabilities in ballistic missile technology that are globally unparalleled.[12] Since the 1990s, the PLA has also consistently concentrated on cyber and counterspace as asymmetric capabilities that could augment its deterrence posture. Historically, and through to the

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[7] "'两弹一星'从保密到家喻户晓" [Two Bombs, One Satellite from Secret to Household Name], *China Science Journal*, September 2, 2021, https://www.cas.cn/kx/kpwz/202109/t20210902_4804283.shtml.

[8] For reference to policy debates at the time, see Jeffrey Richelson, "Whether to 'Strangle the Baby in the Cradle': The United States and the Chinese Nuclear Program, 1960–1964," *International Security* 25, no. 3 (2000/2001): 54–99.

[9] "'863计划'中国高技术奋起发展的标志" ["863 Plan," a Symbol of China's High-Tech Development], *Guangming Daily*, March 29, 2021, https://www.chinanews.com.cn/sh/2021/03-29/9442368. For an academic reference on the topic, see Qiang Zhi and Margaret M. Pearson, "China's Hybrid Adaptive Bureaucracy: The Case of the 863 Program for Science and Technology," *Governance* 30, no. 3 (2017): 407–24.

[10] 习近平关于科技创新论述摘编 [Summary of Xi Jinping's Discourse on Scientific and Technological Innovation] (Beijing: Central Literature Press, 2016).

[11] Zeng Huafeng and Shi Haiming, "科技威慑: 军事力量运用的新趋势" [S&T Deterrence: A New Trend in the Use of Military Power], China Institute for Command and Control, February 17, 2019, available at http://www.sohu.com/a/295253193_358040. The authors are affiliated with the National University of Defense Technology. This piece builds on their prior book: Zeng Huafeng and Shi Haiming, 科技兴军的逻辑 [The Logic of Rejuvenating the Military through Science and Technology] (Changsha: National University of Defense Technology Press, 2018).

[12] For reference, see Michael S. Chase, "PLA Rocket Force Modernization and China's Military Reforms," testimony before the U.S.-China Economic and Security Review Commission, February 15, 2018, https://www.uscc.gov/sites/default/files/Chase_Written%20Testimony.pdf.

present, PLA commentators continue to highlight the importance of "new concept" weapons (新概念武器) that provide innovative or asymmetric capabilities for China's deterrence posture.[13]

Chinese military modernization has often centered on the U.S. military as the "powerful adversary" (强敌) that provides a target and benchmark for its efforts. In the aftermath of the accidental U.S. bombing of the Chinese embassy in Belgrade in 1999, the Central Military Commission (CMC) decided to "accelerate the development of *shashoujian* [杀手锏] armaments."[14] "Shashoujian," an expression usually translated into English as "trump card" or sometimes rendered "assassin's mace," typically connotes a weapon that can unexpectedly incapacitate a stronger enemy, a "killer" weapon. "Whatever the enemy is most fearful of, this is what we should be developing," Jiang Zemin is reported to have urged at the time.[15] However, China then lacked viable options for response or retaliation. In the aftermath, the New High-Technology Weapons Plan—or "995" plan, designated based on the year and month (i.e., May) of the Belgrade embassy bombing—was introduced to pursue new strategic weapons systems designed to undercut U.S. military advantages.[16] Only limited information has been released or rumored about the program in the years since. This secretive initiative has reportedly prioritized such killer weapons that could possibly include ballistic missiles and counterspace capabilities that have been since displayed and deployed by the PLA.[17]

China's Strategic Deterrence in the New Era

The PLA's outlook on strategic deterrence is complex and consequential. China's military strategy and doctrine can be inherently difficult to evaluate because of the limited references and a traditional aversion to transparency.

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[13] For one example of discussion of this concept, see Zhang Chunhai and Cheng Pusheng, "新概念武器发展的探讨(下)" [Discussion on the Development of New Concept Weapons (Part 2)], *Modern Weaponry,* 1997.

[14] Zhang Wannian, 张万年传 [Biography of Zhang Wannian] (Beijing: Liberation Army Press, 2011), 416–17, quoted in Tai Ming Cheung et al., "Planning for Innovation: Understanding China's Plans for Technological, Energy, Industrial, and Defense Development," U.S.-China Economic and Security Review Commission, July 28, 2016, 26–27, https://www.uscc.gov/research/planning-innovation-understanding-chinas-plans-technological-energy-industrial-and-defense.

[15] Zhang, 张万年传 , 416.

[16] Cheung et al., "Planning for Innovation," 25–27.

[17] "解放军神秘 '995工程' 使武器装备呈井喷式发展" [The People's Liberation Army's Mysterious "995 Project" Has Made Weapons and Equipment Develop in a Blowout Manner], *Global Times*, March 13, 2015, http://news.sina.com.cn/c/2015-03-13/102031602956.shtml.

Yet available writings, which include official textbooks and commentaries with uncertain degrees of authoritativeness, provide a point from which to start to evaluate trends in the PLA's strategic thinking. PLA writings that are considered relatively authoritative, such as the editions of the *Science of Military Strategy* (战略学) released by the PLA Academy of Military Science (in 2013) and National Defense University (in 2015, 2017, and 2020), discuss not only nuclear and conventional deterrence but also space, cyber, and information deterrence.[18] In an era in which warfare could be transformed by new high-tech advances, a "flexible" and "comprehensive" approach to deterrence is required, as the 2020 edition emphasizes, and "the status and function of strategic deterrence have been continuously expanding."[19] Beyond the "high frontier" of space and the "new frontier" of cyberspace, ongoing applications of intelligent technologies are expected to "further expand the space for strategic deterrence," as one 2021 commentary in the *PLA Daily* similarly highlighted.[20] The PLA can be expected to continue to revise and adapt elements of its strategy and doctrine in response to changes in technologies and assessments of the character of conflict.[21]

Even as China's dramatic expansion of its nuclear arsenal is provoking concerns and commanding headlines worldwide, this trend should not obscure the degree to which the PLA has been prioritizing in parallel new types of strategic capabilities. Infamously, Mao Zedong once characterized nuclear weapons as "paper tigers," given the limited credibility of threats of their actual employment in light of the global taboo.[22] Traditionally, deterrence has been primarily the mission of the PLA Rocket Force (formerly, the Second Artillery Force).[23] Among the priority lines of effort has been the development of certain dual-purpose weapons systems, including the DF-26 intermediate-range ballistic missile, due to their dual and greater

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[18] See Shou Xiaosong, ed., 战略学 [Science of Military Strategy] (Beijing: Academy of Military Sciences, 2013); and Xiao, 战略学.

[19] Xiao, 战略学, 126.

[20] Xie Kai, Sun Hongwei, and Li Wenqing, "关注战略威慑新特点" [Concentrating on the Characteristics of Strategic Deterrence], *PLA Daily*, November 30, 2021, http://www.81.cn/jfjbmap/content/2021-11/30/content_304212.htm.

[21] For reference on PLA revisions and new joint doctrine as incorporating assessments on changes in technology, see M. Taylor Fravel, *Active Defense: China's Military Strategy since 1949* (Princeton: Princeton University Press, 2019); and David M. Finkelstein, "The PLA's New Joint Doctrine: The Capstone of the New Era Operations Regulations System," CNA, September 2021, https://www.cna.org/reports/2021/09/The-PLAs-New-Joint-Doctrine.pdf.

[22] For reference, see Ralph L. Powell, "Great Powers and Atomic Bombs Are 'Paper Tigers,'" *China Quarterly* 23 (1965): 55–63.

[23] "中国火箭军战略打击能力跃上新台阶" [China's Rocket Force Strategic Strike Capability Has Leapt to a New Level], Xinhua, October 4, 2019, http://www.xinhuanet.com/politics/2019-10/04/c_1125072032.htm; and Xiao, 战略学.

utility for both nuclear deterrence and conventional warfighting.[24] Today, however, the PLA Rocket Force is undergoing dramatic modernization, including apparent expansion of its nuclear arsenal beyond prior limits.[25] Concurrently, the PLA Air Force is introducing strategic bombers, and the PLA Navy is also directly designated as responsible for increasing strategic deterrence and counterattack capabilities—a new mission that reflects the ongoing diversification of the PLA's posture toward a triad.[26] Increasingly, the PLA is concerned with the development of asymmetric and "strategic counterbalance" (战略制衡) capabilities that disrupt the military balance.[27]

The PLA is introducing new strategic capabilities to its deterrence system that could convey distinctive advantages because of their usability and flexibility. Since its creation in 2016, the PLA Strategic Support Force, which commands space and cyber forces, is also emerging as an element of China's deterrent posture.[28] This new force is at the forefront of military innovation and experimentation, including applications of AI to the space and cyber domains.[29] Beyond these virtual spaces, reported Chinese advances in hypersonic weapons are likely dual-purpose, introducing a new strategic weapon for deterrence and seemingly designed to evade U.S. defenses for operational employment.[30] Against the backdrop of a tendency toward hype about hypersonic weapons, Chinese innovations that have outpaced U.S. progress have provoked surprise and apparent anxiety.[31] Such reactions can create cognitive effects relevant to deterrence, even prior to the large-scale deployment or demonstrated effectiveness of these systems. As the PLA

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[24] "东风-26核常兼备导弹方队: 核常兼备的新型战略利器" [DF-26 Nuclear and Conventional Missile Squadron: A New-Type Strategic Weapon with Both Nuclear and Conventional Capability], Xinhua, October 1, 2019. For an earlier reference, see "Academy of Military Science Researchers: 'Why We Had to Develop the Dongfeng-26 Ballistic Missile'—Bilingual Text, Analysis and Related Links," December 5, 2015, available at https://www.andrewerickson.com/2015/12/academy-of-military-science-researchers-why-we-had-to-develop-the-dongfeng-26-ballistic-missile-bilingual-text-analysis-links.

[25] Roxana Tiron, "U.S. Sees Rising Risk in 'Breathtaking' China Nuclear Expansion," Bloomberg, April 4, 2022, https://www.bloomberg.com/news/articles/2022-04-04/u-s-sees-rising-risk-in-breathtaking-china-nuclear-expansion#xj4y7vzkg.

[26] Xiao, 战略学, 126.

[27] Ibid., 157.

[28] John Costello and Joe McReynolds, *China's Strategic Support Force: A Force for a New Era* (Washington, D.C.: National Defense University Press, 2018).

[29] See the author's forthcoming research that addresses this topic: "The PLA Strategic Support Force: Innovating for Future Warfare."

[30] Phil Stewart, "Top U.S. General Confirms 'Very Concerning' Chinese Hypersonic Weapons Test," Reuters, October 27, 2021, https://www.reuters.com/business/aerospace-defense/top-us-general-confirms-very-concerning-chinese-hypersonic-weapons-test-2021-10-27.

[31] Oelrich Ivan, "Cool Your Jets: Some Perspective on the Hyping of Hypersonic Weapons," *Bulletin of the Atomic Scientists* 76, no. 1 (2020): 37–45.

looks to enhance and reinforce strategic deterrence, future employment of emerging capabilities could be influenced by traditional concepts, such as guidance to "integrate deterrence and warfighting" (慑战一体) with regard to weapons systems, force posture, and concepts. This could include actual combat as a means of achieving deterrent or coercive effects.[32] The notion of "using a small battle to prevent major war" (以小战止大战), which is typically attributed to Mao, envisions smaller skirmishes as a means to establish credibility.[33] Such an approach, which could play out kinetically or within a virtual domain, requires flexibility in the use of force for deterrent or compellence purposes. These trends raise concerns about escalation and potential misperception that could undermine crisis management, especially as coercive activities could occur within newer domains and using advanced weapons systems.

Deterrence in the New Era

The PLA's outlook on warfare tends to center on the transformative influences of technology, which also influences its theories of deterrence. PRC leaders and PLA strategists regard science and technology as critical elements of national power to be combined into a comprehensive framework for deterrence.[34] PLA scholars often invoke a quotation from an 1877 text by Friedrich Engels: "advances in technique [i.e., technology], as soon as they became applicable militarily and in fact were so applied, immediately and almost forcibly produced changes and even revolutions in the methods of warfare, often indeed against the will of the army command."[35] This outlook has contributed to intense concerns about new domains and exotic advances in weapons technology. Certain writings by Chinese military scholars even articulate an expectation that new types of biological weapons, even "genetic

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[32] "东风-26进入火箭军战斗序列: 反应快打击准射程远" [DF-26 Enters the Rocket Force Battle Sequence: Fast Response and Long Range], *S&T Daily*, April 27, 2018, available at http://www.xinhuanet.com/politics/2018-04/27/c_1122749765.htm.

[33] Li Dianren, "李殿仁: 毛泽东国防建设思想的伟大贡献" [The Great Contribution of Mao Zedong's National Defense Construction Thought], CCP Central Committee Institute of Party History and Literature, January 22, 2018, https://www.dswxyjy.org.cn/n1/2019/0228/c423718-30948704.html.

[34] Zeng and Shi, 科技兴军的逻辑.

[35] For the original reference, see Friedrich Engels' *Anti-Dühring*, first published as a book in 1878: Friedrich Engels, *Herrn Eugen Dührings Umwälzung der Wissenschaft* [Herr Eugen Dühring's Revolution in Science] (Leipzig: Drud und Berlag, 1878). Thanks to Jasmine Chorley for assistance in identifying the original source.

weapons," could be employed for deterrent purposes in future conflicts.[36] The PLA has closely tracked and attempted to keep pace with U.S. programs and advances, especially concentrating on the Defense Advanced Research Projects Agency as a focus of concern and a model to emulate.[37] Ultimately, the PLA aspires to achieve the capacity for "war design" (战争设计), as General Xu Qiliang, vice chair of the CMC, has declared.[38] The idea of war design centers on the intention to introduce capabilities that determine the terms of engagement in future battles; so too, for deterrence.[39]

The PLA believes the form of warfare is evolving from informatization (信息化) to intelligentization (智能化), currently involving "informatized intelligentized conditions," and such trends will inevitably influence deterrence as well.[40] According to the 2020 edition of the *Science of Military Strategy*, the "intelligentized features of informationized local wars are becoming steadily more apparent," and the dynamics of deterrence are expected to evolve in turn.[41] The relatively successful employment of drones on the battlefield in the current conflict in Ukraine may reinforce the PLA's confidence in the utility of robotics and autonomy. Beyond intelligentization, the idea of warfare as transformed by biotechnology (sometimes characterized as 生物化, or "biologization" of conflict) has also recurred on occasion.[42] The PLA's concern with biosecurity, biodefense, and military biotechnology is influenced by its history, including Japan's offenses and experimentation under the auspices of Unit 731, and has only heightened since the Covid-19 pandemic, which has demonstrated the extent of the

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[36] See, for example, Zeng and Shi, "科技威慑：军事力量运用的新趋势"; and Cao Shiyang, "基因武器真的能影响未来战争吗?" [Can Genetic Weapons Really Affect Future Wars?], China Military Net Integrated, November 10, 2017, http://81.cn/jwzl/2017-11/10/content_7819952.htm.

[37] In fact, the new CMC Science and Technology Commission (STC) has been characterized as inspired by and possibly attempting to emulate the Defense Advanced Research Projects Agency's model and even specific projects. The CMC STC has also supported research to study the agency. See Yi Biyi, Huang Shiliang, and Lei Erqing, "DARPA引领国防科技创新之道" [The Way DARPA Takes the Leadership in National Defense Science and Technology Innovation], *Science and Technology Review* 36, no. 4 (2018): 33–36.

[38] Kristin Huang, "As China's Military Confidence Grows, It's Now Looking to 'Design' How War Is Fought," *South China Morning Post*, November 13, 2020, https://www.scmp.com/news/china/military/article/3109585/chinas-military-confidence-grows-its-now-looking-design-how-war.

[39] Xu Hanqing and Ji Wenkai, "让设计战争走在战争打响之前" [Let the Design (of) Warfare Go before the War], *PLA Daily*, May 21, 2022, available at http://www.taihainet.com/news/military/jsjw/2022-05-21/2621476.html.

[40] See State Council Information Office (PRC), *China's National Defense in the New Era*.

[41] Xiao, 战略学, 185.

[42] "军报:解放军面临与主要国家军队技术差距拉大危险" [Military Report: The People's Liberation Army Faces the Danger of Widening the Technological Gap with the Military of Major Countries], *PLA Daily*, January 5, 2016, https://www.chinanews.com.cn/m/mil/2016/01-05/7701759.shtml.

damage and disruption that can be caused by biological threats.[43] Initial interest has ranged from fantastical thinking about future possibilities for targeted bioweapons to more pragmatic attention toward options for human performance enhancement to increase commanders' capabilities to manage cognitive complexity.[44] For decades, Chinese military scientists and strategists have discussed the prospects for "new concept weapons" (新概念武器), a term that has been used in reference to a range of new weapons systems, from directed energy weapons to the possibility of genetic weapons, viewed as conveying possible advantages.[45]

The PLA's initiatives in military innovation could affect the dynamics of deterrence and enable new options for coercion, even overmatch. The CMC Science and Technology Commission provides guidance for these efforts.[46] Since the PLA's reforms, the Academy of Military Science has been elevated and taken a leading position in military science and technology development. Among the core priorities that the academy has pursued under the auspices of its National Innovation Institute for Defense Technology have been unmanned systems, military AI, and biological interdisciplinary technologies (生物交叉 or bioconvergence), as well as quantum technology.[47] China's fight to innovate can leverage an extensive ecosystem of military, defense industry, academic, and commercial institutions that have sought to synergize and integrate their efforts in accordance with a national strategy of military-civil fusion (军民融合).[48] Even as the ultimate relevance of nascent weapons systems to the PLA's future deterrence system remains relatively uncertain, as are the concepts of operations, recent writings from Chinese military scientists, scholars, and strategists can provide a preview of emerging elements of PLA strategic thinking on these new dimensions of deterrence that may further coalesce in the years to come. The PLA's consistent commitment to investing in and experimenting with disruptive

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[43] Tsuneishi Keiichi and John Junkerman, "Unit 731 and the Japanese Imperial Army's Biological Warfare Program," *Japan's Wartime Medical Atrocities: Comparative Inquiries in Science, History, and Ethics*, ed. Jing Bao Nie et al. (Abingdon: Routledge, 2010), 21–31.

[44] "专家: 生物化战争行将兵临城下" [Expert: Biologized Warfare Is Just About to Be the Soldiers at the City Walls], *People's Daily Online*, January 10, 2014, available at http://www.81.cn/jskj/2014-01/10/content_5729113_2.htm.

[45] Wan Peihua, "基因武器的威力" [The Formidable Power of Genetic Weapons], *Life and Disaster* 6 (2019): 26–29.

[46] State Council Information Office (PRC), *China's National Defense in the New Era*.

[47] "国防科技创新研究院2021年面向社会公开招考文职人员预告" [The National Defense Science and Technology Innovation Research Institute Will Openly Recruit Civilian Personnel from the Public in 2021], Science HR, http://www.sciencehr.net/uploads/gfkjcxy/index.html.

[48] Alex Stone and Peter Wood, *China's Military-Civil Fusion Strategy: A View from Chinese Strategists* (Montgomery: China Aerospace Studies Institute, 2020).

technologies and emerging capabilities may create conditions that reshape the future of deterrence.

"Intelligent" Deterrence

As intelligentization transforms the character of warfare, the means of strategic deterrence are expected to evolve in kind. Since at least 2019, intelligentization has been officially designated a priority in Chinese military modernization, as the PLA seeks to realize and leverage the potential of emerging technologies.[49] These efforts are building on the foundation of previous developments in information technology to introduce AI, enabled by military big data and cloud computing, which are fundamental prerequisites to the realization of these capabilities. For instance, given such rapid advances and innovation, PLA senior engineer Zhang Jingjing argues that China should "develop more trump cards unique to our nation and increase strategic deterrence and counterbalances to reduce the military generation gap and to achieve overtaking around a corner."[50] Future "intelligent deterrence" (智能威慑) could emerge as a new trend and future direction for deterrence based on leveraging advances in big data, military AI, and unmanned swarming, according to a *PLA Daily* commentary on the topic.[51] Although the new strategic weapons that could emerge in the course of this anticipated revolution in military affairs have yet to be fully realized, current trends point to specific capabilities that could be utilized for future deterrence.

The PLA's adoption of these technologies across a range of applications will be influenced by perceived opportunities and challenges. The use cases range from such recognition of the potential of autonomous hypersonic weapons for strategic strike to shortcomings in early warning capabilities.[52] Beyond nuclear weapons, the advent of new weapons systems including "unmanned intelligent" combat equipment will "further strengthen strategic deterrence and the actual combat deterrence of strategic weapons."[53] In

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[49] State Council Information Office (PRC), *China's National Defense in the New Era*.

[50] Zhang Jingjing, "AI颠覆未来战争" [AI Disrupts Future Warfare], *Outlook Weekly*, December 13, 2021, http://lw.news.cn/2021-12/13/c_1310368809.htm.

[51] Xie, Sun, and Li, "关注战略威慑新特点."

[52] Lora Saalman, "Fear of False Negatives: AI and China's Nuclear Posture," *Bulletin of the Atomic Scientists*, April 24, 2018, https://thebulletin.org/2018/04/fear-of-false-negatives-ai-and-chinas-nuclear-posture.

[53] Fu Wanjuan, Yang Wenzhe, and Xu Chunlei, "智能化战争，不变在哪里" [Intelligentized Warfare, Where Is the Consistency], *Qiushi*, January 14, 2020, http://www.qstheory.cn/llwx/2020-01/14/c_1125460220.htm.

particular, unmanned systems are regarded as distinguished by features that include concealment, long endurance, and excellent performance in intelligence, surveillance, and reconnaissance (ISR), factors favorable to their adoption for future strategic deterrence missions. The flexibility and decentralized character of swarm combat systems, which would possess the resilience to continue operations despite degradation, can allow for saturation attacks favorable for deterrent purposes.[54]

There are reasons for concern that these trends could undermine the survivability of existing arsenals and thereby jeopardize strategic stability. Ongoing advances in robotics and autonomy could provide new platforms for the delivery of nuclear or precision strikes. Future hypersonic weapons are anticipated to be highly autonomous, which could result in "a quantum leap in the attack speed and tempo of war."[55] Among the critical factors is the potential reaction of adversaries to scenarios in which speed and offense dominance create incentives for preemption under conditions of uncertainty.[56] Of note, the existing literature has also highlighted how use of AI/machine learning and data analytics, from ISR to mission planning and battle management, could facilitate the sophistication of engagement required for complex counterforce targeting.[57] Despite technical immaturity, future drone swarming across multiple domains is "suitable conceptually to implement preemptive attacks against adversary nuclear and non-nuclear mobile missile launchers, ballistic missile submarines, and ancillary facilities (e.g., as reconnaissance, surveillance, and early warning systems)," according to an assessment of the topic.[58] This could "reduce significantly the opponent's secondary nuclear counterattack capability, promoting the formation of a 'unilaterally guaranteed destruction' situation," according to a PLA commentary on impacts of AI for strategic stability.[59] The possibility of high levels of autonomy in future hypersonic weapons systems may also be conducive to an offense-oriented approach based on the potential for strategic strikes that could prove destabilizing in their capacity to overcome

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[54] Xu Lin, Lu Bingchi, and Fan Huafeng, "人工智能: 全球战略稳定重要变量" [Artificial Intelligence: An Important Variable for Global Strategic Stability], *PLA Daily*, July 20, 2021, available at https://m.yunnan.cn/system/2021/07/20/031562429.shtml.

[55] Ibid. See, for instance, Shixun Luo et al., "Network for Hypersonic UCAV Swarms," *Science China Information Sciences* 63, no. 4 (2020): 1–28.

[56] Xu, Lu, and Fan, "人工智能: 全球战略稳定重要变量."

[57] See, for instance, Michael C. Horowitz, "When Speed Kills: Lethal Autonomous Weapon Systems, Deterrence and Stability," *Journal of Strategic Studies* 42, no. 6 (2019): 764–88.

[58] Xu, Lu, and Fan, "人工智能: 全球战略稳定重要变量."

[59] Ibid.

existing defenses.[60] The concerns about these potential implications, even prior to demonstration of the feasibility of such an operation, could catalyze arms-racing dynamics.

Through advances in intelligent technology will also come new possibilities to exploit the underlying psychological dimensions of deterrence, which the PLA has persistently emphasized. Of note, its focus on deterrence is not limited to the military but could include targeting society more extensively. The PLA believes that warfare is increasingly extending beyond the physical and information domains into the "cognitive domain" (认知领域) of conflict.[61] Beyond existing techniques for psychological operations, manipulation of big data can create a new "fog of war" and situations of "cognitive confusion."[62] In future warfare, styles of operations that could become central to deterrence and actual combat capabilities might include activities not only in the cognitive domain, such as "reversals of public opinion" and the creation of "psychological panic." Traditionally, the transmission and dissemination of "deterrence information" could be limited by practical impediments, such as timeliness and cultural differences, as the *Science of Military Strategy* has noted.[63] Based on data mining and more sophisticated exploitation of information about a potential adversary, including its politics and military, the informational dimensions of deterrence could be more precisely targeted to achieve greater effects.[64] In this regard, improvements in "intelligent psychological operations," whether against leaders based on profiling of their personalities or to erode resolve through targeting society, may be another instrument of China's future deterrence.[65] PLA research involving options for modeling, such as using deep learning to explore the decision-making of competitors and the dynamics of strategic deterrence, could improve prediction and anticipation of adversary responses—or engender overconfidence.[66]

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[60] Lora Saalman, "China's Artificial Intelligence–Enabled Offense: Hypersonic Glide Vehicles and Neural Networks," in *Artificial Intelligence, China, Russia, and the Global Order*, ed. Nicholas D. Wright (Maxwell AFB: Air University Press, 2019).

[61] Nathan Beauchamp-Mustafaga, "Cognitive Domain Operations: The PLA's New Holistic Concept for Influence Operations," Jamestown Foundation, China Brief, September 6, 2019.

[62] Xie Kai, Zhang Dongrun, and Liang Xiaoping, "透视智能化战争制胜机理嬗变" [A Perspective on the Evolution of the Winning Mechanism of Intelligent Warfare], *PLA Daily*, April 26, 2022, available at http://www.mod.gov.cn/power/2022-04/26/content_4909826.htm.

[63] Xiao, 战略学, 127.

[64] Xie, Zhang, and Liang, "透视智能化战争制胜机理嬗变. "

[65] Ibid.

[66] For one relevant analysis, see Rong Ming and Yang Jing-Yu, "基于深度学习的战略威慑决策模型研究" [Strategic Deterrence Decision Model Based on Deep Learning], *Journal of Command and Control* 3, no. 1 (2017): 44–47.

The PLA's interest in such precise targeting at the level of deterring or coercing individual leaders has also segued into the idea of "brain-control weapons" that could target an enemy, which conveys latent appeal even as the potential for the realization of those capabilities remains questionable.[67] For instance, the addition of the Academy of Military Medical Sciences to the entity list by the U.S. Department of Commerce pointed to the interest in and potential pursuit of "brain-control weaponry" as a rationale.[68] PLA writings differentiate "brain-controlled" (脑控) weaponry from weapons designed to control the brain (控脑), relative to "brain fusion" (控脑) as a new style of command decision-making that integrates human and machine intelligence.[69] To some extent, PLA analysis of these trends is influenced by purported U.S. developments even when the accounts in question are dubious or unverified.

Biological Deterrence

PLA scientists and strategists have become increasingly concerned and seemingly fascinated with the impact of biotechnology on future deterrence and warfighting. He Fuchu of the PLA's Academy of Military Medical Sciences has been a prominent proponent of the weaponization of biotechnology.[70] Notably, the *Science of Military Strategy* in its 2017 and 2020 editions introduced a new section dedicated to the subject of "military struggle in the domain of biology."[71] According to the text, "biotechnology attacks can not only bring biological damage to specific targets and people, but also bring large-scale spreading effects and deterrent effects."[72] The creation of "new-type" biological weapons is seen as potentially advantageous because such hypothetical capabilities could be "super-micro, non-lethal, and even reversible," which would render conflict more "flexible and controllable."[73]

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[67] See, for instance, Shi Fei and He Juan, "摇篮里的脑控武器" [Brain-Controlled Weapons in the Cradle], China Military Online, August 7, 2020, http://www.81.cn/jfjbmap/content/2020-08/07/content_267899.htm.

[68] Conor Finnegan and Luke Barr, "U.S. Accuses Chinese Tech Firms, Research Institutes of Weaponizing Biotechnology, Creating 'Brain-Control Weaponry,'" ABC News, December 16, 2021, https://abcnews.go.com/Politics/us-accuses-chinese-tech-firms-research-institutes-weaponizing/story?id=81793798.

[69] Zhang Yuantao, Li Xiangang, and An Weizhao, "未来智能化作战的五种样式" [Five Styles of Future Intelligent Warfare], *Guangming Daily*, November 23, 2019.

[70] He Fuchu, "生物安全: 国防战略制高点" [Biosecurity: The Commanding Heights of National Defense Strategy], CCP News Network, August 21, 2014, http://shanxidsfz.gov.cn/Browse/ArticleView/ArticleInfo.aspx?ID=100029000000001837.

[71] Xiao, 战略学, 167–74.

[72] Ibid., 167–68.

[73] Ibid., 167–74.

In the future, "superiority in the bio-domain" is expected to become as essential and advantageous as command of the sea is today.[74] These concerns about trends in biotechnology highlight not only the necessity of defense but also the trends in future conflict with the potential for biologized warfare.

Among the rationales for biotechnology's appeal on the battlefield is the potential for hitherto unprecedented techniques in targeting that could achieve targeted deterrent effects. Certain writings, including the *Science of Military Strategy*, posit that new kinds of biological warfare could be highly targeted, even employing "specific ethnic genetic attacks" (特定种族基因攻击).[75] Disturbingly, this discussion of the possibility of precise biological weapons is repeated across a number of PLA writings, though at times in reference to concern over U.S. intentions or capabilities development.[76] These somewhat authoritative references to the potential for genetic attacks remain ambiguous, but are troubling nonetheless.[77] To some extent, this line of thinking reflects persistent paranoia about U.S. intentions; the reasons for concern may arise from how the PLA feels compelled to pursue capabilities that violate norms and laws based on fear and misperception of U.S. intentions and programs.[78] Beyond the ideas, there have been concerns raised publicly but essentially unconfirmed that certain elements of Chinese military research and development are starting to explore the future feasibility of such capabilities, even if the PLA has not determined whether to deploy or employ the outcomes of such efforts.[79] However, the perception that such capabilities could be advantageous is concerning.

In the future, "biological deterrence" (生物威慑) could become a new style of deterrence that is enabled by advances in biotechnology.[80] For instance, PLA scholars warned that "biotech attacks can not only bring

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[74] Li Hongjun, "基于制生权理论的生物化战争形态研究" [Research on the Form of Biologized Warfare Based on the Theory of Biological Dominance] (PhD diss., Third Military Medical University, 2016).

[75] For example, see Zhang Shibo, 新高地 [The New High Ground] (Beijing: National Defense University Press, 2017); and Li, "基于制生权理论的生物化战争形态研究."

[76] Similarly, the phrasing is repeated in Zhang, 新高地. The author is indebted to Wilson VornDick for drawing this book to her attention.

[77] That is, some of these writings are vague, likely deliberately, about whether their purpose is to raise concerns that China could be subjected to these kinds of attacks or to highlight their offensive potential as a direction of development that China should pursue going forward.

[78] David Vergun, "Russia and China Falsely Accusing Use of Biological Weapons Against Russians, Say Officials," DOD News, March 10, 2016, https://www.defense.gov/News/News-Stories/Article/Article/2963280/russia-and-china-falsely-accusing-use-of-biological-weapons-against-russians-sa.

[79] There has been public commentary on the topic that is not conclusive. See, for instance, Mike Pompeo and Miles Yu, "China's Reckless Labs Put the World at Risk," *Wall Street Journal*, February 23, 2021, https://www.wsj.com/articles/chinas-reckless-labs-put-the-world-at-risk-11614102828.

[80] Zeng and Shi, "科技威慑: 军事力量运用的新趋势"; and Zeng and Shi, 科技兴军的逻辑.

biological damage to specific targets and people, but also bring large-scale diffusion effects and deterrent effects."[81] China's concern with the impact of bio threats or weapons has only heightened since the pandemic, which has demonstrated the dramatic impacts that natural threats can have. According to Wang Xiaoli from the Chinese Academy of Sciences, "What is worrying is that in the future, the extreme application of this new biotechnology violence, or the natural outbreak or man-made induction of new epidemics, will have similar weapon effects as the existing human nuclear weapons technology, and will be superior in specific performance and effectiveness."[82] The analysis further contends that "it cannot be ruled out that the threat of biological warfare and biological terror will be combined into one, evolving into a smart new tool for strategic deterrence, strategic blackmail, and unrestricted warfare."[83] As is often the case in PLA writings, speculation on the future operational environment is ambiguous as to the boundary between concerns about the defensive considerations of such trends, often driven by anxieties about U.S. intentions, and the offensive opportunities.

The PLA has also looked at potential technological advancements as a means of compensating for human shortcomings in an age of high-tech warfare. For instance, the possibility of human performance enhancement has been characterized as creating future "super soldiers" who provide a capability that improves biological deterrence.[84] The PLA has funded research in human performance enhancement, as well as technologies intended to achieve that effect, such as exoskeletons.[85] Despite the wild speculation on the issue, the potential for China to deploy super soldiers remains in the realm of military futurism, absent any compelling evidence of substantive progression in these efforts.[86] From a pragmatic perspective, an interest in options to improve alertness and performance under adverse conditions would be unsurprising as a research direction of interest to

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[81] Zeng and Shi, "科技威慑: 军事力量运用的新趋势."

[82] Wang Xiaoli, "生物安全时代: 新生物科技变革与国家安全治理" [The Era of Biosecurity: New Biotechnology Transformation and National Security Governance], *China Journal of Bioengineering* 40, no. 9 (2020): 95–109.

[83] Wang, "生物安全时代: 新生物科技变革与国家安全治理."

[84] Xie, Sun, and Li, "关注战略威慑新特点."

[85] This has been openly and publicly reported on across multiple stories. See, for example, Dave Makichuk, "PLA Using 'Exoskeleton Suits' on Himalayan Border," *Asia Times*, December 12, 2020, https://asiatimes.com/2020/12/pla-takes-high-ground-with-exoskeleton-suits-report.

[86] Ken Dilanian, "China Has Done Human Testing to Create Biologically Enhanced Super Soldiers, Says Top U.S. Official," CNBC, December 3, 2020, https://www.nbcnews.com/politics/national-security/china-has-done-human-testing-create-biologically-enhanced-super-soldiers-n1249914.

the PLA.[87] Even absent substantive progression toward future capabilities, research in exotic military technologies and scientific experimentation that captures headlines can contribute to the credibility of China's overall military power and therefore become conducive to deterrence.

Displays, Disclosure, and Demonstration for Deterrence

As the PLA pursues military innovation, the efficacy of new systems for deterrence depends on credibility, which can be bolstered through displays, disclosure, and demonstration. Traditionally, the PLA's transparency about its military modernization has been highly limited at best, often incurring the frustration of U.S. interlocutors as a result. However, there has been a gradual realization within the PLA about the value and relevance of transparency for deterrence, such as through training and exercises that are aimed at conveying the credibility of Chinese military capabilities to a global audience.[88] Beyond training, targeted transparency is seemingly becoming manifest in conveying information that pertains to science, technology, and emerging capabilities. The deliberate disclosure and demonstration of sensitive programs, based on news of weapons tests or even capabilities that remain developmental, appears to be a new trend that reflects deliberate attempts to provoke fear about the rise of Chinese military power. When the *Global Times* discusses quantum technology or the *South China Morning Post* reveals interest in autonomous submarines based on revealed information from "military experts" likely authorized to engage with the media, that informational engagement can be regarded as intended to draw attention and even provoke a response.[89] Likewise, multiple, well-publicized demonstrations of swarms by Chinese military research institutes and the defense industry have reinforced credible concerns about PLA swarm capabilities.[90] Such reporting may be accurate, though potentially exaggerated, in an attempt to create deterrent effects even when a system is yet to be fielded.

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[87] Li Fang and Shi Haiming, "生物交叉技术: 撬动生理信息战的前沿科技" [Bioconvergence Technologies: Leveraging the Physiology of Information Warfare's Frontiers of Science and Technology], Guangming Network Military Technology Frontier, October 19, 2016, http://junshi.gmw.cn/2016-10/19/content_23026987.htm.

[88] "军报: 加大军事演习透明度可增强威慑效果" [Military Daily: Greater Transparency of Military Exercises Can Enhance Deterrence Effect], *PLA Daily*, April 29, 2008.

[89] Stephen Chen, "China Reveals Secret Programme of Unmanned Drone Submarines Dating Back to 1990s," *South China Morning Post*, July 8, 2021, https://www.scmp.com/news/china/military/article/3140220/china-reveals-secret-programme-unmanned-drone-submarines-dating.

[90] See, for instance, "China Conducts Test Flight for Airborne Unmanned Swarm Carrier," *Global Times*, April 7, 2021, https://www.globaltimes.cn/page/202104/1220474.shtml.

As the PLA seeks to debut as the "global world-class" force it aspires to be, the potential to develop and deploy new weapons systems may prove to be among the hallmarks of a new era of Chinese military power. The brandishing of nascent weapons systems can be aimed to provoke a certain reaction from a competitor. Such displays can also be advantageous in shaping the narrative and perceptions of the PLA. For the PRC, demonstration and promulgation of "techno-propaganda" could be accurate or intended for purposes of strategic misdirection. In other cases, potentially fallacious information could be planted in order to misdirect attention away from programs and developments that are of greater consequence but remain opaque. Regardless, this tactic can have utility from a perspective of competitive strategy, especially when influencing U.S. fears of the PLA's prowess or catalyzing spending on countermeasures. The inherent incentives for misdirection or misrepresentation highlight the importance of analysis and reasoned assessment of these trends.

Policy Options and Strategic Considerations

If the PLA were to succeed in achieving technological overmatch relative to the U.S. military in new domains and emerging capabilities, such a shift could create profound impacts on the dynamics of deterrence between these competitors. The PLA has recognized the degree to which the technological superiority that the United States has taken for granted in recent history has been foundational to U.S. military power and deterrence on the world stage. Now, the PLA is seeking to offset the United States through significant investments in strategic technologies.[91] From an intelligence perspective, the evaluation of new capabilities is difficult, without easy metrics to compare qualitative advances and considering the possibility of strategic misdirection. As the U.S.-China military balance continues to shift, the risks of misperception of that balance also increase, which could result in a failure of deterrence, especially as the gap starts to close. Certainly, China and the United States have a history of mutual misperceptions that can heighten the underlying security dilemmas in this complex bilateral relationship. In this context, uncertainty about relative capabilities and intentions is likely to be exacerbated by the

[91] Cai Jiyang and Cao Dong, "'弯道超车'美梦难圆" [The Dream of "Overtaking on a Curve" Is Hard to Achieve], *PLA Daily*, January 20, 2022, https://www.81.cn/jfjbmap/content/2022-01/20/content_307869.htm.

unknown trajectories of new domains, emerging capabilities, and disruptive technologies, which raise the risk of deterrence failures.[92]

Ultimately, the strategic weapons of the future that reshape deterrence will not be limited to nuclear weapons. The ongoing evolution of China's strategic deterrence posture will raise several concerns about policy and potential strategic implications:

- Against the backdrop of intensifying competition between the United States and the PRC, exuberant or exaggerated expectations about new strategic technologies (fueled by hype cycles) risk provoking or worsening dynamics of arms racing.
- If the desire to bolster deterrence also creates incentives for the fielding of systems and capabilities that have not undergone appropriate testing and verification, that dynamic further increases the risk of an accident.
- The risks of inadvertent escalation could be exacerbated insofar as current trends in the character of conflict are believed to be conducive to an offense-dominant approach, which could create incentives for a first strike for purposes of preemption.[93]
- Meanwhile, mistrust in U.S.-China relations, exacerbated by misinformation and conspiracy theories, could justify the development or deployment of weapons systems that are dangerous, destabilizing, or directly contravening norms in international humanitarian law.
- Given the risks and stakes, the U.S. and PRC governments should incorporate discussions of these issues into future dialogues on strategic stability. The U.S. and Chinese militaries should continue to improve mechanisms for risk mitigation and crisis communication, including with respect to scenarios involving new weapons systems or potential accidents.
- As appropriate, the U.S. Department of Defense should continue to promote norms around the application of international humanitarian law to new domains and technologies. U.S. policy also should promote best practices, including for the testing and verification of new weapons systems, to reduce the risk of an accident that could cause unintended escalation.[94]

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[92] Paul Huth and Bruce Russett, "Deterrence Failure and Crisis Escalation," *International Studies Quarterly* 32, no. 1 (1988): 29–45.

[93] Stephen Van Evera, "Offense, Defense, and the Causes of War," *International Security* 22, no. 4 (1998): 5–43.

[94] For reference, see U.S. Department of Defense, *DoD Instruction 5000.89: Test and Evaluation* (Washington, D.C., November 2020), https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/500089p.PDF.

EXECUTIVE SUMMARY

This chapter provides an overview of how writings by authors in the People's Republic of China (PRC) and the People's Liberation Army (PLA) describe the dynamics and risks of controlling escalation during a military conflict.

MAIN ARGUMENT

PRC civilian and military writings over the last two decades display a shared confidence that conflict escalation can be controlled with the right tools and conditions. Effective escalation control is depicted as resting in large part on a country's ability to manage uncertainty—suggesting that PLA planners are not risk averse so much as uncertainty averse. This desire to reduce uncertainty rests on the belief that the eruption and progression of crisis and conflict can be forecast, calculated, and managed using systematic and quantitative approaches to evaluate all possible courses of action and eliminate human error. PRC writings on controlling escalation exhibit a number of persistent blind spots with alarming implications. There is scant acknowledgment that operational principles and specific activities the PLA regards as de-escalatory may be interpreted differently by an opponent. It is also unclear how PLA actors would handle a situation that they have not put through the elaborate evaluation process described in these writings. These blind spots could cause Beijing to become overly confident in the PLA's ability to control escalation in a crisis or conflict.

POLICY IMPLICATIONS

- PRC and PLA decision-makers may overestimate the clarity of their signaling and their ability to accurately interpret U.S. activities. This optimism, combined with divergent views on acceptable uses of force and a persistent PRC confirmation bias about U.S. intentions toward China, could lead to inadvertent escalation.
- U.S.-China discussions about crisis management should identify behaviors that each side considers unambiguously escalatory. While there may be compelling reasons on both sides to maintain a degree of ambiguity about thresholds, each side needs to be aware of divergences that could lead to particularly dangerous misinterpretations.
- As PLA capabilities continue to mature, it is likely that PRC confidence in the ability to control escalation will grow, including a possible reassessment of the controllability of nuclear weapons. This should remain a topic of discussion between the U.S. and PRC, even if Beijing's official "no first use" nuclear policy does not change.

Chapter 7

Planning for Escalation: PRC Views on Controlling Escalation in a Conflict

Alison Kaufman

This chapter provides an overview of how writings by authors in the People's Republic of China (PRC) and the People's Liberation Army (PLA) describe the dynamics and risks of controlling escalation during a military conflict. It synthesizes insights from a range of recent primary and secondary writings by civilian and military authors and considers their implications for how and when the PRC might decide to escalate in a conflict.[1]

In general, PRC and PLA writings express confidence that escalation can be controlled with the right tools and conditions. This chapter argues that, for these authors, effective escalation control depends in large part on a country's ability to manage uncertainty and thereby determine the optimal timing, intensity, and pace of entering, prosecuting, and exiting a conflict.

The first part of the chapter examines how PLA authors describe the objectives and means for controlling escalation at different stages on the continuum of conflict. The second part highlights three key PLA operational concepts that are intended to achieve effective control in a conflict. The third part discusses assumptions underlying PRC confidence in the ability to control escalation. The final section discusses implications and identifies

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The views expressed in this chapter are the author's own and do not represent the opinions of CNA or its sponsors.

[1] This chapter draws largely on Chinese-language primary source documents from publicly available journals, books, and national strategic documents written or issued between 2005 and 2021. The majority of the documents come from PLA sources, though some are by PRC civilian authors. For the most part, the authors of these writings, or the institutions that publish them—such as the Academy of Military Sciences (AMS), the PLA National Defense University (NDU), and PLA command colleges—can be assessed as reasonably credible and authoritative in that they are in a position to have some direct insight or input into PLA doctrine and reflect the spectrum of views that the government has deemed acceptable for publication. However, the reader should be aware that these materials are not themselves PRC doctrine or operational war plans.

potential blind spots that could cause PLA planners to become overly confident in the PLA's ability to control escalation in a crisis or conflict.[2]

Controlling Escalation across the Continuum of Conflict: Objectives and Means

To understand how PLA planners and decision-makers might assess the PLA's ability to control escalation in a conflict, one must start by understanding how they view the purpose and means of escalation control in general. In the PLA literature, actions to control escalation across the continuum of conflict are collectively labeled "war control" (战争控制).[3] The objective of war control is to use all domains of national power to maintain control, achieve national political objectives, and minimize costs across the entire continuum of conflict.

PRC writings do not eschew military escalation as a means of war control, but they also do not encourage it. For example, the 2020 edition of the PLA National Defense University (NDU) *Science of Military Strategy* explains that "whether a war needs to be escalated or not should be determined by the degree [of escalation being contemplated] and the desire to achieve political goals."[4] If not carefully controlled, escalation is viewed as problematic because it increases the potential costs of conflict beyond what is necessary to achieve a country's objectives.[5] Moreover, if uncontrolled escalation fails to produce a victory, it prolongs the instability that gave rise to the conflict in the first place. Thus, PRC writings assert that deliberately

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[2] The focus of this chapter is theoretical rather than historical simply because the PRC has not been involved in a major military conflict for more than four decades. While the PLA has been involved in a number of military crises, this chapter shows that the objectives and standards for use of force in a crisis are described in PRC and PLA writings as fundamentally different from those in a conflict—and so it is difficult to draw conclusions from behaviors that have, so far, not escalated to a state of war.

[3] This section is largely derived from Alison A. Kaufman and Daniel M. Hartnett, "Managing Conflict: Examining Recent PLA Writings on Escalation Control," CNA, February 2016, https://www.cna.org/archive/CNA_Files/pdf/drm-2015-u-009963-final3.pdf. For more on the general concept of "war control," see Kaufman and Hartnett, "Managing Conflict," 7; and Burgess Laird, "War Control: Chinese Writings on the Control of Escalation in Crisis and Conflict," Center for a New American Security, March 30, 2017, https://www.cnas.org/publications/reports/war-control.

[4] Xiao Tianliang, ed., 战略学 [Science of Military Strategy] (Beijing: National Defense University Press, 2020), 256. NDU has issued three revised editions of the *Science of Military Strategy* in relatively rapid succession—in 2015, 2017, and 2020—but with regard to escalation the differences between them are minor. AMS also issued a *Science of Military Strategy* in 2001 and 2013.

[5] For example, the 2015 NDU *Science of Military Strategy* notes that "continuous escalation will result in large-scale warfare. It will disadvantageously influence internal political, economic, and social stability." Xiao Tianliang, ed., 战略学 [Science of Military Strategy] (Beijing: National Defense University Press, 2015), 232.

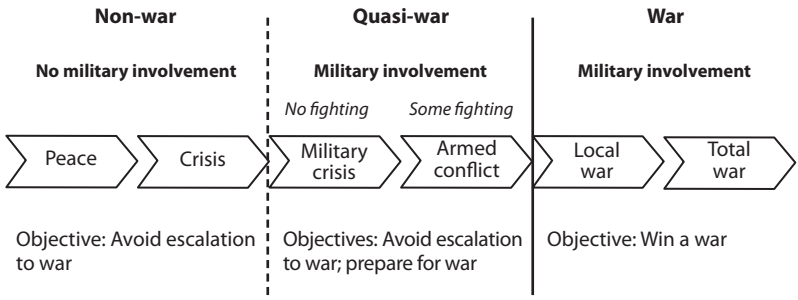
escalating a crisis or conflict should only be done if it both helps achieve an objective at an acceptably low cost and can be controlled.

PRC writings describe varying roles for military force in achieving escalation control as one moves from peace to crisis to war. As illustrated in **Figure 1**, many PRC writings describe six stages that collectively constitute a continuum of conflict.[6] These can be grouped into three general states (non-war, quasi-war, and war), each of which can be described by a permutation of factors: the objectives for control, the intensity of interaction, and the appropriate use of force.[7]

Non-War

PRC writings define the two stages at the far left of the continuum—peace and crisis—as a state of non-war that does not involve direct military interactions. Rather, leaders seek to attain national goals and manage differences through economic, political, and other domains. In peacetime, relations among nations are relatively stable and interests relatively balanced. In a crisis, the interests of different nations are in tension to a greater degree,

FIGURE 1 Continuum of conflict in PLA writings



[6] This figure is adapted from Kaufman and Hartnett, "Managing Conflict," 20.

[7] PRC writings and commentaries rarely describe real-world interactions in the moment in terms of this continuum. That makes it difficult to say with certainty whether the PRC's perceptions of a given situation are similar to those of other countries.

such that the overall situation is unstable and has some potential to escalate into a military conflict.[8]

According to PRC writings, the primary goal for controlling escalation during a state of non-war is to prevent the outbreak of a crisis altogether, or, if a crisis should erupt, to quickly de-escalate using nonmilitary means. Escalation to armed conflict is to be avoided, and the use of military assets should be restricted to deterrence activities such as presence operations, public displays of military capabilities, or exercises. Such actions are described by some PRC authors as a "relatively low cost" way to "achieve policy objectives."[9]

Quasi-War

The role of armed forces shifts as one moves to the middle of the continuum. This is described as a state of quasi-war (准战争), in which the military assets of two or more sides are directly interacting in some way, and "contradictions and crises [between nations] are intensified but war has not broken out."[10] There are two stages of quasi-war: "military crisis," where there is no direct fighting; and "armed conflict," which may involve "some fighting."[11]

The 2015 NDU *Science of Military Strategy* suggests that military crisis is nearly inevitable among "great powers struggling for interests," implying that these interests cannot be deconflicted in the long term without the threat, or even application, of military force.[12] A 2016 article by an Academy of Military Sciences (AMS) researcher argues that quasi-war may be "especially triggered by disputes over national maritime rights and island sovereignty," naming tensions between Japan and China in the East China Sea and U.S. freedom-of-navigation operations in the South China Sea as examples of "non-armed quasi-war struggles" that do not involve direct force-on-force

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[8] Recent writings suggest that at present the PRC leadership assesses global and regional peace to be somewhat fragile and imply that crisis is somewhat closer to breaking out than in the past. See, for example, State Council Information Office of the People's Republic of China (PRC), *China's National Defense in the New Era* (Beijing, July 2019), https://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html.

[9] See, for example, Zhang Wenzong, "美国对华威慑与胁迫及中国应对" [U.S. Deterrence and Coercion toward China and China's Response], *Contemporary International Relations*, no. 12 (2016): 24–25.

[10] Xiao, 战略学 (2020), 86.

[11] For more discussion of quasi-war, see Kaufman and Hartnett, "Managing Conflict," 25–29. See also Xiao, 战略学 (2015), 106; and Hu Wenlong, "'准战争'思想给新的历史起点上军事斗争的深刻启示" [Deep Insights of "Quasi-War" Thinking for Military Struggle at the New Historical Starting Point], 铁军, no. 12 (2016): 36.

[12] Xiao, 战略学 (2015), 107.

interaction.[13] The 2020 edition of the NDU *Science of Military Strategy* identifies the Cuban Missile Crisis, the Suez Crisis, and "several Taiwan Strait crises" as examples of "high-risk" military crises that resulted in a "new type of strategic balance."[14]

As described in PRC writings, the objective of escalation control in a state of quasi-war is twofold. On the one hand, there is a preference for both sides to move to a more stable state on the continuum in which differences can be managed through nonmilitary means, thus avoiding escalation to a state of war. Some PRC writings stress the desire of both sides to minimize violence and achieve "the effect of victory without bloodbath."[15] On the other hand, they also acknowledge that these efforts could fail and that one must be prepared should a war break out despite efforts to prevent one. In other words, the objective of escalation control in a state of quasi-war is to simultaneously prevent and prepare for war.

For example, in 2020, a hand-to-hand skirmish between PRC and Indian troops in the Galwan Valley resulted in the death of twenty Indian Army personnel. The crisis was subsequently de-escalated. However, the *South China Morning Post* reported a few weeks later that some retired PLA generals used the situation as an opportunity to argue in favor of greater preparation for an escalation to war, if needed. One is reported as saying that "Chinese troops should prepare to deploy non-lethal weapons such as lasers, tear gas, and stun grenades…[I]f the situation escalate[s] despite last week's military and diplomatic talks, China should make preparation for a possible military conflict a higher priority than further diplomacy."[16]

These dual objectives lead to dual approaches to the use of military force. PLA writings describe quasi-war military actions as including both "operations to handle emergencies" and "combat-like" operations. Some PRC writings reference activities such as "setting up prohibited navigation areas, and limited military strikes" or "warning strikes."[17] The 2013 edition of the AMS *Science of Military Strategy* notes that during a period of war preparation, laying the groundwork for victory may also include "applying

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[13] Hu, "'准战争'思想给新的历史起点上军事斗争的深刻启示, " 36. Hu also mentions "economic sanctions, naval and air blockades, military exercises, cyberattacks, reconnaissance and counter-reconnaissance, instigation and counter-insurgency, and peaceful military occupation" as other means of quasi-war.

[14] Xiao, 战略学 (2020), 114–15.

[15] Hu, "'准战争'思想给新的历史起点上军事斗争的深刻启示, " 36.

[16] Catherine Wong, "Prepare for India Border Row to Escalate, Chinese Strategists Warn Beijing," *South China Morning Post*, June 27, 2020, http://www.scmp.com/news/china/military/article/3090855/prepare-india-border-row-escalate-chinese-strategists-warn.

[17] Xiao, 战略学 (2020), 86; and Kaufman and Hartnett, "Managing Conflict," 29, 56.

military deterrence means…in new fields such as outer space and cyberspace to sabotage the enemy's war command system-of-systems."[18]

Thus, while PLA writings say that there is a distinction between the objectives for controlling escalation during a state of quasi-war and war, the means that they propose for achieving those objectives may be difficult to distinguish from one another. In a state of quasi-war, military activities may look like war, but they are not war. Few PLA writings, however, acknowledge the possibility that actions intended to control escalation during this stage could be misinterpreted as acts of war.

War

Finally, war is described as a "last resort" that should only be undertaken "when the enemy imposes the war on us and our national core objectives are significantly threatened."[19] This state encompasses "local war" (i.e., a conflict with limited objectives and geographic scope using conventional weapons) and "total war" (i.e., a conflict of mass destruction using nuclear or highly destructive conventional weapons).

Escalation control during a war, usually called "war situation control" (战局控制), fulfills a fundamentally different objective from other stages on the continuum of conflict. Its purpose is not to prevent escalation but to use military assets to ensure that victory is achieved, and national political objectives are met, at the lowest possible cost. War is an inherently costly endeavor, and PRC writings point out that it is only worth pursuing if political objectives cannot be achieved in other domains. Once the decision to enter a war has been made, the use of force should be constrained to the minimum scope and level of intensity necessary to achieve those goals. That said, PRC writings also suggest that actions early in a conflict must be rapid and decisive in order to yield victory. As will be discussed later, this raises challenges for escalation control that these writings do not fully address.

Finally, PLA writings have historically displayed less confidence in the ability to control conflicts involving nuclear weapons, including low-yield

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[18] Shou Xiaosong, ed., 战略学 [Science of Military Strategy] (Beijing: Academy of Military Sciences, 2013), 128. For an English translation, see *In Their Own Words: Foreign Military Thought—PLA's Science of Military Strategy (2013)* (Montgomery: China Aerospace Studies Institute, 2021), https://www.airuniversity.af.edu/CASI/Display/Article/2485204/plas-science-of-military-strategy-2013.

[19] Xiao, 战略学 (2020), 86.

tactical nuclear weapons.[20] This suggests that while controlled escalation is viewed as an important tool for achieving victory in a conventional war, using nuclear weapons is viewed as crossing a threshold into a stage where this is no longer possible.

Implications

PRC writings on the objectives and means for escalation control across the continuum of conflict raise several important implications. First, a common theme is the importance of controlling the use of force to the minimum degree needed for achieving a country's objectives. For the most part, there is a recognition that escalation carries risks.

Second, despite this desire, the means of control that PLA writings suggest for different stages on the continuum—particularly in the transition from quasi-war to war—overlap in ways that could be difficult to differentiate in a crisis. Actions that PRC writings describe as reasonable ways to resolve a maritime crisis, such as warning strikes and maritime actions like shouldering, ramming, and pursuing foreign vessels, have the potential to be misinterpreted and escalate rapidly.[21] It is also unclear what would constitute a justified use of force in other domains, such as cyberattacks. Few PLA writings dwell on, or even acknowledge, this challenge or propose solutions.

Finally, PRC writings that express confidence in the ability to control escalation have historically suggested that total war involving less controllable nuclear weapons is unlikely. If PRC assessments of the likelihood of nuclear war should shift, or if they should gain confidence that warfare involving low-yield tactical nuclear weapons can be controlled, they could in theory reconsider the historically strong objection to crossing the nuclear threshold.

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[20] Gerald C. Brown, "Understanding the Risks and Realities of China's Nuclear Forces," *Arms Control Today*, June 2021, https://www.armscontrol.org/act/2021-06/features/understanding-risks-realities-chinas-nuclear-forces; and Fiona S. Cunningham and M. Taylor Fravel, "Dangerous Confidence? Chinese Views on Nuclear Escalation," *International Security* 44, no. 2 (2019): 61–109. See also Alison A. Kaufman and Brian Waidelich, "PRC Writings on Strategic Deterrence: Technological Disruption and the Search for Strategic Stability," CNA, forthcoming.

[21] See, for example, Liu Xiaoli, 军队应对重大突发事件和危机非战争军事行动研究 [Military Responses to Significant Sudden Incidents and Crises: Research on Military Operations Other Than War] (Beijing: National Defense University Press, 2009), 205–6.

How to Control Escalation in a Conflict: Three Principles of Effective Control

As seen, an overarching theme in PLA writings is the desire to minimize the costs and risks of war. Authors frequently assert that the key to minimizing costs and maximizing benefits during a conflict is to employ "effective control" (有效控制).[22] This entails controlling every aspect of how the war unfolds across all domains of national power. On the battlefield, the 2015 NDU *Science of Military Strategy* describes the need to control a war's timing, pace, and "primary direction."[23] The U.S. Department of Defense, in its 2021 China Military Power Report, describes PRC views of wartime effective control thus:

> In the event of war, PLA commanders should have the capability to set a favorable strategic posture across domains to "control" the war's objectives; targets; operational parameters; warfighting techniques; pace, rhythm, and intensity; and conclusion, according to PLA writings. *Wartime effective control entails seizing the initiative, paralyzing the adversary's operational system, and laying the groundwork for war termination* [emphasis added].[24]

Each of the three elements in the last sentence highlights a key PLA operational concept. These concepts have been analyzed at much greater length elsewhere.[25] My purpose in summarizing them below is to highlight their potential implications for decisions about when and how to escalate a conflict.

Seize the Initiative

Seizing the initiative is a persistent and foundational element of the long-standing PLA principle of "active defense." The basic principle of seizing the initiative is that by engaging in a short, violent, decisive attack at the outset of a war, one can take advantage of an unprepared enemy and quickly attain victory. PRC decision-makers prefer not to enter a conflict

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[22] This term came to the attention of Western analysts through its use in the 2013 AMS edition of *Science of Military Strategy*, but it is consistent with earlier PLA writings about maintaining control before and during a conflict. See, for example, M. Taylor Fravel, "China's Changing Approach to Military Strategy: The Science of Military Strategy from 2001 and 2013," in *China's Evolving Military Strategy*, ed. Joe McReynolds (Washington, D.C.: Jamestown Foundation, 2016), 40–73.

[23] Xiao, 战略学 (2015), 228.

[24] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021* (Washington, D.C., November 2021), 155, https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF.

[25] See, for example, Edmund J. Burke et al., "People's Liberation Army Operational Concepts," RAND Corporation, September 29, 2020, https://www.rand.org/pubs/research_reports/RRA394-1.html; and Fravel, "China's Changing Approach to Military Strategy."

without a near certainty of success, which they say is best achieved by being prepared to seize the initiative and maintaining it throughout the course of the conflict.

Seizing the initiative provides a first-mover advantage. It entails undertaking rapid escalation the instant that the invisible wall between crisis and conflict has been breached. While such an attack may result in fairly high damage or casualties for the adversary, escalation is controlled by ensuring that the conflict will not be protracted. Moreover, by decisively settling a conflict of national interests, a quick victory sets the stage for longer-term stability that decreases the likelihood of future conflict. The 2015 NDU *Science of Military Strategy* puts it as follows:

> If one is victorious in the first round of contests, they will be able to take a step toward…having a direct say on the final outcome. If one loses at the beginning of a conflict, then it will become very difficult to reverse this passive situation. Therefore, the first battle is incredibly important for winning the initiative in warfare.[26]

The principle of seizing the initiative also provides asymmetric advantage by "launching the war…under circumstances where the opponent's preparation is insufficient and his posture unfavorable, or under unexpected circumstances."[27] Seizing the initiative in a conflict requires extensive preparation, as a country shores up its own defenses and capabilities while also studying the enemy to determine its level of preparedness and probe for weak points.

This principle of striking hard and fast at the outset of a conflict raises a number of questions about decisions to escalate.

What is the role of preemptive strikes and what constitutes a "first strike"? Since the greatest advantage comes from attacking an unprepared opponent, how can the PRC seize the initiative while still adhering to Beijing's stated principle of "attacking only after being attacked" (后发制人)?[28] Some of the preparatory actions that PRC writings say might be taken during quasi-war—such as "sabotaging the enemy's war command" before a state of war has been declared—could be considered quite escalatory by other standards. Moreover, there is debate among PLA scholars about what actions by an

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[26] Xiao, 战略学 (2015), 228.

[27] Xiao, 战略学 (2020), 192.

[28] For more on how some PRC authors address this seeming contradiction, see Brendan Nicholson, "China's 'Offensive Deterrence' and Avoiding War," Australian Strategic Policy Institute, Strategist, June 24, 2021, https://www.aspistrategist.org.au/chinas-offensive-deterrence-and-avoiding-war; Hu Bo, *Chinese Maritime Power in the 21st Century: Strategic Planning, Policy, and Predictions*, trans. Zhang Yanpei, ed. Geoffrey Till (London: Routledge, 2019); and Kaufman and Hartnett, "Managing Conflict," 69–70.

opponent could constitute a first strike that would justify rapid retaliation—potentially including actions in the political or economic domains.[29] Finally, there are some indications that the PRC is moving toward a launch-on-warning nuclear posture, in which the PLA could counterstrike with strategic missiles after receiving warning of an incoming strike.[30]

What happens if a country is unprepared? There is little discussion in PRC writings about how to conduct a war that a country has not chosen—raising the question of how China would fight a war that it was not prepared for. Would it escalate operations in an initial scramble to gain the initiative post hoc?

How can a country regain control if it loses the initiative? Once the first-mover advantage has been lost, the possibility of a protracted, potentially uncontrolled war arises. The 2015 NDU *Science of Military Strategy* argues that "when the enemy has the initiative, we must abandon the slow rhythm, switch to the defense, and search for opportunities to seize the opponent's position or weaken links."[31] This language might imply that one should escalate the pace of the conflict in order to "catch up"; it could also imply retrenchment as one pulls back to analyze the situation.

Choose the Right Targets

A second principle for maintaining effective control is target-centric warfare, which grows from a focus on system-of-systems warfare. Target-centric warfare emphasizes limiting strikes to those targets that are most vital to an opponent's operational systems, halting the adversary's ability to wage war.[32] In theory, this should reduce collateral damage by disabling or destroying only a limited number of essential systems and largely avoiding civilian targets.

The basic principle of target-centric warfare is straightforward, but it demands a high degree of confidence in intelligence capabilities and decision-making processes. A 2017 PRC article notes that target-centric warfare emphasizes "improved understanding of the operational situation

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[29] See Kaufman and Hartnett, "Managing Conflict," 71.

[30] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 94.

[31] Xiao, 战略学 (2015), 230.

[32] See, for example, Xiong Li, Wei Pu, and Zhanning Han, "Agent-Based Modeling and Simulation for Target-centric Warfare," *Advances in Engineering Research*, no. 113 (2017): 224–27. The authors claim affiliation with the Department of Command and Administration at the Academy of Armored Force Engineering in Beijing. For a brief overview of target-centric warfare, see Burke et al., "People's Liberation Army Operational Concepts."

at all levels of command, and increased ability to tap into the collective knowledge of all forces to reduce…'fog and friction.'" Target-centric warfare also "emphasizes decision-making, command and control for warfare actions to pursue the most damage to the selected targets."[33] Identifying and striking optimal targets requires not only precision capabilities but also confidence that one has (1) deep knowledge of an adversary's operational systems in order to identify critical nodes and vulnerabilities, (2) the ability to assess and direct the appropriate amounts of damage to adversarial targets, and (3) networked, integrated information systems and command-and-control structures that can rapidly adapt to a changing battlefield situation.[34]

If these requirements are not met, an emphasis on target-centric warfare could cause one side to concentrate disproportionately on the wrong targets, leading to a protracted engagement and possibly the loss of initiative. Moreover, it is possible that striking key targets could be viewed by the other side as extremely escalatory. However, there is little discussion in PRC writings of these risks.

Know When to Quit

Finally, PRC writings recognize that a war could end before specific military objectives have been attained. The outcome may be considered successful if the driving national objectives have been achieved, or if it is now possible to achieve these objectives through nonmilitary means. The 2013 AMS *Science of Military Strategy* cites the 1962 Sino-Indian border conflict and the 1979 Sino-Vietnamese border war as examples of this outcome, asserting that "once the main body of war goals has been achieved, military activities are better called off."[35]

However, PLA writings also acknowledge that under some circumstances it is simply not possible to win a war, or to do so without escalating beyond control and incurring unacceptable costs. In such cases, a conflict may have to be terminated before attaining broader political objectives. The 2020 NDU *Science of Military Strategy* says, for example, that there are circumstances in which "continuing to fight [i.e., pursuing military objectives] will escalate into even larger-scale war, seriously influencing stability and the overall situation of economic construction [i.e., preserving

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[33] Li, Pu, and Han, "Agent-Based Modeling and Simulation for Target-centric Warfare."

[34] Hu, *Chinese Maritime Power in the 21st Century*; Wang Xixin, "再论控制战" [Further Discussion on Controlling War], *Chinese Military Science*, no. 4 (2014); and John Costello and Joe McReynolds, *China's Strategic Support Force: A Force for a New Era* (Washington, D.C.: National Defense University Press, 2018), 44.

[35] Shou, 战略学, 132.

national objectives]."[36] In cases where a country has "lost the initiative" on the battlefield, it says that there are two choices—both of which reject sustained escalation:

> 1. If we can quickly reverse the situation, prepare violent operations to attack the enemy…and then…seek out political paths for resolving problems. [In other words, the first choice is to briefly escalate in a controlled manner, and then rapidly seek concessions.]
>
> 2. If we cannot reverse the situation…attacking again…[is] inferior to terminating combat operations. Use political and diplomatic struggles…to reduce our losses and struggle for the initiative. [In other words, the second choice is to de-escalate to a lower point on the continuum of conflict.]

In such circumstances, some PLA writings acknowledge that it may be acceptable to seek a settlement that involves "compromise" or (rarely) "concessions" (妥协 or 让步) as long as they do not significantly damage national objectives.[37] However, these writings also note that it is quite difficult to compromise on "core national interests," suggesting that on issues such as Taiwan, political settlements that are not backed by military victory are unlikely or, at a minimum, temporary.

Assumptions Underpinning PRC Confidence in the Ability to Control Escalation

The previous two sections highlight a key element of PRC confidence in its ability to control escalation in a crisis or conflict: a belief that the best way to manage a crisis or defeat an adversary is to be completely prepared for every possible outcome. This belief rests on an assumption that the eruption and progression of crisis and conflict can be forecast, calculated, and managed by using systematic, scientific approaches to identify and evaluate all possible pathways the situation might take.

Defense analyst Burgess Laird captured this perspective well when he said that PRC strategists describe war control as a kind of "engineering problem."[38] PRC writings on escalation control reflect the Marxist precept that there is a science to almost everything, including the outbreak and conduct of war. This "scientific" approach requires that military planners engage in a lengthy and complex decision-making process that rests on

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[36] Xiao, 战略学 (2020), 259.

[37] Kaufman and Hartnett, "Managing Conflict," 74.

[38] Laird, "War Control," 14.

certain assumptions about the nature of technology, one's ability to assess adversary capabilities and intent, and the possibility of removing human error from operational planning. Should these assumptions be proved false, the PLA's confidence in its ability to achieve effective control would be diminished.

Discomfort with Uncertainty

This belief that one can forecast and shape the future means that the stakes are high if the wrong decisions are made. PRC writings about strategic and operational decision-making thus describe a system in which planners are deeply uncomfortable with uncertainty. To deal with this uncertainty, writings on operational planning often focus on risk analysis—that is, the calculation of relative costs and benefits of different choices. These writings describe a decision-making process in which planners painstakingly evaluate and compare potential risks of different decisions in order to make an informed choice among the possible outcomes. According to PLA writings, the greater the level of uncertainty, the lower one's confidence can be in risk assessments, and the more likely that one will inadvertently choose an unnecessarily risky option. They imply that military planners do not need to eliminate risk, but they must know what level of risk they are dealing with. In other words, PLA strategists are not necessarily risk averse, but they are uncertainty averse.

Automation as the Answer?

Thus, developing decision-making processes that minimize human error and maximize certainty is a key PLA objective for contingency planning and operations. While the desire to understand the relative risks of different courses of action is unsurprising, the PLA emphasizes quantitative calculations to a degree that most Western military planners would find unrealistic. Dozens of recent writings, many from the PLA military operations research community, describe ever more precise techniques for identifying, measuring, calculating, and evaluating the relative risks of different courses of action on the battlefield.[39] These writings often involve complex algorithms and models aimed at breaking down any operational problem into a mathematical calculation that enables direct comparison of different potential outcomes. At a tactical level, this may involve repeated

[39] A foundational text in this line of research is Zhou Chifei, 新编军事运筹学 [Military Operations Research, Updated Edition] (Beijing: Academy of Military Sciences, 2010).

testing, modeling, and experimentation with different systems or equipment. At an operational and strategic level, it may involve techniques such as wargaming, simulation, flow charts, and other means of testing the decision to enter or escalate a conflict.

Such authors are particularly interested in the potential that big data, machine learning, and artificial intelligence (AI) hold for improving the process of decision-making by reducing human error and delay. For example, two military operations researchers comment that new technologies such as AI enable "accurate decision-making to become possible":

> In traditional military decision-making, commanders are accustomed to making decisions based on their own experience, intuition, and savvy. …The results are always ambiguous…when someone makes decisions, they always make mistakes. The emergence of big data technology and tools has enabled people to find a new way of decision analysis. Big data abandons traditional experience and intuition, emphasizes dependence on data and analysis, makes decision-making results more scientific, and alleviates the tremendous mental stress that decision-makers are exposed to. …Intelligent decision-making will completely bid farewell to human experience and intuition, bypassing the mistakes of human decisions, and achieving accurate and fast decision-making.[40]

Such writings imply that automated decision systems can minimize two interrelated problems. First, the pace of high-tech warfare is so rapid that the potential for escalation may supersede any commanders' abilities to make decisions. Second, the PLA leadership believes there are serious shortcomings in its officers' decision-making and communication abilities. In 2015, Xi Jinping identified "five incapables" that stymie the operational effectiveness of many of its officers, including their inability to judge the situation, understand the intention of higher authorities, make operational decisions, deploy troops, and deal with unexpected situations.[41] This implies that in a moment of crisis some commanders cannot be trusted to interpret and act on incoming data.

The proposed solution to this dilemma is to use technology to supersede human failures and speed up decision-making. There is little discussion of whether automated systems could make the wrong decisions. Moreover, the issue of whether there are some aspects of a conflict that simply cannot be known in advance, or that military commanders will almost certainly

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[40] Xianjin Bu and Qiwang Huang, "The Theories and Methods of Military Operations Research in BD&AI Era," in "Proceedings of the 2018 International Conference on Mathematics, Modeling, Simulation and Statistics Application (MMSSA 2018)," January 2019, available at https://doi.org/10.2991/mmssa-18.2019.36.

[41] See, for example, Dennis J. Blasko, "PLA Weaknesses and Xi's Concerns about PLA Capabilities," testimony before the U.S.-China Economic and Security Review Commission, Washington, D.C., February 7, 2019.

face situations that they did not anticipate, is rarely if ever discussed in this literature.

High Information Requirements

The implication of this line of reasoning is that the informational needs for ascertaining risk and controlling war are incredibly high. The desire of PLA planners to reduce uncertainty through quantitative calculations requires the gathering and processing of massive amounts of data about every possible variable shaping the conflict—including operational factors; an adversary's mindset, values, and long-term objectives; the international response; and economic and political impacts. This points to an extremely comprehensive understanding of "information dominance" in that it requires that almost nothing be unknown. It assumes that one knows what data to collect for each of those variables and is confident that the data is accurate and uncompromised. It also assumes that the right algorithms, processing power, and complex systems needed to process that data have been built.

The PLA has invested in developing both theoretical and institutional tools to address these challenges. The Strategic Support Force (SSF) was created in late 2015 in part to bring together the information-oriented elements of the PLA under a single roof. A 2018 analysis from the U.S. National Defense University notes that the SSF is oriented toward "integrated information warfare" as a means of "maintaining readiness in an ever-changing information environment" and "as part of a continuous process of evaluation to judge both the merits of intentional escalation and the risks of unintended escalation."[42] While the exact responsibilities of the SSF remain somewhat unclear, the report notes that "the SSF appears to be responsible for *all* of information warfare, overseeing the employment of a broad spectrum of tools for kinetic, cyberspace, electromagnetic, and psychological domains."[43]

Assumption That the PRC Understands the Adversary

These decision-making processes assume that a country can anticipate what the adversary is likely to do in a crisis or conflict. This requires a deep understanding of the adversary's operational systems, material capabilities,

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[42] Costello and McReynolds, *China's Strategic Support Force*, 41–42, 44. See also Elsa B. Kania and John Costello, "Seizing the Commanding Heights: The PLA Strategic Support Force in Chinese Military Power," *Journal of Strategic Studies* 44, no. 2 (2021): 218–64.

[43] Costello and McReynolds, *China's Strategic Support Force*, 47. See also National Institute for Defense Studies (Japan), *China Security Report 2021: China's Military Strategy in the New Era* (Tokyo, 2020), v.

values, strategic and operational intent, communication style, views of escalation, and long-term objectives—as well as an assumption that the adversary will act predictably. For example, the following assumptions are entailed:

- PLA planners can identify the most essential elements of the adversary's operational systems to disable or destroy.
- The PLA can accurately calculate the symbolic, societal, and operational value that the adversary places on different targets, and therefore which targets are more likely to incur an escalatory response from the adversary.
- The PRC can reliably interpret the adversary's strategic and operational intent to launch an attack, enabling the PLA to seize the initiative at the right time without incurring inadvertent escalation.
- Both sides interpret operational activities in the same way, and each side can communicate its intent clearly and unambiguously.

A number of PRC authors admit that "in defining the end state, our side cannot completely guide the adversary's circumstances," as one article puts it.[44] Yet their analyses assume that these circumstances can be derived from battlefield information and knowledge of the adversary's capabilities, past actions, strategic intentions, and interests. However, this chapter has already shown that some actions that PLA writings describe as reasonable during a crisis or quasi-war, such as firing warning shots, could easily be interpreted as escalation even if they are not intended as such. Moreover, public PRC assessments of other countries' behavior generally suffer from confirmation bias: for example, almost any U.S. military action is likely to be viewed as evidence of "hegemonic" intentions to "contain" China, regardless of what assurance or evidence to the contrary is provided. This means that new information about the intentions or resolve of potential adversaries may be largely overlooked or shoehorned into existing views.

Confidence That Improved Technology Enables Better Control

Finally, the operational principles detailed above assume that upgraded technological capabilities enable commanders to control escalation and minimize collateral damage. PLA authors assume that precision-strike capabilities facilitate more refined targeting and that nonkinetic domains, such as cyber and outer space, may enable a country to inflict reversible

[44] Pan Guanlin and Cai Youfei, "作战选项分析方法研究" [Research on Methods for Analyzing Operational Options], *Junshi Yunchou yu Xitong Gongcheng* 26, no. 3 (2012): 21.

(or unattributable) damage on an adversary without sacrificing human lives.[45] They also assume that it is possible to build advanced information processing systems that can anticipate and evaluate all possible outcomes on the battlefield. This raises questions about whether the PLA will become increasingly confident in its ability to control escalation as its military capabilities continue to mature.

Implications and Unanswered Questions

Recent primary source writings indicate that PRC military planners and scholars are deeply concerned with the question of how to control escalation in a conflict. They also tell us that the PRC's approach to escalation control appears to place great weight on technology, automation, data processing, communication, and discernment. These writings suggest continued, and perhaps even increased, rigidity in the PLA's process of planning for escalation, despite the recognition of the need for greater operational flexibility. The heavy emphasis on technology—including both operational capabilities, such as precision targeting, and informational capabilities—suggests that as the PLA's technological prowess improves, its planners may become increasingly confident in their ability to control escalation.

The lengthy and technically complex decision-making processes described here raise the question of how PLA actors might behave during a conflict if a situation arises that they have not put through this evaluation process. It is possible that PLA planners would consider decision-making under conditions of incomplete or unreliable information as too dangerous to undertake and would seek to delay entry into a conflict.

On the other hand, if PLA decision-makers believe that they do have all the information needed, they may become overconfident in their ability to control escalation. If these blind spots are not recognized or addressed, PLA actions in a conflict risk stoking inadvertent escalation—despite the efforts of PLA scholars and planners to "outplan" this outcome.

[45] See, for example, Hu, *Chinese Maritime Power in the 21st Century*. See also U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2021*, 155.

EXECUTIVE SUMMARY

This chapter demonstrates how a pattern of Chinese de-escalation has unfolded in several crises and discusses what it might take for China to move beyond this pattern and engage in riskier behavior.

MAIN ARGUMENT

Since the Sino-Vietnamese clash in the Spratlys in 1988, none of China's foreign policy crises have escalated to actual warfare. One reason is that China has maintained good working relations with all relevant great powers (the U.S., Japan, and Russia). Another is a pattern of Chinese de-escalation when meeting with strong resistance. Since 2000, the Chinese economy has become the main driver of global industrial growth. China has used its new prosperity to build the world's second strongest military while shifting to a policy of assertiveness, building a strategic partnership with Russia, and engaging in a power rivalry with the U.S. This has led to several crises where China has stuck to its pattern of backtracking in the face of resistance. If a crisis escalates to a point where Beijing sees a risk of armed confrontation, it ceases to act offensively. De-escalation may involve talks with the adversary, but it rarely involves any genuine concessions. China pushes its position forward until it meets determined resistance, then de-escalates, which often consists in refraining from further assertive moves and is sometimes accompanied by heavy rhetorical attacks on the adversary. This raises the question of what might lead China to depart from this precedent and engage in riskier behavior during a crisis.

POLICY IMPLICATIONS

- China should take up again its "good neighbor policy," given that the best way for China to strengthen its nonhegemonic regional influence is to reassure its neighbors.
- Neighboring countries should collaborate to persuade China to negotiate its maritime boundaries on the basis of international law.
- In crisis situations the U.S. should act in a predictable and decisive way, blocking unacceptably assertive Chinese actions but leaving room for China to quietly de-escalate. To this end, the U.S. should disassociate its conflict management from any rhetorical attacks against China's authoritarian regime.

Chapter 8

When and How China De-escalates in Crises

Stein Tønnesson

Judging by its behavior since the 1980s, the default of the People's Republic of China (PRC) in a foreign policy crisis is to de-escalate once it perceives an acute risk of confrontation with the United States, a U.S. ally, or a country showing a strong will to resist. This observation is built on evidence from a range of crises, such as the 1994–98 Mischief Reef incident, the 1995–96 Taiwan Strait crisis, the 2012 Chinese takeover of Scarborough Shoal from the Philippines, the 2014 oil rig crisis with Vietnam off the Paracel Islands, and the attempts in 2014, 2018, 2019, and 2021 to compel a Philippine garrison to leave Second Thomas Shoal in the Spratly Islands. The same pattern can also be seen in China's clash in 2020 with Indian forces on the Sino-Indian border. None of these crises have led to conflict resolution. Seemingly, China has decided to wait for its next chance to push forward.

Since Xi Jinping took over as general secretary and president in 2012–13, China has not made any noticeable diplomatic progress with international treaties or other agreements. Instead, it has developed a pattern of incremental assertiveness in disputes with its neighbors. While Beijing's change from a security-focused to a more assertive foreign policy is explained by Chinese scholars as a reluctant response to other countries' growing hostility,[1] scholars outside China tend to see it as reflecting the

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[1] According to Zhao Minghao, for example, most Chinese scholars hold that U.S. moves "greatly deepened China's suspicions regarding America's 'containment/encirclement' strategy towards China." Zhao Minghao, "Is a New Cold War Inevitable? Chinese Perspectives on U.S.-China Strategic Competition," *Chinese Journal of International Politics* 12, no. 3 (2019): 383. See also Wang Dong, "Reluctant Rival: Beijing's Approach to U.S.-China Competition," *Global Asia* 16, no. 4 (2021).

rising power's growing self-confidence. It grew significantly in 2007–8, when China managed to get through the international financial crisis without much damage. Xi came to power in a China that had begun seeking respect as a great power on the same level as the United States, yet was still keen to avoid any direct confrontation with the superpower.

A key example of China's restrained assertiveness was its use of fishing vessels to wrest control of Scarborough Shoal from the Philippines in a drawn-out 2012 standoff. Hundreds of fishing vessels were used to outmaneuver a lone Philippine naval vessel while Chinese maritime surveillance and naval ships watched from a distance. A second example is China's choice, from 2013 onward, to build artificial islands and military installations on previously unoccupied reefs around the Spratly Islands. A third example is road construction in the Himalayas near the Sino-Indian Line of Actual Control (LAC). When the situation is calm, China builds; when there is tension, China pauses.

China's construction of artificial islands in the South China Sea is at once an expression of assertiveness and restraint, since it was done instead of invading any of the many islands occupied by Vietnam, the Philippines, Malaysia, or Taiwan. The last time China invaded an island held by another state was in 1974, when it conquered the southwestern Paracel Islands from the Republic of Vietnam (South Vietnam). In March 1988, China engaged in a battle with Vietnamese forces in the Spratly Islands when both countries tried to take control of a submerged reef near a Vietnamese-held island. China established a permanent presence on the reef but did not invade the island. In the following year, Chinese military planners apparently saw a window of opportunity to seize the Vietnamese-held islands in the Spratly area by force. Vietnam had been strategically weakened by its loss of Soviet support and its long counterinsurgency war in Cambodia. Yet Beijing postponed the operation in view of Soviet president Mikhail Gorbachev's upcoming visit. Afterward, perhaps due to the turmoil and massacre in Beijing during May–June 1989 or the improvement of Sino-Vietnamese relations at a meeting in Chengdu in 1990, the offensive plan was shelved.

The pattern just described is expressed in the important fact that, except for the fatal fights that took place along the LAC on May 5, 2020, China has not engaged in any combat outside its own borders since 1988. This includes the disputed maritime boundaries in the Yellow Sea, East China Sea, Taiwan Strait, and South China Sea. Consequently, like Japan and Germany but unlike the United States, Russia, India, France, and the United Kingdom, China's military has no combat experience. The fact that both Japan and

China have avoided war for so long is a key reason for East Asia's peaceful economic rise.[2]

This chapter poses a number of questions. Under what circumstances is China likely to de-escalate in a foreign policy crisis? How does it de-escalate? What could make it fail to de-escalate? Answers to these questions are likely to vary in accordance with the premises chosen for the arguments, such as the type of crisis, fear, circumstances, decision-making, and historical record. This chapter analyzes each of these issues in turn, followed by a short conclusion.

Type of Crisis

De-escalation patterns may diverge according to crisis type. Trade wars, mutual economic sanctions, provocative military maneuvers or exercises, nonmilitary interventions, border incidents, artillery duels, naval or aerial skirmishes, collisions in space, and cyberwarfare may have different patterns. Some of them can lead to drawn-out crises with no immediate danger of military confrontation. This chapter focuses mainly on acute international crises with border incidents on land, on water, or in the air.

This traditional focus could be misleading. Ongoing technological progress has increased the likelihood that future crises will follow new courses. Threats against, and destruction of, an adversary's essential infrastructure have always played a part in war but may now also happen in peacetime and perhaps even lead to a victory or defeat without a firefight. This has added to feelings of insecurity. With the advent of satellite and cyberwarfare, counting nuclear bombs, missiles, and other weapons to assess a country's relative capabilities could be meaningless. Who knows if the United States has infiltrated Chinese digital networks in ways allowing the Pentagon to destroy essential infrastructure before China has a chance to activate its forces? Likewise, who knows if China has a similar capacity to wipe out U.S. communication systems? Such new uncertainty may perhaps generate caution in international affairs but could also, in a crisis, bring desperate leaders to push their cyber button as fast as they can in anticipation of an adversary's cyberattack.

How likely is it that China will de-escalate in a cyber crisis? This is anyone's guess, but some of the patterns discernible in conventional military crises may perhaps also apply in cyber crises. This issue is beyond the scope

[2] Stein Tønnesson, *Explaining the East Asian Peace: A Research Story* (Copenhagen: NIAS Press, 2017).

of this chapter, which deals only with de-escalation in conventional crises, related to disputes over territory and control over sea and air.

Although many border disputes have been resolved between the almost two hundred nation-states in today's world, enough friction remains to cause future border wars.[3] China's land borders are more secure than its sea boundaries, most of which are disputed. China has agreed and demarcated its land borders with twelve of its fourteen neighbors. Only India and Bhutan remain, but the border with the latter depends on a settlement with the former, so, in fact, only India remains. Impartial analysts lean toward the view that Beijing has tried in earnest to obtain an agreement with New Delhi and been willing to make territorial concessions, but India has been recalcitrant.[4] In 1962, after first trying to avoid war through a combination of diplomacy and deterrence, China undermined its chance to reach a border agreement with India by humiliating it in a short border war. This hardened New Delhi's attitude and ruined any chance for a compromise.[5] The 1962 war followed the same pattern that has been seen in many of China's crises: a confrontation followed by withdrawal and stalemate.[6] China invaded North Korea in October 1950, reached a stalemate on approximately the 38th parallel, and withdrew after an armistice in 1953. China launched provocative action on the Soviet border in 1969, withdrew again, and faced Soviet retaliatory action. Then it allowed for a stalemate and changed the balance of force by moving closer to the United States. China invaded Vietnam during six weeks in February–March 1979, whereafter it withdrew and maintained several divisions on its side of the border for the next eight years, with frequent cross-border artillery duels. The troops were only withdrawn when China reached its goal: a Vietnamese withdrawal from Cambodia. Once that had been achieved, China normalized its relations with Vietnam and began negotiations leading to a border treaty in 1999.

The pattern of de-escalating an acute crisis while maintaining prolonged military pressure also characterizes China's later behavior. No first offensive phase since the Cold War has taken the form of a shooting war. Instead,

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[3] Douglas M. Gibler, *The Territorial Peace: Borders, State Development, and International Conflict* (Cambridge: Cambridge University Press, 2012).

[4] M. Taylor Fravel, *Strong Borders, Secure Nation: Cooperation and Conflict in China's Territorial Disputes* (Princeton: Princeton University Press, 2008), 85.

[5] Eric Hyer, *The Pragmatic Dragon: China's Grand Strategy and Boundary Settlements* (Copenhagen: NIAS Press, 2015).

[6] Before the war, Mao Zedong had issued an instruction meant as a basis for the combination of deterrence and diplomacy: "Resolutely do not yield, but strive to avoid bloodshed; create interlocking positions for long-term armed co-existence." Fravel, *Strong Borders, Secure Nation*, 185.

China has taken careful, assertive steps. Sometimes, there is no hostile response, which is the most desirable outcome from China's point of view; at other times, there are strong reactions, leaving China to withdraw and bide its time.

Fear

Crises may arouse strong emotions, putting intense psychological pressure on decision-makers who have little time to make decisions with enormous consequences, potentially generating acute fear and long-term anxieties. A combination of fear and anxiety may affect instinctive reactions to fight, flee, or freeze. Freezing can lead to de-escalation, which can first be driven by fear and then rationalized.

A key example of flight is Nikita Khrushchev's bouts of heavy drinking during the 1962 Cuban Missile Crisis. His ships were on their way to Cuba with missiles when Kennedy issued an ultimatum. The specter of nuclear war was acute, and Khrushchev backed down after having obtained a slightly humiliating deal, which paved the way for his demise in the Soviet system.[7] Vladimir Putin may have had Khrushchev in mind when he decided to invade Ukraine after having failed to obtain the promise he sought that NATO would not take up Ukraine as a member.

What can we know about the emotional state of Xi Jinping and his entourage? In China, like Russia, the leaders seem consumed by a latent risk that factional struggles within leadership may coincide with an internal rebellion fueled by foreign forces. No such danger has materialized in Beijing since 1989, but the demonstrations in Hong Kong in 2014 and 2019 were important reminders. The traumatic 1989 Tiananmen massacre has likely contributed to the subsequent cohesiveness demonstrated by the Chinese Communist Party (CCP), either through collective consensus-building or through institutionalized loyalty to a core leader. Beijing's leaders are also anxious that the United States may provoke a crisis and take military action to prevent China's further rise. While Americans worry about China's assertive steps to steadily boost its power, Chinese leaders understand their policies in defensive terms and are geared to forestalling aggressive acts by

[7] James G. Hershberg, "The Cuban Missile Crisis," in *The Cambridge History of the Cold War*, vol. 2, ed. Melvyn P. Leffler and Odd Arne Westad (Cambridge: Cambridge University Press, 2010), 65–87.

China's adversaries and restoring the country's historical position as the Middle Kingdom.[8]

What more can we know about the psychology of China's leaders? Consider that Xi and his comrades have climbed to the top of a high-risk career system based on cadre assessments, recommendations, and performance indicators but not, as in the United States, on charisma, popularity, or fundraising. China's leaders live with great risks to themselves, which have been exacerbated by Xi's anticorruption drive. This personal risk may drive them to be prudent and use every occasion to express loyalty to Xi. It is not enough to remain passive when politics is as competitive and result-oriented as in China, but it is imperative to hedge one's bets through prudent maneuvering. Thus, China's leaders may be inclined to avoid both fight and flight and opt to freeze in line with their most predictable routines while waiting for danger to pass. In Beijing, George H. W. Bush is admired as the recent U.S. president who most resembles a reliable Chinese leader. Putin is also respected, but for the opposite reason—for boldness in taking actions that no Chinese leader would dare.[9]

It is risky in China to engage in public debate. Chinese scholars and decision-makers rarely discuss foreign policy crises in the open; hence, there is little to learn from reading Chinese analyses. While there was some discussion of crisis management in the first decade of this century, there has been virtually no debate about such matters under Xi's more authoritarian leadership.

One question is how a fearful mindset affects crisis behavior. It permeates China's dominant historical narrative as told in textbooks, museums, and Xi's own writings. There can be little doubt that the rapprochement between the United States and India, the Western renaming of the "Asia-Pacific" to the "Indo-Pacific," the Western opposition to China's claims in the South China Sea, the creation of the trilateral security pact between Australia, the United Kingdom, and the United States (AUKUS) in 2021, and the proliferation of

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[8] For Chinese anxieties, see Wang, "Reluctant Rival"; and Zhao, "Is a New Cold War Inevitable?" For U.S. worries, see Antony J. Blinken, "The Administration's Approach to the People's Republic of China" (speech at George Washington University, Washington, D.C., May 26, 2022), https://www.state.gov/the-administrations-approach-to-the-peoples-republic-of-china. Secretary of State Blinken argued the following in his speech: "China is the only country with both the intent to reshape the international order and, increasingly, the economic, diplomatic, military, and technological power to do it. Beijing's vision would move us away from the universal values that have sustained so much of the world's progress over the past 75 years."

[9] This impression is based on meetings with Chinese scholars and officials in Beijing, notably during interviews for the following articles: Pavel K. Baev and Stein Tønnesson, "The Troubled Russia-China Partnership as a Challenge to the East Asian Peace," *Fudan Journal of the Humanities and Social Sciences* 10, no. 2 (2017): 209–25; and Stein Tønnesson and Pavel K. Baev, "Stress-Test for Chinese Restraint: China Evaluates Russia's Use of Force," *Strategic Analysis* 41, no. 2 (2017): 139–51.

nuclear-propelled submarines have stimulated China's geopolitical angst. This could possibly transform small disputes into perceived existential threats. It is difficult to say whether this favors escalation or de-escalation, but such angst makes it both more difficult for China to back down and more important to do so.

In conclusion, the worst "fear cocktail" for China would be a combination of the long-term fear of losing great-power status, the more short-term fear of internal threats to the party-state fueled by outside interference, and the acute fear of losing a military confrontation. If all conditions are met, China's crisis behavior could become emotionally driven.

A 2014 article by Chinese security analyst Zhang Tuosheng provides a glimpse of official Chinese thinking on crisis management 8–10 years ago. According to Zhang, over the previous 60 years, China's behavior in international military security crises had undergone tremendous change, following "a path from military confrontation to crisis management, from avoiding conflicts to striving for a win-win situation."[10] These are two parallel changes, one from military confrontation to crisis management, another from reactive to proactive diplomacy. Zhang's thesis made sense a decade ago, when China had overcome its ideologically driven behavior and fear of the Soviet Union and become a more self-conscious power. Since 2008, however, China's fear of U.S. hostility has grown.

At the same time, China has become more assertive vis-à-vis its weaker neighbors, looking for "win-lose" just as much as "win-win" opportunities. That said, although Beijing's rhetoric turns emotional each time the party-state is criticized for its repression of Uighurs, Tibetans, or Hong Kong's democracy activists, its actions on the ground are more restrained. The adoption by the National People's Congress of the new National Security Law for Hong Kong in 2020 was not a spontaneous reaction to the massive protest movement in 2019 but a highly calculated move to quell Hong Kong's democracy movement at a time when the pandemic prevented mass mobilization.

Circumstances

China's de-escalation pattern varies from one adversary to another. Japan is a formidable adversary with modern military forces and a bilateral

[10] Zhang Tuosheng, "中国国际军事安全危机行为研究" [On China's Behavior in Dealing with International Military Security Crisis], Chinese Social Sciences Net, January 2, 2014.

alliance obliging the United States to defend the country, making it imperative for Beijing to de-escalate any crisis with Tokyo that threatens to become an armed confrontation. North Korea could pull China into a war. From China's perspective, the status quo is therefore preferable on the Korean Peninsula. Taiwan is a less formidable adversary than Japan, and the United States is not bound by any law or treaty to defend the island militarily. This makes it less likely that China de-escalates a crisis with Taiwan, thus preserving the "one China" principle.

As another example, China has built a military base on Mischief Reef close to the militarily weak Philippines. By feigning de-escalation, China has also managed to take over Scarborough Shoal. The 1951 U.S.-Philippines Mutual Defense Treaty does not include protection of these maritime features but does include Second Thomas Shoal, where China has been engaged in attempts to oust a Philippine garrison. By comparison, Vietnam occupies the largest number of features in the Spratly Islands and is not protected by any alliance but is a more capable and decisive adversary than the Philippines. In further contrast, India, with which China had a short war in 1962 and several later incidents, is a nuclear power and a determined and capable adversary. As will be seen below, the historical record of crises between China and the Philippines, Vietnam, and India forms a basis for trying to establish a pattern in China's conflict management.

Crisis situations are also affected by global alignments of power. In 1974 the U.S.-China rapprochement allowed Beijing to seize the southwestern Paracel Islands from South Vietnam, meeting only weak resistance. This should prepare one for the possibility that China may accept more risk and engage in clearly aggressive behavior if it perceives a change in regional power alignments. At present, however, this scenario is unlikely, given Russia's failure to take control of Ukraine—the Ukrainian resistance and Western response may forestall any land-grab intentions by Beijing.

Under which circumstances might China be willing to accept greater risk and fail to de-escalate a crisis? First, this might occur if Beijing assumes that its local adversary will be unable to resist or be easy to defeat. A second scenario is if China perceives a low risk of U.S. military intervention, either because of domestic strife in the United States or because the United States is engaged in active conflict elsewhere. Third, Beijing might not de-escalate a crisis if it senses China has reached the peak of its global power and fears relative decline. A fourth scenario is if Taiwan should declare itself independent or arrange for a referendum. Fifth, Beijing might not de-escalate if there are internal disturbances in China or a power struggle

between factions in the ruling party. In the immediate future, none of these factors are likely.

Decision-making

The Cultural Revolution in the 1960s and 1970s marked a whole generation with a sense of insecurity, which since 2012 has been bolstered by Xi Jinping's anticorruption campaign. All cadres are exposed to the danger of being punished for corruption, which forces them to be cautious. While Mao Zedong and Deng Xiaoping were risk-takers, their successors have been more careful. This includes Xi, whose father suffered during the Cultural Revolution while he began his long climb up the power ladder. Xi's success was based on systematic work, intense loyalty to superiors, and great caution. Although Xi uses Maoist rhetoric in his campaign for China's rejuvenation, and although he has centralized power as a "core leader," his governance does not resemble Mao's or Deng's. He has jealously guarded his power through well-planned, cautiously structured administrative reforms. Since Xi is likely to stay in power for a long time, his psychological profile must be recognized as a key factor in China's crisis management.

To help the decision-making of the Politburo Standing Committee of the CCP, several "leading groups" covering various fields have been established. In September 2000 a leading group for national security was formed, but it did not manage to overcome the dispersal of responsibility between the Central Military Commission, State Council, Ministry of Foreign Affairs, Ministry of State Security, and other agencies. In November 2013 the National Security Commission was established, with more administrative responsibilities than its U.S. counterpart. It is under the direct authority of the CCP rather than the state.[11] The commission has confirmed Xi's personal authority but has not elevated any of his advisers to a status equivalent to a U.S. national security adviser. Considerable confusion remains as to the division of responsibility among the various agencies that are overseen by the commission.[12] When U.S. national security adviser Jake Sullivan wanted to meet his Chinese counterpart in Rome to discuss Russia's invasion of

[11] Zhao Kejin, "China's National Security Commission," Carnegie Endowment for International Peace, July 14, 2015, https://carnegieendowment.org/2015/07/14/china-s-national-security-commission-pub-60637.

[12] David M. Lampton, "Xi Jinping and the National Security Commission: Policy Coordination and Political Power," *Journal of Contemporary China* 24, no. 95 (2015): 759–77.

Ukraine, the choice fell on former state councilor Yang Jiechi, who now serves as director of the party's Central Foreign Affairs Commission.

Historically, says Zhao Tuosheng, the operation of China's national security leadership has shifted to relying on more institutionalized decision-making than under Mao and Deng.[13] Since 2012, Xi has built a cult around himself. He has ruthlessly removed his rivals and done nothing to ensure his future succession. In terms of ideology, Xi is not a revolutionary but a nationalist seeking to solidify the party-state's political and social order. He is not a daring economic reformer—he needs and fears the marketplace with its independent companies and sees them as instruments of power that ensure China's continued economic growth. Xi embodies the values of a centralized and institutionalized growth-promoting regime.

For his international interlocutors, the above traits may provide some comfort. Xi calculates his moves, and his behavior is therefore somewhat predictable. He will avoid war while at the same time maintaining a partnership with a crisis-ridden Russia.

Historical Record

When China walks into a foreign policy crisis, its steps are most often tangible and meant to extend its power without provoking resistance. However, if a crisis results from its actions, China is likely to de-escalate while claiming it has fulfilled its mission.

China's border war with Vietnam began in 1979 with an invasion after the Vietnamese assault on Democratic Kampuchea. The plan was to teach Vietnam a lesson, counter Soviet influence in the region, and compel Vietnam to withdraw from Cambodia.[14] However, Vietnam put up a staunch defense, and the People's Liberation Army suffered huge casualties. After five weeks, the Chinese forces withdrew. This radically de-escalated, though did not end, the conflict. China sealed off the border, prevented any trade, and kept whole divisions at the boundary for the following decade. The pattern here was (1) launching an offensive act, (2) meeting determined resistance, (3) de-escalating and withdrawing while camouflaging the situation as "mission fulfilled," (4) making no concessions, and (5) maintaining pressure until the key aim was achieved.

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[13] Zhang, "中国国际军事安全危机行为研究."

[14] Zhang Xiaoming, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979–1991* (Chapel Hill: North Carolina University Press, 2015).

In 1995–96 the PRC tried to influence Taiwan's presidential elections through missile tests. To Beijing's surprise, two U.S. carrier groups turned up undetected in the Taiwan Strait. China then abstained from further provocations, the elections went ahead, and China built up missile, naval, and air forces along the strait. Beijing has since maintained its pressure on Taipei.

The same pattern can be seen in China's occupation of Mischief Reef. It built its first structures on the reef in 1994–95, with further construction in 1998, leading to strong, unanimous protests from the Association of Southeast Asian Nations (ASEAN). China de-escalated by engaging in talks leading to the 2002 China-ASEAN Declaration on the Conduct of Parties in the South China Sea. The declaration included a commitment to refrain "from action of inhabiting on the presently uninhabited islands, reefs, shoals, cays, and other features."[15] This, however, was exactly what China did twelve years later, when in 2014–17 it built seven artificial islands in the Spratly Islands, replete with military facilities. One of them was built on the submerged Mischief Reef. In 2014, China carried out its huge construction project in three phases: first a modest start in January, then a more ambitious one in March, and then, from June, construction work on all seven features it occupied in the Spratly area.[16] The first phase was probably meant to test reactions. When no one tried to physically block the project, Beijing proceeded to implement its full plan. These incremental tactics allowed China to acquire military bases near the Philippines.

In 2012 a standoff occurred between China and the Philippines at Scarborough Shoal, west of Luzon. Here, China demonstrated how successful its assertive pattern can be when it faces a weaker adversary. Swarms of fishing boats outmaneuvered a lonely Philippine naval vessel, no shots were fired, there were talks, and an agreement was made for both sides to withdraw in the face of impending conflict. Afterward, the Philippine ship was gone, but the Chinese vessels remained. China's de-escalation appeared as a ruse. As of 2022, China has not constructed on Scarborough Shoal and has allowed Philippine fishers into the area.

In May 2014, after the Philippines had initiated compulsory arbitration against China to resolve some key legal questions in the South China Sea, China deployed its new HYSY 981 oil rig to a location that Vietnam claims

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[15] The text of the declaration is available at https://asean.org/declaration-on-the-conduct-of-parties-in-the-south-china-sea-2.

[16] M. Taylor Fravel, "Threading the Needle: The South China Sea Disputes and U.S.-China Relations," in *Strategic Adjustment and the Rise of China: Power and Politics in East Asia*, ed. Robert S. Ross and Øystein Tunsjø (Ithaca: Cornell University Press, 2017), 254.

as part of its continental shelf. This led to fervent Vietnamese protests, including attacks on Chinese-owned factories in Vietnam and the dispatch of fishing boats and maritime surveillance vessels to the area. China first escalated the crisis by sending more fishing boats, coast guard cutters, and eventually naval vessels to deal with the Vietnamese vessels. Yet Vietnam managed to keep a presence for the next two months. HYSY 981 had been scheduled to continue drilling through August, yet on May 27 the oil rig was moved to a less contested location, and on June 18 it retracted its equipment while senior Chinese and Vietnamese leaders met. On July 15, the rig fully departed one month early.[17] Beijing claimed that its mission had been completed, but most observers saw the relocation as a de-escalatory move.

It was also in 2014 that China engaged in building artificial islands on rocks and submerged reefs in the Spratly Islands. This was a substitute for invading any of the islands held by Vietnam, the Philippines, Malaysia, Brunei, or Taiwan. The artificial islands are now much larger than the natural ones. Although they can hardly be protected against military attacks,[18] and must be costly to maintain, China's assertiveness was highly successful in this case. Since no actor tried to prevent the construction, no crisis needed de-escalation.

In 1999, in response to China's capture of Mischief Reef, the Philippines ran an ex-U.S. tank landing ship, the *Sierra Madre*, aground on the Second Thomas Shoal, a fully submerged reef. Like Mischief Reef, it is legally a part of the Philippines' continental shelf. A dozen Philippine marines are stationed on the grounded ship. China has repeatedly tried to compel the Philippines to remove the rusting vessel by disrupting its reprovisioning.[19] Each time, this has created a crisis in Manila, and China has ended its disruptive actions. It is unclear why China de-escalates, but this could be part of a long-term pressure plan testing Manila's resolve while tempting it with offers of aid and investment. Alternatively, China backs out each time it is reminded that the shoal is covered by the 1951 U.S.-Philippines Mutual Defense Treaty.

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[17] Michael Green et al., "Counter-Coercion Series: China-Vietnam Oil Rig Standoff," Center for Strategic and International Studies, Asia Maritime Transparency Initiative, June 12, 2017, https://amti.csis.org/counter-co-oil-rig-standoff.

[18] Kristin Huang, "Beijing's South China Sea Military Bases 'Are Vulnerable to Attack and Will Be of Little Use in War,'" *South China Morning Post*, December, 6, 2020, https://www.scmp.com/news/china/military/article/3112419/beijings-south-china-sea-military-bases-are-vulnerable-attack.

[19] See, for example, "Report: China Backs Down from Standoff at Second Thomas Shoal," *Maritime Executive*, November 21, 2021, https://www.maritime-executive.com/article/report-china-backs-down-from-standoff-at-second-thomas-shoal.

The above examples indicate that China's method of de-escalation is to temporarily refrain from further offensive actions without making genuine concessions. The de-escalation is often portrayed as "mission fulfilled." If in such situations the adversary also refrains from offensive action, the crisis is temporarily averted. China then waits for the next occasion to regain the initiative. Thus, it is important for adversaries—in case they want to de-escalate—to note whenever China stops its advance or withdraws its forces from risk-laden locations. In such affairs, any peace-loving adversary must reciprocate by refraining from offensive actions.

In some periods, China has departed from the pattern observed above and actively resolved its disputes. As M. Taylor Fravel has shown, since the 1960s, China has preempted conflict with most of its neighbors by negotiating border treaties. To obtain such treaties, it has made substantial concessions.[20] China has secured its borders through negotiated treaties with North Korea, Mongolia, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Nepal, Pakistan, Myanmar, Laos, and Vietnam (both on land and in the Gulf of Tonkin).

As noted earlier, border treaties have not been reached with India and Bhutan. The Taiwan issue has also been left unresolved, as well as the disputes over the sovereignty of islands and maritime zones in the East and South China Seas. These are the disputes that have provided the basis for China's foreign policy crises. Given that China has resolved serious disputes in the past, the possibility that it will change its current assertive pattern and stop the cycle of escalation and de-escalation, while seeking to resolve its remaining border disputes, should not be ignored.

Conclusion

Chinese leaders still want "peaceful development,"[21] yet they see it as important to convince themselves and others that China can fight a limited war. Judged by their past behavior, they are likely to seek ways to de-escalate any acute crisis with the United States or other major powers as long as de-escalation does not affect what they see as China's core interests. Normally, this term is used to cover China's sovereignty over Tibet, Xinjiang,

[20] Fravel, *Strong Borders*; and Hyer, *The Pragmatic Dragon*.

[21] Xi Jinping, for example, stated in April 2022 that "China will unswervingly follow the path of peaceful development, and always be a builder of world peace, a contributor to global development, and a defender of the international order." See Xi Jinping, "Rising to Challenges and Building a Bright Future through Cooperation" (keynote speech at the Boao Forum for Asia, Beijing, April 21, 2022), https://www.fmprc.gov.cn/eng/zxxx_662805/202204/t20220421_10671081.html.

and Taiwan. The status quo in the Taiwan Strait and South China Sea is likely acceptable to Beijing if the alternative is war.

However, two fundamental interests come into play: economic development and the preservation of the party-state. If a situation occurs where the CCP faces internal and foreign policy crises simultaneously, its reaction will be difficult to predict. If de-escalation of the foreign policy crisis can help prevent foreign interference, then China might de-escalate. Its eagerness to negotiate border agreements in the past was to some extent driven by a need to prevent external interference in internal conflicts. On the other hand, if the CCP sees a need to demonstrate its patriotism, then it could escalate.

Chinese leaders are determined to avoid the fate of the Soviet Union. If China's rivals mix security conflicts with attempts to influence the country's internal affairs, the result could be war. If, however, China's competitors use diplomacy, trade, investments, military deployments, red lines, alliances, military confidence-building measures, and hotlines to capitalize on Beijing's propensity to de-escalate crises when meeting resistance, then China is unlikely to do anything to precipitate conflict. Peace in East Asia may then prevail.

EXECUTIVE SUMMARY

This chapter examines China's crisis management diplomacy following the 19th National Congress of the Chinese Communist Party.

MAIN ARGUMENT

China has shown a strong preference for crisis management mechanisms when it is on the defensive or at a disadvantage, requires a tool to freeze a new status quo, or needs to consolidate gains. When China is on the offensive, or when its goal is to change the status quo, crisis management regimes tend to be an obstacle. But this is not always the case; even revisionist foreign and security policies sometimes need stability and a reduction of tensions. Overall, however, China's preference for crisis avoidance or crisis prevention mechanisms that address the root causes of conflicts, in the form of high-level strategic guidance provided by political leaders, is characteristic of Chinese security policy. This top-down approach focused on political trust is opposite a bottom-up approach centered on risk avoidance. For the U.S., Japan, and India, building crisis management regimes with China is important to increase transparency and reduce the risk of collisions or other incidents that could trigger severe crises.

POLICY IMPLICATIONS

- Crisis management diplomacy between China and the West suffers from poor Track 2 channels as a result of strategic tensions and Covid-19 restrictions. The resumption of crisis-management Track 2 dialogue with China should be a priority and requires high-level political intervention.
- Meeting China halfway on crisis management is necessary. Mixed regimes that combine a crisis management approach centered on risk reduction with China's preference for crisis prevention communication platforms could address the concerns of both sides.
- Demands for crisis management diplomacy should be backed by a robust force posture. Given that China sees the benefits of crisis management when it is on the defensive, offensive deployment could help demonstrate the importance of transparency, communication channels, and reciprocal measures in terms of force posture.
- The collapse of the China-India crisis management regime during the border clashes in the Himalayas can provide valuable lessons about which elements of the regime were deliberately circumvented and how it can be improved as a result.

Chapter 9

The People's Liberation Army and Crisis Management during Xi Jinping's Second Term

Mathieu Duchâtel

Military crisis management consists of measures related to the behavioral and communication aspects of military forces aimed at reducing the risk of clashes and escalation resulting from misperceptions and misunderstandings in the international arena. Historically, the initiative of building crisis management mechanisms or channels with China systematically has come from opponents or rivals. Chinese expert literature defines crisis management policy as "a series of measures to prevent and control the occurrence and development of crises."[1] These measures can include, among other confidence-building steps, mutual visits and exchanges at different levels, notification of military activities, adoption of standards and rules of behavior to reduce the risks of unplanned encounters, transparency on force structure and deployment, limits placed on force deployment, and the establishment of communication channels.

This chapter analyzes the record of Chinese crisis management diplomacy after the 19th National Congress of the Chinese Communist Party (CCP) and its links with China's deterrence. Since 2017, there have been several remarkable developments:

- High-level cross-strait communication channels between China and Taiwan have been continuously absent, even as China has engaged since 2019 in a campaign of military intimidation of the Tsai administration.

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[1] Alastair Iain Johnston, "The Evolution of Interstate Security Crisis-Management Theory and Practice in China," *Naval War College Review* 69, no. 1 (2016): 28–71.

- The China-Japan Maritime and Aerial Communication Mechanism was established in 2018.
- Border clashes with India in the Himalayas began in 2020, in violation of four bilateral crisis management agreements.
- High-level channels to the U.S. Department of Defense were used to seek reassurance regarding the Trump administration's intentions in the Taiwan Strait at the end of 2020.

During this period, the People's Liberation Army (PLA) has not departed from its traditional skepticism regarding the usefulness of crisis management as a stabilizer of relations marked by security competition. Overall, rather than rely on crisis management to reduce the risk of incidents and escalation, China has consistently shown a preference for crisis avoidance or crisis prevention mechanisms that address what the Chinese leadership perceives as the root causes of conflicts. China has treated agreements as only loosely constraining and reversible, though at times providing a valuable communication channel when there are questions regarding the intentions of the other side.

The next section examines China's approach to crisis management with Japan, India, the United States, and Taiwan after the 19th Party Congress. The subsequent section then considers recent Chinese views on crisis management.

The Practice (or Absence) of Crisis Management after the 19th Party Congress

China-Japan Relations

The China-Japan Maritime and Aerial Communication Mechanism was created in 2018, ten years after negotiations started.[2] By 2012, the two sides had already reached an agreement regarding the architecture of the mechanism, which would include three elements: (1) an annual meeting of defense authorities and regular expert meetings, (2) a high-level hotline between the defense ministries of the two sides, and (3) direct communication between military vessels and aircraft along with an agreement on common radio frequencies.

[2] For a history of the negotiations, see Mathieu Duchâtel, "China's Policy in the East China Sea: The Role of Crisis Management Mechanism Negotiations with Japan (2008–2015)," *China Perspectives*, no. 3 (2016): 13–21.

Despite the mechanism being formally launched in 2018, it has essentially consisted of regular meetings between high-level defense authorities at the working level. The third annual meeting was conducted in March 2021 in conjunction with the fifth working-level consultation. The Japanese side was represented by the deputy director of the Defense Policy Bureau, while the Chinese side was represented by the deputy director of the PLA Office for International Military Cooperation. At the meeting, the two sides expressed the view that the mechanism had operated properly since its inception, according to a statement released by the Japanese Ministry of Defense.[3] In December 2021 the two defense ministries agreed to launch a military hotline in 2022.[4] In November 2022, Japan Foreign Minister Hayashi made public his expectation that the hotline would start operating during the spring of 2023.[5]

So far, the mechanism has worked as a platform for the two sides to voice their concerns and clarify their positions. At the third meeting, the Japanese side expressed apprehension regarding China's unilateral attempts to change the status quo in the East China Sea and the enactment of the China Coast Guard Law. The Chinese side emphasized that the law is the result of normal legislative activity and urged Japan to stop its "negative actions" (消极举动) and "provocations" (挑衅行为).[6]

The communication mechanism largely parallels the function of the 1998 U.S.-China Military Maritime Consultative Agreement (MMCA). The MMCA meets regularly to "develop a common understanding on safe operational interactions between U.S. and PRC air and naval forces" and serves "as a guardrail for military encounters to reduce risk in the air and at sea."[7] This focus on risk management and the safety of operations is mirrored in the China-Japan mechanism. Just as the MMCA does not

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[3] Ministry of Defense (Japan), "「日中防衛当局間の海空連絡メカニズム」に関する第３回年次会合専門会合(結果概要)" [Summary of Results from the 3rd Annual Meeting on the Sea-Air Communication Mechanism between Japanese and Chinese Defense Authorities], March 29, 2021, https://www.mod.go.jp/j/press/news/2021/03/29a.html.

[4] "Japan and China Agree to Begin Operating Defense Hotline Next Year," *Japan Times*, December 28, 2021, https://www.japantimes.co.jp/news/2021/12/28/national/japan-china-hotline.

[5] "Japan Defense Hotline with China to Start Next Spring: Top Diplomat," Kyodo, November 29, 2022, https://english.kyodonews.net/news/2022/11/7b47b88ece60-japan-defense-hotline-with-china-to-start-next-spring-top-diplomat.html.

[6] "就中日防务部门机制性磋商答记者问" [Answering the Media Regarding China-Japan Defense Technical Consultations], *People's Daily*, April 1, 2021, https://finance.sina.com.cn/tech/2021-04-01/doc-ikmxzfmk0402309.shtml.

[7] "U.S. Indo-Pacific Command Representatives Meet with Chinese Counterparts at Military Maritime Consultative Agreement Working Group," U.S. Indo-Pacific Command, Press Release, December 17, 2021, https://www.pacom.mil/Media/News/News-Article-View/Article/2877542/us-indo-pacific-command-representatives-meet-with-chinese-counterparts-at-milit.

entirely eliminate the risk of incidents between U.S. and Chinese naval forces, the value of the China-Japan communication mechanism to achieve risk reduction at sea and in the air is limited. There are, however, two features that make the Sino-Japanese interactions in the East China Sea unique. First, coast guard activity presents the most direct risk of incident in China-Japan relations. Chinese law-enforcement ships have established a regular presence in the territorial sea and contiguous zone of the Senkaku Islands, and the communication mechanism does not cover coast guard activity.[8] The risk is especially high given that China has never taken a position on whether the Code for Unplanned Encounters at Sea applies to coast guard operations. Second, the construction of the mechanism has not prevented an increase in Chinese naval and air activity in the vicinity of Japan, including in joint exercises with the Russian Navy and Air Force.[9]

For both sides, once a military communication channel is in place, it can perform other functions than risk reduction and the management of dangerous encounters at sea and in the air. While China recognizes the "positive role of the mechanism to reduce misperception and misunderstanding," the channel also serves to reiterate the Chinese position and explain Chinese policies toward Japan on matters of security and sovereignty.[10] How much time is devoted to addressing fundamental political issues in China-Japan relations rather than narrowly focusing on the risk of incidents during air and naval interactions is not clear. At this early stage, it appears that China favors a focus on broad political issues.

Could the PLA suspend the mechanism? The purchase of three of the Senkaku Islands by the Japanese government in 2012 temporarily led to the suspension of negotiations. A scenario in which a dramatic deterioration of bilateral relations occurs as a result of actions taken by the Japanese government—for example, the development of ties with Taiwan—could indeed include a freeze of the mechanism by the Chinese side or a decision to postpone the annual meeting and the defense expert consultations. At this stage, the mechanism remains relatively fragile.

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[8] For full statistics, see Ministry of Foreign Affairs (Japan), "Trends in China Coast Guard and Other Vessels in the Waters Surrounding the Senkaku Islands, and Japan's Response," April 21, 2022, https://www.mofa.go.jp/region/page23e_000021.html.

[9] Tetsuo Kotani, "The Threat of a Sino-Russian Fleet Circumnavigating Japan: How Should Japan Respond?" *Diplomat*, November 14, 2021, https://thediplomat.com/2021/11/the-threat-of-a-sino-russian-fleet-circumnavigating-japan.

[10] "国防部就中日防务部门机制性磋商答问" [Defense Ministry's Q&A Regarding the China-Japan Defense Consultation Mechanism], Ministry of National Defense of the People's Republic of China (PRC), Press Release, March 31, 2021, http://www.gov.cn/xinwen/2021-03/31/content_5596957.htm.

China-India Relations

China's unilateral escalation of military tensions with India in the Himalayas since 2020 demonstrates the limitations of existing crisis management institutions and mechanisms. In the words of an Indian observer, the clashes are no less than the "breakdown of the long and laboriously-constructed Confidence Building Measures (CBM) regime that had been established to maintain peace along the Line of Actual Control (LAC)."[11] Through four agreements, China and India have built a robust crisis management architecture:

- The 1993 Border Peace and Tranquility Agreement contains provisions to reduce deployed forces "to a minimum level compatible with the friendly and good neighborly relations," to give prior notification of military exercises, and to refrain from air intrusions.[12]
- The 1996 Agreement on Military Confidence Building Measures takes the 1993 agreement further with a list of precise steps to be implemented.[13] The measures include limits on the deployment of specific categories of weapons—such as tanks, infantry combat vehicles, guns (including howitzers) with 75 mm or larger caliber, or mortars with 120 mm or larger caliber—and an interdiction against flying combat aircraft within 10 kilometers of the LAC.
- The 2005 Protocol for the Implementation of Military Confidence Building Measures, which was also a continuation of the previous agreements, contains procedures to ensure that "if the border personnel of the two sides come to a face-to-face situation due to differences on the alignment of the Line of Actual Control or any other reason, they shall exercise self-restraint and take all necessary steps to avoid an escalation of the situation."[14] The 2005 agreement standardizes operating procedures for troop encounters to avoid miscalculations leading to incidents and establishes a communication mechanism to address alleged air intrusions.

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[11] Manoj Joshi, "Indo-China Row Signals Breakdown of Confidence Building Measures," Observer Research Foundation, June 8, 2020, https://www.orfonline.org/research/indo-china-row-signals-breakdown-of-confidence-building-measures-67469.

[12] "Agreement on the Maintenance of Peace and Tranquility along the Line of Actual Control in the India-China Border Areas," September 7, 1993, available at https://peacemaker.un.org/chinaindia-borderagreement93.

[13] "Agreement between India and China on Confidence-Building Measures in the Military Field along the Line of Actual Control in the India-China Border Areas," November 29, 1996, available at https://peacemaker.un.org/chinaindiaconfidenceagreement96.

[14] "Protocol between India and China on Modalities for the Implementation of Confidence-Building Measures in the Military Field along the Line of Actual Control in the India-China Border Areas," April 11, 2005, available at https://peacemaker.un.org/chinaindiaconfidenceagreement2005.

- The 2012 Working Mechanism for Consultation and Coordination on India-China Border Affairs, led by both foreign ministries and militaries, addresses "issues and situations that may arise in the border areas that affect the maintenance of peace and tranquility."[15]

The China-India crisis management regime goes well beyond the construction of a communication mechanism and is more ambitious and detailed than the mechanism that China and Japan are currently constructing. The 1996 agreement, in particular, is extremely precise when it comes to weapons deployment, while the 2005 protocol provides clear guidelines to manage unplanned encounters of units in the border area. These bilateral confidence-building agreements, however, failed to place decisive constraints on the PLA's behavior in the border area and did not prevent military action. Although China's rationale for intruding across the LAC is beyond the scope of this chapter,[16] the clashes since 2020 underline how crisis management supports and develops a political confidence-building process that can be reversed, or ignored, when state-to-state relations deteriorate.

The precision of bilateral agreements and frequency of military interactions were insufficient to dispel Chinese concerns regarding the construction of logistical infrastructure on the Indian side of the LAC. Over three decades of negotiations, China had suggested a defense agreement to convince India to freeze military infrastructure construction in border areas, which later became a Chinese proposition for a code of conduct.[17] The Chinese side regularly raised the issue during consultations with India, but to no avail. By standing firm on infrastructure construction and rejecting Chinese proposals for a freeze, India signaled a clear intention to remediate Chinese infrastructure superiority along the LAC. Conversely, one can argue that the Chinese proposal for a border defense agreement aimed at maintaining a status quo characterized by a military balance favorable to China.

Despite the fact that the existing agreements have been insufficient to prevent conflict, the recent border clashes have not led to a fundamental review of the bilateral crisis management architecture. Restrictions on

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[15] Ministry of External Affairs (India), "India-China Agreement on the Establishment of a Working Mechanism for Consultation and Coordination on India-China Border Affairs," January 17, 2012, art. 5.

[16] For a review of Chinese debates, see Mathieu Duchâtel, "The Border Clashes with India: In the Shadow of the U.S.," Institut Montaigne, China Trends, no. 8, February 2021, https://www.institutmontaigne.org/ressources/pdfs/publications/china-trends-8-EN.pdf.

[17] Joshi, "Indo-China Row Signals Breakdown of Confidence Building Measures."

weapons deployment and standard operating procedures for ground and air forces are already in place. What the ongoing border crisis has revealed is not only the need for more comprehensive consultations but also the limitations inherent in confidence-building exercises. Crisis management is not crisis prevention and does not guarantee crisis avoidance; it just reduces the risk of clashes and escalation.

U.S.-China Relations

Sino-U.S. relations during the last year of the Trump administration presented a unique case of China taking the initiative of using communication channels to seek reassurance. This was the result of a Chinese misperception that the administration could initiate a crisis in the Taiwan Strait to increase President Donald Trump's chances of re-election. The PLA expressed these concerns directly to the deputy assistant secretary of defense for China, as well as at the first U.S.-China Crisis Communications Working Group.[18] The communication process culminated with calls between General Mark Milley, chairman of the Joint Chiefs of Staff, and General Li Zuocheng, chief of the Joint Staff Department of the Central Military Commission, in October 2020 and January 2021.

This use of crisis communication channels by China is extraordinary in the sense that it was driven by an erroneous threat perception. It nevertheless underlines the value of these channels, which exist to address such misperceptions. The case suggests that when faced with questions regarding a rival's possible intentions, and when on the defensive, the Chinese military recognizes the value of transparency and crisis management communication.

Crisis management played a stabilizing role for U.S.-China relations during the entire Trump administration. The three U.S.-China crisis management agreements (the 1998 MMCA, the 2014 Notification of Major Military Activities Confidence-Building Measures Mechanism, and the 2014 Rules of Behavior for Safety of Air and Maritime Encounters) worked properly.[19] They do, however, have obvious limitations. Their role is limited to addressing rules of behavior and offering an opportunity to clarify intentions, and they are not as detailed as the 1972 U.S.-Soviet Incidents at

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[18] "U.S. Department of Defense Hosts First Crisis Communications Working Group with the People's Republic of China People's Liberation Army," U.S. Department of Defense, Press Release, October 29, 2020, https://www.defense.gov/News/Releases/Release/Article/2398907/us-department-of-defense-hosts-first-crisis-communications-working-group-with-t.

[19] Author's telephone interview with Chad Sbragia, November 2021.

Sea Agreement.[20] They also serve as military diplomacy channels to voice concerns that go beyond the safety of military interactions. For instance, China uses the MMCA to reiterate that instead of rules to facilitate such interactions, the fundamental solution to crises in the Indo-Pacific is for the U.S. Navy and Air Force to stop operating within the first island chain.[21]

Cross-Strait Relations

China treats Taiwan as a core interest and approaches cross-strait relations from the angle of its one-China principle Crisis management tools could theoretically play an important role in reducing the risk of collision between Chinese and Taiwanese naval and air forces and support the improvement of political relations. However, developing cross-strait crisis management mechanisms is not part of the CCP's Taiwan policy. Instead, China unilaterally shut down high-level cross-strait channels after the 2016 election of President Tsai Ing-wen, including the hotline established at the end of 2015 between China's Taiwan Affairs Office and Taiwan's Mainland Affairs Council. President Tsai's calls to restore communication channels to "jointly promote meaningful dialogue" have been ignored.[22]

In managing cross-strait relations, China has shown a willingness to engage in crisis management discussions only when its relationship with Taiwan is on a path of deepened integration. This was the case during Ma Ying-jeou's two terms as president of Taiwan (2008–16). But even during those years, a hotline was only established toward the very end of Ma's second term, and no military crisis management mechanism was formally established.

As a result, crisis management has disappeared from expert discussions on Taiwan Strait security. Under Xi Jinping, Chinese policy exerts pressure through military intimidation at the risk of provoking air collisions in Taiwan's southwestern air defense identification zone or when crossing the strait's median line. Projecting the PLA's determination to risk an incident is a constitutive part of China's current Taiwan policy and can be described as "cognitive domain warfare," to translate the Chinese term (认知域作战).

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[20] Rush Doshi, "Improving Risk Reduction and Crisis Management in U.S.-China Relations," in "The Future of U.S. Policy toward China: Recommendations for the Biden Administration," Brookings Institution, November 2020.

[21] "China Urges U.S. to Cease Hostile Naval, Airforce Maneuvers," *China Daily*, December 31, 2021, https://www.chinadailyasia.com/article/254060.

[22] Chris Horton, "Taiwan President Urges China to Pursue Dialogue, Not Conflict," Bloomberg, January 1, 2021, https://www.bloomberg.com/news/articles/2021-01-01/taiwan-president-urges-china-to-pursue-dialog-not-conflict.

Review of Recent Writings by the Chinese Strategic Community on Crisis Management

How do Chinese experts define crisis management and evaluate its usefulness in China's foreign and security policy? Previous research on Chinese views has underlined specific PLA operational concepts, a "vision of Chinese exceptionalism," and the lack of strong crisis management institutions and expertise as obstacles for China to negotiate ambitious crisis management regimes with its rivals.[23] China's negotiating tactic—in particular the country's emphasis on prior recognition of general principles as a precondition for substantial negotiations—is also an obstacle.[24] During Track 1.5 discussions, Chinese experts tend to emphasize political trust as the best security guarantee, and sometimes as a precondition for engaging in technical discussions on safety. This is a systematic feature of the Chinese approach.[25]

Despite this fundamentally different approach to crisis management, there is nothing peculiar about the Chinese definition. Crisis management is described in Chinese publications as the construction of communication channels and the adoption of military measures to reduce the risk of dangerous interactions and escalation resulting from incidents. Like in Western publications, some Chinese experts treat crisis management narrowly as an element of military policy involving defense authorities, while some have a wider understanding and include communication channels between high-level political authorities. There is a broad spectrum of views in China regarding the usefulness of crisis management mechanisms.

Senior Colonel (ret.) Zhou Bo argues that crisis management channels and mechanisms regularly advocated by the United States essentially aim to get China "to guarantee the security of U.S. forces when they provoke China." What from the U.S. perspective is a tactical and operational issue of avoiding collisions and incidents represents a strategic problem from China's perspective: the presence of the U.S. military in the region. He concludes that when the two sides talk crisis management, they use the same language, but "their discourses are not on the same level."[26] Zhou Bo

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[23] Johnston, "The Evolution of Interstate Security Crisis-Management Theory and Practice in China."

[24] Richard H. Solomon, *Chinese Political Negotiating Behavior, 1967–1984* (Santa Monica: RAND Corporation, 1995).

[25] Author's participation in Track 1.5 crisis management discussions.

[26] Zhou Bo, "周波:中美两军间的危机管理考验" [A Crisis Management Test for U.S. and Chinese Militaries], *Zhonguo Xinwen Zhoukan*, no. 981, January 18, 2021, https://www.chinanews.com.cn/gn/2021/01-20/9391653.shtml.

advocates a minimalist version of crisis management: abiding by the Code for Unexpected Encounters at Sea and the U.S.-China Rules on Sea and Air Encounters and increasing training so that military personnel are fully aware of rules and procedures. He concludes that the most important detail is how to deal with a crisis after crisis management has failed and believes that this entirely depends on politics as a test of the "wisdom of the two governments" (智慧). In short, Zhou represents the view that crisis management would encourage the United States to act with impunity and freeze a status quo detrimental to Chinese security interests.

Conversely, Fan Jishe, who is a researcher at the Institute for International Strategic Studies at the Central Party School, argues that crisis management mechanisms should be part of a new framework for U.S.-China relations, as the old framework is collapsing. He advocates that crisis management arrangements and agreements should be incorporated into existing dialogue mechanisms and advises that those channels should always remain open. He sees such mechanisms and channels as particularly important because "once a crisis breaks out, the voices advocating confrontation will increase the difficulty of controlling the situation and limit the space for moving the problem out of the way."[27]

Zhang Tuosheng, a retired officer and leading advocate of crisis management in the Chinese strategic community who is currently with the Huazhi Institute for Global Governance at Nanjing University, sees strengthening crisis management as the "most urgent task in security at present and for a long time to come" for China and the United States. It is also a "top priority" for China and Japan in order to avoid undermining fragile and unbalanced Sino-Japanese relations.[28] He advocates efforts to raise "crisis management awareness" in the three countries, strengthen existing arrangements and "invest in building new ones," and resume bilateral security and defense dialogues, online or in person, as soon as possible.

Hu Bo, an assistant professor at Peking University, proposes a historical perspective that highlights improvements in U.S.-China relations since the Korean War.[29] He argues that the intensity and effectiveness of crisis management are dependent on the extent to which the United States and

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[27] Fan Jishe, "樊吉社:中美战略竞争的风险与管控路径" [A Path for Controlling Risk in U.S.-China Strategic Competition], *Nankai Xuebao* 5, no. 1 (2021).

[28] Tuosheng Zhang, "Strengthening Crisis Management, the Most Urgent Task in Current China-U.S. and China-Japan Security Relations," *China International Strategy Review* 3, no. 1 (2021): 34–55.

[29] Hu Bo, "胡波:中美海上危机管理面临的困境与改善路径" [U.S.-China Maritime Crisis Management: Difficulties and a Path to Improvement], *Meiguo Yanjiu* 5, no. 1 (2021).

China can coexist and accept the other's military power and influence. He enumerates three levels of crisis management institutions and communication channels:

- High-level dialogues, including maintenance of the U.S.-China nuclear hotline
- Formal diplomatic channels, including direct calls between defense ministries, regular consultations as part of the 1998 MMCA, and various other channels established over the years
- Rules of military behavior, including the 2014 Notification of Major Military Activities Confidence-Building Measures Mechanism and the 2014 Rules of Behavior for Safety of Air and Maritime Encounters

Hu argues that mutual distrust leads each side to believe that the other side is building a maritime order exclusively serving its own national interests, and therefore political and strategic communication is important. He repeats the official line that tensions are caused by U.S. naval activities inside China's exclusive economic zone (EEZ), even though Beijing's claims in the South China Sea are not commensurate with the EEZ definition put forth by the United Nations Convention on the Law of the Sea. He concludes that mutual accusations of a "lack of sincerity" (对方缺乏诚意) are a key obstacle, constantly aggravated by actual frictions and doubts at the highest strategic level.

Zheng Yiwei of the Strategic Studies Institute at Tongji University argues that the effectiveness of the China-Japan communication mechanism is limited by a lack of "strategic trust" in relations and cannot "eradicate crises" (不能根除危机). He mentions two limitations of the agreement. First, it does not define a geographic area. This is because Japan did not want to accept language that would indicate that it acknowledges the existence of a sovereignty dispute over the Senkaku Islands. Therefore, Zheng argues that it remains unclear whether the agreement would apply to the territorial seas of the islands, creating ambiguity for potential operations in the area. Second, he argues that the risk of military incidents also exists in the South China Sea. In his view, only the establishment of strategic trust at the highest political level can properly address the risk of military incidents between the two countries.[30]

[30] Zheng Yiwei, "郑义炜:中日海上危机管理辨析:基于海空联络机制的考察" [An Analysis of China-Japan Maritime Crisis Management: The Case of the Maritime and Aerial Communication Mechanism], *Journal of Tongji University* 32, no. 4 (2021): 41–50.

This focus on strategic intention is typical in Chinese publications criticizing crisis management and confidence building, as exemplified by an editorial of the *Global Times*. The editorial states that "with no mutual or political trust, China finds it impossible to use a military hotline to avoid possible conflict."[31] On the one hand, it acknowledges that crisis communication channels are needed in U.S.-China relations. On the other hand, it reflects deep distrust of U.S. intentions and is skeptical that crisis management can serve the interests of the side that initiates a crisis unilaterally. Circumventing this deep-rooted suspicion is a difficult challenge for the advocates of crisis management that requires technical measures to reduce misperceptions and miscalculations.

Conclusion

The balance sheet of China's crisis management during Xi Jinping's second term is mixed, though it trends toward the negative. The China-Japan communication mechanism has seen a fragile breakthrough. Still deprived at the time of writing of a military hotline to complement political channels, it is closer to a defense diplomacy channel that allows for the regular exchange of views and concerns than to a robust and operational crisis management mechanism focused on risk reduction and safety. In the Himalayas, China has ignored some of the provisions of four mechanisms it signed with India between 1993 and 2012 in conducting intrusions across the LAC. The ongoing conflict endangers a regime that had made important contributions to avoiding border incidents. In the Taiwan Strait, the PLA has created an environment characterized by increased risk of collisions by conducting regular air operations in Taiwan's air defense identification zone and across the strait's median line.

Relations with Japan and India suggest that the PLA still tends to treat crisis management as a barometer of a bilateral relationship. Crisis management can help bring stability to the relationship when China seeks increased stability. But agreements can be frozen or even violated when one side places more emphasis on security competition. This does not mean that these mechanisms prevent increased safety and even stability. But broader foreign policy goals always prevail over a technical approach to risk of incidents. Taiwan is an extreme version of these trends, as cross-strait

[31] Song Zhongping, "Bottom Line Must Be Respected Despite of Hotlines," *Global Times*, May 11, 2021, https://www.globaltimes.cn/page/202105/1223187.shtml.

relations are not treated as state-to-state relations. China accepted a high-level regular channel only after eight years of improved cross-strait relations, and it immediately reversed course after the Taiwanese government changed course. Conversely, Beijing's conduct in the final months of the Trump administration suggests that China is ready to make full use of defense diplomacy channels when the other party is seen as unpredictable or when Beijing perceives that an incident could serve the political agenda of the other side.

In sum, China exhibits a preference for crisis management mechanisms when it is on the defensive or at a disadvantage as a tool to freeze a new status quo or consolidate gains—in other words, as a tool for defensive strategies and postures. Chinese behavior after the 19th Party Congress also suggests that the PLA sees crisis management sometimes as a tool that freezes a status quo serving the interests of the party with the stronger position (e.g., Japan in administering the Senkaku Islands or Taiwan in being de facto independent), but sometimes as a tool that protects the interests of the weaker party (e.g., China in not wanting the United States to initiate a military incident within the first island chain). Where China seeks to upend the status quo of effective territorial control, crisis management will not be considered because it constrains Chinese behavior. But where the PLA is put in a defensive position, China will recognize the usefulness of crisis management as a stabilizer.

The preceding analysis also shows China's overall preference for crisis avoidance or crisis prevention mechanisms in the form of high-level strategic guidance provided by political leaders. This top-down approach focused on political trust is the exact opposite of a bottom-up crisis management approach centered on risk avoidance. Nonetheless, the United States, Japan, and India still need to pursue the goal of building crisis management regimes with China to increase transparency and predictability and reduce the possibility of incidents that could trigger severe crises.

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Modernizing Deterrence: How China Coerces, Compels, and Deters features papers from the 2021 People's Liberation Army Conference convened by the National Bureau of Asian Research and U.S. Indo-Pacific Command's China Strategic Focus Group. Leading experts explore how the PLA's modernizing capabilities and evolving doctrine suggest that a fundamental shift in China's approach to deterrence may be underway. Taken together, the nine chapters collected in this volume reveal broad changes to China's deterrence strategy across conventional, strategic, asymmetric, and emerging domains and consider how Chinese strategists and planners assess the PLA's ability to navigate conflict scenarios when deterrence fails.

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