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A COMPETITIVE STRATEGY WITH CHINESE CHARACTERISTICS?

The Second Artillery's Growing Conventional Forces and Missions

Michael S. Chase and Andrew S. Erickson

THE TRANSFORMATION OF THE Second Artillery Force (SAF)—the part of the PLA responsible for most of China's conventional and nuclear ballistic and land-attack cruise missiles—is one of the centerpieces of the PRC's military modernization program. In a relatively short period, China has progressed from a limited and vulnerable nuclear ballistic missile capability to one of the world's most impressive nuclear and conventional ballistic missile programs. As the U.S. Department of Defense's report on Chinese military and security developments puts it, "China has the most active land-based ballistic and cruise missile program in the world."¹

In doing so, China is filling the vacuum created when the United States and Russia—still the world's most capable missile producers in some respects—signed the Intermediate-Range Nuclear Forces (INF) Treaty on December 8, 1987. This prohibited both sides from producing nuclear and conventional ground-launched ballistic and cruise missiles with ranges between 500 and 5,500 kilometers (300 to 3,400 miles) and forced them to destroy their existing inventories.

According to the U.S. National Air and Space Intelligence Center (NASIC), China is "developing and testing offensive missiles, forming additional missile units, qualitatively upgrading certain missile systems, and developing methods to counter ballistic missile defenses."² Chinese writers rarely offer detailed descriptions of China's deployed or developmental missile systems, but they appear increasingly confident about China's missile capabilities. As one Chinese source states,

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With the remarkably swift development of science and technology, the weapons of the Second Artillery are being replaced by better models, one after the other. New models and new equipment series are being distributed among the troops, and old equipment is given a longer life and heightened effectiveness through technological updates.³

According to the SAF's authoritative *Science of Second Artillery Campaigns*, "Nuclear weapons are the most important tools of national deterrence strategy."⁴ But nuclear deterrence is subject to a number of limitations. As the book's authors point out, "Nuclear deterrence plays a huge role in terms of its shock value, but it is clearly restrained by international public opinion."⁵ Consequently, the threshold for nuclear deterrence and nuclear counterattack operations is very high. Conventional missiles are much less destructive than nuclear weapons, however, and there are therefore fewer constraints on their use. Chinese military writers state that this makes conventional missiles much more flexible instruments of deterrence.⁶ Indeed, according to *Science of Second Artillery Campaigns*, "In the primary direction of military struggle the means of deterrence against the primary operational opponent are conventional weapons; and the main components of conventional means of deterrence are conventional missiles."⁷

For all these reasons, conventional missiles have emerged as the centerpiece of a PLA strategy that seeks to increase China's ability to assert control over contested areas of its maritime periphery, foremost among them Taiwan. The essence of this strategy is to develop weapon systems and strategies that match Chinese strengths against the weaknesses of potential opponents in a cost-effective manner. Conventional missiles promise to further these ends by holding both land-based targets and surface ships at risk. The main goals of this approach appear to be deterring Taiwan from pursuing independence and raising the potential costs of U.S. intervention in the event of a regional crisis or conflict. The authors have found no Chinese sources that use the term *competitive strategy* to define this approach, but from a U.S. perspective the concept may offer a valid description of what Beijing seeks to accomplish. This chapter surveys the emerging doctrine, force structure, and operations of the Second Artillery's conventional forces to offer insights into the challenges that they may pose to U.S. military operations in the Western Pacific.

DOCTRINAL DIRECTION: SHIFTING TO "DUAL DETERRENCE, DUAL OPERATIONS"

China's interest in the development of conventional ballistic missile forces grew out of its need to respond to the threat of a Soviet invasion in the 1980s. The PLA's desire to supplement China's relatively weak capability to conduct air strikes was thus one of the main motives for China's early research and development work on conventional short-range ballistic missiles (SRBMs), which began in 1984. Another motive was the possibility of profiting from exports to customers in the developing world.⁸

After the 1991 Gulf War, the Central Military Commission assigned the Second Artillery the mission of "dual deterrence and dual operations," which emphasizes the importance of deterrence and combat roles for both the conventional and nuclear missile forces.⁹ China's first conventional ballistic-missile-force unit was established in 1993.

Within a few years, China's nascent conventional missile capability reached the forefront of its coercive diplomacy toward Taiwan. During the 1995-1996 Taiwan Strait crisis, the conventional missile force conducted two "large-scale conventional deterrence firing exercises."¹⁰ Chinese sources generally evaluate the missile launches as a successful display of force that deterred Taiwan from moving further toward formal independence.

Several factors have subsequently driven the development of China's conventional missile force. These include a desire to influence politics in Taiwan and deter U.S. intervention in a regional crisis or conflict and the relative advantages offered by emphasizing missile force modernization as opposed to attempting the development of capabilities such as stealth aircraft to conduct precision strikes.

Chinese military publications underscore that the operational strength of the missile force is the foundation of missile force deterrence. According to *Intimidation Warfare*, a detailed volume published by former Second Artillery deputy commander Lt. General Zhao Xijun, "Deterrence must take reliable strength as its foundation."¹¹ The requirements include appropriate force size, high-quality weapons and equipment, efficient means of command and control, and advanced operational theories.

Some bluff and bluster may be involved, but deterrence is impossible without real strength to support threats and ensure that they will be credible enough to influence enemy decision makers. The basic requirement of deter-

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rence is credibility, and for a modern missile force this translates into striking power and survivability. Consequently, Chinese strategists view continuously improving the missile force's survivability, rapid response capability, ability to penetrate missile defense systems, and destructiveness as indispensable elements of deterrence.¹²

FORCE STRUCTURE

Since its formal establishment in 1993, the conventional missile force of the Second Artillery has grown rapidly, to the point where its missiles outnumber their nuclear counterparts by a ratio of roughly seven to one. "Augmented by direct acquisition of foreign weapons and technology, [defense industry] reforms have enabled China to develop and produce advanced weapon systems that incorporate mid-1990s technology in many areas," states the U.S. Department of Defense, "and some systems—particularly ballistic missiles—that rival any in the world today."¹³ At present, China's rapidly expanding conventional ballistic missile force includes DF-15 (CSS-6) and DF-11 (CSS-7) SRBMs and DF-21 (CSS-5) medium-range ballistic missiles (MRBMs). China is also developing and deploying an antiship ballistic missile (ASBM) based on a variant of the DF-21 (CSS-5) MRBM. In addition, China has deployed the DH-10 land-attack cruise missile (LACM) to enhance the PLA's regional precision strike capabilities.

Short-Range Ballistic Missiles

Since the early 1990s, when the conventional missile force component of the Second Artillery was established, China's SRBM forces have expanded dramatically. Indeed, estimates presented in the U.S. Department of Defense's annual reports on Chinese military power reveal that the number of deployed SRBMs has tripled over the past eight years (see Table 12.1). By December 2010, China's arsenal consisted of 1,000 to 1,200 solid propellant road-mobile SRBMs, all deployed in areas opposite Taiwan.¹⁴ This includes about 350 to 400 CSS-6 SRBMs and about 700 to 750 CSS-7 SRBMs.¹⁵ NASIC estimates that China has deployed more than 200 mobile launchers for its SRBMs.¹⁶ Similarly, the Department of Defense provides an estimated order of battle of 200 to 250 total SRBM launchers,¹⁷ including 90 to 110 CSS-6 and 120 to 140 CSS-7 launchers.¹⁸

The conventional missile force is continuing to grow, but China is "increasing its inventory at a slower rate than in past years."¹⁹ DoD expanded on this judgment in its 2011 report, indicating that the number of SRBMs

Table 12.1. China's growing SRBM forces, 2001–2010.

Year	Number of deployed SRBMs	Year	Number of deployed SRBMs
2001	350	2006	900
2002	450	2007	990–1,070
2003	500	2008	1,050–1,150
2004	650–730	2009	1,050–1,150
2005	710–790	2010	1,050–1,150

SOURCES: Department of Defense, *Military Power of the People's Republic of China*, 2002, p. 2; Department of Defense, *Military Power of the People's Republic of China*, 2003, p. 29; Department of Defense, *Military Power of the People's Republic of China*, 2004, p. 23; Department of Defense, *Military Power of the People's Republic of China*, 2005, p. 4; Department of Defense, *Military Power of the People's Republic of China*, 2006, p. 3; Department of Defense, *Military Power of the People's Republic of China*, 2007, p. 3; Department of Defense, *Military Power of the People's Republic of China*, 2008, p. 2; Department of Defense, *Military Power of the People's Republic of China*, 2009, p. 66; and Department of Defense, *Military and Security Developments Involving the People's Republic of China*, 2010, p. 66.

appears to be holding relatively steady but that China is replacing older missiles with newer, more accurate, and more capable models. The increase in deployed SRBMs has also been accompanied by organizational expansion. In 2000, China's SRBM force consisted of only one regimental-sized unit. By 2008, this had expanded to seven brigades, including five controlled by the Second Artillery and two directly subordinate to PLA ground forces (one in the Nanjing MR and another in the Guangzhou MR).

In addition to growing numbers of SRBMs and an increase in the number of brigades, there have been improvements in quality as China has upgraded the capabilities of its SRBMs. According to the Department of Defense, China's first-generation SRBMs are not true precision-strike weapons, but later generations of Chinese SRBMs feature "greater ranges, improved accuracy, and a wider variety of conventional payloads, including unitary and submunition warheads."²⁰ According to an unclassified estimate released by NASIC, China currently fields at least five different types of conventional SRBMs (see Table 12.2).

China can also be expected to continue to improve the accuracy and lethality of its SRBMs and to develop an even greater variety of warheads.

Conventional Medium-Range Ballistic Missiles

China has deployed conventional MRBMs and is developing and deploying an ASBM. According to NASIC, "China is also acquiring new conventionally-armed MRBMs to conduct precision strikes at longer ranges. These systems are likely intended to hold at risk, or strike, logistics nodes and regional military bases including airfields and ports."²¹ China's DF-21 (CSS-5) conventional MRBM is a two-stage solid propellant mobile missile with a maximum range of 1,750 or

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Table 12.2. Types and ranges of China's deployed SRBMs.

Missile type	Maximum range (km)	Maximum range (miles)
CSS-6 Mod 1	600	370
CSS-6 Mod 2	885	550
CSS-6 Mod 3	725	450
CSS-7 Mod 1	300	185
CSS-7 Mod 2	600	370

SOURCE: National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, NASIC-1031-0985-09, April 2009, 11.

more kilometers (1,100 or more miles). China has deployed eighty-five to ninety-five missiles on seventy-five to eighty-five launchers.²² Future developments may include further expansion of the conventional MRBM force and possibly conventional IRBMs. According to the Defense Department, "China's ballistic missile force is acquiring conventional medium-range and intermediate-range ballistic missiles, extending the distance from which it can threaten other countries with conventional precision or near-precision strikes."²³

Perhaps of greatest significance, China is developing and deploying an ASBM based on a variant of the DF-21 (CSS-5). The ASBM is a two-stage solid-propellant mobile missile with "a range exceeding 1,500 km" (932-plus miles).²⁴ On July 11, 2011, PLA Chief of General Staff General Chen Bingde became the first Chinese government official to confirm publicly that China is developing the DF-21D ASBM.²⁵ Taiwan's 2011 National Defense Report states that "a small quantity of" DF-21D ASBMs "were produced and deployed in 2010."²⁶ Articles published by researchers affiliated with the Second Artillery Engineering College indicate that the ASBM would use midcourse and terminal guidance to strike a moving target like an aircraft carrier and employ submunitions to damage or destroy aircraft on the flight deck and other important targets. They may believe that this approach would allow the PLA to achieve a "mission kill" without actually sinking an aircraft carrier, potentially limiting escalation.²⁷

Land-Attack Cruise Missiles

China is also developing and deploying air- and ground-launched LACMs to enhance the PLA's conventional long-range precision-strike capabilities. According to the Department of Defense, "The PLA is acquiring large numbers of highly accurate cruise missiles, such as the domestically produced ground-launched DH-10 land attack cruise missile." DoD estimates that by December

2009 China had deployed about 200 to 500 2,000-kilometer-range DH-10 LACMs and 45 to 55 launchers.²⁸

China's land attack cruise missile capabilities also include air-launched LACMs such as the YJ-63 and a new long-range missile. The YJ-63 reportedly has a range of about 200 kilometers and is carried by the PLAAF's B-6 bombers.²⁹ China is currently enhancing this capability with an upgraded bomber and new long-range air-launched cruise missile. According to the 2010 DoD report, "China is upgrading its B-6 bomber fleet (originally adapted from the Russian Tu-16) with a new, longer-range variant that will be armed with a new long-range cruise missile."³⁰ The B-6 armed with this new LACM will extend the reach of China's regional precision strike capabilities out to 3,000 kilometers, bringing U.S. bases on Guam within range of China's conventional anti-access capabilities.³¹

CONVENTIONAL MISSILE DETERRENCE OPERATIONS AND ATTACK CAMPAIGNS

The establishment of China's first conventional ballistic missile brigade in 1993 required the Second Artillery to define and develop plans for conventional missile force deterrence operations and conventional missile attack campaigns.

Conventional Missile Force Deterrence Operations

Chinese military publications emphasize that the conventional missile force plays an important role in deterrence. Chinese writers also underscore that conventional missile force deterrence operations must be closely aligned with the diplomatic struggles they are intended to support. According to Zhao Xijun, "Like war, deterrence is an extension of politics; the employment of missile weapons to carry out military deterrence is a tool for achieving political objectives."³²

Zhao indicates that conventional missile force deterrence operations can be divided into three categories based on the level of pressure they place on the adversary: low-, medium-, and high-intensity conventional deterrence, respectively.³³ Low-intensity conventional missile force deterrence "usually does not have a very strong confrontational nature." It involves methods such as using the media to transmit propaganda about the missile force and changing the disposition of the conventional missile force units. In contrast to low-intensity conventional deterrence, medium-intensity conventional missile force deterrence is imbued with a "definite confrontational quality."

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One type of medium-intensity deterrence is "using military force to create momentum." Another method is conducting conventional missile force exercise launches. High-intensity conventional missile force deterrence has a "very strong confrontational nature." It is implemented through "close proximity or critical deterrence strikes," which involve firing missiles toward an area near an enemy state or into the waters off of an enemy-occupied island to cause the enemy to feel an even greater sense of psychological pressure.³⁴

The objective of conventional missile force deterrence operations is to influence the enemy's decisions by convincing them that China's missile force has powerful strike capabilities and that Beijing has the will to use them if necessary to prevent the enemy from challenging China's interests or to compel the enemy to accept Beijing's demands. Chinese military publications underscore that the conventional missile force is a powerful instrument of deterrence in this respect. But they also note that, if deterrence fails to achieve China's political objectives, the troops must be prepared to quickly make the transition to conducting conventional missile strikes as part of a conventional missile attack campaign.

Conventional Missile Attack Campaigns

Science of Second Artillery Campaigns defined conventional missile attack campaigns as:

... the offensive operational action of conventional firearm strikes on the enemy's key targets that is implemented by the conventional missile large formation of the Second Artillery based on the operational intention of the higher level as well as being under the uniform command in order to achieve specific strategic goals or campaign goals.³⁵

Conventional missile campaigns are subject to a variety of political constraints and require high-level decision-making. According to *Science of Second Artillery Campaigns*,

Because its campaign objectives and strategic objectives are closely connected, the operations of the Second Artillery conventional missile strike campaign involve the overall strategic situation. There are many campaign activities under the jurisdiction of campaign commanders at the current level that must be decided by commanders at a higher level or even by strategic commanders at an even higher level.³⁶

Authoritative publications list a number of potential targets for Second Artillery conventional missile strikes, including enemy command centers, communications hubs, radar stations, other information and communications-related targets, missile positions, air force bases, naval facilities, railway stations, bridges, logistical facilities, energy and electrical power centers, and aircraft carrier strike groups.

The objectives of a conventional missile strike campaign are to "paralyze the enemy's command systems, weaken the enemy's military strength and its ability to continue operations, create psychological shock in the enemy and sway its operational resolve and halt the powerful enemy's military interventionist activities."³⁷

Attacks will combine conventional cruise and ballistic missile strikes. The Second Artillery also has electronic warfare forces, and missile firepower strikes will increasingly be integrated with network and electronic warfare.³⁸ Information warfare will "pave the way" prior to the initiation of firepower strikes. First targets will include information systems such as command and control centers, radar stations, and communications networks. Not only are such targets are "the core of the operational system," they are also its weakest parts. By striking these targets first, the Second Artillery aims to achieve the effect of "striking one point and paralyzing a large part of the body."³⁹

According to both *Science of Second Artillery Campaigns* and the 2006 edition of *Science of Campaigns*, the conventional missile strike campaign may be organized and implemented independently, but it is usually carried out as part of a joint campaign. As the former puts it, "The Second Artillery conventional missile strike operation is usually implemented in the context of the joint campaign. It engages in coordinated operation with other armed services and service arms, implementing strike against the enemy's important targets."⁴⁰ It may be part of a joint firepower strike campaign, joint blockade campaign, joint island landing campaign, joint border counterattack campaign, or joint anti-air-raid campaign.⁴¹

The Second Artillery plays a crucial role in joint operations by helping to achieve electromagnetic dominance, air supremacy, and sea control, as well as facilitating ground operations if required. The role of the Second Artillery's conventional missile force in enabling the other services to successfully carry out their missions is seen as particularly critical in the island landing campaign. According to *Science of Second Artillery Campaigns*, in the island landing campaign, the PLA "must first depend on the navy to seize the com-

mand of the sea, yet the securing of the command of the sea must depend on the air force and other aviation forces to seize air dominance; as for the seizing of air dominance and electromagnetic dominance, the Second Artillery conventional missile force can have critical effects."⁴²

The role of the Second Artillery becomes even more important if a "powerful enemy" intervenes in a conflict along China's periphery. According to *Science of Second Artillery Campaigns*:

The operation of resisting a powerful enemy's military intervention refers to the implementation of a fire strike operation of an expulsion quality against the enemy under the unified plan of the joint campaign command element, and which centers on the use of naval, aerial, and Second Artillery long range firepower.⁴³

Chinese writers state that potential types of military intervention by a "powerful enemy" may include a show of military strength through deployment of one or more carrier battle groups, establishment of no-fly areas and restricted sea zones, direct intervention by air and naval forces, and strategic air strikes. The main actions to be conducted in response to U.S. intervention would include "firepower harassment," "frontal firepower deterrence," "flank firepower expulsion," "concentrated fire assaults," "information offensives," and "long-range warning strikes."

CONCLUSION

Chinese strategists have clearly devoted a considerable amount of time and attention to thinking about conventional missile force campaigns. Since the assignment of the mission of "dual deterrence, dual operations" to the Second Artillery and the establishment of China's rapidly growing conventional missile force, Chinese military thinkers have published several key volumes that address these issues in detail and provide some previously unavailable insights into the types of activities that Second Artillery missile force units would conduct as part of a conventional missile strike campaign, as well as how these activities would fit into a broader joint campaign.

Notwithstanding these impressive advances, Second Artillery conventional missile force campaigns would still face some limitations. For example, the number of conventional ballistic missiles in China's inventory has grown rapidly in recent years, but even with approximately 1,000 to 1,200 SRBMs in its inventory the Second Artillery still faces operational constraints. Indeed, authoritative sources emphasize that Second Artillery planners and operators

would need to pay careful attention to the rate of missile consumption during conventional missile campaigns.⁴⁴

Whatever limitations conventional Second Artillery forces still face, however, this is a challenge that the U.S. military must take seriously. Already conventional missiles offer the PLA the prospect of being able to largely destroy Taiwan's air force and other key land targets in a preemptive strike, allowing its own air force a far less contested position in the event of a cross-strait conflict. Even more significantly for U.S. planners, China appears to be on the verge of being able to threaten U.S. surface vessels with the world's first land-based conventional ballistic missiles capable of targeting a moving ship at sea. While Chinese strategists would probably use a very different term, this might be described as a "competitive strategy." This is because it exploits the fact that missiles are typically far easier and cheaper to attack with than to defend against to pose challenges that could be very difficult and expensive for the United States and its friends and allies to address effectively. The United States should avoid playing into Beijing's hands by investing disproportionately in technologies that could leave it on the wrong end of an arms race that might prove too costly to continue to wage. Instead, U.S. planners must develop their own asymmetric approaches that exploit China's vulnerabilities, and given current and expected budgetary constraints they must do so cost effectively.

NOTES

The views expressed in this chapter are those of the authors alone.

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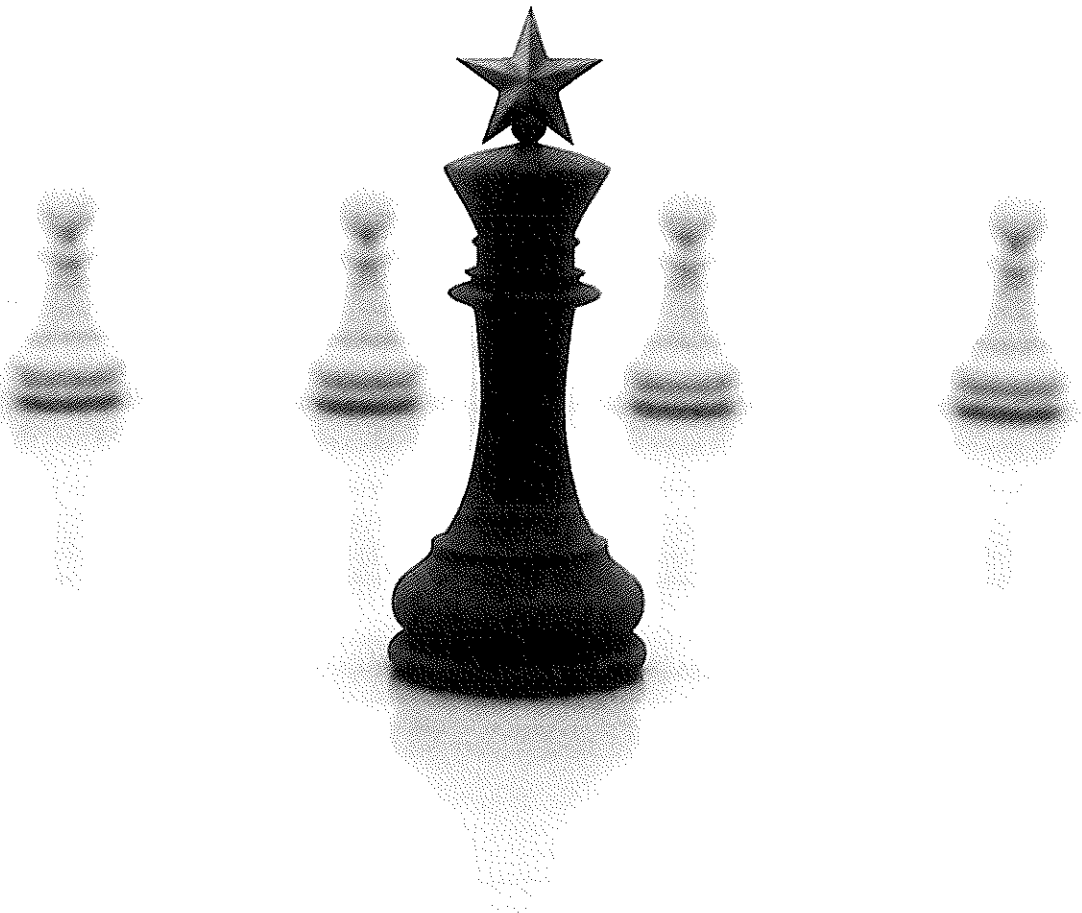
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Competitive Strategies for the 21st Century

THEORY, HISTORY, AND PRACTICE



EDITED BY THOMAS G. MAHNKEN

The United States today faces the most complex and challenging security environment in recent memory—even as it deals with

growing constraints on its ability to respond to threats. Its most consequential challenge is the rise of China, which increasingly has the capability to deny the U.S. access to areas of vital national interest and to undermine alliances that have underpinned regional stability for over half a century. Thus, the time is right for the U.S. to adopt a long-term strategy for dealing with China, one that includes but is not limited to military means, and that fully includes U.S. allies in the region.

This book uses the theory and practice of peacetime great-power strategic competition to derive recommendations for just such a strategy. After examining the theory of peacetime strategic competition, it assesses the U.S.-China military balance in depth, considers the role of America's allies in the region, and explores strategies that the U.S. could adopt to improve its strategic position relative to China over the long term.

"This book makes an enormous contribution to the strategic studies literature. It is mandatory reading for anyone interested in grand strategy, the end of the Cold War, the emergence of China as a great power, and the influence of the Pentagon's legendary Andrew Marshall on the study of strategy."

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Distinguished Fellow, Center for Strategic and Budgetary Assessments

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—LAWRENCE KORB, Senior Fellow, Center for American Progress

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