CHINESE MISSILE STRATEGY AND THE U.S. NAVAL PRESENCE IN JAPAN

The Operational View from Beijing

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In recent years, defense analysts in the United States have substantially revised their estimates of China's missile prowess. A decade ago, most observers rated Beijing's ballistic missiles as inaccurate, blunt weapons limited to terrorizing civilian populations. Today, the emerging consensus within the U.S. strategic community is that China's arsenal can inflict lethal harm with precision on a wide range of military targets, including ports and airfields. As a consequence, many observers have jettisoned previously sanguine net assessments that conferred decisive, qualitative advantages to Taiwan in the cross-strait military balance. Indeed, the debates on China's coercive power and Taiwan's apparent inability to resist such pressure have taken on a palpably fatalistic tone.

A 2009 RAND monograph warns that China's large, modern missile and air forces are likely to pose a virtually insurmountable challenge to Taiwanese and American efforts to command the air over the strait and the island. The authors of the report believe that massive ballistic-missile salvos launched against Taiwan's air bases would severely hamper Taipei's ability to generate enough fighter sorties to contest air superiority. They state: "As China's ability to deliver accurate fire across the strait grows, it is becoming increasingly difficult and soon may be impossible for the United States and Taiwan to protect the island's military and civilian infrastructures from serious damage."[1] As a result, the authors observe, "China's ability to suppress Taiwan and local U.S. air

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bases with ballistic and cruise missiles seriously threatens the defense's ability to maintain control of the air over the strait."[2] They further assert, "The United States can no longer be confident of winning the battle for the air in the air. This represents a dramatic change from the first five-plus decades of the China-Taiwan confrontation."[3]

An unclassified Defense Intelligence Agency report assessing the state of Taiwan's air defenses raises similar concerns. The study notes that Taiwanese fighter aircraft would be unable to take to the air in the absence of well-protected airfield runways, suggesting a major vulnerability to the island's airpower. The agency further maintains that Taiwan's capacity to endure missile attacks on runways and to repair them rapidly will determine the integrity of the island's air-defense system.[4] While the report withholds judgment on whether Taipei can maintain air superiority following Chinese missile strikes in a conflict scenario, a key constituent of the U.S. intelligence community clearly recognizes a growing danger to Taiwan's defense.

China's missiles also threaten Taiwan's ability to defend itself at sea. William Murray contends that China could sink or severely damage many of Taiwan's warships docked at naval piers with salvos of ballistic missiles. He argues that "the Second Artillery's [China's strategic missile command's] expanding inventory of increasingly accurate [short-range ballistic missiles] probably allows Beijing to incapacitate much of Taiwan's navy and to ground or destroy large portions of the air force in a surprise missile assault and follow-on barrages."[5] These are stark, sobering conclusions.

Equally troubling is growing evidence that China has turned its attention to Japan, home to some of the largest naval and air bases in the world. Beijing has long worried about Tokyo's potential role in a cross-strait conflagration. In particular, Chinese analysts chafe at the apparent American freedom to use the Japanese archipelago as a springboard to intervene in a Taiwan contingency. In the past, China kept silent on what the People's Liberation Army (PLA) would do in response to Japanese logistical support of U.S. military operations. Recent PLA publications, in contrast, suggest that the logic of missile coercion against Taiwan could be readily applied to U.S. forward presence in Japan. The writings convey a high degree of confidence that China's missile forces could compel Tokyo to limit American use of naval bases while selectively destroying key facilities on those bases. These doctrinal developments demand close attention from Washington and Tokyo, lest the transpacific alliance be caught flat-footed in a future crisis with Beijing. This article is a first step toward better understanding how the Chinese evaluate the efficacy of missile coercion against American military targets in Japan.

This article focuses narrowly on Chinese assessments of U.S. naval bases in Japan, excluding the literature on such other key locations as the Kadena and

Misawa air bases. The writings on the American naval presence are abundant and far more extensive than studies on the land and air components of U.S. basing arrangements. The dispatch of two carrier battle groups to Taiwan's vicinity during the 1996 cross-strait crisis stimulated Beijing's reevaluation of its military strategy toward the island. Not surprisingly, the Chinese are obsessed with the U.S. aircraft carrier, including the facilities and bases that support its operations. It is against this rich milieu that this study explores how the Chinese conceive their missile strategy to complicate American use of military bases along the Japanese archipelago.

This article first explores the reasons behind Beijing's interest in regional bases and surveys the Chinese literature on the U.S. naval presence in Japan to illustrate the amount of attention being devoted to the structure of American military power in Asia. Chinese analysts see U.S. dependence on a few locations for power projection as a major vulnerability. Second, it turns to Chinese doctrinal publications, which furnish astonishing details as to how the PLA might employ ballistic missiles to complicate or deny U.S. use of Japanese port facilities. Chinese defense planners place substantial faith in the coercive value of missile tactics. Third, the article assesses China's conventional theater ballistic missiles that would be employed against U.S. regional bases. Fourth, it critiques the Chinese writings, highlighting some faulty assumptions about the anticipated effects of missile coercion. Finally, the study identifies some key operational dilemmas that the U.S.-Japanese alliance would likely encounter in a PLA missile campaign.

EXPLAINING CHINA'S INTEREST IN REGIONAL BASES

Taiwan remains the animating force behind China's strategic calculus with respect to regional bases in Asia. Beijing's inability to respond to the display of U.S. naval power at the height of the 1996 Taiwan Strait crisis proved highly embarrassing. There is evidence that the PLA had difficulty in monitoring the movement of the two carrier battle groups, much less in offering its civilian leaders credible military options in response to the carrier presence. This galling experience steeled Beijing's resolve to preclude U.S. naval deployments near Taiwan in a future crisis. Notably, the Yokosuka-based USS *Independence* (CV 62) was the first carrier to arrive at the scene in March 1996, cementing Chinese expectations that Washington would dispatch a carrier from Japan in a contingency over Taiwan.

Beyond Taiwan, other territorial disputes along China's nautical periphery could involve U.S. naval intervention. A military crisis arising from conflicting Sino-Japanese claims over the Senkaku (Diaoyu) islands northwest of Taiwan could compel an American reaction. While doubts linger in some Japanese policy circles as to whether foreign aggression against the islands would trigger Washington's defense commitments as stipulated by the U.S.-Japanese security treaty,

joint allied exercises and war games since 2006 suggest that the U.S. military is closely watching events in the East China Sea. Farther south, Chinese territorial claims over large swaths of the South China Sea could also be sources of regional tensions. If a local tussle there escalated into a larger conflagration that threatened international shipping, the U.S. Navy might be ordered to maintain freedom of navigation. In both scenarios, the U.S. carrier based in Japan and other strike groups operating near Asian waters would be called upon as first responders.

Concrete territorial disputes that have roiled Asian stability are not the only reasons that American naval power would sortie from regional bases to the detriment of Chinese interests. More abstract and esoteric dynamics may be at work. For example, Chinese leaders fret about the so-called Malacca dilemma. China's heavy dependence on seaborne energy supplies that transit the Malacca Strait has set off Chinese speculation that the United States might seek to blockade that maritime choke point to coerce Beijing.[6] This insecurity stems less from judgments about the possibility or feasibility of such a naval blockade than from the belief that a great power like China should not entrust its energy security to the fickle goodwill of the United States. If the U.S. Navy were ever called upon to fulfill an undertaking of such magnitude, forward basing in Asia would undoubtedly play a pivotal role in sustaining what could deteriorate into a protracted blockade operation.

Chinese analysts have also expressed a broader dissatisfaction with America's self-appointed role as the guardian of the seas. Sea-power advocates have vigorously pushed for a more expansive view of China's prerogatives along the maritime periphery of the mainland. They bristle at the U.S. Navy's apparent presumption of the right to command any parcel of the ocean on earth, including areas that China considers its own nautical preserves. Some take issue with the 2007 U.S. maritime strategy, a policy document that baldly states, "We will be able to impose local sea control wherever necessary, ideally in concert with friends and allies, but by ourselves if we must."[7] Lu Rude, a former professor at Dalian Naval Academy, cites this passage as evidence of U.S. "hegemonic thinking." He concludes, "Clearly, what is behind 'cooperation' is America's interests, having 'partners or the participation of allies' likewise serves America's global interests."[8] Some Chinese, then, object to the very purpose of U.S. sea power in Asia, which relies on a constellation of regional bases for its effects to be felt (see map).

Long-standing regional flash points and domestic expectations of a more assertive China as it goes to sea suggest that Beijing's grudging acceptance of U.S. forward presence could be eroding even more quickly than once thought. Against this backdrop of increasing Chinese ambivalence toward American naval power, U.S. basing arrangements in Japan have come into sharper focus.

CHINESE VIEWS OF U.S. NAVAL BASES IN JAPAN

Some Chinese strategists appraise Washington's military posture in the Asia-Pacific region in stark geopolitical terms. Applying the "defense perimeter of the Pacific" logic elaborated by Secretary of State Dean Acheson in the early Cold War, they see their nation enclosed by concentric, layered "island chains." The United States and its allies, they argue, can encircle China or blockade the Chinese mainland from island strongholds, where powerful naval expeditionary forces are based. Analysts who take such a view conceive of the island chains in various ways.

Yu Yang and Qi Xiaodong, for example, describe U.S. basing architecture in Asia as a "three line configuration [三线配置]."[9] The first line stretches in a sweeping arc from Japan and South Korea to Diego Garcia in the Indian Ocean, forming a "zone of forward bases[前沿基地带]." This broad notion that the U.S. presence in the western Pacific and the Indian Ocean constitutes a seamless, interlocking set of bases is widely shared in Chinese strategic circles.[10] The second line connects Guam and Australia. The last line of bases runs north from Hawaii through Midway to the Aleutians, terminating at Alaska. While these island chains may bear little resemblance to actual U.S. thinking and planning, that the Chinese pay such attention to the geographic structure of American power in Asia is quite notable. These observers discern a cluster of mutually supporting bases, ports, and access points along these island chains. Among the networks of bases in the western Pacific, those located on the Japanese archipelago—the northern anchor of the first island chain—stand out, for the Chinese. *Modern Navy,* a monthly journal published by the Political Department of the People's Liberation Army

Navy, produced a seven-part series on Japan's Maritime Self-Defense Force in 2004 and 2005. Notably, it devoted an entire article to Japan's main naval bases, including Yokosuka, Sasebo, Kure, and Maizuru.[11] The depth of the coverage of these bases is rather remarkable, especially when compared to the sparse reporting on similar topics in the United States and in Japan.

Perhaps no other place captures the Chinese imagination as much as Yokosuka, which analysts portray as the centerpiece of U.S. basing in Asia.[12] One analysis depicts a "Northeast Asian base group [东北亚基地群]" radiating outward from Yokosuka to Sasebo, Pusan, and Chinhae.[13] Writers provide a wide range of details about the Yokosuka naval base, including its precise location, the surrounding geography, the number of piers (particularly those suitable for aircraft carriers), the types and number of maintenance facilities, and the storage capacity of munitions, fuel, and other supply depots.[14] Wu Jian, for instance, finds the geographic features of Yokosuka comparable to those of Dalian, a major base of the Chinese navy's North Sea Fleet.[15]

Beyond physical similarities, Yokosuka evokes unpleasant memories for the Chinese. One commentator recalls the U.S. transfer of 203 mm heavy artillery from Yokosuka to Nationalist forces on Jinmen during the 1958 Taiwan Strait crisis.[16] Tracking more recent events, another observer notes that the *Kitty Hawk* Strike Group's deployments from Yokosuka to waters near Taiwan invariably coincided with the presidential elections on the island, in 2000, 2004, and 2008.[17] As Pei Huai opines, "Yokosuka has all along irritated the nerves of the Chinese people."[18] Moreover, Chinese analysts are keenly aware of Yokosuka's strategic position. As Du Chaoping asserts:

> Yokosuka is the U.S. Navy's main strategic point of concentration and deployment in the Far East and is the ideal American stronghold for employing maritime forces in the Western Pacific and the Indian Ocean regions. A carrier deployed there is akin to the sharpest dagger sheathed in the Western Pacific by the U.S. Navy. It can control the East Asian mainland to the west and it can enter the Indian Ocean to the southwest to secure Malacca, Hormuz, and other important thoroughfares.[19]

Ma Haiyang concurs:

> The Yokosuka base controls the three straits of Soya, Tsugaru, Tsushima and the sea and air transit routes in the Indian Ocean. As the key link in the "island chain," it can support ground operations on the Korean Peninsula and naval operations in the Western Pacific. It can support combat in the Middle East and Persian Gulf regions while monitoring and controlling the wide sea areas of the Indian Ocean. Its strategic position is extremely important.[20]

It is notable that both Du and Ma conceive of Yokosuka as a central hub that tightly links the Pacific and Indian oceans into an integrated theater of operations.

Intriguingly, some Chinese commentators view Yokosuka as the front line of the U.S.-Japanese defense cooperation on missile defense. They worry that Aegis-equipped destroyers armed with ballistic-missile-defense (BMD) systems based in Yokosuka could erode China's nuclear deterrent. Indeed, analysts see concentrations of sea-based BMD capabilities falling roughly along the three island chains described above. Ren Dexin describes Yokosuka as the first line of defense against ballistic missiles, while Pearl Harbor and San Diego provide additional layers.[21] Yokosuka is evocatively portrayed as the "forward battlefield position" (前沿阵地), the indispensable vanguard for the sea-based BMD architecture.[22] For some Chinese, these concentric rings or picket lines of sea power appear tailored specifically to bring down ballistic missiles fired across the Pacific from locations as diverse as the Korean Peninsula, mainland China, India, or even Iran.[23] Specifically, Aegis ships in Yokosuka, Pearl Harbor, and San Diego would be positioned to shoot down missiles in their boost, midcourse, and terminal phases, respectively.[24]

Chinese observers pay special attention to Aegis deployments along the first island chain. Some believe that Aegis ships operating in the Yellow, East, and South China seas would be able to monitor the launch of any long-range ballistic missile deployed in China's interior and perhaps to intercept the vehicle in its boost phase. Dai Yanli warns, "Clearly, if Aegis systems are successfully deployed around China's periphery, then there is the possibility that China's ballistic missiles would be destroyed over their launch points."[25] Ji Yanli, of the Beijing Aerospace Long March Scientific and Technical Information Institute, concurs: "If such [sea-based BMD] systems begin deployment in areas such as Japan or Taiwan, the effectiveness of China's strategic power and theater ballistic-missile capabilities would weaken tremendously, severely threatening national security."[26] Somewhat problematically, the authors seemingly assume that Beijing would risk its strategic forces by deploying them closer to shore, and they forecast a far more capable Aegis fleet than is technically possible in the near term.

The indispensability of the ship-repair and maintenance facilities at Yokosuka emerges as another common theme in the Chinese literature. Analysts in China often note that Yokosuka is the only base west of Hawaii that possesses the wherewithal to handle major carrier repairs. Some have concluded that Yokosuka is irreplaceable as long as alternative sites for a large repair station remain unavailable. Li Daguang, a professor at China's National Defense University and a frequent commentator on naval affairs, casts doubt on Guam as a potential candidate, observing that the island lacks the basic infrastructure and economies of scale to service carriers.[27] China's *Jianchuan Zhishi* (Naval and Merchant Ships) published a translated article from a Japanese military journal, *Gunji Kenkyu*

(Japan Military Review), to illustrate the physical limits of Guam as a permanent home port for carriers.[28]

Chinese analysts also closely examine Sasebo, the second-largest naval base in Japan. Various commentators call attention to its strategic position near key sea-lanes and its proximity to China.[29] As Yu Fan notes, "This base is a large-scale naval base closest to our country. Positioned at the intersection of the Yellow Sea, the East China Sea, and the Sea of Japan, it guards the southern mouth of the Korea Strait. This has very important implications for controlling the nexus of the Yellow Sea, the East China Sea, and the Sea of Japan and for blockading the Korea Strait."[30]

It is clear, then, that Chinese strategists recognize the importance of U.S. naval bases in Japan for fulfilling a range of regional and extraregional responsibilities. Indeed, some believe that the American strategic position in Asia hinges entirely on ready military access to bases on the Japanese islands. Tian Wu argues that without bases in Japan, U.S. forces would have to fall back to Guam or Hawaii. Tian bluntly asserts:

> If the U.S. military was ever forced to withdraw from Okinawa and Japan, then it would be compelled to retreat thousands of kilometers to set up defenses on the second island chain. Not only would it lose tremendous strategic defensive depth, but it would also lose the advantageous conditions for conducting littoral operations along the East Asian mainland while losing an important strategic relay station to support operations in the Indian Ocean and the Middle East through the South China Sea.[31]

This emerging discourse offers several clues about Beijing's calculus in regard to U.S. naval basing arrangements in Japan. Chinese strategists see these bases as collectively representing both a threat to Chinese interests and a critical vulnerability for the United States. Bases in Japan are the most likely locations from which the United States would sortie sea power in response to a contingency over Taiwan. At the same time, the Chinese are acutely aware of the apparent American dependence on a few bases to project power. Should access to and use of these bases be denied for political or military reasons, they reason, Washington's regional strategy could quickly unravel. While the commentaries documented above are by no means authoritative in the official sense, they are clearly designed to underscore the strategic value and the precariousness of U.S. forward presence in Japan.

U.S. BASES IN JAPAN AND CHINESE MISSILE STRATEGY

Authoritative PLA documents correlate with this emerging consensus that U.S. bases on the Japanese home islands merit close attention in strategic and operational terms. Indeed, Chinese doctrinal writings clearly indicate that the American

presence in Japan would likely be the subject of attack if the United States were to intervene in a cross-strait conflict. The unprecedented public availability of primary sources in China in recent years has opened a window onto Chinese strategic thought, revealing a genuinely competitive intellectual environment that has substantially advanced Chinese debates on military affairs. This growing literature has also improved the West's understanding of the PLA.

In an effort to maximize this new openness in China, this article draws upon publications closely affiliated with the PLA, including those of the prestigious Academy of Military Science and the National Defense University, that address coercive campaigns against regional bases in Asia.[32] Some are widely cited among Western military analysts as authoritative works that reflect current PLA thinking. Some likely enjoy official sanction as doctrinal guidance or educational material for senior military commanders. The authors of the studies are high-ranking PLA officers who are either leading thinkers in strategic affairs and military operations or boast substantial operational and command experience. These works, then, collectively provide a sound starting point for examining how regional bases in Asia might fit into Chinese war planning.

Among this literature, *The Science of Military Strategy* stands out in Western strategic circles as an authoritative PLA publication. The authors, Peng Guangqian and Yao Youzhi, advocate an indirect approach to fighting and prevailing against a superior adversary in "future local wars under high-technology conditions."[33] To win, the PLA must seek to avoid or bypass the powerful field forces of the enemy while attacking directly the vulnerable rear echelons and command structures that support frontline units. Using the human body as an evocative metaphor for the adversary, Peng and Yao argue, "As compared with dismembering the enemy's body step by step, destroying his brain and central nerve system is more meaningful for speeding up the course of the war."[34] To them, the brain and the central nervous system of a war machine are those principal directing and coordinating elements without which the fighting forces wither or collapse.

The aim, then, is to conduct offensive operations against the primary sources of the enemy's military power, what the authors term the "operational system." They declare, "After launching the war, we should try our best to fight against the enemy as far away as possible, to lead the war to enemy's operational base, even to his source of war, and to actively strike all the effective strength forming the enemy's war system."[35] In their view, operational systems that manage command and control and logistics (satellites, bases, etc.), are the primary targets; they relegate tactical platforms that deliver firepower (warships, fighters, etc.) to a secondary status. To illustrate the effects of striking the source of the enemy's fighting power, Peng and Yao further argue:

> To shake the stability of enemy's war system so as to paralyze his war capabilities has already become the core of the contest between the two sides in the modern high-tech local war. So, more attention should be paid to striking crushing blows against the enemy's structure of the operational system . . . especially those vulnerable points which are not easy to be replaced or revived, so as to make the enemy's operational system seriously unbalanced and lose initiative in uncontrollable disorder.[36]

The authors are remarkably candid about what constitutes the enemy's operational system. Particularly relevant to this study is their assertion that the supply system emerges as a primary target:

> The future operational center of gravity should not be placed on the direct confrontation with the enemy's assault systems. *We should persist in taking the information system and support system as the targets of first choice throughout*. . . . In regard to the supply system, we should try our best to strike the enemy on the ground, cut the material flow of his efficacy sources so as to achieve the effect of taking away the firewood from the caldron.[37]

Destruction of the supply system in effect asphyxiates the adversary. In order to choke off the enemy's capacity to wage war, Peng and Yao contend, a "large part of the supply systems must be destroyed."[38] Their prescriptions for winning local high-tech wars suggest that the horizontal escalation of a conflict to U.S. regional bases in Asia is entirely thinkable. Even more troubling, some Chinese appear to envision the application of substantial firepower to pummel the U.S. forward presence. While *The Science of Military Strategy* should not be treated as official strategic guidance to the PLA, its conceptions of future conflict with a technologically superior adversary provide a useful framework for thinking about what a Chinese missile campaign against regional bases might entail.

There is substantial evidence in Chinese doctrinal writings that PLA defense planners anticipate the possibility of a sizable geographic expansion of the target set, to include U.S. forward presence in East Asia. Although the documents do not explicitly refer to naval bases in Japan, they depict scenarios strongly suggesting that Yokosuka is a primary target. In the hypothetical contingencies posited in these writings, U.S. intervention is a critical premise, if not a given. In particular, Chinese planners expect Washington to order the deployment of carrier strike groups near China's coast, a prospect that deeply vexes Beijing. It is in this context of a highly stressful (though by no means inconceivable) scenario that U.S. military bases come into play in Chinese operational thinking.

For PLA planners, the primary aims are to deter, disrupt, or disable the employment of carriers at the point of origin, namely, the bases from which carriers would sortie. Given the limited capability, range, and survivability of China's air and sea power, most studies foresee the extensive use of long-range conventional

ballistic missiles to achieve key operational objectives against U.S. forward presence. In *Intimidation Warfare,* Zhao Xijun proposes several novel missile tactics that could be employed to deter the use of naval bases in times of crisis or war.[39] Zhao proposes demonstration shots into sea areas near the enemy state to compel the opponent to back down. Zhao explains, "Close-in (near border) intimidation strikes involve firing ballistic missiles near enemy vessels or enemy states (or in areas and sea areas of enemy-occupied islands). It is a method designed to induce the enemy to feel that it would suffer an unbearable setback if it stubbornly pursues an objective, and thus abandons certain actions."[40]

One tactic that Zhao calls a "pincer, close-in intimidation strike" is particularly relevant to missile options against U.S. military bases. Zhao elaborates: "Pincer close-in intimidation strikes entail the firing of ballistic missiles into the sea areas (or land areas) near at least two important targets on enemy-occupied islands (or in enemy states). This enveloping attack, striking the enemy's head and tail such that the enemy's attention is pulled in both directions, would generate tremendous psychological shock."[41] Zhao also proposes an "island over-flight attack" as a variation of the pincer strike. He states:

> For high-intensity intimidation against an entrenched enemy on an island, an island over-flight attack employs conventional ballistic missiles with longer range and superior penetration capabilities to pass over the enemy's important cities and other strategic targets to induce the enemy to sense psychologically that a calamity will descend from the sky. This method could produce unexpected effects.[42]

While these missile tactics are primarily aimed at coercing Taiwan, they could also, in theory, be applied to any island nation. Reminiscent of the 1996 cross-strait crisis, the PLA could splash single or multiple ballistic missiles into waters near Yokosuka (shot across Honshu Island, over major metropolitan cities) in the hopes that an intimidated leadership in Tokyo would stay out of a contingency over Taiwan, deny American access to military facilities, or restrict U.S. use of naval bases in Japan.

Should deterrence through intimidation fail, the Chinese may seek to complicate U.S. naval operations originating from bases located in the Japanese home islands. *The Science of Second Artillery Campaigns,* the most authoritative work on the PLA's strategic rocket forces, furnishes astonishingly vivid details on the conditions under which China might seek to conduct conventional missile operations against outside intervention.[43] Notably, the document explores "firepower harassment" as a potentially effective tactic to resist external interference. Given its explicit references to the U.S. use of military bases on foreign soil, a passage on harassment strikes is worth quoting in its entirety:

> When the powerful enemy uses allied military bases in our periphery and aircraft carriers as aircraft launch platforms to implement various forms of military intervention; and when the powerful enemy's allied military bases around our periphery are beyond our air arm's firing range, and when the carrier battle groups are far away from our shores, thus making it difficult to carry out the overall operational advantages associated with firepower coordination among the armed services and service arms, conventional missiles can be used to implement harassment strikes against the military bases of the enemy's allies around our periphery as well as the carrier battle groups.[44]

In other words, PLA planners intend to assign long-range strike missions to the ballistic missile force if warships, bombers, and submarines prove unable to reach enemy bases. Since U.S. bases in South Korea are well within reach of China's short-range ballistic missiles, shore-based aircraft, surface combatants, and undersea fleet, the "allied military bases" to which the study refers can only be those located in Japan. For the authors, harassment strikes might involve periodic missile launches into "no go" zones erected near the naval bases, in order to "block the points of entry and exit to important enemy ports," or they might entail direct attacks against "key targets within the enemy ports, such as fueling and fuel loading facilities, and logistical supply facilities."[45] Such operations would be intended to disrupt seriously the resupply and movement of U.S. naval forces.

Beyond selective attacks, some Chinese analysts advocate highly destructive operations against U.S. military bases. In a study on the PLA's blockade operations against Taiwan, Chinese defense planners entertain the possibility of significant vertical and horizontal escalation to defeat U.S. intervention. The authors call for "opportune counterattacks" to defeat a carrier strike group engaged in combat operations against Chinese targets at sea, in the air, or on the mainland coast. In such a scenario, the PLA would do everything it could to successively weaken, isolate, and ultimately sink the carrier. In addition to lethal strikes against aircraft carriers, the authors envision concerted efforts to inflict massive damage on the military bases supporting carrier operations. According to Zhu Aihua and Sun Longhai, "To punish the external enemy and to accommodate world opinion, it is not enough to sink the external enemy's aircraft carrier. . . . It is necessary to destroy the springboard of combat operations, to pulverize the operational bases, to cut off the enemy's retreat . . . in order to render obsolete hegemonism and power politics."[46]

It is clear, then, that Chinese strategists have systematically examined the strategies, doctrines, and operational concepts for dissuading, disrupting, and denying the use of U.S. military bases along China's periphery. These studies suggest that the PLA is prepared to calibrate the scale and magnitude of its military exertions against American forward bases across a spectrum that includes deterrence,

compellance, and high-intensity conflict. It is equally evident that an extension of missile operations to the Japanese homeland is well within the bounds of Chinese planning. Should circumstances warrant, the PLA may not hesitate to escalate a crisis or conflict radically with missile salvos directed at Japan, to demonstrate political resolve, preclude Japanese involvement, or unhinge U.S. intervention.

U.S. BASES IN JAPAN AND CHINESE MISSILES

A decade ago, Western analysts would have been on firm ground in dismissing such Chinese discussions about crippling U.S. regional bases as entirely wishful or even illusory. Indeed, they would have been justified in questioning Beijing's operational capacity to target U.S. bases in Japan even if it had possessed the will to do so. China simply could not have pulled off long-range, nonnuclear strikes beyond Taiwan. However, recent technical developments in the PLA's ballistic-missile forces suggest that China is already in a position to fulfill at least the more limited missions elaborated above. If the pace of Chinese missile acquisitions continues, over the next decade Beijing will likely boast a formidable arsenal to shape events along the entire first island chain.

The Pentagon's latest annual report to Congress on Chinese military power confirms the doctrinal writings surveyed in this study. According to the Department of Defense,

> PRC military analysts have also concluded that logistics and mobilization are potential vulnerabilities in modern warfare, given the requirements for precision in coordinating transportation, communications, and logistics networks. To threaten regional bases, logistics, and support infrastructure, China could employ SRBM/MRBMs [short-range and medium-range ballistic missiles], ground-launched LACMs [land-attack cruise missiles], special operations forces, and computer network attack (CNA).[47]

The report identifies the DF-21 medium-range ballistic missile as an operational weapon system that could reach any location along the Japanese archipelago. Concurring, the National Air and Space Intelligence Center states that "China is . . . 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."[48]

The exact size of the DF-21 force is not known in the public realm. The Pentagon estimates that there are sixty to eighty DF-21 missiles and from seventy to ninety associated launchers in the PLA's inventory.[49] (The document does not distinguish between missiles armed with nuclear and conventional warheads.) The 2007 issue reports forty to fifty missiles and between thirty-four and thirty-eight launchers; the most recent report, therefore, represents a roughly 30 percent increase in two years.[50] *Ballistic and Cruise Missile Threat* counts conventional

DF-21 launchers as numbering fewer than thirty.[51] The International Institute for Strategic Studies claims that thirty-six nonnuclear DF-21s are deployed, in two brigades.[52] Interestingly, this figure is a new entry in the 2010 issue of *The Military Balance;* the previous tally lists only the nuclear variant, suggesting a much more rapid expansion of the conventional version than previously thought. Since the missile's debut in the 1980s, the PLA has improved its accuracy, extended its range, and diversified the types of warheads it can carry.[53] This emerging arsenal will likely play an important role in holding at risk or attacking U.S. regional bases.[54]

Several intervening factors are likely to influence the future size of the DF-21 inventory. First, China needs to build an arsenal large enough to overwhelm the ballistic-missile defenses fielded by the U.S.-Japanese alliance. As noted above, some Chinese analysts forecast a capable sea-based BMD system that could intercept theater ballistic missiles. Chinese strategists would almost certainly have to take into account some level of attrition arising from successful missile interceptions. Second, some of the more destructive coercive options could trigger U.S. horizontal escalation, including conventional counterforce strikes against Chinese missile brigades on the mainland. Thus, strategists in Beijing must anticipate potentially severe losses should the United States expand its target set. These numerical factors suggest that the Second Artillery Corps will almost certainly need a much larger DF-21 missile force to engage in the types of high-intensity operations outlined in the doctrinal writings.

Observers may object that capabilities do not reflect intent. In other words, missile range, accuracy, payload, and force size by themselves constitute insufficient evidence of exactly what Beijing plans to hit. Some may even find it implausible that China would attack a staunchly anti-nuclear-weapons state bound by a pacifist constitution, even if some of its real estate is occupied by a foreign military power. Nevertheless, the historical pattern of Chinese missile deployments since the Cold War suggests that U.S. bases in Japan have always been primary targets for nuclear strikes. In the 1960s the PLA extended the range of its first operational nuclear-tipped ballistic missile, the DF-2, to ensure that it could reach all American bases in Japan. Beijing deployed the follow-on missile, the DF-3, near the North Korean border to cover targets on the Japanese home islands and Okinawa. If China had always intended to violate its negative security assurances—that is, pledges not to attack nonnuclear third parties—with city-busting warheads, it should not be surprising that Beijing would field conventional missiles for use against Japanese territory. Indeed, the DF-21 may represent a far less "blunt" instrument than its predecessors did and offer a somewhat "surgical" option to Chinese defense planners.[55]

CRITICAL ANALYSIS OF CHINESE MISSILE DOCTRINE

There are compelling reasons for the Chinese to consider vertical and horizontal escalation in coercive campaigns against regional bases in Asia. At the same time, the PLA's missile force appears poised to extend its reach far beyond China's immediate periphery. The alignment of Chinese aspirations and capabilities will complicate crisis management and stability, escalation control, and war termination in the event of conflict. The gaps in Chinese doctrinal writings offer reasons to worry about these complications.

First, Chinese analysts seldom consider the mechanisms or chain of events that link the use of precision fire with the intended operational effects the PLA hopes to achieve. Most discussions assume or assert with certitude that the employment of certain missile tactics would induce a predictable set of American responses. But closer examination suggests that strategists may have underrated the ability of U.S. naval forces to sustain operations under severe duress, thus oversimplifying the action-reaction dynamic. For example, the wholesale destruction of fuel depots and logistical facilities would not likely have a direct or immediate impact on a carrier strike group either en route to or actively operating in a combat zone. The U.S. Navy could surge additional carriers into the theater of operations and rush at-sea-replenishment vessels from Guam, Hawaii, and San Diego to the scene. Such work-arounds would cushion a devastating blow against logistical facilities in Japan, enabling U.S. operations to continue unimpeded. Indeed, many frontline units would not feel the effects of infrastructure damage in Yokosuka or Sasebo for many weeks. In this scenario, China would likely have to settle in for a more protracted struggle. This potential outcome runs directly counter to the PLA's long-standing preference for quick, decisive victories at the operational level of war.

Second, doctrinal publications exhort PLA commanders to maintain an offensive spirit and to seize the initiative in the opening stages of a military campaign. Indeed, Chinese analysts insist that China should make the first move in any conflict. A crushing initial blow would throw the enemy off balance, enabling the PLA to dictate the tempo of the war. As the *Science of Second Artillery Campaigns* asserts,

> To "strike the enemy at the first opportunity" mainly refers to the need for the Second Artillery conventional missile force to act before the enemy, take the enemy by surprise, and attack the enemy when it is unprepared during its operational activities. It should be used first during the initial phase or at a certain stage of the campaign. . . . Therefore, in terms of campaign planning, it is necessary to launch attack before the enemy, strike first, and maintain the offensive intensity until the victorious conclusion of the campaign.[56]

More troubling, Chinese strategists foresee the preemptive use of conventional ballistic missiles against the enemy's rear areas:

> Using its advantages of concealment and surprise, active and intelligent response, and powerful penetration capability the missile force implements *preemptive strike against the enemy's important in-depth targets*. . . . Therefore, speedily striking the enemy, striving to seize the initiative, and avoiding losses are issues with which the campaign commander must first be concerned. It is necessary to strike the enemy at the first opportunity, *before the enemy has discovered our campaign intentions and actions,* surprise the enemy, act before the enemy, strike rapidly, catch the enemy by surprise.[57]

Given these operational parameters, the Chinese might conduct a bolt-from-the-blue missile strike against vulnerable carriers and warships anchored and at pierside to knock out the U.S. Navy.[58] An attack on a fleet in port would be akin to strikes against fixed targets. The impact—in terms of vessels sunk or damaged—would be direct, immediate, and relatively easy to measure. The Imperial Japanese Navy's surprise attacks against the Russian fleet at Port Arthur and the U.S. Pacific fleet at Pearl Harbor illustrate the logic of such a bold move.

From a strictly operational perspective, preemption is highly efficacious. At the same time, Chinese planners acknowledge the need to balance tactical advantages against the potential international backlash arising from foreign perceptions that China had launched an unprovoked attack. PLA writings are acutely attuned to such moral and reputational considerations. Yet they offer no concrete guidance as to how to reconcile the emphasis on striking first with the broader strategic factors that would likely hold back policy makers in Beijing, the final arbiters of the weighty decision to order a surprise attack. This tension between operational expediency and political imperatives is left unresolved. A policy/strategy mismatch looms.

It is entirely conceivable that even at the height of a major crisis Chinese decision makers might recoil from the missile options presented to them. They could very well reject preemption out of hand as overly incendiary and politically counterproductive. A precedent in Sino-U.S. Cold War history is illustrative. During the 1958 Taiwan Strait crisis, American civilian leaders rejected the military's planned nuclear riposte to Chinese provocations, on the grounds that massive retaliation was out of proportion to the confrontation at hand. President Dwight Eisenhower firmly declined to consider recommendations by the Pacific Air Force to order tactical nuclear strikes against Chinese troops massed near Xiamen.[59] Whether PLA commanders are sufficiently attuned to national policy to anticipate similar civilian pushback or to appreciate the political rationales for restraint is unclear.

Third, escalation control will be a severe challenge for Beijing. Chinese writings exhibit an awareness of escalation problems associated with missile coercion.

Analysts worry that misapplication of missile tactics could dramatically reshape the dynamics of the war, provoking greater exertions by the intervening power while widening the conflict, drawing in additional third parties. As Zhao Xijun warns, "In conducting close-in intimidation strikes, one must maintain a certain distance from the enemy's border (sea area) line and select highly accurate missiles to prevent them from falling into enemy territory (or enemy occupied islands) or directly hitting the enemy's aircraft carrier owing to imprecision or loss of flight control."[60]

Zhao acknowledges that accidents or miscalculations that cross the bounds of intimidation could transform the nature of the conflict, to China's detriment. Suffering direct harm could harden an enemy's resolve substantially, immunizing him against subsequent attempts at intimidation. Concurring, *The Science of Second Artillery Campaigns* cautions, "Commanders should cautiously make decisions, choose the appropriate opportunities, select high-precision missiles for precision strikes against key targets, and prevent missile firepower from deviating from the targets and giving others the excuse to permit the third country's participation in the military intervention."[61] An errant ballistic missile destined for the Yokosuka naval base could very well plummet into densely populated civilian areas surrounding the base or a major city along its flight path. It is conceivable that an aggrieved Japan would punish China by refusing to limit (or even agreeing to expand) U.S. access to military bases on the home islands. Indeed, continued Japanese acquiescence to American use of military facilities might be enough to foil China's strategy.

But Beijing faces even more daunting challenges than the writings let on. Chinese defense planners seem to assume that the Japanese leadership and the public would make a clear, objective distinction between targeted attacks against strictly military installations and wanton strikes against civilian population centers. Missile launches against Yokosuka would be an act of foreign aggression against the homeland unprecedented since the Second World War. It is hard to imagine the Japanese quibbling about the nature and intent of Chinese missile strikes under such circumstances; the strident Japanese response to North Korea's Taepodong missile launch over the home islands in 1998 is a case in point. In other words, the escalatory pressures are far stronger than the Chinese writings assume. Intimidation warfare will be neither clean nor straightforward. Indeed, it could unleash the forces of passion intrinsic to any war far beyond China's control.

More broadly, PLA planners seem excessively confident that certain missile tactics would accurately telegraph Beijing's intentions. They assume that the precise application of firepower could send clear, discrete signals to the adversary in times of crisis or war. A small dose of well-placed missiles, they seem to believe, might persuade the enemy to back down or to cease and desist. This line of

reasoning in part explains the counterintuitive logic that China could engage in escalation in order to compel its opponent to de-escalate. The logic is as beguiling as it is potentially misleading. Missiles are not finely tuned weapons for those on the receiving end. The adversary may perceive what is intended as a warning shot or demonstration of resolve as a prelude to an all-out attack and then overreact rather than pausing or acting with caution. The result for the Chinese could be unanticipated vertical or horizontal escalation, or both.

Equally worrisome, operational interactions between Chinese and American forces could prove highly escalatory and destabilizing. As Evan Medeiros and co-authors astutely observe, the operational doctrines on both sides share a proclivity for seizing the initiative at the outset of a conflict through surprise, speed, and attacks against enemy rear echelons. Medeiros further argues:

> Neither body of doctrine appears to consider how an adversary might react to such operations in a limited war—indeed, each seems to assume that it will suppress enemy escalation by dominating the conflict. Consequently a Sino-American confrontation would entail risks of inadvertent escalation if military forces were permitted to operate in keeping with their doctrinal tenets without regard for escalation thresholds.[62]

It is clear, then, that an attack against regional bases is neither a trump card nor a substantially risk-free option. If plans go awry, as they always do in war, China could find itself in a protracted conflict against more than one implacable, well resourced enemy as intent as the Chinese upon achieving escalation dominance. Whether Beijing would find the stakes over Taiwan or over another dispute sufficiently high to run such a risk is unclear.

Disturbingly, however, Chinese writings suggest that some segments of the PLA are inclined to accept the repercussions of a coercive campaign against U.S. bases in Japan. What explains this cavalier attitude about escalation? First, these writings may be symptomatic of a broad underdevelopment in coercion and deterrence theory. Chinese strategic theoreticians may still be grappling with the power and options that long-range conventional missiles confer on China. Beijing's analytical efforts to harness new military capabilities hitherto unavailable to it may be analogous to the growing pains that U.S. strategic thought underwent in the early years of the nuclear revolution. Second, the absence of hard-won experience from modern warfare and crisis could account for optimism about escalation control. The Chinese have not fought a war for over thirty years, since the Sino-Vietnamese border conflict. Moreover, China has not yet confronted sobering incidents (comparable to the Cuban missile crisis) against which to reassess and radically revise prevailing assumptions. In short, it is easy to succumb to logical fallacies when operating in a theoretical vacuum.

Alternatively, Chinese overconfidence in managing escalatory pressures could reflect the lessons that defense planners learned from the cross-strait confrontation in 1996. Some analysts in China have unequivocally concluded that the missile tests deterred the island from the road to independence while signaling clear redlines to the United States.[63] The notion that a limited number of missile launches could produce far-reaching success in coercive diplomacy is a seductive narrative likely to attract adherents within the Second Artillery Corps. Indeed, such an uncritical story line could reinforce preferences, biases, and faulty assumptions underlying the discourse within the missile community. Troublingly, *The Science of Second Artillery Campaigns* explicitly credits the missile tests in 1995 and 1996 for generating multiple studies that "have filled in a blank in conventional guided missile operation theories of the Second Artillery Corps."[64] A sample set comprising one case study is hardly a basis for universally applicable principles of war.

Finally, the writings themselves may be a form of peacetime signaling. The studies clearly communicate to foreign audiences China's willingness to gamble in a big way in high-stakes disputes. If the doctrinal works convince outside powers that China may just be reckless enough to carry out the implied threats, they will have effectively cast a shadow of deterrence over potential adversaries. Mao Zedong's cunning efforts to deprecate the power of nuclear weapons—by famously depicting atom bombs as "paper tigers"—in order to signal Chinese resolve are instructive.

Any combination of these reasons should give pause to those inclined to dismiss the strategic significance of the doctrinal writings.

STRATEGIC AND OPERATIONAL IMPLICATIONS FOR THE U.S.-JAPANESE ALLIANCE

Washington and Tokyo will encounter a more complex geometry of deterrence with the emergence of a robust Chinese theater-strike capability. The action-reaction dynamic in the United States–Japan–China triangle will be far less straightforward than that of the alliance's deterrent posture toward North Korea. The existential threat that U.S. conventional and nuclear superiority poses to Pyongyang is often presumed to be sufficient to deter the North's adventurism. Such is not the case with China. Boasting an increasingly survivable retaliatory nuclear strike complex, including a growing road-mobile strategic missile force and a nascent undersea deterrent, Beijing may be confident enough to conduct theater-level conventional missile operations under its protective nuclear umbrella. The war scares in the South Asian subcontinent over the past decade suggest that nuclear-armed regional powers, less inhibited by fears of enemy nuclear coercion or punishment, may feel emboldened to escalate a conventional conflict.[65]

Japan and its many lucrative basing targets could well become a conventional, theater-level battlefield trapped between two nuclear-armed powers.

Assuming that vertical escalation toward nuclear use can be contained, the alliance must still consider efforts at denying attempts to punish Japan. Allied missile defenses, as they are currently configured, will have great difficulty coping with theater ballistic missiles like the DF-21. In the context of a cross-strait scenario, retired rear admiral Eric McVadon observes, "Being an MRBM with a much higher reentry velocity than SRBMs, the DF-21C is virtually invulnerable to any missile defenses Taiwan might contemplate."[66] While the alliance possesses a far more sophisticated, multilayered missile defense architecture than does Taipei, longer-range missiles pose similar stresses to the defense of Japan. If the missiles were fired from launch sites in northeastern China, allied response times would be very compressed. Inexpensive techniques and countermeasures by the PLA, such as saturation tactics and decoys, could be employed to overwhelm or defeat missile defenses, which are designed for less sophisticated regional threats from North Korea and Iran. If the Second Artillery Corps launched successive missile salvos against the same strategic site, the alliance could quickly exhaust its ammunition, constraining its ability to defend other targets.

Escalation control would also bedevil the alliance. One critical escalation threshold pertains to the initiation of hostilities were China to prepare for or launch its first missile strike. The allies would be very hard-pressed to distinguish confidently conventional missiles from nuclear-tipped missiles. Indeed, finding the missiles at all would be hard enough, since the road-mobile DF-21s would almost certainly disperse to a variety of concealed launch sites to diminish the threat of a disarming preemptive strike by enemy forces. To compound matters, Chinese conventional missiles might share the basing facilities with their nuclear counterparts. Space-based surveillance and reconnaissance would provide at best an incomplete picture of China's wartime missile posture. In short, no one would know for sure whether a Chinese warhead hurtling toward Yokosuka was a nuclear or a conventional weapon. The fog and friction that accompany any crisis or war would multiply this uncertainty.

Would the alliance be willing to discount the possibility that the launch could be a nuclear strike? Or would it assume the worst? In the event of Chinese conventional bombardment, what would be the appropriate military response from the United States? What might underlie and inform Japanese expectations of the U.S. reaction? Would the alliance be prepared to expand the war to the mainland? Would a besieged Japan demand more punitive strikes against China than the United States would be willing to inflict? Would Tokyo lose confidence in Washington if the latter refrained from what it considered disproportionate escalation?

What would be the consequences of such a breakdown in trust during and after the conflict? These troubling questions make it imperative that Tokyo and Washington clearly recognize the operational temptations to overreact and the political consequences of *under*reaction. Though prudence calls for restraint, the stresses of crisis and war could radically skew rational calculations.

The foregoing analysis demonstrates that theater-level interactions involving conventional missile strikes against regional bases could be highly unstable and prone to miscalculation on all sides. The apparent underdevelopment of Chinese doctrine on missile coercion, littered as it is with questionable assumptions about the adversary, could exacerbate this latent instability. In the meantime, it seems that the U.S.-Japanese alliance has not moved far beyond rudimentary discussions of extended deterrence, a concept that does not fully capture the complexities of the emerging missile threat in Asia.[67] It thus behooves Washington and Tokyo to anticipate a far more ambiguous and stressful operational environment than has been the case over the past two decades. The alliance must come to grips with the advances in Chinese thinking about coercive campaigns while exploring options for hardening the partnership, both politically and militarily, against Beijing's emerging missile strategy.

NOTES

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3. Ibid., p. 131.
4. Defense Intelligence Agency, *Taiwan Air Defense Status Assessment,* DIA-02-1001-028 (Washington, D.C.: 21 January 2010), p. 3.
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25. Revealingly, Dai Yanli notes that rockets launched from the Xichang Satellite Launch Center usually jettison their boosters over Hunan and Guangdong provinces. From this Dai deduces that the boost phases of intercontinental ballistic missiles launched from Hunan, Henan, and Jilin would occur over the East and Yellow seas, within range of Aegis-based interceptors. 戴艳丽 [Dai Yanli], "我周边宙斯盾舰的运行及威胁" [The Functioning and Threat of Aegis Ships on Our Periphery], 舰船知识 [Naval and Merchant Ships] (September 2007), p. 18.

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32. To the extent possible, this article attempts to discern the weight and credibility of the works cited. As an aid to the reader, this article, where appropriate, provides details of the identity and background of the author(s), the nature and purpose of the publication, and the degree to which the writing enjoys official sanction or reflects PLA thinking.

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34. Peng Guangqian and Yao Youzhi, *The Science of Military Strategy* (Beijing: Military Science Publishing House, 2005), p. 464.

35. Ibid., p. 461.

36. Ibid., p. 464.

37. Ibid., p. 465 [emphasis added].

38. Ibid.

39. Lt. Gen. Zhao Xijun served as deputy commander of the PLA Second Artillery Corps from 1996 to 2003. He was a PLA delegate to the 10th National People's Congress in 2006.

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52. International Institute for Strategic Studies, *The Military Balance* (London: Routledge, 2010), p. 399.
53. Duncan Lennox, *Jane's Strategic Weapon Systems* (Surrey, U.K.: Jane's Information Group, 2009), pp. 24–25.
54. The DF-21 is also the airframe for China's conventionally armed antiship ballistic missile. Thus it is possible that a proportion of the DF-21 arsenal is dedicated exclusively to antiship missions. It is also possible that the Second Artillery treats the DF-21 as a dual-use weapon, capable of hitting ships at sea and fixed land targets.
55. The DF-21 is not the only option for the PLA. Other weapons systems, including DH-10 land-attack cruise missiles and air-launched cruise missiles fired from H-6 bombers, could figure prominently in any campaign against American bases in Japan. However, the antiquated H-6 bombers are not particularly survivable against U.S. and Japanese air defenses, while the LACMs are relatively new and untested compared to the DF-21s. Chinese defense planners would need to determine the proper mix of forces needed to fulfill their operational requirements.
56. Second Artillery Corps, *Science of Second Artillery Campaigns,* p. 322.
57. Ibid., p. 326 [emphasis added].
58. This is an admittedly implausible scenario. It is difficult to imagine real-world crisis situations or periods of high tension in which the U.S. Navy would not have acquired the early warning and lead time to sortie its surface fleet to safety at sea.
59. Bernard C. Nalty, *The Air Force in Five Crises 1958–1965: Lebanon, Taiwan, Congo, Cuba, Dominican Republic* (U.S. Air Force Historical Division Liaison Office, June 1968), excised copy, pp. 20–21, National Security Archive, George Washington University, Washington, D.C., available at www.gwu.edu/~nsarchiv/nukevault/ebb249/doc10.pdf.
60. Zhao Xijun, *Intimidation Warfare,* p. 192.
61. Second Artillery Corps, *Science of Second Artillery Campaigns,* p. 400.
62. Forrest E. Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century* (Santa Monica, Calif.: RAND, 2008), p. 169.
63. John Garver, *Face Off: China, the United States, and Taiwan's Democratization* (Seattle: Univ. of Washington Press, 1997), pp. 155–56.
64. Second Artillery Corps, *Science of Second Artillery Campaigns,* pp. 12–13.
65. See S. Paul Kapur, "Ten Years of Instability in a Nuclear South Asia," *International Security* 33, no. 2 (Fall 2008), pp. 71–94.
66. Eric A. McVadon, "The Taiwan Problem: Beijing Arms for a Fight It Hopes to Avoid," *Armed Forces Journal*, no. 11 (2005), available at www.afji.com/.
67. For an excellent analysis of the current Japanese debate over U.S. extended deterrence, see Michael J. Green and Katsuhisa Furukawa, "Japan: New Nuclear Realism," in *The Long Shadow: Nuclear Weapons and Security in 21st Century Asia*, ed. Muthiah Alagappa (Stanford, Calif.: Stanford Univ. Press, 2008), pp. 347–72.

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