DeepCuts

Deep Cuts Working Paper
No. 6, May 2016

THE OFFENSE/DEFENSE PROBLEM: HOW MISSILE DEFENSE AND CONVENTIONAL PRECISION-GUIDED WEAPONS CAN COMPLICATE FURTHER DEEP CUTS IN NUCLEAR WEAPONS

by Dennis M. Gormley

Introduction

This is not my first stab at addressing how missile defense and conventional precision-guided weapons complicate achieving deep cuts in nuclear weapons. In 2009, the Institut Français des Relations Internationales (Ifri) in Paris asked me to address roughly the same question.[1] Far less interest in the topic would have prevailed had it not been for the provocative op-ed in the *Wall Street Journal* in early 2007 by George Shultz, William Perry, Henry Kissinger, and Sam Nunn calling for renewed efforts toward the goal of a nuclear weapons-free world. Still, by 2009 and Barack Obama's start of the U.S. presidency, virtually all expert analysis and opinion had ignored the conventional weapons dimension and focused instead on assessing the challenges to a nuclear weapons-free world, including verifying arsenals when they reach very low levels, more effective management of the civilian nuclear programs that remain, enforcement procedures, and what, if anything, might be needed to deal with latent capacities to produce nuclear weapons.[2] Indeed, not until the release of the Obama administration's Nuclear Posture Review (NPR), in the spring of 2010, did it become clear just how deeply the new administration would embrace its conventional weapons superiority.

If any concept dominated the crafting of the 2010 NPR, it was the notion of "strategic stability." The term appeared no fewer than 29 times, but its frequent employment obviously had nothing to do with the Cold War concern about the destabilizing possibility of the Soviet Union developing first-strike nuclear capabilities to upset the strategic balance. Rather, the table has turned dramatically to where—from the perspective of at least Russia and China—the United States is the potential source of instability, due to its overwhelming superiority in advanced conventional weapons. Indeed, the NPR readily admits that the United States can afford to diminish the role of nuclear weapons in satisfying its fundamental security requirements due to "the growth of unrivalled U.S. conventional military capabilities, major improvements in missile defenses, and the easing of Cold War rivalries."[3] The NPR also makes clear that the United States must reinforce its regional security commitments not only by means of its remaining, if diminished, nuclear deterrent, but also by increasing reliance on improved missile defenses and advanced conventional capabilities. Both are viewed as essential to convincing America's allies and partners that they do not require nuclear weapons of their own. Thus, the American conundrum: how can the United States at once reassure its allies and partners by demonstrating the potency of its unrivalled conventional superiority without unsetting the very strategic stability it asserts is so central to achieving the goal of a nuclear weapons-free world?

Facing the Conundrum

There are a number of impediments standing in the way of adequately addressing America's conventional advantages vis-à-vis Russia and China. Not least is a growing belief that the United States, in spite of what it devotes to defense spending, is losing its technological advantage over conceivable future adversaries.[4] No matter where one comes down on the question of America's impending loss of technological—and thus, palpable military superiority—it is important to keep in mind that it has always been a sacrosanct principle of U.S. strategic planning that the United States will pursue achieving and maintaining technological superiority. And while it is true that many of the conventional weapons technologies that enabled the United States military to perform so well since the early 1990s are now proliferating globally, it still remains unlikely that near-peer competitors of the U.S. military will suddenly absorb advanced military technologies and threaten to achieve military superiority over the United States by employing them with great adroitness. In the following, I will focus on Russia and China as U.S. competitors.

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Russia remains behind the United States in advanced conventional offensive and defensive capabilities. After the Vietnam War the United States began focusing on what became, in effect, a revolution in conventional strike operations. Taking nearly a decade and a half, the U.S. military exploited the then-emerging progress in precision guidance, advanced communications, and sensors and developed appropriate doctrines, tactics, and procedures, which became central to the success of the 1991 war with Iraq. Although very few precision-guided munitions were employed against Iraq in 1991, the ones used demonstrated an order of magnitude improvement in effectiveness compared with dumb bombs.[5]

By the early to mid-1980s, Russia became enamored with improving its conventional capabilities. Yet, faced with its under-performing economy, it simply could not produce the kind of advanced conventional weapons that the U.S. military was then developing. The collapse of the Soviet Union in 1991 decimated the Russian defense industry, which only recently has managed to achieve modest strides to begin fashioning a truly 21st century military industrial complex. Moreover, Russia's dependence on oil and gas markets locks them into a long recession with few signs of near-term recovery.

China, for its part, suffered a decade of chaos due to Mao's Cultural Revolution. It has, within the last two decades, finally begun to show progress in its defense industry and the streamlining of its military. Nevertheless, China has not fought a war since the 1979 short encounter with Vietnam. Its most severe shortcoming, among many, is poor command and control of multi-service combined-arms operations.[6] But several other weaknesses persist and threaten the People's Liberation Army (PLA) capacity to conduct effective combat operations, especially when operating beyond its land borders. A recent RAND Corporation assessment found that the PLA faces numerous institutional weaknesses, including outdated command structures, poor quality personnel, weak professionalism, and rampant corruption. On the combat side, the study encountered logistical weaknesses, insufficient airlift capabilities, limited special-mission aircraft, and deficiencies in fleet air defense and submarine warfare performance.[7]

Complicating China's quest to make improvements in military capabilities are a large set of structural factors that lie at the heart of

© 2002 U.S. Navy/DoD:021110-N-0000X-003 China Lake, Calif. (November 10, 2002), a tactical "Tomahawk" Block IV cruise missile, conducts a controlled flight test over the Naval Air Systems Command (NAVAIR) western test range complex in southern California.

China's economic challenges, including dealing with access to clean water, remuneration costs related to environmental degradation, rampant corruption, potential divisiveness between urban and rural populations, and ethnic and religious unrest. Complicating matters further are continued growth in chronic diseases coupled with inevitable demographic changes that China faces stemming from its one-child policy. Combined, these latter two developments will place stiff demands on China to cope with an aging population and a substantially diminished younger age cohort. In the end, how China addresses slower growth, rising financial demands, and internal security challenges, which have already elevated the cost of security to exceed that of defense spending, will ultimately contribute importantly to shaping the comparative quality of China's military ambitions.[8]

Missile Defense Superiority: Impact on Arms Control

The absence of any constraints—save for the stiff financial costs—standing in the way of American exploitation of missile defense technologies furnishes a challenging backdrop to obtaining deep cuts in American and Russian nuclear arsenals, no less China's. During the Bush administration's eight years in office, what seemed to concern the Russians most was the sheer uncertainty of the administration's opaque approach to missile defense. After abrogating the ABM Treaty in 2002, the Bush administration abjured a strategy that depended on extensive flight-testing and instead turned to simulations that integrated limited real-world test results with conceptual components reproduced in a model. Neither did the US Missile Defense Agency specify an overall system architecture. Whatever technology that past unspecified muster was deployed in two-year block intervals, which left Russian observers worried in regard to where the U.S. missile defense program program was eventually headed. As Russian Maj. Gen. Vladimir Dvorkin, (ret.) observed in 2009, "There is no telling how far the United States will go with its missile defense deployment plans."[9]

Russian officials appear most animated by the prospect that America will eventually improve

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its capacity to intercept intercontinental ballistic missiles in space with far more success than the current Ground-based Midcourse Defense system has demonstrated.[10] This fear derives from the deployment of highly powerful ground- or sea-based X-band radars and spaced-based infrared sensors (known as the Spaced-Based Infrared System). The assumed advantage of X-band systems is their potential to achieve a resolution of 10-15cm, which would be good enough to discriminate between real warheads and decoys. Not only would mid-course interceptors be able to take advantage of X-band radars, but so too will a growing network of sea-based interceptors on Aegis cruisers/destroyers and land-based upper-tier Terminal High Altitude Area Defense (THAAD) interceptors. Naturally, X-band and the Space-Based Infrared System may simply not demonstrate what they promise, but such doubt does little to lessen the concern of Russia, and one should add, China, as well.

If Russian officials are worried today about the possible trajectory of American missile defenses, the concern might only worsen after February 2018, when the United States and Russia must meet the New START treaty's limits on strategic arms, i.e. seven years after the treaty's entry into force. As Cornell physicist George Lewis recently observed, right before New START was signed, Russia made a (non-binding) unilateral statement that argued that the treaty "may be effective and viable only in conditions where there is not qualitative and quantitative build-up in the missile defense capabilities of the United States."[11] Lewis further noted that when Russia made this statement there was a nearly 50 to 1 ratio between Russian warheads and American interceptors. On the other hand, it would not be inconceivable to imagine—based on the anticipated deployment of strategic-capable U.S. Navy missile defense interceptors—that were both Russia and America to pursue deep cuts in their strategic nuclear forces, America would possess many more interceptors compared with Russia's dwindling nuclear force structure. As Lewis argues, "a straightforward extrapolation of the United States' [ballistic missile defense] BMD plans shows that over the next 15-20 years the number of its strategic-capable interceptors could increase by at least an order of magnitude to 600 or even more."[12] Put another way, and especially in light of the anticipated spurt in American missile defense deployments that is likely to occur in the foreseeable future, Russia is very likely to halt further cuts in its nuclear arsenal. Nor will China have the least bit interest in diminishing its comparatively small nuclear arsenal were the United States to pursue unmitigated growth in strategic-capable missile defenses as surmised in Lewis's assessment.

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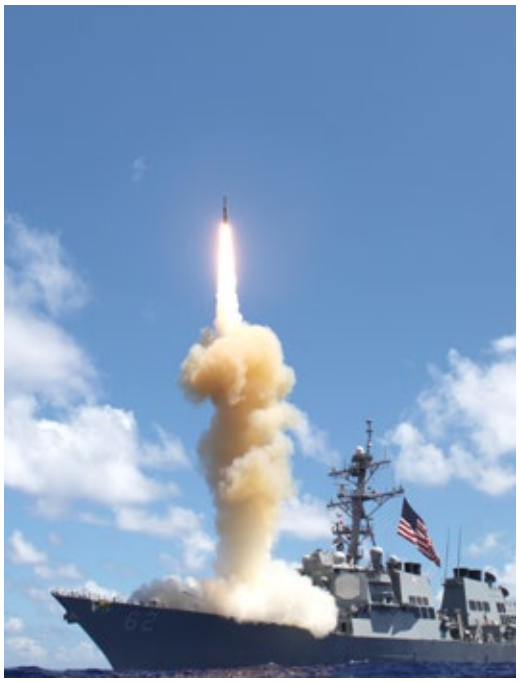
Were the United States to pursue such a large-scale deployment of strategic-capable missile interceptors, a companion consequence could conceivably entail the large-scale deployment of space-based laser and kinetic-kill weapons in space. Under such circumstances, Russia's deterrent posture would surely be threatened, according to Dvorkin.[13] And such a turn of



© 2012 U.S. Navy/DoD: 121025-N-ZZ999-201, Pacific Ocean (October 25, 2012), the guided-missile destroyer USS Fitzgerald (DDG 62) launches a Standard Missile-3 (SM-3) as apart of a joint ballistic missile defense exercise.

events would not necessarily redound to any clear American advantage either, nor would it for China should that nation choose to reciprocate. Indeed, introducing weapons in space would very likely threaten all three nations' growing dependence on unfettered access to space.

Understanding the Limits of Precision Strike Superiority

Any one comparing the character of nuclear weapons and advanced precision strike weapons—the Tactical Tomahawk—should keep in mind important differences between these two classes of weapons. The sheer scale of a nuclear explosion, even a low-yield one, dwarfs the energy potential of today's advanced conventional weapons. To that extent, the huge scale of the damage created by a nuclear explosion compensates greatly for any weaknesses in accuracy of delivery or targeting uncertainty (i.e., knowing precisely where the target is located and its attendant vulnerabilities). On the other hand, precision conventional weapons depend critically on a huge supporting cast of players and functions, some of which include: highly accurate intelligence collection, analysis, and dissemination; rigorous mission planning; knowledge of the target's vulnerabilities to permit selection of precise aimpoints; post-attack damage assessment capabilities to determine how best to exploit the first attack's true effects; and perhaps most important of all, an agile command and control system networked together seamlessly to make rapid-fire decisions needed to achieve near-simultaneous waves of precision conventional strikes. Thus, while nuclear weapons are forgiving due to their broad effects, precision conventional systems cannot afford a breakdown in the performance of their critically important supporting cast if they are to succeed as planned.

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Russian strategists appear to see American precision strike weapons differently than American weapons specialists do. Instead of viewing such weapons, as James Acton has put it, as having "revolutionized *tactical* strike capabilities," Russian strategists argue that such new American precision weapons are "revolutionizing *strategic* strike capabilities."[14] As then-prime minister Vladimir Putin argued in regard to precision strike weapons in 2012, "they will become the means of achieving a decisive victory in conflicts, including a global conflict."[15] Indeed, Soviet-era strategists such as Marshal Nicolai Ogarkov, Chief of the

© 2012 U.S. Navy photo courtesy Lockheed Martin/Andy Wolfe/DoD: 120808-O-GR159-003, Naval Air Station Patuxtent River, Md. August 8, 2012) F-35B test aircraft BF-3 completing the first aerial weapons release for any variant of the aircraft.

Soviet General Staff, argued in 1984 that one could foresee at least an order of magnitude improvement in the destructive capacity of conventional weapons, "bringing them closer [...] to weapons of mass destruction."[16] But by no means did Ogarkov foresee conventional weapons easily achieving decisive victory in conflicts, no less global ones. Conventional wars will always be subject to the kind of uncertainty that led German strategist Helmuth von Moltke to declare arguably his most quoted admonitions pertaining to fighting in conventional wars: "No plan survives contact with the enemy" and "strategy is a system of expedients."[17]

A brief illustration of some of the complex demands planners face in executing precision strike weapons that lead promptly to strategic success is a valuable reminder of the inherent limitations of such weapons. China has invested greatly in acquiring their growing arsenals of both conventionally armed ballistic and land-attack cruise missiles, primarily to support their requirement to rapidly win a military engagement with Taiwan.[18] China's appreciation of what I'll call missile leveraging of aircraft effectiveness largely came about by virtue of improved missile accuracy, launcher increases, and range enhancement. The lesson is that conventionally armed precision-strike missiles are most usefully regarded as an integrated element of combined-arms warfare in a major theater of war.[19]

Current Chinese military writings reflect the logic and rationale that formed the basis of the Soviet air operation in the early 1980s, including not just the essential role played by precision-strike missiles. And Chinese strategists, like their Soviet-era cohorts, devote considerable space to the importance of preemptively seizing the initiative from the very beginning of a conflict.[20]

Chinese strategy is also conditioned by their recognition that for some time they are likely to be inferior to their potential adversaries. This clearly is the case in regard to the United States, less so with respect to Taiwan. If China is prevented from obtaining air superiority, any prospective Chinese cross-strait military campaign is likely to fail. Chinese strategists view their growing arsenal of conventionally armed ballistic and cruise missiles as a means of trumping the Taiwanese air force. The sheer shock value of ballistic and cruise missiles, not to speak of the possible difficulty of defending against them, can have a successful coercive effect on one's adversary. Moreover, Chinese ballistic and cruise missiles would constitute a central component of a surprise attack designed to achieve Chinese air superiority.

A potent factor driving China's rapid development of its conventional precision-strike missiles bears on the PLA's security perceptions. Not having experienced a war since its brief military engagement with Vietnam in 1979, China has studied closely and extracted key lessons from America's success in the First Gulf War against Iraq, NATO's 1999 war with Serbia over Kosovo, and the PLA's appreciation of the role missiles played in the Soviet-era air operation.

In a war with Taiwan, Chinese planners anticipate that precision-strike missile attacks would achieve the rapid if only perhaps temporary but critically important closure of Taiwan's airfields. Missile strikes against enemy airfield runways, airbase command and control, early warning radar facilities, and ground-based air and missile defenses are valuable in order to enhance Chinese aircraft effectiveness. With Taiwan's air force largely prevented—however temporarily—from taking to the skies, Chinese aircraft could be released from air defense suppression responsibilities, allowing them to fly higher and deeper routes with heavier payloads and concentrate on reducing Taiwan's air sorties to a minimum. Chinese strategists see missile strikes against airbase runways and taxiways as designed to paralyze air defense systems to maximize Chinese air force strikes to help enable air superiority.

A key question, however, is whether China possesses the C4ISR (command, control, communications, computers, intelligence, surveil-

lance, and reconnaissance) capabilities to fully exploit these growing missile capabilities. The challenge of carefully orchestrating a complex, multifaceted air and missile campaign over many days depends on both human and technical factors—excellent intelligence and bomb damage assessment capabilities are only two of many requirements. Foremost, however, are extremely well-trained military personnel who have practiced these routines in diverse ways over many years and the command and control architecture needed to deal with complex combined-arms operations involving multiple service organizations. Chinese planners envision establishing a Firepower Coordination Center (FCC) within the Joint Theater Command, which would manage the application of air and missile firepower.[21] Separate coordination cells would be created to deal with missile strikes, air strikes, special operations, and ground and naval forces. Absolutely critical to achieving the delicate timing between waves of missile strikes designed to leverage the effectiveness of subsequent aircraft attacks is developing the skill to coordinate and de-conflict large salvoes of missiles and waves of aircraft operating in multiple sectors. It is doubtful that China could today execute such a complex joint campaign with any degree of confidence due to limited joint force capabilities.

Simply put, this joint force endeavor is an enormously daunting execution task, whether for China or Russia. Once the war begins chaos and complexity commence. It is commonplace to underestimate C4ISR, which the Chinese have only recently begun to take seriously from a joint-force standpoint. As retired U.S. Navy Captain Wayne P. Hughes argues in his classic book *Fleet Tactics: Theory and Practice*, "The art of concentrating offensive and defensive power being complicated, it is easy to exaggerate the potential of the enemy to master it." Keep in mind, too, that Hughes was referring only to a naval engagement, not truly multi-service operations, as would be the case with such an air operation example as discussed earlier.

© 2006 Robert J. Horstman, U.S. Air Force/DoD: 060202-F-6809H-100, Barksdale Air Force Base, La. (AFPN), munitions on display show the full capabilities of a B-52 long-range bomber.

Since the late 1990s, the PLA has undertaken large-scale exercises and more recently begun to work on joint operations. Still, Stanford University scholars John Lewis and Xue Litai quote a PLA officer speaking candidly about such large-scale Chinese exercises: "The exercise is part of the PLA's annual training, but its political significance is greater than its military significance."[22]

Proficiency with even the use of one particular weapon system is not achieved without lengthy mastery, and not just in peacetime exercises or under peacetime test conditions but during actual combat operations—something China hasn't faced since 1979. Russia possesses more substantial combat experience, especially in regard to the use of Kalibr sea-launched and Kh-101 air-launched cruise missiles, with 2,000km range, employed against targets in Syria. Should Russia's nascent plans for deploying large numbers of Kalibr cruise missiles in all of its five fleets come true, Russia could place at risk most NATO targets as well as those in the Middle East, Japan, South Korea, and northeast Asia without even putting ships to sea.[23] These developments underscore yet more evidence of the explosive growth in precision strike systems—most notably cruise missiles—and their broad proliferation around the globe.[24]

Take, for example, the U.S. Navy's successful use of Tomahawk land-attack cruise missiles. Surely, the advent of GPS has contributed to the proliferation of land-attack cruise missiles over the last decade. Yet, the process of becoming truly proficient requires more than access to technology. What is unique about today's Tomahawk cruise missile is the extent to which its performance has benefited from years of feedback from system diagnostics collected ever since the Tomahawk was first tested and later deployed in the 1970s. Most Tomahawks, in peace and war, have been analyzed to determine as precisely as possible what accounted for the missile's performance, good or bad. To learn from such successes and errors requires that missile specialists have the kind of sophisticated diagnostic equipment and system engineering skills that provide hints about system performance. Armed with such important knowledge about Tomahawk performance, it is no surprise that current versions of the missile greatly exceed the Tomahawk's progenitor.

While China will probably not require decades to develop high confidence in their precision-strike weapon performance, it will require time and dedicated effort before it can expect that its missile force will perform as desired, particularly in combined arms campaigns and especially in the absence of real-war experience. Rather than expecting to possess strategic precision strike missiles after many years of mastery, both China and Russia should become reconciled to the fact that today's and—for the foreseeable future—tomorrow's precision conventional weapons will remain decidedly tactical instruments in the consequences they achieve on the battlefield.

Longstanding Russian persistence that conventionally-armed Tomahawk cruise missiles could threaten Russian strategic missile silos was given a striking dose of reality recently by Vladimir Dvorkin. In 2009 Dvorkin reflected the then growing concern of Russian military specialists that conventional weapons imbalances *might* threaten the achievement of deep nuclear reductions. As he noted then: "[A Russian] concern is the possibility that high-precision conventional weapons could be used to destroy strategic targets. Precision-guided munitions (PGMs) pose a threat to all branches of the strategic nuclear triad [...] The types of PGMs to be used against each of these components, the vulnerability of assets, and operational requirements would require a separate study."[25]

More recently, however, Dvorkin expressed wholesale agreement with the analysis rendered by the Russian military periodical *Voenno-Promyshlennyi Kur'er* (Military Industrial Courier), which employed detailed calculations supporting the impossibility of employing high-precision cruise missile strikes "against even one of the Strategic Missile Force sites in the European part of Russia."[26] According to Dvorkin's reading of the Russian military periodical's assessment, "14 cruise missiles would be required for a strike against a single under-ground missile silo, assuming no defensive measures and the use of cruise missiles with 95-percent reliability and a circular error probable (CEP)[27] of 5 meters. Thirty-five cruise missiles would be required given a CEP of 8 meters."

Dvorkin's conclusion: "It seems rather fantastical to suggest that the Pentagon could be planning a disarming conventional strike against Russia's strategic nuclear forces." All it would achieve, in Dvorkin's view, was the triggering of a retaliatory nuclear response.[28]

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Russian and American Perceptions of Destabilizing Offensive Threats

As this essay has already argued, Russian officials and security specialists seem fixated on the threat of sub-sonic cruise missiles due to their purported precision and presumed capacity to threaten such targets as Russian Intercontinental Ballistic Missile (ICBM) silos. But other Russian experts, including Dvorkin, see such a notion in an entirely different light—one ladened with risk and offering virtually no payoff. The same cannot

be said for another equally worrying offensive threat for the Russians—that of Conventional Prompt Global Strike (CPGS) weapons. Current CPGS systems are expected to deliver precision-guided conventional payloads to any locations within one hour of a decision to employ this capability. The apparent logic informing the need for such a prompt capability is to deal with urgent time-sensitive targets anywhere around the globe. Presently, only a niche capability consisting of a small number of weapons are planned, assuming the test program demonstrates sufficient success.[29] That said, one could readily imagine more fulsome requirements under future administrations for such advanced precision strike weapons systems.[30]

What perhaps is most unusual thus far about the CPGS program is Russian President Vladimir Putin's seemingly grave concern about a program that has hardly demonstrated much testing success to date. As James Acton has noted, what seems most noteworthy is Putin's deep level of concern about a weapon system that the United States remains undecided about acquiring, has perhaps a decade of testing remaining before any acquisition decision, and has failed either altogether or somewhat in five or six of only seven tests thus far.[31]

That said, there is ample reason to believe that the risks of employing CPGS systems vastly outweigh the expected benefits accruing to the United States.[32] Although the U.S. Department of Defense has not made decisions about what specific missions would rationalize the need for CPGS weapons, four missions are under consideration. According to James Acton, they include denying a nuclear proliferator the ability to use nuclear weapons; countering anti-satellite capabilities; countering anti-access/area-denial threats; and killing high-value terrorists.[33] Taking the example of fleeting terrorist targets, it seems highly unlikely to have all the requisite intelligence support in hand to successfully use one or several CPGS missiles. In fact, subsequent analyses of what we knew about Osama bin Laden's location in Afghanistan after 9/11 does point strongly to him being in Tora Bora, but not with enough accuracy to think that a few missiles would have succeeded in targeting him effectively. On the other hand, a higher probability of preventing bin Laden and his followers' escape into Pakistan certainly existed but was reportedly rejected by then-Secretary of Defense Donald Rumsfeld and General Tommy Franks, the regional Commander-in-Chief. They both perceived the risks as too high of deviating from the light footprint, small-force plan they envisioned for Afghanistan.[34]

The unintended but possible consequences of deploying CPGS weapons also seem formidable. One is the fear that arming such missiles with conventional warheads might adversely affect strategic stability by virtue of the preemptive, or preventive, character of the weapon. Surely, any state perceiving that it is in the gunsights might figure that it, too, needed to adjust its posture to achieve their own prompt capability, however inferior to any American CPGS system. Strategic stability is also threatened by the ambiguity over whether an incoming CPGS missile is truly armed with a conventional payload rather than a nuclear one. Confidence-building measures might allay such concerns, but they cannot eliminate a state's potential for erratic behavior under the extraordinarily compressed circumstances of a CPGS scenario. Many more suitable, if less prompt, alternatives exist to deal with fleeting targets. The true Achilles' heal of the CPGS concept is the unprecedented demands it places on the intelligence community to provide decision makers with what Rumsfeld once called "exquisite intelligence."[35]

Russia's nascent plans for acquiring and deploying large numbers of land-attack cruise missiles—not least, the 2,000km range Kalibr on ships and submarines and basing them at all five Russian fleets—represents a significant threat not only to NATO but also to targets in the Middle East, Japan, South Korea, and northeast Asia. Of course, such a development depends on Russia's financial commitment to procure and deploy substantial numbers

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of land-attack cruise missiles over time. And America's sea-launched Tomahawk land-attack cruise missiles could hold some Russian targets at risk. Still, there is ample reason to be concerned about the last decade's explosive growth of land-attack cruise missiles throughout the Middle East, South Asia, and Northeast Asia—coupled with the predilection of many new cruise missile states to brandish these missiles as the ideal means of achieving preemptive success should they be employed.[36] As former Pentagon officials William Perry and Andy Weber asserted recently, "because they can be launched without warning and come in both nuclear and conventional variants, cruise missiles are a uniquely destabilizing type of weapon."[37]

Some Recommendations for Addressing Destabilizing Effects

At a time when land-attack cruise missiles are increasingly being viewed as the weapon of choice for preemptive action, it seems shortsighted in the extreme for the United States to proceed with another weapon system—namely, Conventional Prompt Global Strike—that fundamentally is a preemptive strike system. Yet, there are even more powerful reasons not to deploy CPGS because of the dubious nature of the intelligence that would be expected to provide what it simply cannot achieve without undue risk of error.

Although I argue that the United States should not proceed with CPGS deployment, should the decision be taken to deploy a niche capability, existing New START counting rules would apply if the choice is a missile that delivers a reentry vehicle on a ballistic missile trajectory. Conversely, were the United States to deploy a boost-glide GPGS weapon—launched along a depressed trajectory using a hypersonic glide vehicle to deliver its weapons—this new type of system would not be subject to New START counting rules. According to the U.S. position, this is because the Russians could readily detect the difference between a ballistic and non-ballistic boost-glide vehicle, thus avoiding the threat-ambiguity problem. Others might differ dependent on what one believes about Russian detection systems, but as long as the United States is committed only to a niche capability, consenting to counting rules seems eminently reasonable.[38] My own view is that should a future administration wish to deploy larger numbers of CPGS weapons, they should be subject to counting rules, despite the fact that such larger numbers affect the size of the U.S. nuclear arsenal.

As for what might be done to abate the seemingly contagious outbreak of land-attack cruise missiles, two broad sets of options are suggested—one involving modest adjustments in spending on cruise missile defenses, the other entailing the will power to make improvements in the manner in which land-attack cruise missiles are normatively treated in the Missile Technology Control Regime (MTCR) and the Hague Code of Conduct Against Ballistic Missile Proliferation (HCoC).

A seemingly inconsequential event during the 2003 U.S.-led invasion of Iraq had the unintended effect of embellishing the narrative appeal of land-attack cruise missiles around the globe. Five crude Iraqi cruise missiles managed to evade the otherwise highly successful U.S. Patriot missile defense system, which had managed to achieve a perfect 9 for 9 success rate against incoming Iraqi ballistic missiles. Patriot missile defense batteries, in theory, are capable of intercepting low-flying cruise missiles, but in practice the Patriot's ground-based radar is unlikely to detect such low-flying missiles unless it was furnished with advance warning information provided by an airborne radar. In fact, the addition of land-attack cruise missiles to the enemy's threat mix of high-angle ballistic missiles and low-flying cruise missiles sowed such confusion among U.S. forces that it contributed to a series of friendly-fire casualties: Patriot batteries shot down two friendly aircraft, killing three crew members, while an American F-15 destroyed a Patriot radar in the belief they were being targeted. Despite these glaring shortcomings, the Patriot missile system remains without support today from a suitable airborne radar.[39]

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Clearly, a more evenhanded approach is required with respect to U.S. and NATO missile defense investments. Surely, one reason for the paltry investment in cruise missile defense, compared with ballistic missile defense, is the comparatively late emergence of the cruise missile threat. Still, it had become clear over a decade ago that land-attack cruise missiles had begun to spread widely in the Middle East, South Asia, and Northeast Asia, yet priority remained centered exclusively on ballistic missile programs.[40] The United States and NATO both should take steps to reduce the magnitude of the huge increase in American BMD plans for strategic-capable interceptors that George Lewis foresees occurring over the 15-20 years after New START's entry into force in 2018. Such a strategy would offer room for increases in cruise missile defense spending without threatening Russia's or China's retaliatory capability. On the other hand, modest investments in cruise missile defense—for example, improved point defenses of critical airfields and command and control facilities would achieve a welcome deterrent effect by complicating an adversary's attack planning.[41]

Unfortunately, there is no treaty embracing the control of missile systems and technology to cope with the destabilizing effects of land-attack cruise missiles. However, the G-7 states came together in 1987 to create arguably the next best thing: a voluntary association of nations sharing the goals of nonproliferation of unmanned delivery systems capable of delivering weapons of mass destruction—the MTCR. Today, MTCR includes 34 member states possessing equal standing within the Regime. All member states adhere to common export policy guidelines applied to a common list of controlled items.[42]

Not surprisingly, MTCR member states have been willing at times to transfer land-attack cruise missiles—contrasted especially with virtually no ballistic missile transfers—that violate the regime's so-called Category I missile controls. These would include missiles capable of exceeding 300km in range while carrying a payload of 500kg or more. If such behavior becomes unexceptional due to its frequency, the regime will eviscerate its raison d'etre.

Finally, what limited normative value that may exist from the creation of the Hague Code of Conduct against the Proliferation of Ballistic Missiles is at risk of disappearing altogether unless the Code broadens its current remit. Launched in November 2002, HCoC is decidedly minimalist in its objectives. Its membership currently stands at 137 states, an increase of 44 since the Code's founding. The Code supplements the MTCR in its quest to establish broad international norms against the proliferation of ballistic missiles.[43] Whereas the MTCR deals equally with ballistic and cruise missiles, the Hague Code only addresses ballistic missile norms, which leaves the unhelpful impression that the spread of cruise missiles is not nearly as consequential as ballistic missile proliferation. Indeed, support for including cruise missiles and UAVs both in the Hague Code has grown over time. In 2006, in the aftermath of a study entitled "Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Weapons," Hans Blix called on HCoC Member States to incorporate cruise missiles and UAVs into the Code's coverage. The 15 members' commission of the study, including William Perry, endorsed this recommendation. In 2012, Secretary General of the United Nations Ban Ki-moon, in a message delivered in Vienna commemorating the 10th anniversary of the Hague Code, encouraged the then-134 subscribing states "to take into account other types of missiles capable of delivering weapons of mass destruction, such as cruise missiles."[44] In light of today's worrisome growth in both conventional and nuclear land-attack cruise missiles, this matter warrants urgent attention.

The United States and NATO both should take steps to reduce the magnitude of the huge increase in American BMD plans for strategic-capable interceptors.

1 Dennis M. Gormley, "The Path to Deep Nuclear Reductions: Dealing with American Conventional Superiority," Proliferation Papers, No. 29, Fall 2009.

2 See especially George Perkovich and James M. Acton, "Abolishing Nuclear Weapons," Adelphi Paper, No. 396, The International Institute for Strategic Studies, 2008.

3 Nuclear Posture Review Report (Washington, D.C.: US Department of Defense, April 2010), http://www.defense.gov/npr.

4 See the Foreword by Michèle Flournoy and William J. Lynn III to Shawn Brimley, While We Can: Arresting the Erosion of America's Military Edge (Washington, D.C.: Center for a New American Security, 2015). Flournoy and Lynn argue as follows: "The United States military is losing its hard-won technological advantage. The military technologies that, in the hands of the United States and its allies, helped win the Cold War are now rapidly proliferating around the world. Today, adversaries, state or non-state, can employ sophisticated military technologies such as GPS, drones, and guided weapons to attack U.S. military forces, partners, and allies." They further assert that there exists a bipartisan consensus for this view.

5 Thomas A. Keaney and Eliot A. Cohen, Gulf War Air Power Survey: Summary Report (Washington, DC: Government Printing Office, 1993), pp. 66-71.

6 Dennis M. Gormley, Andrew S. Erickson, and Jingdong Yuan, A Low Visibility Force Multiplier: Assessing China's Cruise Missile Ambitions (Washington, DC: National Defense University Press, 2014), pp. 95-96.

7 Michael S. Chase, et. al., China's Incomplete Military Transformation: Assessing the Weaknesses of the People's Liberation Army (PLA) (Santa Monica: The RAND Corporation, 2015).

8 See my "Testimony before the U.S.-China Economic and Security Review Commission Hearing on China's Offensive Missile Forces, April 1, 2015" for an elaboration of these remarks, at https://www.ridgway.pitt.edu/Portals/0/General_PDF/Testimony_Gormley%20D.M_31%20March%202015.pdf.

9 Dvorkin was quoted in "Reducing Russia's Reliance on Nuclear Weapons in Security Policies," Christina Hansell and William C. Potter (eds.), "Engaging China and Russia on Nuclear Disarmament," Occasional Paper, No. 15, James Martin Center for Nonproliferation Studies, April 2009, p. 95. Dvorkin participated in virtually every major U.S.-Soviet strategic arms control negotiation during the cold war.

10 This was a concern even before the U.S. withdrawal from the ABM treaty in 2002. See Jack Mendelsohn, "The Impact of NMD on the ABM Treaty", in Joseph Cirincione et al., White Paper on National Missile Defense Washington, Lawyers Alliance for World Security, 2000..

11 U.S. Department of Defense, "New Start: Article-by-Article Analysis of Unilateral Statements," no date, at: http://www.acq.osd.mil/tc/treaties/NST/Art%20By%20Art/art_uni_statements_annex.htm. See George Lewis, "Prompt Global Strike Weapons and Missile Defenses: Implications for Reductions in Nuclear Weapons," prepared for a conference at Cornell University, Stability at Low Nuclear Numbers: Alternative Framings, 13-15 November 2015.

12 For details of Lewis's assumptions and arguments on why Russia is unlikely to continue cuts in its nuclear arsenal beyond New START levels, see Lewis, op. cit., pp. 16-26

13 Vladimir Dvorkin, "Threats Posed by the U.S. Missile Shield," Russia in Global Affairs, Vol. 5, No. 2, April/June 2007, at http://eng.globalaffairs.ru/numbers/19/.

14 James M. Acton, "Russia and Strategic Conventional Weapons," Nonproliferation Review 22 (June 2015), p. 143.

15 Vladimir Putin, "Being Strong: National Security Guarantees for Russia," Rossiiskaya Gazeta (February 19, 2012).

16 N.V. Ogarkov, Krasnaya Zvezda, May 9, 1984, trans., BBC Monitoring Service, SU/7639/C/10.

17 Helmuth von Moltke and Daniel Hughes, Moltke on the Art of War: Selected Writings (New York Presidio Press, 1995), p. 9.

18 For an even-handed assessment of who would likely win a war between China and Taiwan, see Stephen Paul Brooker, "Who Would Win in a China-Taiwan Conflict [Part One], ValueWalk, October 17, 2015, at http://www.valuewalk.com/2015/10/china-vs-taiwan-conflict-1/?all=1.

19 See Gormley, Erickson, and Yuan, A Low-Visibility Force Multiplier: Assessing China's Cruise Missile Ambitions, chapters 6 and 8.

20 Maj. Gen..Lu Linzhi, "Preemptive Strikes Are Crucial in Limited High-Tech Wars," Liberation Army Daily, February 7, 1996, in Foreign Broadcast Information Service as "Preemptive Strikes Endorsed for Limited High-Tech War," February 14, 1996.

21 Gormley, Erickson, and Yuan, A Low-Visibility Force Multiplier: Assessing China's Cruise Missile Ambitions, p. 95.

22 John Lewis and Xue Litai, Imagined Enemies: China Prepares for Uncertain War (Stanford, CA: Stanford University Press, 2006), pp. 260-261.

23 Hans M. Kristensen, "Kalibr: Savior of the INF Treaty?" Federation of American Scientists, December 14, 2015, https://fas.org/blogs/security/2015/12/kalibr.

24 See Dennis M. Gormley, Missile Contagion: Cruise Missile Proliferation and the Threat to International Security (Annapolis: Naval Institute Press, 2010), chapters 6-8.

25 Vladimir Dvorkin, "Reducing Russia's Reliance on Nuclear Weapons in Security Policies," in Christina Hansell and William C. Potter (eds.), "Engaging China and Russia on Nuclear Disarmament," Occasional Paper, No. 15, James Martin Center for Nonproliferation Studies, April 2009, p. 100. In 2009, in regard to the conventionally armed Tactical Tomahawk's reputed capacity to penetrate and destroy Russian ICBM silos, I wrote that "the expectation that U.S. conventionally-armed Tomahawks, even ones with high accuracy and retargeting capability, could, on their own, accomplish such successful results, is—kindly put—the height of excessive imagination." See Gormley, "The Path to Deep Nuclear Reductions: Dealing with American Conventional Superiority," Proliferation Papers, p. 36.

26 Vladimir Dvorkin, "Risky Contradictions: Putin's Stance on Strategic Arms and Missile Defense," Carnegie Moscow Center, February 10, 2016.

27 In military ballistics, circular error probable (CEP) is a measure of a weapon system's precision, defined as the radius of a circle, centered about the mean, whose boundary is expected to include the landing points of the missiles.

28 Dvorkin also points out that the Russians could install point air and missile defenses around selected silos to further complicate any conceivably successful attack.

29 The most authoritative source, Dr. Amy F. Woolf of the Congressional Research Service, writes that "a small number of weapons," referred to as a "niche" capability, would be procured assuming success in their test programs. See Amy F. Woolf, "Conventional Prompt Global Strike and Long-Range Ballistic Missiles: Background and Issues," Congressional Research Service Report for Congress, R-41464 (February 24, 2016).

30 For example, as part of "Shock and Awe: Achieving Rapid Dominance," introduced by authors Harlan Ullman and James Wade in 1996, Air Force General Chuck Horner, a contributor to the book, called for deep strike capabilities including weapons with up to 10,000km range. Arming heretofore-strategic nuclear missiles with conventional warheads then appeared in the congressionally mandated National Defense Panel in 1997. Four years hence President George Bush's 2001 nuclear posture review sought to conflate previously nuclear-only attack options into a new concept called "Global Strike" in order to deal with regional contingences requiring "prompt" decision making.

31 James M. Acton, "Russian and Strategic Conventional Weapons: Concern and Responses," Nonproliferation Review, vol. 22, no. 2, p. 141.

32 See Dennis M. Gormley, "Sixty Minutes to Strike: Assessing the Ricks, Benefits, and Arms Control Implications of Conventional Prompt Global Strike," Sicherheit und Frieden, no. 1 (2014), pp. 36-46. An undated and expanded version appeared as Dennis M. Gormley, "US Advanced Conventional Systems and Conventional Prompt Global Strike Ambitions: Assessing the Ricks, Benefits, and Arms Control Implications," Nonproliferation Review, vol. 22, no. 2 (2015).

33 James M. Acton, Silver Bullet? Asking the Right Questions About Conventional Prompt Global Strike (Washington, DC: Carnegie Endowment for International Peace, 2013), p. 9.

34 John F. Kerry, ed., "Tora Bora Revisited: How We Failed to Get Bin Laden and Why It Matters Today," A Report to Members of the Committee on Foreign Relations, United States Senate, 111th Cong., 1st Sess., November 30, 2009.

35 Nuclear Posture Review [Excerpts], 8 January 2002, at www.imi online.de/download/Nuclear_Posture.pdf.

36 When in 2002 the Bush administration moved US policy away from deterrence and containment toward preemptively—or more precisely, preventively—attacking enemies before they could attack the United States, not surprisingly, several states emulated U.S. behavior by adopting their own form of a preemptive strike policy. These states included Russia, Israel, North Korea, India, Japan, South Korea, Taiwan, and Pakistan. For more details, see Gormley, Missile Contagion, pp. 9-12 and 123-133.

37 William Perry and Andy Weber, "Mr. President, kill the new cruise missile," Washington Post, October 15, 2015. Besides the conventional Kalibr and the conventionally armed air-launched Kh-101, Russia also fields the Kh-102 air-launched nuclear cruise missile. It is also disappointing that the United States decided recently to expend $15 billion to $20 billion on a new nuclear Long-Range Standoff (LRSO) cruise missile program.

38 In case of a U.S. wish to deploy such a non-ballistic system, New START provides Russia with a right to question, in a Bilateral Consultation Commission, whether or not such a weapon should be subject to existing counting rules.

39 The U.S. Air Force had intended to complete development of the E-10 airborne radar for the purpose of both airborne and ground surveillance, but the program was cancelled in 2008. None of the alternative solutions begin to approximate the E-10's large antenna and thus potential to achieve the required broad area search and fire control needed for effective cruise missile defense. For a detailed analysis of the missile defense battle during the U.S. military's 21-days march to Baghdad, see Gormley, Missile Contagion, 108-117.

40 Indeed, from the first available accounting of ballistic missile defense spending in 1962 to 2012, the United States has expended $274 billion on ballistic missile defense programs in inflation-adjusted dollars. See Stephen I. Schwartz, "The Real Price of Ballistic Missile Defense," WMD Junction, April 13, 2012.

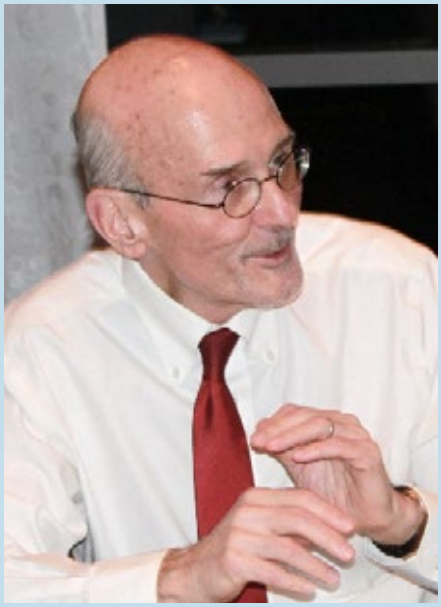
41 For an analysis of how even modest cruise missile defenses might contribute to complicating Chinese or Russian defense planning, see Dennis M. Gormley, "The Past as Prologue: Reflections on Relevant Patterns Cold War and Post-Cold War Security Challenges," Lecture presented on August 19, 2015, at the U.S. Army Heritage and Education Center, U.S. Army War College, Carlisle Barracks, PA., https://www.youtube.com/watch?v=izXFJdWrw50.

42 For an insightful overview of how the MTCR operates, see http://www.mtcr.info/english/FAQ-E.html.

43 For a list of members and a brief overview of the Code's mandate, see http://www.state.gov/t/isn/trty/101466.htm.

44 For the text of Ban Ki-moon's statement, see http://www.un.org/news/dh/pdf/english/2012/23112012.pdf.

Front page: © 2003, Kenneth Moll, U.S. Navy/DoD: 030323-N-6946M-002, The Mediterranean Sea (March 23, 2003), a Tomahawk Land Attack Missile (TLAM) launches from the guided missile cruiser USS Cape St. George (CG 71).



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The Deep Cuts project is a research and consultancy project, jointly conducted by the Institute for Peace Research and Security Policy at the University of Hamburg, the Arms Control Association, and the Institute of World Economy and International Relations of the Russian Academy of Sciences. The Deep Cuts Commission is seeking to devise concepts on how to overcome current challenges to deep nuclear reductions. Through means of realistic analyses and specific recommendations, the Commission strives to translate the already existing political commitments to further nuclear reductions into concrete and feasible action. Deep Cuts Working Papers do not necessarily reflect the opinion of individual Commissioners or Deep Cuts project partners.

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