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Another BRAC Now

In June 2017, Secretary of Defense James Mattis testified before the House Armed Services Committee about Department of Defense needs, praising Congress for its "willingness to discuss [base realignment and closure (BRAC)] authorization as an efficiency measure." In fact, he insisted, "that authorization is essential to improving our readiness by minimizing wasted resources and accommodating force adjustments."[1] Lucian Niemeyer, the assistant secretary of defense for Energy, Installations and Environment, explained BRAC is "not just a matter of finding efficiencies; it's a matter of improving military value and [the] effectiveness and lethality of our forces."[2] He told an audience at the Heritage Foundation that base closures were essential to helping the military reorganize for the future. Despite urgent calls from top Defense officials, Congress refuses to grant the Pentagon the authority it needs to address its excess overhead. By doing so, Congress is effectively forcing the US military to maintain bases around the country it neither wants or needs, harming communities in the process.

The debate over the BRAC process needs to be better informed by context and a real-world understanding of BRAC's effects, particularly the less appreciated way closing excess facilities positively impacts communities. This article aims to provide more perspective by reviewing the BRAC process, exploring two cases in which former bases were successfully repurposed, and considers why the process has broken down. It concludes with recommendations for how the process should proceed.

Perspectives on Base Closures

The policies that govern base closures have evolved since the early 1960s, when the Department of Defense began closing bases after World War II and the Korean War. The Kennedy and Johnson administrations, led by Secretary of Defense Robert McNamara, closed hundreds of bases, often with little or no consideration of the effects such decisions would have on local economies. Since then, many bases have been closed, but typically these have occurred as part of an intense battle between the three primary stakeholders—members of Congress (and their constituents), the president, and the Pentagon. Charlotte Twight, who studies the politics of base closures, notes that "closure announcements handled administratively

in ways anathema to Congress historically have given rise to cycles of restrictive legislation curtailing DOD's flexibility to implement major military base closures or realignments."[3] Congress often successfully took steps to prevent the military from closing bases. In other instances, the Pentagon or the president would threaten a base closure to coerce a representative or senator to support a particular policy demand. By the 1970s, Congress gained the upper hand, effectively blocking all base closures for more than a decade.

But in the mid-1980s, the Pentagon was determined to regain control of installation management with assistance from sympathetic members of Congress. The result was the Defense Authorization Act Amendments and Base Realignment and Closure Act (Public Law 100-526) signed into law 24 October 1988. This legislation created the basic framework for the BRAC process and helped end the stalemate. It provided the authority for the Pentagon to identify its long-term infrastructure needs and to recommend measures to close or consolidate unneeded facilities. DOD performs assessments of the probable threats to national security, the expected military force structure, the inventory of military installations, and the infrastructure needed to support the projected force structure. The department also surveys all domestic military installations using several metrics, including the condition of facilities, technological use, and military value, to make objective comparisons. Based on its assessments DOD develops a list of recommended realignments and closures for an independent BRAC commission. The commission then reviews the list, makes changes if deemed warranted, and votes on a final list. The president is then required to accept or reject the commission's recommendations in their entirety, and, if approved, the commission's recommendations go to Congress. The Senate and House have 45 days to pass a joint resolution rejecting the BRAC list in its entirety. If they do not, the recommendations become law. This all-or-none voting process prevents individual members from blocking the recommendations that affect their communities. Although the BRAC process has undergone incremental changes as a result of legislation authorizing subsequent rounds, the framework has generally remained the same.

Since 1988, Congress has authorized five BRAC rounds. The first four—1988, 1991, 1993, and 1995—were conducted during the post–Cold War drawdown. All four were successful in the sense that they allowed the military to make decisions unencumbered by undue political

interference and they saved taxpayers tens of billions of dollars. While base closures cost money up front, the data shows that savings begin to accrue almost immediately. In the 1988 BRAC round, the savings began in fiscal year (FY) 1990—the first year of implementation—at a meager $72 million and then rose steadily to $1.5 billion annually by FY 1995. The results from the 1991 BRAC round were even more impressive, with savings beginning at $538 million in the first year of implementation, FY 1992, and rising to a peak of $3.4 billion in FY 1997. The 1993 and 1995 rounds followed a similar pattern. Today, the first four BRAC rounds combined are producing an annual recurring savings of around $8 billion.[4]

When Congress authorized another BRAC round in 2005, it differed from the earlier rounds in several ways. First, unlike the previous four rounds, the 2005 round occurred at a time of military growth as the United States was engaged in two major wars, in Iraq and Afghanistan. Second, the process focused more on transformation and realignment of military forces rather than outright closure of bases. This resulted in higher implementation costs as well as reduced and delayed savings compared to original estimates. Yet, for all its problems, the 2005 BRAC round did allow the Pentagon to redirect nearly $5 billion in annual recurring savings to other priorities. As of 2017, the cumulative net savings exceeded the up-front implementation costs of the 2005 round. While the payback period exceeded original estimates, it is rare that other federal programs can demonstrate such a significant return on investment. Despite the criticism of the process, the savings from the previous BRAC rounds are significant and real.

The Case for Another BRAC

At the request of Congress, the Pentagon prepared an infrastructure capacity analysis in 2017 that concluded the military has 19 percent excess capacity based on the end strength and force structure from FY 2012. The Army maintains the greatest excess overhead—29 percent, per the study—while the Air Force will have a 28 percent surplus. The Navy and Marine Corps combined will have 6 percent.[5] Furthermore, the FY 2012 end strength and force structure used in this analysis are based on levels that are higher than present day and predate the realities and impacts of sequestration. Given the current fiscal environment, growing the military back to 2012 levels seems unlikely. Even if Congress

is able to pass a budget agreement that repeals or provides some relief from sequestration, the Pentagon will still be saddled with considerable excess infrastructure capacity at a significant cost to the taxpayer. This waste of tax dollars on superfluous bases comes at a time when America's fiscal situation is dire. In addition, recovery time for military readiness and modernization efforts are being dangerously extended. In his written statement before the Senate Armed Services committee in June, Secretary Mattis wrote, "Of all the efficiency measures the Department has undertaken over the years, BRAC is one of the most successful and significant—we forecast that a properly focused base closure effort will generate $2 billion or more annually—enough to buy 300 Apache attack helicopters, 120 F/A-18E/F Super Hornets, or four *Virginia*-class submarines."[6] He noted in his letter accompanying the 2017 infrastructure capacity report that the department "must be able to eliminate excess infrastructure in order to shift resources to readiness and modernization."[7] While savings from base closures alone will not solve all DOD problems, knowingly misallocating resources to maintain unwanted and unneeded bases is irresponsible. Members of Congress who oppose a new round of base closures raise two main concerns: the associated costs and the effect on the communities they represent.

Costs and Effects

Some members of Congress suggest it would be fiscally irresponsible to assume the up-front costs associated with a new BRAC round given the Pentagon's current fiscal distress. These members often cite the 2005 BRAC round to support their case. However, this argument ignores the facts. First, as previously noted, the 2005 BRAC is saving $5 billion annually. Second, a large percentage of the unexpected up-front cost overruns was due to the Pentagon using BRAC as a way to recapitalize legacy infrastructure by constructing additional facilities to enhance capabilities or address deficiencies. And it should be noted that Congress bears some responsibility for construction cost growth as it authorized and appropriated funding for these additional construction projects. Third, many of the issues that plagued the 2005 round can be addressed in new legislation that authorizes a future round.

Some of the concern about the impact on local communities is reasonable and must be considered. Much of it, however, is either born of fear and misconception or is motivated by old-fashioned parochialism.

Recent analysis suggests that preventing closure of unneeded or underused facilities actually causes more harm to a local community than the formal BRAC process. To be sure, closing a military base can be disruptive to surrounding economies, and for some communities it may be economically devastating. But such cases are the exception, not the rule. Evidence shows that most communities recover, and some do so quite rapidly. A 2005 study by the Pentagon Office of Economic Adjustment researched over 70 communities affected by a base closure and determined that nearly all civilian defense jobs lost were eventually replaced.[8] The new jobs are in a variety of industries and fields, allowing communities to diversify their economies away from excessive reliance on the federal government. The Philadelphia Naval Shipyard and Bergstrom Air Force Base are two such examples.

Philadelphia Naval Shipyard, Pennsylvania

During World War II, Philadelphia's venerable shipyard employed nearly 50,000 workers and churned out 53 vessels.[9] Following the war, the demand for its services collapsed. It built its last ship in 1970 and for the next two decades focused primarily on refurbishing older vessels. By the early 1990s, the proud shipyard employed fewer than 8,000 people. In 1991, Secretary of Defense Richard Cheney included the shipyard—and the adjacent Philadelphia Naval Station—on a list of bases to be closed. Political leaders including congressional delegations from three states (Pennsylvania, New Jersey, and Delaware) fought the proposal. In 1994, Pennsylvania Sen. Arlen Specter, a former Philadelphia district attorney, challenged the decision in the courts, eventually up to the Supreme Court. But in less than two months, the justices handed down their unanimous ruling in the case of *Dalton* v. *Specter*: Communities could not challenge the federal government's decision to close military bases. Shipyard workers toiled away for more than a year on what they knew would be their last job: an overhaul of the aircraft carrier *John F. Kennedy*. The massive ship pulled away from the pier on 13 September 1995, and the shipyard closed the next day.

Philadelphia and the state of Pennsylvania tried to keep the shipyard viable by offering incentives to private shipbuilders, with mixed success. However, in 2003, the Norwegian shipbuilder Aker Maritime ASA launched the container ship *Manukai*. This marked the first time the shipyard had turned out a new vessel in over three decades. Since then,

Philly Shipyard has built 21 ships, accounting for more than 50 percent of the entire US oceangoing commercial fleet production over that span, with 10 currently under construction.[10] The more interesting part of the story is what happened to the remaining property of the old naval shipyard, known as the Philadelphia Naval Complex. Beginning in 2000, the Philadelphia Industrial Development Corporation partnered with Liberty Property Trust to redevelop 1,200 acres of the former base. The initial phases of the redevelopment plan proceeded apace and included constructing modern buildings and renovating several existing structures. The Navy Yard is now home to a diverse array of companies, including GlaxoSmithKline and the headquarters of apparel maker Urban Outfitters. By 2013, the various companies at the complex employed over 10,000 people, with an increase of over 10,000 expected in the next 15 years. In 2012, the yard generated $30 million in city wages, and another $47 million in state income and sales tax revenue. In short, Philadelphia is expanding with innovation, jobs, and optimism. The closure of the Philadelphia naval base did not stop this from happening; on the contrary, it may have inspired the proud city.

Bergstrom Air Force Base, Texas

Austin, Texas, had a different problem in the early 1990s—it was growing fast, and its old municipal airport was completely inadequate.[11] A quaint regional airport might have been sufficient if Austin continued along its gentle trajectory from the 1970s. But boom times came in 1983, and not long after, so did a common complaint: Robert Mueller Municipal Airport had to go. It could accommodate a few daily flights, but planes were required to approach at a steep angle, descending over Interstate 35, while those taking off risked a mid-air collision with US military planes from nearby Bergstrom Air Force Base.

The greater problem was the rapid economic transformation in Austin due to technology. Money flowed to University of Texas researchers experimenting with cutting-edge computer technologies like semiconductors and personal computers. IBM had a facility in the area going back to the late 1960s and expanded it. Motorola grew. Compaq spun off from Texas Instruments, and Semantech, an ambitious public-private partnership, arrived in 1987. Then, in 1988, Michael Dell took his personal computer company public. By the early 1990s, his business was employing tens of thousands in the city and its environs. All this activity

caught the attention of tech firm investors, venture capitalists, city leaders, and state officials who realized Austin needed a new airport.

City planners initially proposed a new airport northwest of Austin. However, given concerns about costs and capacity, stakeholders urged the city to consider a dual-use arrangement with Bergstrom Air Force Base for commercial flights. But the Air Force rejected the idea.

BRAC broke the impasse. When Bergstrom wound up on the BRAC list in 1991, it was clear the Air Force would be leaving Austin, offering the former base to the city. The new civilian airport at Bergstrom was finalized in September 1993, construction began in 1995, and the airport opened to the public on 23 May 1999.[12] It cost $585 million, financed by a surtax on travelers, and those costs were recouped within a decade. In 2016, more than 12.4 million travelers came through the shining facility that features local cuisine and live music.[13] In this case, the question of how the community would adjust to the loss of an air force base was never seriously at issue. Veteran newsman Kirk Ladendorf, who arrived in Austin in 1981 just when the city began growing, recalled years later that "it was a natural" to close Bergstrom. "We were going so strong it was hard to see any measurable impact."[14]

These are just two of many examples of how communities can benefit from a base closure. Indeed, for most communities, the closing of a base is actually the opening of land that can be put to more efficient economic use. Further, the BRAC process provides federal funding to aid that transition. Conversely, if Congress fails to authorize BRAC, land and infrastructure sit fallow and no federal funding is provided to aid economic development. This sad fact is currently harming numerous defense communities across the country.

Conclusion

In a letter to congressional leaders in 2016, then-Deputy Secretary of Defense Robert Work explained the consequences of failing to enact BRAC, both for local communities and for the military: "Under current fiscal restraints, local communities will experience economic impacts regardless of a congressional decision regarding BRAC authorization. This has the harmful and unintended consequence of forcing the Military Departments to consider cuts at all installations, without regard to military value. . . . Without BRAC, local communities' ability to plan and

adapt to these changes is less robust and offers fewer protections than under BRAC law."[15]

Tim Ford, CEO of the Association of Defense Communities (ADC), warns about the impact that this death-by-a-thousand-cuts approach is having. "The concern is that cuts are happening anyway on a smaller scale," he said. "Downsizing is occurring, but in a piecemeal manner."[16] Unsurprisingly, an overwhelming majority of the communities ADC represents would prefer a BRAC to the current alternative. Congress has blocked closures for over a decade, and in that time the military has been forced to allocate resources away from training and equipping of our troops and toward maintaining unneeded, unwanted infrastructure. Local communities have been deprived of the support BRAC would provide and have been denied access to property that could be put to productive use.

BRAC has proven to be a fair and efficient process for making the difficult but necessary decisions related to reconfiguring our military infrastructure and defense communities. Although members of Congress have prevented base closures with the intent of helping constituents, they are actually making the problem worse. A new BRAC round must address concerns and criticisms of the 2005 round that have soured views on the benefits and value of BRAC. The foundations of the overall process remain sound. However, Congress needs to take steps to require an emphasis on savings and efficiencies, increase congressional oversight by placing controls on cost growth, and expedite executing and completing recommendations. Rather than continuing to reject the Pentagon's request out of hand for parochial reasons, Congress should work with the Trump administration for a new BRAC and grant our military the authority to eliminate waste while providing vital defense resources where they are most needed. The US military simply must regain the flexibility to effectively manage its facilities. Ensuring our Soldiers, Sailors, Airmen, and Marines have the resources needed to defend this country is too important to be held up by parochialism or inaction. SSQ

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Notes

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Defending the Record on US Nuclear Deterrence

Today, misinformation, falsehoods, and often deliberate distortions concerning nuclear deterrence continue to be repeated in public forums. They are written in editorial pages, spoken on the news, and even touted by some members of Congress and their staffs. Left unchallenged, these statements run the risk of becoming accepted as factual by the American public. This article challenges 11 of the more common fallacies. It is also an effort to create nuclear weapons apologists—those who know how to defend against arguments challenging the truth and the reality of the US nuclear deterrent.

"We Are Never Going to Use Nuclear Weapons"

The argument presented is this: if we are never going to use nuclear weapons, why are we wasting so much money sustaining them? The reality is the United States uses its nuclear weapons for their most fundamental purpose every day: to deter an attack on the US and to assure our allies. Nuclear deterrence is a 24/7 operation conducted by dedicated professionals in our intercontinental ballistic missile (ICBM) fields, in our command and control centers, and aboard our ballistic missile submarines. Our adversaries see our 24/7 alert postures and consequently assess an attack on the US or its allies to be an unthinkable choice. The United States uses its nuclear weapons every day to do the mission they were designed for: to deter.

Of note, the Russians have been using their nuclear capabilities to deter and coerce. Just after invading Crimea, Russia released a video of an exercise showing Pres. Vladimir Putin giving the order to launch a nuclear strike. The next clip shows a ballistic missile launching from a submarine in Murmansk and impacting on the Kamchatka Peninsula 20 minutes later. He was sending a signal using his nuclear capability to warn the world not to challenge his illegal invasion of sovereign Ukrainian territory. Further, after Sweden expressed interest in joining the NATO alliance, Russia conducted a nuclear exercise aimed against Sweden. In a subsequent white paper, Sweden stated that it was stepping back from its earlier interest in NATO membership because it would upset Russia.

Again, US nuclear weapons are used every day to deter, while Russia uses its nuclear capability to deter and coerce in support of an expansionist agenda. The differences in these roles for nuclear weapons is profound.

"Prompt Conventional Global Strike Can Replace a Portion of the Nuclear Deterrent Force"

Another fallacy is the notion that the deterrence mission can be adequately accomplished by substituting conventional warheads, because of their great accuracy, for nuclear warheads atop our ICBMs. Often referred to as a "prompt conventional global strike" capability, the argument is that such weapons would be precise and in some cases powerful enough to destroy certain targets held at risk by today's nuclear forces. This argument does not appreciate the "long, dark shadow" cast by the destructive power of nuclear weapons and the deterrent effect that "shadow" enables. A nuclear warhead is terribly frightening; a 2,000-pound conventional warhead is not. Consider a single 200-kiloton nuclear warhead carried atop a single ICBM. This 200 kilotons of explosive power equates to 200,000 Mark 84, 2,000-pound conventional bombs delivered by 12,000 B-1 bombers exploding simultaneously, or 800,000 Mark 82, 500-pound bombs dropped by 8,000 B-52 sorties. If the massive ordnance air bomb (MOAB), the most powerful US conventional weapon, were used, 11,000 MOABs and the same number of C-130 aircraft would be required to deliver them all simultaneously on the same target. Imagining this destructive power combined with the effects of nuclear fallout from a single warhead that can be delivered within 30 minutes of launch produces the kind of fear in our adversaries that is essential for deterrence.

For those who argue the target is just a building and we can destroy a building with the 2,000-pound conventional warhead on an ICBM, consider the following scenario. Assume the United States does not have an antiballistic missile capability and North Korea's Kim Jong Un has the most accurate ICBM ever developed. Indeed, this new missile is so accurate that he knows if he orders a strike with a 2,000-pound conventional warhead, 30 minutes later the missile will hit within the carpet of the Oval Office and destroy the White House. While this new missile-warhead combination is quite capable, do you think it would ever deter a future president from coming to the aid of South Korea to meet our treaty commitment to defend the peninsula? Not likely. However, if

Mr. Kim were given a much less accurate missile that could only be assured of hitting within one nautical mile of the White House, but one that was topped with a 20-kiloton nuclear warhead (World War II size), the president's decision calculus would be vastly different. Conventional forces are certainly an important element of the US deterrent posture, but they are in no way equivalent or even comparable to the power the nuclear deterrent has to strike fear in the heart of a potential adversary.

"Conventional Weapon Overmatch Eliminates the Need for a Nuclear Deterrent"

Another argument presented to reduce or eliminate the US nuclear deterrent is the notion that our conventional overmatch in quality and size is adequate for the deterrence mission. What was in essence a promise for the future, the Reagan buildup of the mid-1980s is instructive. The United States was to have a 600-ship Navy; today we sail 275. The Air Force was to grow to 40 combat air wings; we have fewer than 20 today. And the Army planned for 18 armored divisions but never achieved that level. Some might argue if given the Reagan build-up level of forces (which is far greater than what we have in our armed forces today), no one would dare challenge us. But, let's assume for a moment each service had the planned Reagan force levels. In addition, let's assume there is no sequestration and the Army, Navy, Air Force, and Marines have all of the necessary operations, training, and maintenance funds to field a 100 percent trained and ready force. Then, in this unimaginably powerful conventional force scenario let's take away all US nuclear weapons and give Venezuelan Pres. Nicolas Maduro 30 nuclear weapons with 30 missiles that can range 30 different cities in the United States. Now, who defers to whom in the Western Hemisphere? When economics, trade, or diplomacy are discussed, who has more influence? Who has the greater ability to deter or, worse yet, coerce? This hypothetical scenario highlights the reality that every dollar spent on a conventional force without the underpinnings of a credible nuclear deterrent is wasted.

There is simply no conventional weapon equivalency to the power and deterrent effects of nuclear weapons. The checkered history of conventional deterrence among "great powers" over the centuries in contrast to the absence of great power war since 1945 may be a coincidence, but it has important implications. The record since then presents historical evidence

that nuclear weapons contribute uniquely to the deterrence calculus. So where should the US spend its first dollar on defense? On the triad.

"We Do Not Need a Triad"

The critical question to ask in response to the claim that we do not need a triad is, so which leg do you want to eliminate? The submarine leg provides the only stealth force we have—in essence, our assured response. The bombers are the flexible force that can signal our adversaries and assure our allies while encouraging them not to build their own nuclear deterrent. The ICBM is the most stabilizing leg of the triad. Stability, in this context, is defined as a state in which adversaries are never tempted to strike first. If in the future we eliminated all our ICBMs and deployed only a dyad, as has been proposed by some, that would leave only six targets that Russia or China would have to hold at risk in the United States to eliminate our entire nuclear arsenal save for the handful of submarines deployed at sea that day. After destroying those six targets with just six warheads of the 1,550 accountable warheads they are permitted to deploy by the New Start Treaty, Russia would have 1,544 warheads remaining and the US would only have a small subset of its force remaining. Eliminating or even de-alerting the ICBM leg of the triad would yield an unstable relationship with Russia because the resulting vulnerability of our posture in this scenario could very conceivably "invite" a first strike upon the US.

The value in the triad is that it complicates the adversary decision calculus. Every day we want Vladimir Putin or some future Russian to know it is going to take two or more warheads per silo to eliminate our ICBM force. That requires at least 800 of the 1,550 available to them dedicated to targets in remote sections of North Dakota, Montana, Colorado, and Wyoming. Significantly, he must consider that more than half his offense would be required to go after missiles that might not be there when the warheads arrive because of our ability to launch under attack. He must conclude that a first strike would not only fail to achieve his objectives but also would be suicidal. Again, this is the definition of strategic stability: when an adversary understands that no day is a good day to go to war with the United States—nor is he ever tempted to launch first.

When people say a dyad is a good idea and eliminating the ICBMs is a good idea because it makes for a safer America, recognize that they do

not properly understand this concept of strategic stability. The United States should never want to invite a first strike by decreasing the number of targets an adversary must attack. Deterrence works because the ICBMs are on alert and strategic stability is maintained because the adversary knows missiles can launch on warning.

"Nuclear Forces Are on Hair-Trigger Alert"

In the era of "good cowboy versus bad cowboy" TV shows and movies, "hair-trigger" was used to describe a gun with a filed-down firing mechanism that was so sensitive it just might discharge whether the holder desired it to fire or not. Critics of our ICBM alert posture use this terminology as a scare tactic. People who described our ICBMs as being on "hair-trigger" alert either do not know what they are talking about or are intentionally attempting to frighten the uninformed into calling for the de-alerting of the ICBM leg.

Here is a more accurate analogy that better captures reality: There is a gun, and it has a really big round in the chamber. But the gun is in a holster and that holster has two locks on it. Now the person wearing the holster does not know the combination to either lock—only the president of the United States has the combinations. If the president tells this person to shoot he will, but he cannot do it alone. So nuclear forces are not on hair-trigger alert. They certainly are on alert and at the ready, and this is necessary to provide the strategic stability described above.

"LRSO Is Destabilizing"

Another fallacious argument is that the long-range standoff weapon (LRSO), or cruise missile, is destabilizing. The fact is LRSO is not destabilizing in the sense of weakening strategic stability, as it does not invite a first strike—indeed it helps to prevent one. The United States and Russia have had these weapons for decades and employed them in regional conflicts, and neither country has considered striking first as a result. In fact, the cruise missile is even more important today than ever. Today, by US policy, our nuclear weapon labs are not permitted to build new nuclear weapons. Even if this policy changed, our infrastructure to build new weapons has been decommissioned or decayed to what has been called a "decrepit" level by a bipartisan study. The truth is Russia, China, and even Pakistan (and now perhaps even North Korea) can

individually build more nuclear weapons in a year than the US Department of Energy can. It is estimated that Russia can build a thousand a year, and China is building weapons faster than we could with our current infrastructure. This situation creates increased risk if the nation experiences a failure in one leg of the triad. For instance, if the *Ohio*-class submarines were grounded for a year due to a problem, the result would be a significant and immediate reduction of our deployed strategic deterrent. One option in this case would be to upload multiple independently targetable reentry vehicles on our ICBM fleet. But this action would take years to accomplish. However, in a matter of days the United States can have 400 air-launched cruise missiles (ALCM) loaded on 20 B-52 bombers postured on 15-minute alert that are both lethal threats to our adversaries and highly survivable because of their ability to launch on warning. It is these two characteristics—the ability to quickly upload and the ability to establish a survivable alert posture—combined with the flexibility and signaling aspects of the bomber that make the cruise missile so effective in contributing to both the deterrence and assurance missions of the triad.

Further, the cruise missile is an incredibly cost-imposing weapon on our adversaries. When a single bomber can launch 20 independently targeted missiles from standoff ranges that ensure the bomber's survivability, the cost to defend against those relatively inexpensive missiles becomes prohibitive. But most important is the hedge the cruise missile/bomber combination provides to sustain the effectiveness of our deterrent should we experience either a technical failure in our submarine or ICBM forces or warheads or should we be surprised by a change in the geopolitical environment or should Russia cheat on its treaty commitments. Today's ALCM, which will age out in the next decade, must be replaced on schedule by the follow-on LRSO.

"We Cannot Afford Modernization"

Over the past year, several studies have focused on the question of affordability and cost of nuclear modernization. The Congressional Budget Office estimated $360 billion over 20 years. A subsequent cost estimate revised the number up to $480 billion. More recently the cost was advertised to be $1 trillion spread over the estimated lifetime of the recapitalized deterrent force. However, the $1 trillion figure ignores the dual use portion of bomber recapitalization costs, which can be as high

as 95 percent devoted to the conventional-only mission. The higher cost figure includes refurbishing all of the weapons and building all new delivery systems (submarines, ICBMs, cruise missiles, and bombers), plus all the sustainment costs over their lifetime. Arguing against recapitalizing the nuclear triad because of sustainment costs is patently unfair. One does not allow sustainment costs of a new car to override the purchase decision since the need for a car already exists. In today's world and for the foreseeable future the US will need a nuclear deterrent in the form of a triad. So, including sustainment costs when discussing the cost of recapitalization is simply another attempt to convince the public not to invest in something that remains necessary for national security. Nevertheless, even if one adds sustainment costs to recapitalization costs the trillion-dollar "bill" spread over 40 years (10 years for development and fielding plus 30 years for operation expenses) equates to about 4 percent of the current defense budget, assuming an annual flat Department of Defense budget of $600 billion. One would hope that a flat or decreasing budget is a bad assumption over the long haul given today's threats (in fact, the most recent congressional authorization for FY 2018 allows for a $700 billion investment in defense). So if nuclear deterrence is the number-one priority and every other defense investment depends on it, the cost spread over the lifetime of the programs is most certainly affordable.

Here is something that is even more problematic: the last scientist or engineer to design a new nuclear weapon did so in 1988, and the last ones who tested a nuclear weapon did so in 1992. Most have retired, and many others are already deceased. How will we develop the next generation of scientists, engineers, and manufacturers? Someday there could be a geopolitical change in the world that would require the United States to build a new nuclear weapon with new capability. Today we cannot do that because of our own unilateral, self-imposed policy constraints that do not allow us to design or build new nuclear weapons. Frankly, the no-new-weapons policy puts the nation at risk in the long term.

We should be rebuilding and exercising the infrastructure necessary to sustain our deterrent and, more importantly, developing the human capital required to design and build nuclear weapons for an uncertain future. The cost to do this is modest. The cost of not doing it could be catastrophic to future generations of Americans.

"If We Reduce, Others Will Reduce"

We reduced our nuclear arsenal when we signed verifiable treaties with Russia. Other than Russia, when bound by these treaties, no other country has reduced because we reduced. The empirical evidence is significant. The United States deployed 13,000 strategic weapons at the height of the Cold War. Today we have 1,550 treaty-accountable warheads. Since the end of the Cold War, the United States has reduced dramatically, yet India, Pakistan, and North Korea all became nuclear weapon states and China is in the process of significantly growing its inventory. How effective has this leading by example been? How is showing constraint working? History does not support the proposition that if we reduce, others will follow our lead. Consider also the nations that have tried to acquire nuclear weapons but were forcibly prevented from doing so: Syria, Iraq, and Libya.

Further, despite our unilateral 90 percent reduction in theater nuclear weapons since the end of the Cold War, Russia has modernized and increased its theater weapon arsenal to ten times the size of the United States'. So the effectiveness of the leading-by-reducing approach to inspire others to show restraint is simply not supported by reality.

"Global Zero Is a Desirable Goal"

Many talk about global zero as a desirable goal. After all, if we could "put the genie back in the bottle" wouldn't it be better to have a world without nuclear weapons? Of course, the "genie," that is, the knowledge of how to build nuclear weapons, cannot be unlearned and put back in the bottle of ignorance. Alternatively, some suggest we should continue to strive to get all nations to agree to reduce their inventories to zero, eliminate their weapon production capabilities, and submit to a near omniscient oversight authority that could compel compliance and ensure that no one was cheating. The analogy offered is the journey toward nuclear zero is described as climbing a mountain shrouded in clouds. At the top is nirvana—the goal—a world without nuclear weapons. Heading up the mountain, each time one gets to a higher camp more weapons are eliminated. At each camp, the climber pauses to make sure all is right with the world before heading even higher up the mountain and lower in number of nuclear weapons. The thing is, they forget we have already stood on top of that mountain, above the fog, and saw the world very clearly. It was a

world where human beings for centuries upon centuries, in war after war, found better and better ways to kill each other—more efficiently, more lethally. Do we want to go back to a world without nuclear weapons? Consider that by most estimates World War II caused the death of between 60 million and 80 million human beings. So let us pick a reasonable number of 72 million dead to make the math easy. World War II lasted six years, which means on average 12 million people died every year of the war—1 million people a month. This equates to about 32,000 human beings dying in armed conflict every day for six consecutive years. Unimaginable. But then, in 1945, it stopped. True, there have been more wars since then: US losses in Korea were equal to one day of deaths in World War II; in Vietnam, one-and-a-half days. Nothing scales like the horror of the Second World War. There is a reason why great powers that own ever more lethal conventional weapons have elected not to fight each other: they have been deterred by nuclear weapons.

"Nuclear Deterrence is Cold War Think"

Some argue the US nuclear deterrent should be eliminated because its existence represents *Cold War think*. If nuclear deterrence is *Cold War think*, then one might posit machine guns are World War I think and main battle tanks are World War II think and conclude the US does not need those anymore for the defense of the nation. In fact, nuclear deterrence is not *Cold War think.* The reality is nuclear deterrence underpins the national security of the United States and will continue to do so for the foreseeable future. It remains relevant and necessary today to deter the existential threats to our nation posed by both Russia and China and by lesser but certainly horrific threats posed by the Democratic People's Republic of North Korea. It also helps to deter nonnuclear attacks that could have catastrophic consequences, such as attacks involving biological weapons.

The term *Cold War think* is a pejorative typically proffered by those who have never thought seriously about, let alone studied, deterrence theory or by those who have run out of ways to defend their position. It is generally the last throwaway line of argument from an uninformed antinuclear ideologue.

"No One Would Ever Use a Nuclear Weapon against the United States"

Those who would use this argument seem willing to risk the very existence of the nation on the basis of their speculation and without forethought. However, this is not a wager military planners should ever risk. The US military must ensure national survival through deterrence provided by a safe, secure, capable, reliable, flexible, and vigilant nuclear posture. It is our duty to assume the worst and then take steps to ensure it never happens.

Additionally, we must deter attacks on our friends, allies, and fielded US military forces deployed abroad. This will become more challenging as Russia, China, and North Korea appear to include the possible employment of nuclear weapons in their planning; indeed, Russia and North Korea openly discuss nuclear weapons as instruments to be used in future conventional conflicts with the US and NATO.

Summary

These 11 statements are a few of the false arguments and positions directed toward the US nuclear deterrent, often by those who would wish to see this deterrent weakened or eliminated for purely ideological reasons. However, other serious scholars and students of deterrence theory present thoughtful and debatable positions that address issues pertaining to the size, capability, and posture requirements needed to provide the United States with a deterrent that will ensure no one would ever consider a nuclear attack on the United States, our military forces, or our friends or allies. It is the responsibility of members of the profession of arms to truthfully defend the record when false arguments are espoused and seriously consider those that are truly worthy of consideration. Only then can an informed debate begin on the subjects surrounding the US nuclear deterrent. SSQ

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2017 National Security Strategy Perspective

The new *National Security Strategy of the United States of America* (*NSS*) released in December 2017 delineates the Trump administration's approach to United States security. Much of the document consists of the typical boilerplate language of previous strategies since it includes the usual nation-state suspects, North Korea, Iran, Russia, and China, in addition to the familiar theme of terrorism. However, the new *NSS* is unapologetically based on realism, focusing on interests, power, competition, and conflict—and some might say to the detriment of American ideals.

While there is nothing inherently wrong with a security strategy based on realism, this particular *NSS* may well be the most realist-based edition ever produced. It calls out the evil empires, seeks peace through strength (i.e., greater military spending), and wishes to restore confidence in America's purpose (i.e., make America great again). Indeed, it declares a "strategy of principled realism that is guided by outcomes, not ideology." It attempts to pragmatically balance national security tradeoffs and uses the America first mantra as a pseudonym for realism. Several areas in the strategy are most indicative of realism, including economic competition, military strength, a caveated requirement for allies, and a narrow definition of American values.

While the United States relies on a thriving, competitive, international free market system, this strategy calls for reciprocity coupled with fair trade rather than selective enforcement of trade practices. It sees the United States as more a victim rather than arbiter and benefactor in an increasingly complex world economy. This realism-based approach to international economic competition will likely mean cancelled or renegotiated trade agreements, economic protectionism, and foreign reprisal that may well upend the very system it seeks to exploit. How well the administration balances the strategy's realist desires for a competitive US advantage will have implications for the world economy. Extreme realism may swing the balance against a prosperous future.

This *NSS* also rests on the realist assumption that diplomacy and leadership depend on military power. It proposes military modernization to increase and sustain that power by making up for the effects of sequestration and what could be considered a modernization holiday. Not only does this *NSS* insist on modernizing a plethora of systems, but also it focuses on acquisition policy, technology exploitation, and the defense

industrial base—all aimed at increasing military prowess. The new *NSS* also takes a realist approach to cyber intrusions by proposing offensive action against cyber adversaries whether nation-states, criminals, or others. It intends to make America more resilient, more prepared, and more powerful against threats.

For sure the *NSS* extols the virtues of having allies and partners by mentioning these terms 54 times in as many pages. It correctly recognizes there are enough challenges in the world to go around and lists the typical regional opportunities for greater cooperation. However, the one overriding caveat is reciprocity, which means sharing responsibilities equitability and paying a fair share of the defense burden. The irony of the extensive ally/partner discussion is how it is divorced from current reality. At the same time the strategy calls for increased cooperation on terrorism, cyber, weapons of mass destruction, crime, commerce, and energy, it appears the United States may not be postured to capitalize on these opportunities. In the past year the US has abrogated its leadership role in several international organizations and trade associations. Our normal cooperative relations with long-time allies have become much more confrontational and coercive while our diplomatic prowess, historically the envy of the free world, has been weakened. So will US diplomacy be able to garner allies, shape the international environment, and protect our interests? Interactions seem to lack the delicate balance required for productive burden sharing and greater cooperation. A more balanced strain of realism could help persuade other nations to become model allies: those who do things for the United States, those who do things with the United States, and those who never deliberately work against the United States.

Most importantly, how the *NSS* redefines our values is striking in this document. The narrow definition can be summed up thusly: what is good for America is always good for the greater world. Any sense of altruism and sacrifice for the common good of all the world's people is limited. The undertone of the document indicates that a nation cannot advance its influence without being taken advantage of. This *NSS* intends to advance American influence, but only to the extent the rest of the world supports US interests. In other words, "the strong do what they can, the weak suffer what they must." It is in a sense a strategy of national interests disguised as moral concerns, out of balance with the angels of our better nature and the idea of America as "a city on a hill."

The key to advancing our influence hinges on moral suasion—the ability to balance realist desires with a moral imperative. While the strategy mentions liberty, democracy, and the rule of law as inspirational concepts, these values become meaningless if not pursued with the same vigor as other elements of hard power. In fact, the document explicitly states the US will not impose its values on others but offers encouragement to those struggling for human dignity. In this brand of realism, one wonders if it would include support for self-determination, sovereignty, and statehood. It diminishes the impact of a values-based strategy and the very influence it seeks to attain. What this strategy seems to lack is a sense of idealism that reminds us the power of our example could be the greatest example of our power. In the current *NSS*, protecting our interests clearly overrides projecting our values.

It is also difficult to envision how an America absent leadership roles in many international organizations will be able to advance its influence. From this perspective, as quoted in the document, the world may not "have its eye upon America" as Alexander Hamilton intended but rather be looking askance at American motives and actions. America should be guided by its interests, but it must be disciplined by its values. To expand American influence we must have confidence in our values, embrace those values, and live those values. A balanced realism strategy would insist on this.

No doubt this *NSS* will be evaluated thoroughly over the coming months for clues to the future of US foreign and domestic policy. It is a realist document that relies heavily on allies and partners to confront today's problems while narrowly defining US values. This *NSS* does not provide answers to all our challenges nor does it expose all our opportunities. National security scholars may well provide the best policy recommendations to help this realism strategy live up to its expectations. SSQ

W. Michael Guillot
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Dragon in the Room: Nuclear Disarmament's Missing Player

Susan Turner Haynes

Abstract

At the turn of the twenty-first century, several scholars characterized China as the "forgotten nuclear power." This label derived from the opacity surrounding China's nuclear force and the assumed innocuousness of China's force developments. Over the past decade, however, the tone of the conversation has changed as China has increased its transparency and capabilities. China is now the fourth-largest nuclear weapon state, and if it continues on its present trajectory, it will surpass France to become the third. It also has recently developed a credible nuclear triad. Many scholars argue that the increasing size and sophistication of China's nuclear force should draw the attention of other nuclear weapon states and evoke calls for China's participation in the disarmament conversation. This article explores what such cooperation might look like by highlighting the conditions likely to elicit Chinese participation.

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When the world's most powerful nuclear weapon states signed and ratified the Nuclear Nonproliferation Treaty (NPT), they committed themselves to one day pursuing nuclear disarmament. That day has come for four of the five nuclear powers. Over the past two decades, Britain has reduced its force by half, France has decreased its force by one-third, and the United States and Russia have worked bilaterally to cut their forces by 90 percent. China, meanwhile, has continued to increase its nuclear arsenal, with the justification that its force levels remain far below those of the two nuclear superpowers. According to its leaders, it is not yet time for China to cooperate, since it is the responsibility of the nuclear superpowers to lead the way.

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Seven bilateral treaties over four decades indicate that the United States and Russia also recognize this fact. The New Strategic Arms Reduction Treaty (START), signed in 2010, is the most recent iteration of the two states' bilateral force reductions. Though brief in comparison to its predecessor, New START is no less impressive in its intended outcomes. The treaty commits both countries to a 50 percent reduction in deployed strategic nuclear delivery vehicles and launchers and a 30 percent decrease in operational strategic warheads by 2018. Pres. Barack Obama hoped it would be a harbinger of greater global disarmament. Others were less sanguine.

Among the many critiques lobbed at the treaty was its failure to address the dragon in the room: an expanding and modernizing Chinese nuclear arsenal.[1] Critics argued that China should not be left out of the conversation on the credulous assumption that it would remain satisfied with the status quo. Such warnings proved prescient when China responded to the election of Pres. Donald Trump by publically acknowledging its desire for a larger nuclear force.[2] "The situation has changed," said one report. "Our judgment of the world must change accordingly. . . . China must have 'enough' nuclear weapons so that the United States would have serious concerns if it wanted to take a tough military stance against China."[3]

Though China stated it will abstain from engaging in a "nuclear competition" with the United States, it admits that the "global strategic competition" has shifted away from Russia and the United States and toward the United States and China.[4] China is not yet a nuclear competitor with the United States, but there has also been little cooperation between the two powers. How large and how loud must China be before the US considers engaging it in a disarmament dialogue? What conditions are most likely to facilitate Chinese participation? Answering these important questions will help identify areas of potential Sino-US cooperation and compromise.

Though definitive data on Chinese nuclear weapons is sparse, experts estimate that the Chinese strategic nuclear force hovers around 260 strategic weapons. A logical retort might well be that this constitutes a fairly small "dragon," especially in comparison to the strategic forces of the United States and Russia. At the same time, however, China has acquired increasingly sophisticated weapons in recent years, and evidence indicates that the Communist Party intends to accelerate its nuclear buildup in

the years to come. China is among the elite nuclear powers in its ability to base nuclear weapons on land, sea, and in the air. It is also developing advanced countermeasures to US missile defense as well as its own missile defense system. Such developments are not lost on the states in the region. It is well known that India keeps a keen eye on China's military developments and Pakistan watches India. This presents the very real possibility of what Gregory Koblentz calls a "cascading effect" in South Asia, where Chinese nuclear buildup prompts buildup by India, which prompts Pakistan to do the same.[5] Such regional instability would obviously run counter to US security interests, but even absent this effect, Chinese nuclear proliferation could have implications for US-Sino relations.

The United States and China strike a delicate balance on most fronts, and there are several flashpoints that could embroil the two in conflict. These include China's aggressive territorial claims in the East and South China Sea, its presumed predominance over Taiwan, its continued devaluation of the Chinese yuan, and its increasing use of cyberattacks against the US government and US companies. Though ostensibly China demarcates between nuclear and conventional conflicts, this distinction has become increasingly tenuous in recent years. It is thus possible that these conflicts could escalate and take on a nuclear dimension. For this reason, it is imperative that one consider the conditions under which China would be more likely to engage in nuclear disarmament.

Most scholars generally recommend delaying multilateral disarmament negotiations until after the United States and Russia have promised to cut their forces further. Such advice sits well with China, due to the long-held view that Russia and the United States have a unique obligation to spearhead the nonproliferation movement. Ostensibly China accepts some responsibility to disarm, though it is unclear as to when this is likely to go into effect.[6] In their 2013 article for *Strategic Studies Quarterly*, Lt Gen Frank G. Klotz and Oliver Bloom argue that it is unlikely to be anytime soon due to the dubiety surrounding China's nuclear force and use doctrine.[7] These are obstacles not easily overcome, and thus while maintaining the status quo of additive bilateral reduction agreements is "far from ideal," in their view, it is the best and most feasible option.

Gregory Koblentz presents a contrasting viewpoint, saying that the prospect for such an arrangement, at least in the near term, appears "bleak."[8] The time has come, he says, for the US to abandon the

perspective that Russia is *primus inter pares* among nuclear states.[9] For the sake of strategic stability, the US needs to acknowledge and work with other nuclear players. More specifically, Koblentz suggests that the US take the lead in shaping "the second nuclear age" by engaging all seven nuclear weapon states across multiple military domains, including antiballistic, antisatellite, cyber, and conventional precise strike weapons. This can be done, he says, through the P5 nuclear dialogue and a newly created Strategic Stability Working Group, to include India and Pakistan. Koblentz's ambitious proposal is a welcome break from the box of bilateralism, but his widened scope suggests that China is not of particular concern.

An advanced model of future nuclear exchanges between the US, China, and Russia suggests otherwise. A model constructed by Prof. Stephen Cimbala shows that the nuclear levels and relations among these three states are such that US and Russia can no longer afford to pursue bilateral reductions absent any disarmament commitment on the part of China. Consequently, Cimbala recommends that US policy makers and scholars think critically about how to include China in trilateral or multilateral nuclear negotiations going forward.[10]

Li Bin is at the forefront of those who take on the challenge of examining what this might look like. In his 2011 article, Li suggests that China would likely agree to keep its warheads and missiles separate in exchange for continued strategic force reductions by the US and Russia. Li further claims that such reductions might give China the confidence to establish a ceiling on its own strategic forces. Alexei Arbatov's analysis similarly advocates for force limits, but he suggests that narrowing the focus to intermediate- and long-range land-based ballistic missiles might be the best approach.[11]

The difficulty with such analyses is their strained applicability in the present political climate. After President Obama's Prague speech in 2009, many policy makers and scholars were imbued with optimism and felt that it was an appropriate time to discuss next steps. The voices contributing to this conversation have understandably waned over time, as US-Russian relations have become increasingly tenuous and the actions of new nuclear and near-nuclear actors have seemingly overtaken the nonproliferation agenda. Those discussing China's role have also become quieter. And since the election of Donald Trump, the conversation has almost come to a halt.

What is the point of discussing disarmament when the current US president seems to recommend the opposite course of action? If Trump indeed believes that the US should "greatly strengthen and expand its nuclear capability," as he tweeted prior to taking office, then isn't US-led disarmament an anachronism? Are we to prepare ourselves for a new multi-player arms race? This analysis cautions against such conclusions. While Trump has indeed denounced New START and rejected the possibility of the treaty's renewal, his actions up to this point have not indicated that he is against making other disarmament deals.[12] Similarly, while Trump refused to join other nations in a conversation toward banning nuclear weapons, it is not obvious that he opposes disarmament in general.[13] The key is in reframing the conversation. If neither New START nor a nuclear weapons ban is seen as an elixir for peace, then perhaps a more practical approach is in order, one that is not so narrow as to ignore critical actors, but also one that is not so broad as to lose effectiveness. It may now be time to engage China specifically.

Reframing the Conversation

The question of how to include China in disarmament negotiations often assumes that the logical next step is a trilateral or multilateral conversation including China, Russia, and the United States—a kind of follow-up and expansion of New START. It is possible, though, that more can be achieved by the US and China having separate bilateral talks, at least initially. Such an approach has the benefit of recasting China as a peer leader in global nonproliferation and satisfying China's desire to engage in a "new type of major-country relations" with the United States.[14] It also has the advantage of using and capitalizing upon over a decade's worth of lower-level dyadic discussions on disarmament.

While the US and China have had only minimal engagement at the highest levels regarding nuclear weapons, Chinese and US nuclear experts and officials have convened in an unofficial capacity for the past decade. These meetings are sponsored by the Center for Strategic and International Studies (CSIS) and take place annually in Beijing and Hawaii. Both venues allow participants to discuss their views of US-Sino nuclear dynamics without fear of attribution. The intent is to allow for candor and provide a platform for enhanced bilateral cooperation, with the ultimate aim of escalating the talks to official bilateral dialogues. These meetings have progressed from so-called Track 2 dialogues, which include only

academics and experts, to Track 1.5 dialogues, which include government and military officials acting in their unofficial capacities. Track 1 is the name given for formal dialogues between state and military officials.

The participant list of the Track 1.5 dialogues has expanded over the years to include people who more directly influence their country's nuclear policy. This has been achieved incrementally with the conference organizers attempting to ensure that discussants from each country are evenly matched in terms of position and expertise. The most recent meeting, held in March 2017, brought together over 50 Chinese and US academics plus state and military officials. There have been over 20 such dialogues in the past 20 years.[15] The present analysis relies heavily upon the published reports of these meetings as well as quoted officials and experts in the Chinese state-run media outlets. By analyzing the words of Chinese officials and scholars in public and private settings, one can craft policy recommendations that are better suited to the US-Sino nuclear dynamic rather than recommendations adapted from a previous context.[16] Thus the argument here presents a less common viewpoint by isolating the unique challenges and opportunities facing the US-Sino nuclear dynamic, without presuming that such a conversation would necessarily take place in a trilateral framework or be a continuation or adaptation of the negotiations between the US and Russia. In fact, I argue that starting with START is in many ways a non sequitur, due to the current US president's disapproval of the treaty as well as several critical differences between the Chinese and Russian perspective and experience. This analysis will explore these differences and then discuss the unique pathways available for Chinese cooperation.

Looking Past the Numbers

The most direct solution to stopping Chinese nuclear proliferation is to have a treaty that effectively places a ceiling on Chinese strategic nuclear weapons in exchange for further reductions in US and Russian strategic (and likely nonstrategic) forces. A treaty of this sort would seemingly benefit all involved by advancing the purported disarmament goal of all three countries, lessening the security "trilemma" between the three countries, and legitimizing China's commitment to a "lean and effective" deterrent. This is the kind of solution that most scholars recommend, and while it flows logically from the framework of US-Russian

disarmament, such a posteriori reasoning is unsuitable to the Chinese context for several reasons.

The first reason is that we do not know for certain the number of Chinese nuclear forces. Any disarmament proposal having to do with hard capabilities will require a certain degree of a priori knowledge. In the case of a treaty dealing with Chinese nuclear force levels, effective implementation would require the Chinese to disclose (and other signatories to verify) the number and nature of its nuclear capabilities. To date, China has been very protective of such information. According to many in China, this is because minimum deterrence requires relative opacity when it comes to the state's nuclear capabilities—increasing transparency increases China's vulnerability.

An additional obstacle to Sino-US disarmament is the increasing irrelevance with which the Chinese view quantitative limits. From the Chinese perspective, the ongoing modernization programs of the nuclear superpowers have allowed both states to maintain the artifice of meeting disarmament obligations while retaining relative nuclear superiority. Some even argue that the focus on numbers is meant to divert international attention and provide the international community with a false sense of security.[17] This has caused many in China to claim that a strict quantitative approach to nuclear disarmament is no longer sufficient.[18] After all, what does it matter if there are fewer nuclear weapons if these weapons are upgraded to increase the likelihood of their use? Can one claim, as some have in China, that "the nuclear arms race has changed from one based on quantity to one based on quality?"[19] If this is the case, then quantitative disarmament agreements are not enough.

The proceeding analysis examines each of these obstacles, in turn, beginning with the problem of transparency. The argument here is that future disarmament negotiations between China and the United States are unlikely to resemble those between the US and Russia. We cannot begin with START, nor can we use previous negotiations as a template for a new situation. Instead, we must work diligently to uncover new conditions for cooperation. While the US may appease China by continuing to decrease its strategic weapons through bilateral agreements with Russia, other areas of concessions are likely to make more of an impact in the Sino-US nuclear dynamic, including written clarification of US intent regarding nuclear use and the use of its prompt long-range

conventional weapons and restrictions on certain qualitative advancements in its nuclear force.

Seeing Opportunities for Cooperation

US officials are usually the first to argue that China's opacity vis-à-vis its hard capabilities impedes disarmament cooperation. Chinese officials often counter that the US is equally opaque when it comes to intent. Even if China reveals the structure and scope of its strategic nuclear arsenal, they argue, China needs reassurance that the United States will not use its knowledge of China's nuclear force to employ its strategic nuclear weapons or its advanced conventional weapons in a preemptive strike. Chinese leaders would thus want to have knowledge of and confidence in US nuclear intent before disclosing specific information relating to its nuclear capabilities.

This is why China wants the US to sign a formal no first use (NFU) agreement, in which the US commits only to use nuclear weapons in response to nuclear attacks and not in response to large-scale conventional, chemical, biological, or cyberattacks. It would also foreclose the possibility of America providing extended deterrence to its nonnuclear allies.[20] This is a move the US has never been willing to make. The closest step it took in this regard was the considerable debate that ensued around the topic under the Obama administration prior to the 2010 nuclear posture review. Ultimately, however, the US decided against adopting an NFU policy. It also rejected a more limited no first *strike* (NFS) policy, which would have prevented the US from carrying out a preemptive nuclear attack (usually aimed to eliminate an adversary's nuclear capabilities or arsenal).[21]

The possibility of the US adopting either a no first use or a no first strike policy under Trump seems even less likely.[22] Just as President Trump does not want to restrict US nuclear capabilities, he also strongly disfavors limiting the options available regarding US nuclear use.[23] A fortiori, it is now less likely that the United States will appease China and adopt either an NFU or an NFS policy. This is not to say, however, that other options are not available. A logical antecedent to such agreements could be written clarification of US conditions of nuclear use in the upcoming nuclear posture review.

Specifying Conditions of First Use

The United States has always preferred to pursue a policy of first-strike ambiguity, and this did not change under President Obama. While more restrictive than its predecessors on conditions of US nuclear use, the 2010 nuclear posture review (NPR) nonetheless did not rule out the possibility of the US launching a preemptive nuclear strike in "the most extreme circumstances." This worries China—especially in light of the superiority of US hard capabilities. The United States could mitigate this threat by specifying the circumstances under which it would consider a nuclear first strike. In fact, according to Scott Sagan, this is precisely what a state's declaratory nuclear policy is supposed to do: provide transparency and promote confidence.[24] What this would look like in practice may vary, but the next nuclear posture review presents a logical platform to provide clarification.

Since 1994, the Department of Defense has reviewed its nuclear posture three times, with the process triggered each time a new president assumes office. This time is no different. Trump has authorized the review and will likely make changes. The new NPR provides Trump with an opportunity to clarify his position and set the stage for nuclear cooperation with China.

In the 2010 NPR, the US pledged to "reduce the role of nuclear weapons in deterring non-nuclear attacks, with the objective of making deterrence of nuclear attack on the United States or our allies and partners the sole purpose of U.S. nuclear weapons."[25] In light of this objective, the report for the first time specified that certain states would be considered outside the purview of US nuclear use, including all non-nuclear states that are party to the NPT and compliant with its conditions. Other states had fewer guarantees, as the report indicated that the US reserved the right to use nuclear weapons if and when these other states are perceived to threaten "the vital interests of the United States or its allies and partners."[26]

In China's case, this presents a wide array of possible attack scenarios. Narrowing the scope of such possibilities and clarifying US strategic intent in the next report could thus be a positive move toward cooperation. One way the US could achieve this would be to eliminate the NPR's negative security assurance and the vague language relating to US "vital interests" and to insert a statement specifying that any non-conventional attack or large-scale conventional attack waged by an actor

outside the NPT risks US nuclear retaliation.[27] Such a statement is a long cry from an NFU statement and is less committal than a no first strike policy, but it nonetheless might be welcomed by China because it lessens the overall ambiguity of US nuclear use vis-à-vis China. Such language, for instance, would imply that the United States is primarily (though not solely) concerned with attacks waged by actors outside the NPT. Of course, many disarmament advocates are likely to see such a statement as going in the "wrong direction," because it broadens the range of US nuclear options, but this direction is much more likely to be accepted by the Trump administration than others.

Another option, likely to be even more agreeable to the United States, would be to alter the statement so as to widen further the scope of states at risk. The United States could thus include wording to the effect that any nonconventional attack or large-scale conventional attack waged by a nuclear or nonnuclear actor risks US nuclear retaliation. This statement would not mitigate the concerns of other states vis-à-vis conflict escalation, but it might send a favorable signal to China, because it seemingly provides less room for preemptive nuclear action. Such language, for instance, would foreclose the option of the US launching a preemptive nuclear attack on China to stymie the aggrandizement of Chinese nuclear and/or conventional forces.[28] It instead would outline a specific condition for US nuclear retaliation, and China would know not to cross this line. To be clear, it is nowhere near an NFS statement, yet the omission of such an option in an explicit list of use conditions could be perceived as an implicit acknowledgement that a first strike is not intended or anticipated. It is also possible that China will sympathize with the US position in this regard, since many Chinese actors who advocate for the abrogation of China's NFU policy do so on the grounds that China must consider using its nuclear weapons to deter large-scale conventional attacks.

A third option would be to take the conversation out of the NPR and to engage China directly. If preemption is still on the table for certain nuclear or near-nuclear actors and the US would want to make this clear, then words conscribing US nuclear action in the NPR could be seen as inappropriate. It might thus be more advantageous for the US to discuss with China the possibility of a bilateral NFS agreement. Both China and the US would agree that their nuclear forces are meant only for retaliation and not for preemptive strikes against one another. Such

an agreement would still allow the US the preemptive option for so-called rogue nations but would provide China with the confidence that the US does not intend to strike China first. Another potentially favorable feature of such an agreement would be the door it would open to China vis-à-vis abandoning NFU.

China could agree to a bilateral NFS statement and keep its unilateral commitment to NFU unchanged, or it could adopt an NFS policy in place of NFU. The latter could be perceived two ways in the US: some Americans are sure to think that China switching from an NFU to an NFS policy would be a negative development, since it would effectively widen the scope of Chinese nuclear use. Others, however, are likely to see such a switch as a positive indicator of Chinese transparency. This group would comprise those in the US who already believe China has abandoned NFU but not been upfront in saying so. On the Chinese side, replacing its unilateral NFU policy with a joint Sino-US NFS statement has the added benefit of giving it a clear, low-risk alternative to a unilateral abandonment of NFU. China could accept the US NFS invitation and know that in so doing it would not surprise the US or send a signal of ill intent but instead send the signal that China intends to be transparent in its strategic shift and cooperate with others in this transition.

If a joint NFS policy is off the table, the US could consider proposing a "no first use of force" (NFUF) policy, where both states agree to limit the targets of their conventional weapons, specifically stating that neither state will use its conventional weapons to target the other state's nuclear force. This policy would not be perceived in the US as allowing China to shift its standing policy on nuclear use, and it would go a long way in assuaging Chinese concerns regarding the changing role of US conventional weapons.

Specifying Targets of US Conventional Prompt Global Strike

The rules governing warfare under conventional weapons were significantly disrupted with the advent of the atomic bomb. In fact, many argued that this new technology fundamentally changed the nature of warfare.[29] The qualitative difference in the means of destruction, they argued, necessitated a strategic shift in desired ends. Put in terms of a "revolution," the assumption was that this change was permanent—and

so were the weapons that brought it about. A decade later, Paul Nitze provided a compelling counterargument. Certain advances in US conventional weapons, he argued, made nuclear weapons effectively moot. Their obsolescence would not prohibit the US from meeting its military objectives.[30] Though nuclear weapons remain, Nitze's words proved a prescient prelude to what we now know as conventional prompt global strike.

Conventional prompt global strike (CPGS), as the name implies, involves the use of conventional long-range, high-speed, and accurate weapons to strike distant enemy targets. The concept became fashionable long before the military supplied it with an acronym. In fact, the US began focusing on such weapons soon after the fall of the Soviet Union, when it began retracting many of its forward military bases. No longer eye-to-eye with a familiar and singular foe, many US officials argued that the United States should bulwark itself against future security threats by expanding its strike capability. The idea was that the US should be prepared to strike anyone at any time and with the utmost speed.

This aim, however nebulous, was first codified in the 2001 nuclear posture review, which mentioned the tandem use of prompt and precise long-range conventional weapons alongside US nuclear weapons in offensive operations. It also specified that the ideal timeframe was less than one hour.[31] It wasn't until later that the name "prompt global strike" appeared in an Air Force mission need statement. Subsequently, Congress provided funds to specific Air Force and Navy PGS projects. This money was consolidated in 2008 when Congress explicitly allocated money for the research and development of a CPGS program.[32]

Though the program now has dedicated funding, it remains unclear which weapons are most suitable to accomplish the task. Among the various options available, the option to "downgrade" US land- and sea-based intercontinental ballistic missiles and equip them with conventional warheads is among the most worrisome. This recommendation, endorsed by the Pentagon's Defense Science Board, has the advantage of repurposing nuclear weapons cut by US-Russian disarmament efforts and the distinct disadvantage of increasing the potential of miscalculation caused by the indeterminacy of weapon payload.[33]

Intercontinental ballistic missiles (ICBM) and submarine-launched ballistic missiles (SLBM) traditionally carry nuclear warheads, and it is thus reasonable for states seeing such weapons en route to fear and

prepare for the worst. With little time to fully evaluate the situation, it is possible that a state might misperceive the situation and believe it is under nuclear attack when, in fact, the incoming weapons are conventional. Though China's NFU policy indicates it would strike only after sustaining a nuclear attack, it is prudent to consider a scenario where China might consider launching its nuclear weapons while under attack.[34] If carried out, this strategic shift would increase the possibility that China could accidentally respond to a conventional attack with nuclear force. Another possible scenario with devastating consequences could be the Chinese deployment of nuclear weapons in response to what is perceived to be a nuclear attack on China but what is actually a nuclear or conventional attack on North Korea.

Both scenarios are moot if one believes China will firmly adhere to its NFU commitment in all scenarios. Many US experts, however, doubt this to be the case. In fact, it is known that US development of CPGS has galvanized debate in China on the continued utility of the country's NFU policy.[35] If, for instance, China believed the US intended to use its long-range conventional ballistic missiles to strike China's command and control centers or its land-based nuclear weapons, might it feel justified in deploying its nuclear weapons? Alternatively, if such attacks were confirmed and China had remaining nuclear forces, might it use them to discourage another (possibly nuclear) US strike? Several Chinese scholars have answered these questions in the affirmative.

A joint NFUF statement would help lessen the doubt on both sides and subsequently decrease the chance of miscalculation. For China's part, it would have a written commitment by the US that American CPGS forces are not meant for this kind of mission. China would also know that it had communicated to the US in signing an NFUF agreement the severe consequences of such a strike. If the US is not amenable to adopting either a unilateral or bilateral NFUF policy, other options are available, options more narrowly tailored to allay Chinese concerns relating to CPGS.

The primary concern relating to conventional prompt global strike, both in China and the US, is the lack of clarity surrounding the program's mission and targets. The mission needs statement produced by the US Air Force in 2003, for example, states only that the US desires the ability to strike "high-value, difficult-to-defeat targets when most vulnerable." Subsequent reports, however sporadic, have provided little

clarification. It is thus suspected that the US reserves the right to use its conventional high-speed missiles to target, among other things, other states' nuclear weapons pursuant to the aims outlined in the quadrennial defense report and nuclear posture review. Precisely what "other" states the US intends to target/deter has often been left ambiguous, but the quadrennial defense report and NPR have consistently positioned certain "rogue states" and "regional adversaries" at increased risk. Nonetheless, without written clarification, China is likely to assume—and prepare for—the worst.

Reading Chinese military manuals makes this clear. According to the 2013 volume of *Science of Military Strategy*, "Once [US CPGS] has functional capabilities, it will be used to implement conventional strikes against our nuclear missile forces and will force us into a disadvantaged, passive position."[36] The reports released from the Track 1.5 dialogues reveal similar reservations.[37] The US could easily lessen this perceived threat by making an explicit written statement that Chinese nuclear forces are not among the intended targets of US CPGS. This could be a stand-alone statement or, even more effectively, it could be incorporated into a larger declassified global strike report. Another move likely welcomed by the Chinese would be clarification on the role of US hypersonic missiles. The US also has an interest in clarifying China's intent in this regard.

Limiting Warheads of Hypersonic Missiles

One of the proposed alternatives to using ICBMs and SLBMs for the purposes of US CPGS is to use hypersonic conventional missiles. Since such missiles fly at speeds between Mach 5 and Mach 19, they can certainly achieve the program's objective of striking a target anywhere on earth in a short amount of time. The method of doing so varies: one can choose from the boost-glide variety or the powered-flight cruise missile. The former uses a rocket to launch a glider high into space while the latter uses a rocket only initially and then relies upon a supersonic scramjet for the rest of its flight. The US has tested both weapons to varied success, and while it remains unclear as to whether such weapons will be used for CPGS, the US maintains that they will certainly be limited to conventional missions. China has not provided the same assurance.

Whereas China's primary concern is whether US hypersonic conventional missiles can be used to strike Chinese nuclear targets (a fear

mitigated by a transparency agreement specifying targets), the US is concerned that China will equip hypersonic missiles with nuclear warheads to contravene US missile defense. With their fast speed and shallow trajectory, such missiles are well suited for the task. To date, China has conducted six tests of its hypersonic glide vehicle, the DF-ZF (previously referred to as the WU-14).[38] Like the US, these tests have had varied success. China is also reportedly working on a hypersonic cruise missile, though a test has not been confirmed. It is unclear whether China plans for these missiles to take on a conventional or nuclear role, but considering the obstacle presented by US missile defense, the latter would certainly have appeal.

It is thus beneficial to have a conversation about the weapons' strategic utility now, while these technologies are still in their infancy. Banning such weapons or implementing a test moratorium is certainly an option, but if the US were to spearhead such a ban, it would likely be seen by China as just another move meant to maintain US nuclear superiority. If the US refuses to limit its missile defense capabilities, it cannot reasonably assume that China will limit its potential countermeasures. It is also unreasonable to cease testing when the technology can be used by both states for civilian purposes. An alternative approach might be to limit hypersonic missiles to carrying conventional warheads. A requirement of this type admittedly impacts China more than it does the United States, since China is the only one seeming to consider a nuclear hypersonic option. It is thus unlikely to work as a stand-alone request. Instead, one might envision an agreement that links China's hypersonic capabilities with US CPGS capabilities.

Chinese leaders are not pleased with the US CPGS program; they fear that US ICBMs or SLBMs loaded with conventional warheads or US conventional hypersonic missiles will be used to target Chinese nuclear facilities and/or command and control centers. They are also concerned that they will not know if an incoming US ballistic missile is conventional or nuclear. The US has a similar concern with regard to China's hypersonic weapons. It thus might behoove both countries to discuss an agreement delineating which weapons serve which roles. Perhaps, for instance, if China agrees to limit its hypersonic missiles to carry conventional warheads, then the US can agree to do the same and to limit its CPGS weapons to conventional targets. A logical corollary would be for both countries to distinguish their missile bases.

Distinguishing Missile Bases

Currently, China stores some of its conventional and nuclear missiles at the same missile bases. Additionally, some of China's missiles, like the DF-21, are dual capable, meaning they can be loaded with conventional or nuclear warheads. Both of these scenarios present problems. First, the coupling of China's conventional and nuclear forces can make it difficult for adversaries to appropriately recognize and respond to an incoming Chinese missile. They might, for instance, mistake a Chinese conventional missile for a nuclear missile and respond with what they perceive to be a second strike but what is in reality a first strike. Second, the colocation of China's missiles could cause a state meaning to strike China's conventional forces to accidentally strike its nuclear forces—again resulting in a de-facto first strike. Both scenarios increase the possibility of inadvertent escalation.

This issue is not entirely unlike the US CPGS dilemma, and it presents both states with an additional opportunity for cooperation. In particular, both states could benefit from distinguishing their missile bases. Some bases would be designated for conventional weapons only, and others would be reserved for nuclear weapons. Ideally, these bases would be a great distance from one another and the agreement would specify a circumscribed range for mobile missiles. In this scenario, both types of bases and missiles would need to be distinguishable via satellite imagery to abet verification of treaty compliance. The rules on "deployment zones" set forth in the START and New START treaties provide a useful example.

While increased transparency increases China's vulnerability to a first strike, the gains of such an agreement could offset this disadvantage. In particular, such an agreement seemingly supports a long-held strategic principle of China: that conventional and nuclear weapons should constitute unique and separate spheres of warfare. Evidence of this position is replete in both Chinese scholarship and Track 1.5 dialogues. When discussing the truths governing China's nuclear strategy, for instance, Chinese nuclear expert Sun Xiangli stated, "Conventional weapons and nuclear weapons cannot be uttered in the same breath."[39] Similarly, Tsinghua University Prof. Li Bin says no state should accept "fuzzy boundaries" between its conventional and nuclear forces.[40] Though Li was oblique in his reference, other sources have explicitly admonished the US and its CPGS program in particular, for "blurring the lines between nuclear and conventional weapons."[41] If the Chinese leadership

genuinely holds these beliefs, then they might welcome an agreement that creates space (both geographically and strategically) between US CPGS forces and nuclear forces.

Confirming Targets of US Missile Defense

US CPGS is particularly troubling to China when considered in conjunction with advancements in US missile defense. From the Chinese perspective, these two programs are analogous to the "sword and shield," where US missile defense "shields" the US from Chinese nuclear retaliation and thus disrupts the two countries' mutual deterrence.[42] The US has attempted on numerous occasions to assuage such concerns, but to little avail. Many in China remain skeptical.

"We're not idiots in China who think you are transparent in your BMD intentions," said one Chinese participant at the 2011 US-China Strategic Dialogue. "It is incredulous to assume that the US BMD efforts are solely targeted at Iran and North Korea."[43] Others argue that the amount of money America has invested in the system is disproportionate to the threat it is supposedly thwarting and thus reveals that China is the intended target.[44] These statements indicate that US verbal assurances regarding missile defense are not enough. In the words of the Chinese media, the facts on the ground directly refute the "soothing political statements" offered by the US, making its "declarations seem pale and powerless."[45]

The structure of the system lends credence to China's criticisms. At present, the three US Air Force early warning radars (located in California, Massachusetts, and Greenland) and the Cobra Dane Radar (located in Alaska), as well as the sea-based X-band radar (SBX) in the Pacific, are likely to detect any incoming ballistic missile from China. If the US follows through on its plan to deploy an additional SBX in the Pacific, this likelihood increases further. Once detected, a Chinese missile is likely to encounter an American ground-based missile interceptor. At present, the US has 36 of these based in Alaska and California, and it plans to increase this number to 44. This puts the Chinese in a precarious position vis-à-vis their second-strike capability. If the US ground-based interceptors were efficient in striking down incoming missiles, then China's forces would be outnumbered.[46] (China is currently estimated to have 40 warheads capable of reaching the United States.[47])

The protracted offense-defense balance between US-Chinese forces is a well-worn topic at US-China Track 1.5 dialogues, and many on the Chinese side believe that US missile defense is not meant to protect the US homeland from so-called rogue nations as much as it is meant to expand the range of offensive military action the US can pursue with impunity. "The intentions of 'Uncle Sam' are very clear," claims Tian Yuan, "to do the same old thing in a new guise and, on the basis of absolute superiority, to build a missile defense system to ensure that it is equipped with both spear and shield, thus reaching its aim of 'winning without fighting.' "[48] The Chinese anticipate that this fight is meant for China. The recent deployment of the terminal high-altitude area defense system in South Korea has seemingly bolstered this belief.[49]

The time of the antiballistic missile treaty has come and gone, and there is no indication the US will accept constraints on its defense system. There is also evidence to suggest that the Chinese would not be satisfied with limits that only involved interceptors.[50] Calls to this end from US and Chinese experts thus appear futile. In this case, while the US has been explicit in identifying the system's intended "targets," Chinese leaders have had significant doubts as to the veracity of these statements. Both countries appear at an impasse.

One way to move forward in this area—if even slightly—is to include a statement of intent regarding US missile defense in a bilateral "transparency agreement" between the US and China. Such an agreement would reiterate what the US has already said in other platforms, like the NPR, but it could potentially increase the weight of US declarations. This might especially be the case if such a statement were to be used to assure China on a variety of fronts, including its conditions of nuclear use, its conditions of CPGS use, and its intended CPGS targets. This move would also signal to China that the US is seriously committed to "strategic stability" between the two countries, is capable of considering concerns beyond hard capabilities, and acknowledges that "transparency" is multifaceted. This has particular normative value, because it tacitly disrupts the longstanding Western assumption that China's nuclear opacity is a major impediment to nuclear cooperation. In this scenario, the US would obviously be making more concessions than the Chinese at first; however, research indicates that such a bold move is necessary to promote mutual de-escalation. Once the US makes the first move, China can follow with greater confidence, and cooperation can move beyond the rhetorical.

Conclusion

Until now, the primary tenor of the disarmament conversation has been quantitative, and the contours of the conversation have been shaped by the US-Soviet experience during the Cold War. Today, however, as we engage with new actors, a new focus is necessary. China, in particular, has made it known that it sees no reason to reduce the number of its nuclear weapons until the sizes of the US and Russian nuclear arsenals are similar to its own.[51] One can conclude from this statement that the US and Russia must work on another disarmament treaty before engaging with China. Such a presumption, however, would be ill founded. As this article has shown, other areas of cooperation exist outside of numeric ceilings and apart from the US-Russian context.

The perceived credibility of the promising actor is paramount in this case. If China cannot trust the United States, then any verbal or written assurance it makes is moot. This is true even if verification mechanisms are in place (such as in agreements limiting hard capabilities), since cheating remains an option. For an agreement to work, each of the parties involved must have confidence that the other is unlikely to defect on the deal.

Rational choice theory suggests that this kind of confidence is formed and fostered through iterative interactions. More specifically, cooperation based upon reciprocity becomes more likely the more states interact.[52] This rationale was the underpinning of Pres. Ronald Reagan's push for increased communication with the Soviets beginning in 1984. Emphasizing the two states' common interests and shared responsibility as nuclear superpowers, Reagan sought to foster a mutual reduction in nuclear arms through multiple high-level talks. These talks eventually led to the establishment of the Anti-Ballistic Missile Treaty and served as a precursor to subsequent arms control treaties.

While the framework of START and New START might not be appropriate to apply to the Chinese context, one can glean lessons from the US-Soviet experience in terms of building trust.[53] President Reagan, for instance, repeatedly emphasized that cooperation hinges upon communication. China and the United States have not yet established official nuclear dialogues, but communication is taking place at lower levels, and much of the information coming out of these conversations can abet the US in facilitating higher-level exchanges. If the US remains committed to lessening the number of nuclear weapons globally and if it desires to lessen the possibility of a nuclear conflict, it has a responsi-

bility to engage China in discussions surrounding conditions of cooperation. This article has outlined several areas where the United States and China have common interests derived from the particular dynamics of the Sino-US relationship, not from the US-Soviet/Russian framework. The hope is the two states will also share common solutions. SSQ

Notes

1. This was epitomized by the resolution advanced by John Boehner (R-OH), Ileana Ros-Lehtinen (R-FL), Joe Wilson (R-SC), and Mike Pence (R-IN) in December 2009. *See* United States Cong., House, *No title*, 111th Cong, 1st Sess. H. Con. Res 217 (2009) (unenacted), https://www.congress.gov/111/bills/hconres217/BILLS-111hconres217ih.pdf.

2. "Reciprocity Key to Dealing with Trump's US," Global Times, 8 December 2016, http://www.globaltimes.cn/content/1022482.shtml.

3. "Why Is the U.S. More Arrogant toward China than toward Russia? China Has Too Few Nuclear Weapons!," Global Times, 24 December 2016, http://military.people.com.cn/n1/2016/1224/c1011-28974094.html.

4. "Reciprocity Key to Dealing with Trump's US."

5. Gregory D. Koblentz, "Strategic Stability in the Second Nuclear Age," Council on Foreign Relations, November 2014, https://www.cfr.org/report/strategic-stability-second-nuclear-age?cid=otr-marketing_use-nuclear_stability_report/&sp_mid=47456958&sp_rid=a2Rhdmlkc29uQGNmci5vcmcS1.

6. In his keynote speech before the 2009 UN Security Council Summit on Nuclear Nonproliferation and Disarmament, Chinese president Hu Jintao said that China would consider pursuing nuclear arms reductions along with the other powers when the time and conditions were right.

7. Frank Klotz and Oliver Bloom, "China's Nuclear Weapons and the Prospects for Multilateral Arms Control," *Strategic Studies Quarterly* 7, no. 4 (Winter 2013): 3–11, http://www.airuniversity.af.mil/Portals/10/SSQ/documents/Volume-07_Issue-4/2013winter-Klotz.pdf?ver=2017-01-23-121439-620.

8. Koblentz, "Strategic Stability," 32.

9. To be clear, Koblentz is not against the continuation of US-Russian nuclear disarmament, and he does not foreclose the possibility of later cooperation. He merely suggests that in the interim the United States consider expanding its focus to include other nuclear weapons states.

10. Stephen Cimbala, "China's Strategic Nuclear Arms Control: Avoiding the 'Thucydides Trap,' " *Military and Strategic Affairs* 7, no. 3 (December 2015): 79–92, https://www.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/INSS-Miltary%20and%20Strategic%20Affairs,%20Vol%207,%20No%203.pdf.

11. Alexei Arbatov, "Engaging China in Nuclear Arms Control," Carnegie Moscow Center, 9 October 2014, http://carnegie.ru/publications/?fa=56886.

12. In January 2017, for instance, Trump suggested that the United States would end its economic sanctions against Russia in exchange for additional nuclear weapon reductions. *See* Guy Faulconbridge and William James, "Trump's Offer to Russia: An End to Sanctions for Nuclear Arms Cut—London Times," Reuters, 16 January 2017, http://www.reuters.com/article/us-usa-trump-russia-arms-deal-idUSKBN14Z0YE.

13. Trump has, on several occasions, mentioned his support for a "nuclear-free world," though he seems to believe it is unrealistic. *See* Laura Smith-Spark, "Trump: US Must Be 'Top of the Pack' in Nuclear Weapons Capability," CNN, 24 February 2017, http://www.cnn.com/2017/02/24/politics/trump-interview-nuclear-weapons/.

14. Admittedly, one could see this move in terms of relative rather than absolute gains, where China's status elevation is achieved at the expense of the United States' reputation. The risk here is that China uses the talks as a platform to further highlight the inadequacy of US disarmament efforts vis-à-vis other countries.

15. Though all the dialogues are conducted under the umbrella of the Center for Strategic and International Studies (CSIS), technically the Hawaii talks (labeled the "US-China Strategic Dialogues") take place under CSIS' Pacific Forum, and the Beijing talks (labeled the "US-China Strategic Dialogue Nuclear Dynamics") take place under CSIS' International Security Program.

16. Though these reports often include their own set of recommendations, not every report is easily accessible or made available to the public in full. The present analysis was informed by a thorough reading of all published reports accessed via public platforms and private request.

17. Jin Yinan, "What Is the Destination of US-Russian Nuclear Disarmament?" Jiefangjun Bao (27 May 2002).

18. Zhang Chongfang, Wang Xioajun, and Liu Jiang, "US-Russia May Improve Nuclear Weapons Despite Signing Disarmament Treaty," Xinhua, 11 April 2010.

19. Jin, "What Is the Destination of US-Russian Nuclear Disarmament?"

20. Extended deterrence generally contradicts no first use, because it commits a state to consider nuclear force in response to an armed attack on another state's territory. The United States first employed extended deterrence during the Cold War to protect fellow NATO members against Soviet invasion. This commitment continues today alongside additional bilateral security guarantees the United States has entered into with Japan, South Korea, and Australia.

21. The debates surrounding conditions on US nuclear use actually delayed the release of the 2010 nuclear posture review. For more information on this distinction, see Michael S. Gerson, "No First Use: The Next Step for US Nuclear Policy," *International Security* 35, no. 2 (Winter 2010): 7–47, http://doi.org/dswxrn.

22. This assessment is supported by the stalled progress of H.R. 669 and S. 200, introduced in January 2017 in the House and Senate. The identical bills did not prohibit the US from conducting a nuclear first strike but required the president to seek and receive congressional approval before doing so. Both bills have been referred to committee, but no further action has been taken.

23. This point is less clear, since Trump provided equivocating statements at the September 2016 presidential debate, saying both that he "would certainly not do first strike" and he "can't take anything off the table." *See* Robert Burns, "Trump's Stance on Nuclear Restraint Is Ambiguous," Associated Press, 28 September 2016, https://elections.ap.org/content/trumps-stance-nuclear-restraint-ambiguous.

24. Scott D. Sagan, "The Case for No First Use," *Survival* 51, no. 3 (June 2009): 163–82, http://doi.org/fgdf5v.

25. Department of Defense (DOD), *Nuclear Posture Review Report* (Washington, DC: 6 April 2010), 17, https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

26. DOD, *Nuclear Posture Review Report*.

27. This language leaves open the possibility of countering a cyberattack with nuclear force—something likely to appeal to US strategic interests vis-à-vis China in particular.

28. A fear of such a possibility is evident in Chinese writings; see, for instance, Jen Hui-wen, "Causes Underlying the Rise of China's International Strategic Status," *The Hong Kong Economic Journal,* 11 August 2006.

29. Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989).

30. Paul Nitze, "A Threat Mostly to Ourselves," *New York Times*, 28 October 1999, https://nyti.ms/2pUp4Nw. A similar argument was famously made in 2007 by the so-called gang of four. *See* George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, "A World Free of Nuclear Weapons," *Wall Street Journal*, 4 January 2007, https://www.wsj.com/articles/SB116787515251566636.

31. The "pitch" for conventional prompt global strike (CPGS) often includes the claim of striking targets anywhere in the world (hence the "global" in the name), but the advanced hypersonic weapons and other weapons being tested for this purpose do not have this range. *See* James M. Acton, "Prompt Global Strike: American and Foreign Developments" (testimony before the House Armed Services Subcommittee on Strategic Forces, 8 December 2015), https://armedservices.house.gov/legislation/hearings/prompt-global-strike-american-and-foreign-developments.

32. Prior to 2008, Congress had allocated funds to separate Navy and Air Force PGS programs.

33. This hints at the bureaucratic self-interest involved in Defense's promotion of CPGS. DOD, *Report of the Defense Science Board Task Force on Future Strategic Strike Forces* (Washington, DC: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, February 2004), 5-1, https://fas.org/irp/agency/dod/dsb/fssf.pdf.

34. In this scenario, the first "use" of nuclear weapons would be interpreted to mean deployment and not necessarily detonation.

35. For an extended discussion of this debate, see Susan Turner Haynes, *Chinese Nuclear Proliferation: How Global Politics Is Transforming China's Weapons Buildup and Modernization* (Lincoln: University of Nebraska Press, 2016), 136–48.

36. Michael S. Chase, "Nuclear Policy Issues in the 2013 Edition of the Science of Military Strategy: Part I on Nuclear Policy, Strategy, and Force Modernization," *China Brief* 15, no. 11 (2015): 4–8, https://jamestown.org/wp-content/uploads/2015/05/China_Brief_Vol_15_Issue_11_2.pdf?x87069.

37. Michael Glosny and Christopher P. Twomey, "U.S.-China Strategic Dialogue Phase V: 'Connecting Long Term Goals to Contemporary Policy,'" *Strategic Insights* 9, no. 2 (Fall 2010): 86, http://edocs.nps.edu/npspubs/institutional/newsletters/strategic%20insight/2010/GlosnyM10.pdf; Michael Glosny, Christopher Twomey, and Ryan Jacobs, *US-China Strategic Dialogue: Phase VII Report, Report no. 2013-005* (Monterey, CA: Naval Postgraduate School Center on Contemporary Conflict, May 2013): 8, https://www.hsdl.org/?view&did=739908; "8th China-US Dialogue on Strategic Nuclear Dynamics: Key Findings and Recommendations," *Issues & Insights* 14, no. 1 (November 2013): 3, https://www.csis.org/analysis/issues-insights-vol-14-no-1-8th-china-us-dialogue-strategic-nuclear-dynamics; and Ralph A. Cossa, Brad Glosserman, and David Santoro, "Reaching an Inflection Point? The Tenth China-US Dialogue on Strategic Nuclear Dynamics US Perspectives," *Issues & Insights* 16, no. 20 (December 2016): vi, https://www.csis.org/analysis/issues-insights-vol-16-no-20-reaching-inflection-point-tenth-china-us-dialogue-strategic.

38. *See* Acton, "Prompt Global Strike."

39. Sun Xiangli, "China's Nuclear Strategy: Nature and Characteristics," *World Economics and Politics* 9 (2006): 23–28, http://caod.oriprobe.com/articles/20203470/China_s_Nuclear_Strategy__Nature_and_Characteristics.htm.

40. Li Bin, "China's Potential to Contribute to Multilateral Nuclear Disarmament," *Arms Control Today* 41, no. 2 (2011): 22, http://www.jstor.org/stable/23629068.

41. Tan X, "Strategic Nuclear Review: New Change, Old Mentality," Xinhua, 20 March 2002.

42. Chris Twomey, Michael Glosny, Diana Wueger, and Ryan Jacobs, *China-US Strategic Dialogue, Phase IX Report* (Monterey, CA: Naval Postgraduate School, December 2016), 5, http://hdl.handle.net/10945/51930.

43. Eben Lindsey, Michael Glosny, and Chris Twomey, *Conference Report: US-China Strategic Dialogue, Phase VI* (Monterey, CA: Naval Postgraduate School, November 2011), 12, https://www.hsdl.org/?view&did=709606.

44. Michael Glosny and Chris Twomey, *Conference Report: US-China Strategic Dialogue, Phase V* (Monterey, CA: Naval Postgraduate School, October 2010), 88, http://hdl.handle.net/10945/828.

45. Lu Yansong, "How the Russians View the Nuclear Shield and Radar Stations," Renmin Wang, 24 December 2002.

46. Chinese experts plan against an optimized US missile defense system, but the current success rate of the system hovers around 55 percent (with interceptors hitting and destroying their intended targets in 10 out of 18 tests). As a result, the Pentagon has estimated that five interceptors would be necessary to assure the destruction of an incoming missile.

47. This includes 10 single-warhead DF-5 ICBMS (designated DF-5A) and 10 DF-5 ICBMs uploaded with three warheads each (designated DF-5B). (*See* Hans M. Kristensen and Robert S. Norris, "Chinese Nuclear Forces, 2016," *Bulletin of the Atomic Scientists* 72, no. 4 (2016): 205–11, http://doi.org/f8xpvx.) This does not include China's MIRVed DF-41 believed to be in development or very recently deployed. Reports of deployment emerged 24 January 2017, though this has yet to be independently confirmed. If true, this will substantially increase the number of warheads China has that are capable of reaching the United States.

48. Tian Yuan, "History Will Ask the Question," *PLA Daily*, 28 June 2001.

49. US-China Dialogue on Strategic Nuclear Dynamics, "*Key Findings*" (symposium, Washington, DC, 22–23 March 2017), 2, https://www.csis.org/events/us-china-dialogue-strategic-nuclear-dynamics.

50. A Chinese participant at the December 2016 dialogue noted that the "[BMD] system itself, rather than current number, is key to the problem." *See* Glosny, Twomey, Wueger, and Jacobs, *US-China Strategic Dialogue, Phase IX Report*, 7.

51. Michael Nacht, "The Global Nuclear Environment," in *Routledge Handbook of Nuclear Proliferation and Policy*, ed. Joseph F. Pilat and Nathan E. Busch (New York: Routledge, 2015), 21.

52. This follows rational choice theory. *See* Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984); and John K. Setear, Kenneth W. Abbott, Peter Arenella, and Stephen Yeazell, "An Iterative Perspective on Treaties: A Synthesis of International Relations Theory and International Law," *Harvard International Law Journal* 37 (Winter 1996), http://faculty.virginia.edu/setear/cv/hilj.pdf.

53. This is not to say that the US-Soviet experience provides a perfect model. In fact, research indicates there were many missed opportunities for cooperation. *See* Deborah Larson, *Anatomy of Mistrust: US-Soviet Relations during the Cold War* (Ithaca, NY: Cornell University Press, 2000).

Autonomous Weapon Systems and International Crises

Nathan Leys

Abstract

The United States is investing heavily in autonomous weapon systems (AWS) as part of the Department of Defense's "Third Offset" strategy. However, scholarship on AWS has largely failed to explore the ways in which these systems might themselves have strategic ramifications. This gap is especially apparent in relation to strategic interaction in crisis scenarios. This article seeks to highlight relevant dimensions of the ongoing debates over (1) how to define AWS, (2) the technology behind their development, and (3) their integration into the future force. The article then constructs five scenarios where introducing AWS may affect how an international crisis involving the United States and an adversary plays out.

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In 2015, Secretary of Defense Chuck Hagel introduced the Defense Innovation Initiative, colloquially known as the "Third Offset."[1] The Third Offset's objective is to maintain the United States' qualitative military edge over potential peer or near-peer competitors by incorporating cutting-edge technologies into doctrine, structure, and operations. A central part of this initiative is leveraging advances in artificial intelligence (AI) to increase the role of autonomy in military robotics and battle networks. As former Deputy Defense Secretary Robert Work, one of the Third Offset's key architects, recently stated, "The third offset is simple. At its core AI and autonomy will lead to a new era of human-machine collaboration."[2]

The Third Offset has been criticized for being "a convenient handle for a menu of new defense capabilities" rather than a coherent strategy.[3] At the same time, the strategic ramifications of AWS have gone relatively

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unexamined.[4] This article attempts to fill that gap by examining how AWS might affect strategic competition between the United States and potential adversaries during a crisis.

Such an effort is warranted for at least three reasons. First, it is possible the United States could face crises involving peer or near-peer competitors in some future year. Avery Goldstein notes, "for the next decade . . . the gravest danger in Sino-American relations is the possibility the two countries will find themselves in a crisis that could escalate to open military conflict."[5] Graham Allison has further argued that such a crisis could be the spark for a US-China conflict fueled by a shift in the international balance of power.[6] Recent tensions with Russia over Syria, Crimea, and the Baltic States also suggest that the United States could once again find itself embroiled in a crisis with its erstwhile Cold War adversary. A recent report from The Hague Center for Strategic Studies argues the past few years represent "a larger trend: the comeback of interstate crisis."[7] The United States and its rivals could soon find themselves stumbling into a crisis in which AWS will play a significant role.

Second, if AWS are successfully integrated at every level of command, the way the US military thinks about decision making will have to shift. The DOD conceptualizes AWS through the lens of human-robot interaction (HRI), framing autonomy as an ongoing collaboration between commanders, soldiers, and computers.[8] Although political leaders will continue to make decisions at the strategic and grand strategic levels, those decision makers will receive their information and military options from the commanders at the operational level who will be the most immediately affected by HRI. The sharing of decisions with computers at all levels of command and control (C2) is a fundamental break with previous patterns of decision making and should be investigated as such.

Third, failing to consider the independent effect of autonomy on US behavior in crisis would represent a dangerously myopic approach to strategy. Because of the lack of historical data on the effects of AWS, there are legitimate concerns that any such forward-looking analysis runs the risk of mistaking projections for data. In fact, these criticisms ignore the longstanding role of evidence-based prediction in US defense planning. Additionally, to the extent that good strategy involves plans conditioned on an adversary's likely responses, the United States should seek to understand how potential adversaries will view our use of AWS. In short, prediction in this area is a prerequisite for success of the Third Offset.

This inquiry does not seek to exhaust all possible mechanisms for autonomy's influence on US behavior in crises, nor does it attempt to make iron-clad predictions about the future of conflict more broadly. Instead, it seeks to provide useful background on the debates surrounding AWS and illuminate some of the mechanisms by which the logic of AWS might interact with crisis dynamics.

Debates Informing the Development of AWS

Before entering a discussion of existing research on AWS, one obvious issue should be addressed: How does one research something that has not yet happened? The question is valid. There is no way to know for certain how autonomy will impact the battlefields of tomorrow, and for obvious reasons much of the cutting-edge research on existing AWS is classified. But it is possible to apply what we know about crises to what we know about AWS. Furthermore, the risks in making educated guesses about the future of AWS are far less than the risk of waiting until military autonomy is fully matured before attempting to reason through its implications.

Defining Autonomy in Weapons

Few scholars or policy makers agree on a precise definition of what constitutes an AWS. Definitional debates might sound pedantic, but they are actually crucial. One problem created by definitional ambiguity is that civilian policy makers and military commanders, or even commanders in different branches, might have different understandings of what AWS can and cannot do. Additionally, without agreement on what exactly constitutes an autonomous weapon, the default temptation may be to think of them in terms of science fiction tropes—indeed, almost every nontechnical article on the subject contains a reference to science fiction, a stock photo of a menacing robot assassin, or both.[9] This definitional failure would lead to bad policy making and bad strategy.

Attempts to resolve the definition dilemma have resulted in two general ways of thinking about AWS. The first way of defining AWS differentiates them from other weapons in terms of degrees of control. Usually, these degrees are described relative to a loop roughly analogous to John Boyd's OODA (observe-orient-decide-act) paradigm.[10] Human Rights Watch laid out a three-part degree-of-control definition: "Human-*in*-

the-Loop" (humans select and engage targets), "Human-*on*-the-Loop" (robots select and engage targets, but a supervising human can override), and "Human-*out-of*-the-Loop Weapons" (full AWS).[11] DOD's 2012 directive on AWS encompasses the latter two categories.[12]

This method of defining AWS runs headlong into the problem of reaction time, which threatens to turn humans in and on the loop into liabilities. An influential paper on the pragmatic regulation and development of AWS argues that as the speed of military conflict increases, necessary reaction times will shrink below human capabilities.[13] Consider the Phalanx close-in weapons system (CIWS), mounted on US Navy ships as a last-ditch defense against antiaccess/area-denial (A2/AD) weapons like antiship cruise missiles.[14] Because the time spent waiting for a crew member to approve a defensive action against an incoming threat could prove fatal to a ship, the Phalanx CIWS can be set to acquire and engage incoming missiles automatically. Having a human "on the loop" will become at best irrelevant and at worst dangerous once the loop moves too quickly for human reaction. In this way, autonomy becomes both a cause and effect of the increasing speed of warfare, and an intensifying first-mover advantage creates an incentive to develop AWS first and ask strategic questions later.

Although the degree-of-control paradigm helps illustrate the forces pushing the development of AWS forward, the US military has a different framework for defining autonomy. This approach has been spearheaded by the Defense Science Board (DSB), first in a 2012 report and then in a 2016 study appropriately titled "Autonomy." The DSB argues degree-of-control definitions "are counter-productive because they focus too much attention on the computer rather than on the *collaboration* between the computer and its operator/supervisor" [italics in original].[15] The DSB views autonomy neither as a series of categories of human control over machines nor as a sliding scale of human control but rather as the "explicit allocation of cognitive functions and responsibilities between the human and computer to achieve specific capabilities." Put differently, the operational-dynamic approach recognizes that an AWS may at any given point have differing levels of control over different aspects of a mission. Moreover, those levels may shift over the course of that mission and will almost certainly vary between missions conducted over the course of the system's lifecycle.[16]

This concept is more intuitive than the jargon makes it seem and is perhaps best illustrated by example. One Defense Advanced Research Projects Agency (DARPA)–sponsored study proposes a concept of operations (CONOPS) for conducting aerial warfare in which autonomous battle-management systems support human commanders' decision making by recommending courses of action and helping direct human and robotic pilots against an adversary.[17] Take Japan, which plans to build "high-performance robotic aircraft that would fly as helpers for manned fighters; a pilot would issue commands."[18] Such aircraft could plausibly be combined with the DARPA CONOPS to create a fighting force employing autonomy at multiple levels. Under the DSB's paradigm, autonomy here is not simply about unmanned aerial vehicles (UAV) deciding to shoot down enemy aircraft on their own. Instead, HRI operates on (at least) two levels simultaneously: AI helping commanders decide how to deploy air assets, and autonomous UAV wingmen helping pilots conduct air operations.

Regardless of which definition is the most correct, the Department of Defense (DOD) subscribes to the latter paradigm. The DOD's former Strategic Capabilities Office chief, William Roper, speaks of human soldiers acting as "quarterbacks" for teams of AWS.[19] Robert Work has referenced the need for "human-machine collaboration" when "you're operating against a cyber attack . . . or attack against your space architecture or missiles that are screaming in at you at Mach 6."[20] Rather than a state of control, policy makers view autonomy as a multilevel process of human-computer teamwork.

Technical Development

Understanding the strategic ramifications of AWS does not require an engineer's knowledge of how they work. That being said, the technologies behind AWS raise familiar questions regarding the prevention of friendly fire, miscalculation, and proliferation.

First, AWS must be able to identify legitimate targets. The tasks of getting a robot to distinguish a tank from a minivan or an enemy tank from a friendly tank are difficult and the consequences of a mistake enormous. Moreover, the job of differentiating a journalist with a camera from an enemy soldier with a weapon (or an enemy soldier attempting to surrender) is even more challenging.[21] Although the technology involved has since advanced considerably, one facet of the Patriot missile

defense system's friendly fire incidents during the Iraq War is instructive. Because "operators [are] trained to trust the system's software" in scenarios where threats demand superhuman reaction times, the increasing tempo of combat can create a tradeoff between protecting troops and the accidental targeting of friendly forces (or noncombatants).[22] The distinction problem will only become more important and difficult in hybrid scenarios where the lines between civilian and military are blurry at best. Human soldiers can make mistakes too, of course. But to the extent that AWS are developed and deployed because they enhance a military's ability to deliver lethal force, it follows that a mistake by an autonomous system may have correspondingly greater consequences.

Second, because AWS rely on decision-making processes that differ from human cognitive processes, they may act in ways that are difficult or impossible for humans to comprehend or predict. The risk of side A's AWS making a mistake that causes a miscalculation by side B's commanders is obvious. Less obvious is how miscalculation might arise from the interaction of two sides' AWS. The development of AI systems to play Go, an incredibly complex board game, is perhaps the paradigmatic example of the unpredictability of AI strategic interaction. AlphaGo, a program created by DeepMind, an AI research outfit under Google's umbrella, defeated the world's top human player in 2017. Subsequently, DeepMind released recordings of games AlphaGo had played *against itself*, developing strategies so foreign to conventional strategies that Go experts described them as "from an alternate dimension."[23] The risks of AI strategic interaction are illustrated by the trading algorithms used by Wall Street firms. These algorithms have been accused of causing so-called flash crashes by locking themselves into a tit-for-tat sell-off loop that moves so quickly humans cannot realize what is happening until it is over.[24] Applied to AWS, the danger is that side A cannot predict with certainty under what conditions its own AWS might fire the first shot, either because of a glitch or because the AWS system adopts a strategy involving preemptive strikes that side A's unsuspecting human commanders could never have foreseen.[25]

There is only so much a military can do to reduce the unpredictability of AWS. The Defense Science Board's 2016 report, for instance, raises the possibility of installing a "black box," an "audit trail that can explain why [AWS] did what they did."[26] The idea has some merit, but if the malfunction of an AWS leads to conflict with another military, an

ex post report only has so much utility. *Ex ante*, AWS will always be unpredictable to some degree, because to program an AWS to be perfectly predictable is to program it to be vulnerable to a more adaptable enemy AWS. And the uncertainty created by the interaction of rival AWS will not decline over time, since the pressure to drive the fight by deploying cutting-edge AWS means lessons learned from the interaction of two older systems may not apply to a future interaction between those systems' successors.

Finally, the proliferation of cutting-edge weapons is not a new problem for strategists. However, compared to nuclear weapons or GPS-targeted precision munitions, the technologies enabling AWS are much more easily available in the commercial market. Many of the sensors used in AWS, for example, are increasingly vital to civilian autonomous technologies. Consider self-driving cars: Lidar (light radar), for instance, is favored by many developers of self-driving cars because of its ability to "pinpoint the location of objects up to 120 meters away with centimeter accuracy."[27] Other prototype vehicles use passive systems like high-resolution cameras and microphones to understand the world around them.[28] Many of the challenges faced by military AWS, including operating in low-visibility conditions, differentiating human bodies from inanimate objects, and developing redundant systems to prevent the failure of one sensor rendering a robot blind or deaf, are the same problems that civilian engineers are attempting to solve. Indeed, the sensors that will allow a self-driving car to avoid hitting a pedestrian may soon be the same as those used by an AWS to kill an enemy combatant. The ubiquity of these technologies in the civilian world matters, because if AWS substantially increase the capabilities of an adopting military, the question of proliferation becomes inextricable from the question of how difficult and expensive it is to build AWS. Some analysts expect AWS will proliferate easily.[29] A now-famous open letter signed by luminaries including Elon Musk, Stephen Hawking, and Steve Wozniak warns, "Autonomous weapons will become the Kalashnikovs of tomorrow."[30] But this comparison appears inaccurate. The Kalashnikov came to define modern low-level warfare because it is simple, cheap, easy to master, and practically unbreakable.[31] It may soon be possible to rig a cheap drone to dive-bomb anything that moves, but the highly capable AWS likely to be deployed by the United States and its near-peer rivals are the opposite of simple, and as they develop, they will become more complex,

not less. Andrea Gilli and Mauro Gilli note that similar constraints may make the proliferation of military UAVs much more difficult than is commonly assumed.[32] Given these technical limits, for the near- and medium-term, only the most technologically advanced militaries are likely to develop AWS effective enough to make a difference against the United States or similarly capable military.

Although the complexity of advanced AWS may make them less susceptible to proliferation than is commonly assumed, it could also make them vulnerable to cyberthreats. Michal Klincewicz argues any AWS capable of operating in chaotic battle conditions while accurately distinguishing appropriate targets will necessarily run software so complex it will contain vulnerabilities making it susceptible to hacking.[33] Although some proposals for defensive autonomous cyberweapons have been floated, anything resembling such a system is either hypothetical, classified, or both.[34] Commanders may attempt to mitigate the hacking problem by insulating AWS from wireless communication (the robotic analogue of a ship going radio silent), but as discussed below, this creates a new set of C2 problems.

AWS and the Future Force

Technology alone is not a strategy, however. AWS must be integrated into a human fighting force. Discussions of this human-machine teaming have illuminated three additional considerations that strategic thinkers should bear in mind: human proximity, disaggregated C2, and public opinion.

Proximity to Humans

AWS differ from human soldiers in their expendability—machines cannot die, so there is no such thing as autonomous self-sacrifice or suicide missions.[35] This makes AWS qualitatively different from previous advances in military technology, because they raise the possibility of robot soldiers that can go where humans cannot. Proximity in this sense has two facets: an AWS's location relative to its handler and to civilians/noncombatants.

The human-robot interaction envisioned by the DSB is not wholly dependent on the physical or temporal distance between the two. Consider, from closest to furthest in terms of space and time, the following

three examples. First, autonomous unmanned combat aerial vehicles (UCAV) acting as "bodyguards" could escort bombers into enemy airspace, using continuous real-time coordination with the human-piloted craft to fly closer to the bomber than a manned fighter jet ever could.[36] Second, in terms of medium-range proximity, an integrated air- and missile-defense system could use a Phalanx CIWS to autonomously shoot down a passing missile targeting a friendly ship over the horizon. The most "distant" AWS are loitering munitions and stealthy autonomous unmanned underwater vehicles or encapsulated torpedoes like the US MK-60 CAPTOR system, which lurks underwater until it identifies the sonar signature of an enemy ship.[37] In each example, a human gives an autonomous system a task (e.g., defend a bomber, protect friendly ships, patrol disputed territory), but HRI varies over space and time.

Proximity to humans also appears in discussions of AWS-civilian interaction. Indeed, many of the legal/ethical concerns previously discussed stem from the problem of differentiating combatants from noncombatants. These objections are commonly framed through the hypothetical use of AWS in law enforcement. Amnesty International, for example, has warned of the "further development of killer robots whose insidious creep into policing would put lives at risk and pose a serious threat to human rights."[38] Cristof Heyns says, "AWS may be used [in] hostage situations . . . crowd control; targeting specific classes of perpetrators such as prison escapees and big-game poachers; providing perimeter protection around buildings, such as high security prisons . . . or to protect pipelines. Such systems may also be used in 'wars' on drugs or other crime control or antiterrorism operations."[39]

On the other hand, there are those who doubt AWS will be used near civilians in the foreseeable future, if ever. For example, Robert Sparrow notes AWS will likely first be deployed in antisubmarine warfare, air-to-air combat, and other theaters where "there are few civilian targets."[40] In his study of the impact of AWS on the US Air Force, RAF Wing Commander Andrew Massie writes, "with clear delineation between friend and foe, clear fire corridors for autonomous kinetic, cyber, and electronic-warfare weapons might offer a decimating form of defense" in arenas where civilians are absent.[41] AWS are more likely to be used in spatial contexts where civilians are not present, both because of the difficulty of differentiating combatants and noncombatants and because

the preponderance of situations in which the AWS currently under development will be useful will likely occur far from civilian areas.

Disaggregated Command and Control

One of the most significant transformations of military operations since the invention of the telegraph has been the use of long-distance communication to aggregate C2 to the upper echelons of command structures. While commanders' ability to communicate with troops in the field is not—and has never been—perfect, new threats ranging from antisatellite weapons and cyberattacks to the cutting of undersea fiber-optic cables pose unprecedented dangers to the Pentagon's ability to maintain robust C2 in contested environments.[42] This is why near-peer and peer adversaries' A2/AD operations are likely to target these C2 assets early in the event of armed conflict.[43]

AWS are designed to operate in precisely such information-scarce scenarios. Even when C2 structures are operating at or near capacity, fleets of unmanned systems simultaneously communicating with their operators may overwhelm both technical and human bandwidth. A 2014 Rand Corporation study states, "[Unmanned vehicles] can potentially be equipped with different types of autonomous functions to reduce messaging loads on communications links to C2 and information analysis centers. For example, autonomous onboard planning algorithms can help reduce communications loads and lessen the need for frequent maneuver, heading, or flight commands."[44]

This problem would be compounded if C2 assets were to be destroyed in a conflict.[45] In response to this challenge, DARPA is investing heavily in the Collaborative Operations in Denied Environments (CODE) project, "which would allow multiple drones to independently fly to their objective and then find, identify and kill their targets."[46] Under CODE, a swarm of AWS would have a single human operator in theater (or no direct human operator at all), as opposed to the status quo of positioning multiple operators for each system far from the battlespace for nonautonomous, remote-control weapons like Predator UAVs.[47] In addition to reducing the load on centralized C2 structures, AWS could mitigate Klincewicz's fear of enemy cooption by "[decreasing] the likelihood of uplink communication hacking."[48] Ideally, autonomy will drastically improve the survivability of US unmanned systems should an enemy disrupt C2 capabilities.

Ironically, the qualities of AWS that improve their survivability in contested environments also challenge the Pentagon's organizational culture. Massie notes, "There are grave limitations between that mode of operating and our current C2 structure. A generation of leaders has lived in an operational environment where . . . decision making for the use of lethal force has largely been held with higher echelons."[49] It is this paradox that Heather Roff terms the "strategic robot problem."[50] She argues the process of identifying and prioritizing targets "is inherently strategic, as it involves the matching of means to ends" and thus undermines C2 by allowing AWS to act as "individual commanders, as well as JAG officers, weaponeering officers and intelligence officers."[51]

The extreme case of an autonomy-driven disaggregation of C2 would be a swarm of AWS *designed* to be unable to communicate with its commanders.[52] Straub describes such a nonrecallable AWS as a deterrent similar to nuclear weapons during the Cold War and to the *Zanryū Nipponhei*, or Japanese holdouts, who continued fighting WWII long after the war had ended.[53] Such a system is not the goal of programs like CODE. But if created and deployed, a Japanese holdout–capable AWS would represent not just the reluctant delegation of lethal decisions to lower echelons of command but also the foreclosing of an option to terminate hostilities.

Public Opinion

Public opinion on AWS is not well understood, because of a lack of popular understanding of AWS and because of a lack of research into what views the public does hold on autonomous weapons. A 2013 survey conducted by YouGov and University of Massachusetts–Amherst finds 55 percent of Americans oppose AWS, with only 26 percent in favor.[54] However, a replication study finds that when the development of these systems is framed as potentially lifesaving for soldiers and inevitable by other countries, respondents' approval of AWS increased, suggesting that public support or opposition to AWS is context dependent.[55] While comparisons of data from different surveys should be treated cautiously, these results suggest the public is instinctively wary of AWS but may be amenable to persuasion.

A relationship between public sentiment, AWS, and policy making may operate differently in more authoritarian countries. Horowitz points out autocrats who fear revolt by their populations and a coup by their military may for that reason prefer to invest in AWS.[56] Robert Work

made a similar argument at the Center for a New American Security in 2015: "Authoritarian regimes who believe people are weaknesses in the machine, that they are the weak link in the cog, that they cannot be trusted . . . they will naturally gravitate towards totally automated solutions. Why do I know this? Because that's exactly the way the Soviets conceived of their reconnaissance strike complex."[57] If public opinion proves to be a constraint on US development, deployment, and use of AWS, the same may not be true of potential adversaries.

Some scholars approach the question of whether authoritarian states might be more likely to develop AWS than democracies from the other direction. They argue that by removing human soldiers from the battlefield in response to a democratic public's preference for casualty avoidance, AWS may make democracies more war-prone by reducing the domestic political costs of conflict.[58] On the other hand, one study found AWS "do not decrease the degree to which civilian and military leaders are identified as responsible for negative outcomes" such as instances of lethal malfunction.[59] Policy makers may find themselves pulled between the potential benefits of avoiding a "Black Hawk Down" scenario and the risks of an AWS malfunction causing a robotic My Lai massacre. This is the closest the existing literature comes to examining how AWS might change the dynamics of competition between two powers. However, this subgenre of argument largely deals with which kinds of leaders might develop AWS, and when; it does not deal with how AWS may impact the behavior of states once that competition boils over into a crisis.

AWS and Crisis Bargaining

None of the foregoing is to suggest that previous research into AWS is misguided, irrelevant, or useless. But a sustained analysis of the writing on autonomy reveals a glaring lack of consideration of how AWS might affect the behavior of countries that adopt them. This gap is all the more striking because the entire point of the Third Offset, as set out by the Pentagon, is to help commanders make decisions and so keep the United States comfortably ahead of the competitors with which it could find itself embroiled in crisis.

To avoid being bogged down in theoretical debates about when, why, and how crises escalate, this article will proceed from this observation: in a crisis, perceptions—by decision makers and the public—matter a great deal.[60] Using this axiom, the practical impact of the crisis-bargaining

gap will be illustrated through a series of scenarios, each drawn from real-world crises and involving systems substantially similar to AWS that have been deployed or prototyped.[61]

Scenario One: Claims of Accident, Alliance Obligations, and Claiming Mistake as an Off-Ramp

A Russian air-defense battery stationed near the Syrian-Turkish border shoots down a Turkish military jet carrying several prominent Turkish politicians in Turkey's airspace. Amid the resulting uproar, the Russian military claims it does not know why the system fired but suspects that the autonomous targeting system may have malfunctioned.[62] There is no way to evaluate the veracity of Russia's claims. Alongside sanctions and public condemnations, Turkey demands unspecified US military action against Russia under the NATO Charter. American public opinion strongly supports Turkey. The United States has a range of choices, including striking Russian forces in Syria, refusing point-blank to meet a NATO ally's demand for support after a Russian attack, or attempting to find an off-ramp for de-escalation.

In this case, the United States would prefer not to launch military action against Russia. Regardless of the veracity of Russia's claim of an accidental firing, the United States could call for a diplomatic resolution short of kinetic force (e.g. international inspections of the system, a withdrawal of air defense batteries in the area, etc.). Autonomy could afford the United States an off-ramp by providing a plausible cover: the potentially accidental nature of the violation of an ally's sovereignty means a military response is neither legally required nor morally warranted.

In short, AWS could provide a face-saving alternative for leaders trying to de-escalate a crisis. The technical complexities of AI-enabled weapons and the possibility of malfunction add a new layer of fog to war. It may not be possible in such situations to determine whether an AWS malfunctioned or a redline was crossed—more importantly, it may not matter. AWS operating in conditions of uncertainty make it possible for a first shot to be fired, even if no person fires it. In an interesting twist on the debate about whom to hold responsible in the event of an AWS's malfunction, the most life-saving answer in a crisis may be no one: If there is no one to blame, there is no one to bomb.[63] On the other hand, national leaders may well hold the owners of the AWS system respon-

sible regardless whether an attack was accidental. In this case, retaliation might seem desirable to maintain credibility.

Additionally, because nonautonomous weapons like stealth bombers and remote-control UAVs can already carry out retaliatory strikes without significant operational risk to US Soldiers, autonomy per se is not likely to be a unique reason why negligible operational risk means the United States might choose to escalate in such crises. Furthermore, these disparities in capabilities are already an incentive for adversaries to develop asymmetric responses, both in and out of the theater in question. It is not clear what kinds of asymmetric responses AWS will be able to neutralize; autonomous weapons therefore may not subtract much from the cost side of the United States' cost/benefit analysis in deciding whether to strike.

Scenario Two: Accidents Involving a Near-Peer Competitor

After months of increasingly combative rhetoric, China announces the People's Liberation Army will enforce an Air Defense Identification Zone (ADIZ) over contested islands in the South China Sea. The United States rejects the legitimacy of the ADIZ and begins air patrols in the area to reassure its allies and signal support for freedom of navigation rights. While a US F-35 and its four autonomous unmanned combat aerial vehicle wingmen are flying through the ADIZ, a Chinese drone begins harrying the patrol. The drone gets so close that an autonomous US UCAV's threat-perception algorithm perceives an imminent danger to the F-35. Because the US UCAV and Chinese drone are too close to the F-35 for the UCAV to fire, the UCAV slams into the Chinese drone to protect the rest of the patrol.[64] Each side accuses the other of reckless behavior, and both increase their unmanned and autonomous air patrols in the disputed zone.

In this case, both the United States and China would probably be less likely to escalate than if one of their human pilots had died. Compare the public outcry over Iran's decision in January 2016 to detain 10 US Navy personnel in the Persian Gulf to the muted public reaction to China's seizure in December 2016 of a US Navy submersible drone.[65] A failure to respond to the death of a military member could prove politically disastrous for a US leader, but destroyed AWS do not have grieving families.

On the other hand, the diminished risk to US pilots and the resulting reduction in public demands for revenge may encourage leaders to deploy AWS when they would have otherwise chosen to not deploy piloted air

patrols. This could end up multiplying risk, because each side will to some degree be unaware of the other's autonomous/unmanned capabilities, and neither side can know how adversarial military systems driven by AI will interact differently than those driven by human intelligence. Thus, AWS may make crises involving patrols over disputed territory more likely but less dangerous.

Scenario Three: Public Pressure to Withdraw Forward-Deployed Forces

Citing potential cost savings and reduced risk to American Soldiers, a Congressional report urges DOD to withdraw them from the Korean Demilitarized Zone (DMZ) and replace them with autonomous robotic sentries.[66] Liberal doves and conservative hawks, persuaded by the report's assertion that AWS will be at least as effective as the currently deployed US forces, unite in support of the proposal. The South Korean government supports the addition of the autonomous sentries but opposes the withdrawal of American troops.

This scenario draws on Thomas Schelling's observation that although small forces of American troops stationed on allied soil cannot repel a mass invasion, "bluntly, they can die. They can die heroically, dramatically, and in a manner that guarantees that the action cannot stop there."[67] The notion, applying James Fearon's formulation, is that if these tripwire troops are killed in an attack on an ally's territory, the potential domestic political costs imposed on a US leader who chooses *not* to respond guarantee an overwhelming military response, making the US commitment to South Korea more credible. But AWS, by definition and design, cannot "die heroically." If AWS physically displace human soldiers from an ally's territory, the potential domestic political costs to leaders of not responding in the event of attack would be diminished. Hence, South Korean leaders might perceive the United States' commitment as less credible.

One of the primary arguments for the development and deployment of AWS is that robots can remove humans from harm's way. This assertion runs directly counter to the DOD's insistence that AWS will fight alongside human soldiers, rather than displacing them.[68] Whatever the Pentagon's insistence today and regardless of whether AWS could replace humans without impacting military effectiveness, it is entirely plausible that placing soldiers in harm's way will become politically untenable if

AWS are seen as a viable replacement for human soldiers. This is particularly true if the most visible permutations of AWS are autonomous unmanned underwater, surface, and air vehicles rather than AI-enabled computer systems designed to support military logistics and decision making. Congress and the public are more likely to demand the replacement of human soldiers with AWS if they can picture a robot armed with high-tech firearms storming onto the battlefield.

Designing AWS to support—rather than replace—human soldiers may make sense from a military perspective, but it raises political risks domestically and internationally. First, public misunderstandings of AI, steeped in science fiction archetypes of hyper-advanced robot warriors, may lead to the overestimation of AWS' capabilities, even as they fuel pacifist opposition to AWS' development. This overestimation, in turn, may convince supporters of AWS that new weapons can replace human soldiers without reducing military effectiveness.

The second danger to the international credibility of the United States and its commitments to its allies also flows from this potential for domestic overestimation of AWS' capabilities. To the extent political pressure leads to AWS geographically displacing forward-deployed forces instead of supporting them, they may make US commitments to defend allies less credible. If South Korea is less certain of the US defense commitment, it might choose to self-help by building up its own military, possibly including the development of nuclear weapons or its own AWS.

This tension between the enhanced lethality of US forces and the diminished credibility of US commitments from forward-deployed AWS could be resolved in two ways. First, military leaders could convince civilian policy makers and the public that AWS would be ineffective unless they are directly supporting US Soldiers. Given the parochial incentives of commanders to emphasize the capabilities and downplay the limitations of new military systems during the appropriations process, this may be easier said than done. But if this framing is successful, and if AWS are deployed to augment tripwire forces, they may marginally increase the credibility of US commitments by signaling a prioritization of that ally's defense and increasing the fighting effectiveness of deployed land forces.[69]

Alternatively, the United States could adopt a doomsday device approach to make US involvement in a conflict automatic. Such an effort would involve programming prepositioned AWS to strike North

Korean targets if a certain condition occurs (e.g., a critical mass of North Korean troops crosses the DMZ). To make this commitment credible, the United States would have to convince South Korea that it will not simply call off its AWS when the time comes. That would require pre-programming AWS to cut off all communication with US commanders at the moment the system decides to strike North Korea. This approach raises obvious concerns that a computer glitch or a large-scale military exercise could trip the system, not only dragging the United States into a war it does not want but also starting a conflict where a crisis might otherwise have been averted.

Scenario Four: Public Demands for Humanitarian Intervention

After peaceful protests, a Middle Eastern dictatorship begins a violent crackdown to suppress dissent. With thousands of refugees in immediate danger, public opinion strongly supports air strikes. The regime possesses advanced air defenses capable of shooting down US manned fighters and slower UAVs, but stealthy, autonomous UCAVs can avoid these batteries. Spurred by viral photos of regime abuses posted on social media, the president is considering declaring a "redline," promising airstrikes and a no-fly zone if the regime attacks a refugee camp that the regime alleges provides cover to pro-democracy rebels.[70]

This scenario is similar to the second case in that it involves risk to manned and unmanned aircraft. However, the interest here is purely humanitarian, and the adversary is substantially less able to retaliate against the United States than a near-peer competitor. To the extent that AWS could act in place of manned aircraft, drones, or ground forces in a humanitarian intervention, autonomy may obviate US leaders' fears of another Mogadishu and reduce the cost of enforcing a redline. Enforcing these redlines, in turn, may enhance the credibility of the United States' other commitments, providing a benefit beyond any intrinsic good obtained by protecting human rights.

The public opinion aspect of this scenario should also be borne in mind. If public disapprobation of AWS hardens, using unpopular autonomous systems in a humanitarian operation demanded by the public may undermine support for the intervention. On the other hand, it is also possible that the use of AWS in such a scenario could improve the perception of such weapons in the public's estimation. The public's

approval or disapproval will likely hinge on the ability of AWS to discriminate between civilian and military targets, a task that is infinitely more complex in scenarios of insurgency, civil war, and hybrid conflict like this one.

Beyond the domestic audience, US policy makers should also consider international observers. If AWS prove devastatingly effective against a less-advanced military, other potential future adversaries may kick-start their efforts to develop their own indigenous AWS capabilities. A similar phenomenon occurred after US precision munitions decimated the Iraqi military in 1991–1992, a "wake-up call" for the People's Liberation Army to begin modernizing its own forces.[71] If AWS are so effective at obtaining US objectives that they change the humanitarian intervention calculus, their use may not only publicize valuable information about US autonomous capabilities but also carry ramifications for the military balance of future conflicts with peer or near-peer competitors.

A final crucial point is the role of AWS, and advanced technology in general, postintervention. No one seriously suggests AWS will be able to effectively carry out the counterinsurgency or police actions necessary to stabilize violent regions. Indeed, that is not the point of AWS. The Third Offset is an effort to shift the US military's focus from Afghanistan- and Iraq-style operations to medium- and high-intensity warfare with technologically advanced adversaries. To put it bluntly, AWS are intended to fight militaries like China and Russia, not the Taliban.

Scenario Five: Command and Control and Assurances

A period of tension between the United States and China erupts into conflict in the South China Sea. The first shot is fired when an autonomous US UCAV identifies an autonomous Chinese air defense system's radar as hostile and preemptively engages. Each side accuses the other of provoking the conflict, but because both the UCAV and Chinese system are destroyed in the clash, it is impossible to recover diagnostic logs that would shed light on why each AI acted as it did.

In the opening days of the resulting conflict, the United States and China each destroy much of the other's space-based communication assets and C2 infrastructure in the Pacific. Before this occurs, however, the United States orders a handful of stealthy, autonomous attack submersibles to patrol the South China Sea and sink any PLA-Navy (PLAN) ship they encounter. Two weeks later, a ceasefire is brokered by the UN

to give the combatants time to negotiate an armistice. During negotiations, one of the US officials are autonomous submersibles, cut off from communication and unaware of the ceasefire, sinks a PLAN cruiser in the Straits of Malacca. US officials are forced to reveal they are unable to call off the submersibles until they can reestablish their military satellite constellation, and China breaks off negotiations.

This scenario combines concerns of AI-enabled preemption, non-recallable drones, and disaggregated C2.[72] Rules of engagement can, to some degree, be programmed into an AWS. But just as nervous frontline soldiers can start a skirmish, AI-enabled weapons systems that make probabilistic decisions in milliseconds can miscalculate. As mentioned above in the discussion of adversarial trading algorithms, this is particularly true when each side deploys AWS that may misinterpret the actions of the other side's systems and react in unpredictable and potentially dangerous ways. In that sense, this case is the inverse of Scenario Two; instead of providing a face-saving off-ramp for de-escalation, the uncertainty clouding the initial engagement presages further violence.

This scenario also illustrates Schelling's observation that effective coercive bargaining requires credible threats and credible assurances.[73] Because the *Zanryū Nipponhei* were essentially harmless, the Japanese empire at the end of WWII could credibly assure the United States that a peace agreement would actually hold. The AWS deployed in coming decades, however, will presumably be more capable of inflicting harm than an infantryman with a rifle trapped on an island in the middle of the Pacific. If and when AWS become so effective at operating in theaters where A2/AD has degraded C2 that they will continue to wreak havoc either until C2 is restored or they are destroyed, they could force crises to escalate by making it impossible to credibly de-escalate.

Conclusion

Policy makers and researchers should seek to better answer questions of how to use AWS, because these systems are likely to interact with many of the theoretical mechanisms that inform our understanding of international crises. If AWS on balance decrease America's ability to send costly signals, this could reduce its ability to make credible threats and assurances in a crisis. This, in turn, could undermine the US alliance system. In such a situation, US allies may seek AWS themselves in much the same way that UAV technologies have proliferated.[74]

It is an oversimplification, however, to say that because AWS cannot die, signals will not be credible. Much depends on the context in which AWS are used. For example, a lone autonomous UCAV or submersible may operate outside close physical or temporal proximity to US Soldiers, making de-escalation harder if conflict degrades C2. In contrast, an autonomous unmanned ground vehicle may operate in extremely close proximity to ground forces, multiplying lethality and improving survivability of US assets. The domestic political costs involving the loss of military assets may be lower in the former scenario but constant in the latter. If this is the case, US strategists should consider emphasizing the deployment of AWS only when it does not seriously compromise the United States' ability to effectively bargain in crises.

Additionally, AWS may reduce the risk to American lives without necessarily reducing the US's war-fighting capacity. This, in turn, may reduce US domestic political opposition to military interventions, especially in humanitarian contexts without an immediately apparent US national interest.

It is impossible to predict with total confidence how AWS will develop and influence policy making. Future research should focus on technologies that are emerging, not merely hypothetical, to mitigate this concern. Additionally, some may worry about the use of hypothetical scenarios to explore AWS. This critique is valid to some degree, but two factors caution against dismissal of this analysis. First, the United States cannot afford to wait for an *ex post* analysis of AWS. If research into military autonomy is to be useful, it must, to some degree, be hypothetical. Second, this article does not pretend to present ironclad findings on the relationship between AWS and crisis dynamics; instead it draws on existing research to suggest some mechanisms by which AWS might affect the dynamics of future foreign policy crises.

If the reader is left with more questions than answers, it is because this is a call for further inquiry. This future research should consider employing parallel simulations contrasting the involvement or absence of AWS in a crisis scenario. Additionally, although analysts have begun to speculate about the proliferation of AWS to states with different political systems and strategic cultures,[75] there is no comparative research known to the author into how strategists in states like China, Russia, or Israel might conceptualize AWS differently than their counterparts in the

United States.[76] Such insights would prove invaluable to security studies scholars and policy makers alike.

The Pentagon has repeatedly emphasized that the Third Offset is about much more than technology: it involves changing organizations, doctrines, and paradigms to accommodate and maximize the impact of technological advancements. However, merely recognizing the necessity of combining strategy and technology is different than considering how those innovations might change crisis dynamics and coercive diplomacy. Such an undertaking is indispensable if AWS are to help the United States maintain a strategic, and not just technological, edge over its adversaries. SSQ

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69. For a discussion of the role of fighting effectiveness in augmenting US credibility, see Michael Hunzeker and Alexander Lanoszka, "Landpower and American Credibility," *Parameters* 45, no. 4 (Winter 2015–2016): 17–26, https://ssi.armywarcollege.edu/pubs/parameters/issues/Winter_2015-16/Vol45_No%204.pdf.

70. This is based on the Syrian chemical weapons redline breached in August 2013, US operations in the Balkans in the 1990s, and the no-fly zone over Kurdish regions of Iraq in the 1990s.

71. John Wilson Lewis and Xue Litai, "China's Search for a Modern Air Force," *International Security* 24, no. 1 (Summer 1999): 64–94, http://www.jstor.org/stable/2539348, 78. *See* also David Shambaugh, "China's Military: Real or Paper Tiger?" *Washington Quarterly* 19, no. 2 (Spring 1996): 25–26, http://doi.org/b2q3kh.

72. Straub, "Non-Recallable Unmanned Vehicles"; Massie, "Future Force"; Roff, "Strategic Robot Problem"; and Klincewicz, "Frame Problem."

73. Schelling, *Arms and Influence*.

74. *See*, for example, Micah Zenko and Sarah Kreps, *Limiting Armed Drone Proliferation*, Council on Foreign Relations, June 2014, http://www.cfr.org/drones/limiting-armed-drone-proliferation/p33127.

75. Horowitz, "Who'll Want AI Weapons?"

76. For an excellent comparative discussion of how different strategic cultures viewed the technologies, weapons, and doctrines of the Second Offset, see Dima Adamsky, *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the U.S., and Israel* (Stanford, CA: Stanford University Press, 2010).

China in Space: Ambitions and Possible Conflict

Namrata Goswami

To explore the vast cosmos, develop the space industry and build China into a space power is a dream we pursue unremittingly.

—"China's Space Activities in 2016"

Abstract

Major powers like China are viewing space less concerned with "securing the high ground" for espionage and nuclear deterrence and more for access to the vast material and energy resources of the inner solar system. China aims to establish a manned space station by 2020–22 and a space-based solar power station by 2050 to meet its burgeoning economic and energy needs, develop space science and technology, explore outer space, and land on Mars. This article examines China's vision and the end it foresees for its contemporary space activities (grand visions), which might lead to and determine the imagined shape of governance in space. It identifies strains of nationalism and internationalism and specifically discusses Chinese policy attitudes and aspirations related to space-based solar power (SBSP), lunar and asteroid mining, space settlement, and planetary defense.[1]

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Our contemporary space age is moving toward the prospect of harvesting space-based resources for long-term national economic development. For instance, asteroids are rich in minerals like platinum, gold, titanium, iron, nickel, and, most importantly, water. Precious metals like titanium and gold sell for anything between US $30,000 to $50,000 per kilogram.

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Scientists infer that a small asteroid 200 meters in length and rich in platinum could be worth $30 billion.[2] Asteroid 2011 UW158, worth $5 trillion in platinum, sailed at a distance of 1.5 million miles from Earth in July 2015.[3] Waking up to the potential of billions of dollars' worth of minerals that can be mined from asteroids, the US Congress passed the 2015 US Commercial Space Launch Competitive Act that aims to encourage and propel private-sector investments and entrepreneurship in space as well as establish better regulatory mechanisms for such activities.[4] Private companies like Planetary Resources are focused on asteroid mining, along with others like Deep Space Industries, Bigelow, and SpaceX.[5] Luxemburg is the first in Europe to announce a government initiative to develop regulatory and legal frameworks to establish ownership of minerals extracted from asteroids.[6] The 1967 Outer Space Treaty (OST) states the following:

- "the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind;
- "outer space shall be free for exploration and use by all States;
- "outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."[7]

However, since the OST does not specify how space-based resources will be allocated, ambiguity with regard to ownership of space-based resources could result in conflict. Two reasons exist for this: the absence of a regulatory mechanism that factors in the entry of commercial enterprises into the business of space as well as states starting to look to space for resources for their own economic development.

China's attitudes and aspirations towards expansionism, territoriality, and resource nationalism in space is of paramount significance to future space governance. China is a major spacefaring nation with specific future ambitions in space.[8] Over the past several decades, China has witnessed rapid and observable progress with regard to its space activities. It began space research and development as early as the 1950s. Twenty years later, on 24 April 1970, China successfully launched its first satellite (*Dong Fang Hong I*) into space, utilizing its indigenously built rocket, the *Long March 1*.[9] Established in 1968, the Chinese Academy of Space Technology (CAST) was instrumental in realizing this ambition.[10] Zhou Enlai, China's first premier, believed that China's accom-

plishments in space would result in global prestige. Over the next 20 years, China's space activities accelerated, with growing focus on geosynchronous communication satellites vital for military command, control, and intelligence. In 1999, China launched its first unmanned spacecraft *Shenzhou I*, followed in 2001 and 2002 by *Shenzhou II* and *Shenzhou III,* respectively.[11] In 2003, China sent its first manned spacecraft (*Shenzhou V*) into space.[12] In 2007, China carried out its first antisatellite missile test.[13] In 2010, it both orbited an unmanned spacecraft around the moon and landed a rover on its surface. On 30 October 2015, China tested the *Dong Neng-3* exoatmospheric vehicle capable of ramming US satellites and destroying them.[14] Added to this space capability are the *Tiangong 1* and *Tiangong 2* space labs and the indigenously built *Tianzhou* cargo ship capable of on-orbit refueling that extends access and logistics lines. Autonomous cargo delivery and on-orbit refueling are critical building blocks of an end-to-end supply chain for space presence and space resources or the construction of on-orbit power stations.[15]

According to its white papers on space, China essentially views exploration of outer space as part of its overall national development. China takes pride in its indigenous capacity building in space technology, including the development of its manned space program, lunar probe, and development of space industry. China aims to pursue independent innovation in space and reform its institutions for further creativity as well as cement international cooperation in outer space.[16] Moreover, China aims to improve the *Beidou 2* navigation system, with an aim to provide for regional coverage (especially to those countries along the One Belt, One Road initiative) by 2018, and offer global coverage by 2020.[17] Recently, China Aerospace Science and Technology Corporation issued a report claiming that China will achieve a major breakthrough by 2040 with regard to "nuclear-powered space shuttles." This breakthrough will enable mining of space-based resources, including from asteroids, and the establishment of solar power stations. The report also specified that by 2035, China will possess fully reusable launch vehicles.[18] China aims to establish a manned space station by 2020–22 and a space-based solar power station by 2050, develop science and technology to protect China's national core interests, and land on Mars.

It is in this context that this article examines China's ambition and aspirations related to space-based solar power, lunar and asteroid mining, space settlement, and planetary defense. It identifies strains of

nationalism and internationalism and specifically discusses Chinese policy attitudes and scenarios that might lead to and determine the imagined shape of conflict.

China's Space Ambitions

China's space ambitions are unique and have the full backing of the Communist Party of China (CPC). Pres. Xi Jinping views China's space program as enhancing a climate of scientific innovation, especially in the field of robotics, artificial intelligence, and aviation.[19] Towards this end, the CPC aims for China's space program to result in enormous economic dividends. Investment in space technology is perceived as a means to revive state-owned enterprises as well as inspire private start-ups in line with SpaceX and Blue Origin. China is estimated to spend $6 billion annually on its space program.[20] Compared to NASA's $18.5 billion annual budget in 2016,[21] China's space budget appears diminutive. Its space science budget increased from zero a decade ago to $695 million between 2011 and 2015. But, given its low costs in labor and other added services, the country may enjoy an advantage. Private start-ups like One Space, Expace, and Land Space are being encouraged to develop launch capabilities and enter the thriving market for commercial space companies.[22]

The question that arises for the international community in this context is: what is driving China's space ambitions? There are concerns that a South China Sea–like scenario may unfold in outer space compelled by resource nationalism, defined as "anti-competitive behaviour designed to restrict the international supply of a natural resource."[23] Population growth, the uneven worldwide distribution of resources, and governance issues can lead to resource nationalism.[24] While Chinese experts largely dismiss these concerns, a reason to link these comes from Chinese Long March designer, Wang XiJi, who offered the following lens of occupation: Wang warned that if it did not act quickly, other countries, in particular the US and Japan, would take the lead and occupy strategically important locations in space.[25] In 2002, Ouyang Ziyuan, chief scientist of China's Moon exploration program, stated, "The Moon could serve as a new and tremendous supplier of energy and resources for human beings. . . . This is crucial to sustainable development of human beings on Earth. . . . Whoever first conquers the Moon will benefit first."[26]

Chinese strategic and space experts express discomfort with the idea of "resource-nationalism" in space, insisting that China's strategic culture does not support such expansionist behavior.[27] For instance, the idea of *he* (harmony), written in ancient Chinese texts inspired by Daoism and Confucianism, and the ideal aspiration of "harmonization" attest to this.[28] However, a divergent perspective on the concept of harmony is offered by Wei Xiaohong and Li Qingyuan, from Sichuan Agricultural University, China. They argue that while harmony is a fundamental guiding principle for social interactions in China, there are two types of harmony: genuine and surface harmony. Genuine harmony is sincere and holistic, while surface harmony is strategic tolerance, hiding conflicts under the surface.[29] For better or worse, surface harmony is preferred to direct confrontations. This idea of surface harmony creates suspicions regarding China's overall intent with regard to its strategic behavior. Given China's assertive behavior with regard to "lost territories" intertwined with the idea of national resources, it is likely China's quest for space-based resources would be informed by a similar logic.[30] However, Chinese space experts maintain that while enhancing national prestige and international status remain prime motivating factors with regard to China's space goals, China views space from a completely different perspective, namely a "global commons" perspective.[31] Consequently, how China conducts itself with regard to its core interests of sovereignty and territorial integrity cannot be generalized into its space behavior—at the grand strategic level, China may continue to utilize nationalism to create legitimacy for the CPC and to invest heavily in space.[32]

There are others who indicated that acquiring high-end technology and investing in space science that benefits China commercially from its space program appears to be taking center stage.[33] For instance, the China Great Wall Industry Corporation offers the Long March rocket for commercial launches internationally in collaboration with the China Academy of Launch Vehicle Technology (CALT), the Shanghai Academy of Spaceflight Technology (SAST) and the China Satellite Launch, Tracking and Control General (CLTC).[34] The China Great Wall Industry Corporation is the prime contractor for commercial contracts, while CALT, SAST, and CLTC are subcontractors. As mentioned earlier, China is starting to witness purely commercial private companies showing keen interest in investing in outer space. Liu Ruopeng, founder of Hong Kong–based Kuang-Chi Science Ltd.,[35] stated that commercial

activity and innovation will grow exponentially in outer space in China in the next 10 years.[36] Ruopeng is aiming at entering the space tourism race, competing with companies like SpaceX, to offer space tourists a chance to travel to suborbital space, enjoy zero gravity, and re-enter earth. That said, the role of the Chinese state in space investment has not diminished. Speaking to astronauts from the *Shenzhou 11* mission in December 2016,[37] Pres. Xi Jinping expressed his commitment to turn China into a major space power.[38] "Space Day" was declared 24 April 2016, memorializing the day China launched its first satellite in 1970.[39]

The institutions within China tasked with developing China's space explorations are many and varied. While the CPC's Central Committee of the Political Bureau, comprising President Xi and Premier Li Keqiang, has ultimate power and authority, several institutions have been established to formulate and carry out the country's space activities. Foremost among the plans laid out was the 863 plan,[40] established to kick-start technological development for space exploration. Led by the Science and Technology Leading Small Group under the State Council that provided the policy guidance and overall framework, the importance of the 863 plan can be gauged from the fact that Deng Xiaoping personally approved it and Premier Zhao Ziyang led it.[41] Besides CAST, State Administration on Science, Technology, and Industry for National Defense (SASTIND), which functions under the direction of the Ministry of Industry and Information Technology, oversees the vital link between space technology and nuclear power and communicates this aspect with other countries and international organizations.[42] SASTIND is tasked with managing and coordinating China's space activities.[43] Under SASTIND is the China National Space Administration (CNSA), established in 1993. The CNSA is responsible for articulating China's space policies, directing its manned space mission, the lunar mission, the *Tiangong* space station, and the Long March series of rockets.[44] While the State Council issues the "White Paper on Space" outlining the medium- to long-term space goals, CNSA is responsible for articulating and publicizing China's space policy and directs its civilian space program.[45] At the space symposium in Colorado Springs in April 2017, CNSA secretary general Yulong Tian stated that China's major space goals in the next five years are to launch robotic missions to the moon, outline a policy for commercial space activities, conduct an automated Mars sample return mission by 2030, and launch deep space

exploration of Jupiter, Venus, and asteroids.[46] Other institutions tasked with space technology are China Aerospace Science and Technology Corporation[47] (which includes under it CALT), the China Aerospace Science and Industry Corporation, and Chinese Academy of Sciences (CAS). Interestingly, the China Satellite Launch, Tracking and Control General is run by the Central Military Commission.[48] The CLTC serves as a command-and-control center for PLA's space-related operations. This direct interlinkage resulted in very close supervision by the commission, specifically its General Armament Department (GAD), now merged into the Strategic Support Force (SSF), which influenced space policy as well as how goals were set in the long term. In collaboration with SASTIND, GAD (now SSF) issued regulations for defense industry procurements as well as identified institutions that would deal with space technology. On 31 December 2015, China set up the PLA SSF that would now be in charge of both cyber and space assets. The SSF is responsible for managing the human spaceflight program.[49] According to Maj Gen Du Wenlong, from the PLA Academy of Military Science, "as for the Strategic Support Force, it better coordinates the cooperation between forces on the battlefield and logistic support."[50] Interestingly, what this implies is that the PLA and not the Chinese Air Force will have control over space, unlike in the United States, where space is the domain of the Air Force.[51] The SSF has two distinct space-related organizations, the Space System Department and the Military Space Force.[52]

As per policy statements from these leading space institutions, particularly CAST, CNSA, and SASTIND, three unique Chinese space goals come to light: (1) space-based solar power, (2) lunar and asteroid mining, and (3) establishing its own space station.[53] These goals are unique as they indicate a completely different view of space. Rather than just an arena for conquest and showing off, China views space as an environment in which to live, work, and create wealth through habitation and resource extraction. This different view of what space is directly affects policy. In its 2016 white paper on space, China specifically linked its space exploration to long-term economic developmental goals. This includes bringing back samples from Mars for research as well as asteroid exploration.[54] Below is a detailed analysis of these three unique space goals.

Space-Based Solar Power

China's space solar ambitions were outlined in a 2010 report by its leading space agency, CAST. The report stated, "In 2010, CAST will finish the concept design; in 2020, we will finish the industrial level testing of in-orbit construction and wireless transmissions. In 2025, we will complete the first 100kW [solar power station (SPS)] demonstration at [low Earth orbit (LEO)]; and in 2035, the 100mW SPS will have electric generating capacity. Finally in 2050, the first commercial-level SPS system will be in operation at [geosynchronous Earth orbit (GEO)]."[55]

In 2015, China expressed its intention to build a space solar station 36,000 kilometers above the earth. This power station will be placed in geosynchronous orbit and equipped with huge solar panels, and the solar electricity that will be generated will be sent via microwaves or lasers to Earth. One of the biggest advocates of space-based solar power in China is Wang Xiji, the chief designer of China's first rocket, the *Long March 1*.[56] Wang believes that "the world will panic when the fossil fuels can no longer sustain human development. We must acquire space solar power technology before then. . . . Whoever obtains the technology first could occupy the future energy market. So it's of great strategic significance."[57] According to Duan Baoyan of the Chinese Academy of Engineering, "If we have space solar power technology, hopefull (sic) we could solve the energy crisis on Earth."[58] These views are supported by senior vice president of CAST, Li Ming, who believes that "China will build a space station in around 2020, which will open an opportunity to develop space solar power technology."[59] Li indicates that once the space station is in place, China would then carry out experiments on developing an SBSP station.[60] In a presentation for the 2016 International Astronautical Congress in Mexico, Li further elaborated on the SBSP concept by suggesting that in-situ resource utilization and on-orbit 3-D printing could be applied using resources from asteroids to build SBSP satellites on a lunar base instead of having to lift them from Earth to space. This will bring down manufacturing costs from $536 trillion ($50,000 per kilogram) to $170 billion ($250 per kilogram). Materials present on the lunar surface and asteroids include silicon and aluminum, required for solar panel production.[61] Li points out that the low gravity of some asteroids or near Earth objects (NEO) makes it easier for spacecraft to dock, park, or separate, requiring less propulsion. NEOs are attractive as they are rich in resources required for SBSP purposes. More recently,

Lt Gen Zhang Yuilin, the Central Military Commission's deputy chief of GAD (now SSF) stated that solar power generation in space was more efficient than Earth solar, indicating that China would start developing technology for an industrial-scale solar power station once it completes work on its permanent space station by 2020.[62] China has invested in developing a blueprint within a timeline of 2050 for its SBSP program. The CAST design by Hou Xinbin for SBSP satellites took the first position at the 2015 SunSat Design Competition.[63] Given CAST's timelines of completing the first 100kW SPS demonstration at LEO by 2025 and the first commercial-level SPS system to be in operation at GEO by 2050, these could turn into China's own Sputnik moments.

So, what exactly is SBSP? It is an orbital technology concept that traps the sun's rays to deliver clean, renewable power wirelessly to Earth.[64] What is more, given space has no atmosphere and is never cloudy, and when the satellite is in geosynchronous orbit with Earth there is no night, the power generated by a SBSP satellite will be constant. SBSP locates satellites in the geosynchronous orbit, which are far enough from the Earth that they do not fall under our planet's shadow except for very brief periods (spring and fall equinoxes) of less than an hour. Placed high above the atmosphere at a distance of about 35,800 kilometers above the Earth's equator,[65] the SBSP satellites can intercept rays 35 to 70 percent more powerful than the midday sun on Earth. This means the space-based photovoltaic cell will generate 40 times more power annually than an Earth-based solar cell.[66] Once generated, the electric current can be transmitted back to receiving antennas on Earth either through an infrared laser beam or as microwaves that can easily pass through cloud cover. While an individual satellite can actually only see a little less than half of the Earth, a system of satellites can provide power anywhere on the globe with a receiving antenna. By 2100, the world will require about 70 terawatts of energy, and the geostationary belt alone has the capacity to generate 332 terawatts of energy, which will facilitate a developed world with zero carbon energy emissions.[67]

Technological hurdles that exist for an SBSP station are its weight (10,000 tons) compared to what rockets can lift today (100 tons), transferring energy from space via microwaves, and precise attitude control as well as on-orbit manufacture/assembly/integration. Significantly, China has recognized that in order to ensure seamless energy flow for future generations, investing in SBSP research and development is to think big

long term and start working on building space solar infrastructure in orbit, especially in LEO and GEO—22,000 miles above Earth. CALT has started work on the super heavy *Long March 9* rocket, for China's future deep space exploration, to be completed by 2028. Li Tongyu, head of aerospace products at CALT, believed that the *Long March 9*'s "specifications will mostly be determined by a host of factors, including the government's space plan and the nation's overall industrial capability, as well as its engine's development."[68] This focus on SBSP has practical outcomes for China. China's energy consumption has grown from 18 quadrillion Btu in 1980 to 37.1 quadrillion Btu in 1996. It is projected to be 98.3 quadrillion Btu by 2020.[69] China's economy is projected to become the largest economy by 2028,[70] both in purchasing power parity and market exchange rate, and its energy demands have to sustain its economy. It is in this context that Lt Gen Zhang Yulin's remarks assume significance. He stated, "The Earth-moon space will be strategically important for the great rejuvenation of the Chinese nation."[71] He suggested that "China would next begin to exploit Earth-moon space for industrial development. The goal would be the construction of space-based solar power satellites that would beam energy back to Earth."[72]

Within China, those who study security and those who are space scientists have divergent perspectives on space-based resources. In general, Chinese experts on China's missile defense, nuclear, and regional security studies are pessimists when it comes to China's capability to achieve long-term space goals like SBSP or asteroid mining.[73] They believe that long-term space goals articulated by Chinese space policy makers or scientists are aimed mostly at procuring state funding for their projects.[74] On the other hand, long-term space investment is a high priority for China's leadership.[75] The commitment of the highest levels of PRC leadership is demonstrated by the close personal association of its highest leaders to space activities. In 1999, Chinese Premier Jiang Zemin personally named China's first unmanned space-craft, *Shenzhou* (*Our Divine Land*), and wrote the calligraphy imprinted on the side of the spacecraft.[76] China, via its space program, is aspiring to use its space technology, both for its development needs and the peaceful use of space and to reap economic dividends.[77] CAST, one of China's leading space agencies, views SBSP as meeting several important goals for China, namely, "sustainable economic and social development, disaster prevention and mitigation, and the retaining of qualified personnel and the cultivating

of innovative talents."[78] CAST submitted a feasibility report on SBSP, which was approved by the Ministry of Industry and Information Technology.[79] While the acquisition of technology for SBSP will require the development of cutting-edge technologies including ultra-thin arrays, revolutionary launch capabilities, and on-orbit manufacture/assembly/integration, China views its investments in developing SBSP technologies for energy as equivalent to the Apollo program that resulted in the US lead in science and technology.[80]

Lunar Exploration and Asteroid Mining

In its 2016 white paper on space activities, China identified asteroid exploration as one of its fundamental future space goals. In his presentation at the 2016 International Astronautical Congress in Mexico, Li Ming specifically identified mining resources from the moon and asteroids as a priority. China is focusing on exploiting resources like titanium, helium 3, and water from the far side of the moon. Its *Chang'e* lunar exploration program, launched on Long March rockets, is an ongoing robotic mission to the moon led by the CNSA. Besides discovering titanium and helium 3, discovering water on the lunar: on the lunar surface is going to be vital for any ambitions for a human settlement. Water is vital for creating propulsion, necessary for space crafts. In an interview with the BBC, Wu Weirin, the head designer of China's lunar missions, revealed that China aims for long-term exploration and a research base on the lunar surface.[81] By 2018, China aims to launch the *Chang'e-4* lunar probe to achieve a soft landing on the far side of the moon, to carry out topographic and geological survey of lunar samples.[82] By 2036, China aims to send a manned mission to the moon.[83]

It is interesting to understand the linkage drawn between the lunar base, asteroid mining and exploration, and SBSP. What can be inferred is that Chinese policy makers and space scientists have a long-term plan that has two distinct phases. The first phase is to succeed in developing its permanent space station by 2020–2022. In this, the *Tiangong 1* and *Tiangong 2* space labs are preliminary testing of technologies. The 20 April 2017 successful launch of its cargo space ship *Tianzhou 1* to test its docking with *Tiangong 2* will be ultimately utilized for supplying the six astronauts that will live in its permanent space station. Dr. Yang Yuguang, secretary general of the International Space Transport Association, stated that "this is the ultimate reason why China is building

up a cargo fleet."[84] Chinese scientists involved with the building of the *Tianzhou 1*, namely Bai Mingsheng, its chief designer, and Zhou Jianping, chief designer of China's manned space program, believed that the success of *Tianzhou 1* meant that they could now start work on the permanent space station as the supply and on-orbit refueling issues have been solved.[85]

The second phase is deep space and asteroid exploration. Ye Peijian, who leads deep space exploration at CAST, stated that China is investing in both Mars and asteroid exploration. Asteroid exploration, specifically, will be carried out between 2020 and 2025.[86] He said that "the detailed schedule and the target asteroid have yet to be determined, but we are working on them. We want to explore asteroids because their resources will be important to mankind's development in the future."[87] CNSA has scheduled the time period 2017–2022 to begin feasibility studies to develop the capability to exploit asteroids.[88] The ultimate aim is to land on asteroid 1996 FG3,[89] begin research probes on samples of minerals like titanium and platinum that could be worth billions, and establish a lunar presence to carry out manufacturing in space.

Hexi Baoyin, Yang Chen, and Junfeng Li at Tsinghua University in Beijing have published findings on how to nudge an asteroid into Earth's orbit.[90] The idea is to capture a NEO or asteroid with a low energy orbit and place it in Earth's orbit temporarily in order to develop the capacity and technology to extract resources from NEOs. On 13 December 2015, China's *Chang'e 2* flew as close as 3.2 kilometers past asteroid Toutatis, which is about 7 million kilometers away from the Earth. It managed to capture close pictures of the asteroid, making China the fourth country—after the United States, the European Union, and Japan—to examine an asteroid from an unmanned spacecraft.[91] Such probes require extreme precision.

One skill China intends to cultivate is planetary defense. In this, the asteroid Apophis, discovered in 2004 and 394 meters in length, is China's focus of study. In 2029, Apophis will fly near earth, missing it by 30,000 kilometers. In assessing the threat asteroids may pose to earth, CAS' Purple Mountain Observatory plays a significant role. In January 2017, the observatory discovered three NEOs, and one among them, 2017 BL3, poses a risk to Earth. In building towards these space technologies, China aims to establish a more permanent presence in space.

Permanent Space Station

China's ambitions to develop SBSP and exploit resources from asteroids are planned for after it completes building its permanent space station by 2020–22. The idea is to use permanent presence to then explore deep space and unravel some of the mysteries of space. In this, the work on developing capacity started nearly a decade ago. Named *Tiangong* ("*Heavenly Palace*"), China launched the *Tiangong 1* on 29 September 2011 on the Long March 2F/G.[92] The *Tiangong 1* was an experimental space laboratory aimed at carrying out docking and creating expertise on construction and operation of a space station. On 31 October 2011, the unmanned *Shenzhou 8* was launched via *Long March 2F (Y8)* launch vehicle and successfully docked with *Tiangong 1*.[93] The *Shenzhou 8* registered the first international collaboration for China's manned space program with SIMBOX, a joint project between China and Germany in the field of biomedicine.[94] In July 2012, China concluded the first successful crewed docking with the *Shenzhou 9*, the next stage in its plan to develop a manned space presence.[95] This was followed by the *Shenzhou 10*, the longest manned Chinese mission with three astronauts. The mission goals were to further enhance docking capabilities and build knowledge of living and working in space.[96] The *Tiangong 1* was planned to stay in orbit for two years and then fall back to Earth but is now expected to burn up in Earth's atmosphere in March 2018.[97]

On 15 September 2016, the *Tiangong 2* was launched and was visited by two Chinese astronauts aboard the *Shenzhou 11* for a month on 16 October 2016.[98] This is further progress toward establishment of the space station by 2022. Wu Ping, deputy director of China's manned space engineering office, stated that "the launch of *Tiangong-2* will lay a solid foundation for the building and operation of a permanent space station in the future."[99] On 20 April 2017, China launched the space cargo ship *Tianzhou 1* to refuel the *Tiangong 2*.[100] The *Tianzhou 1* successfully docked with the *Tiangong 2*.[101] This boosted China's path to its permanent space station, as the *Tianzhou 1* can carry about six tons of cargo and two tons of fuel and has the capacity to fly unmanned for three months.[102] The *Tianzhou 1* will be carrying out experiments on how weak gravity affects the development of human embryonic stem cells while in space.[103] The lead researcher for this project from Tsinghua University, Beijing, Kehkooi Kee, specifies that "the research is expected to provide a theoretical basis and technical support to solve the possible

problems of human reproduction caused by the space environment,"[104] especially the impact of microgravity. From this, we can surmise that China has ambitions for human settlement in space. According to Wu Weiren, chief designer of its moon missions, "our long term goal is to explore, land, and settle" on the lunar surface.[105] The *Tiangong 3* launch is planned by 2020.

The *Tiangong* orbital space station will support up to six astronauts for a long-term stay and consist of a 20-ton core module as well as two research modules. Given the International Space Station (ISS) is scheduled to retire by 2025, the *Tiangong* may be the only human space station remaining.[106] Significantly, Chinese astronauts are debarred from participating on the ISS as per 2011 US Congressional legislation.[107] Interestingly, Chinese experts assert that this prohibition has had a positive impact on China's space development. Lack of high-technology cooperation with the US has encouraged indigenous space capacity building and helped develop local expertise, with the CPC further motivated to invest heavily on China's space program.[108] Chinese experts on security and space matters go on to state that once China achieves high-end indigenous space technology, the US will have no other choice but to cooperate. Moreover, it will, by default, address the US congressional concern of space technology theft.[109] Once China has the knowledge and proven space capacity of its own, international cooperation with the US would become the new normal.

Serious Ambition Timelines

China's stated future space goals of developing a SBSP station and beaming that energy wirelessly back to Earth, establishing a manned lunar presence, landing on the dark side of the moon, exploring and mining asteroids, utilizing these resources for in-situ manufacturing, and building a permanent space station are technologically ambitious to achieve in the 20–30 year time span. The skeptics would argue that such goals are not achievable or feasible given the absence of proven technology or that China may rhetorically state these ambitions, but it remains to be seen if these goals are achievable.

To answer whether we need to take these future Chinese space goals seriously, let us examine the pattern of stated Chinese space ambitions in the past and whether it met the goals within the specific timeline set. In the 1950s China announced its ambitions for space along with its

nuclear ambitions under Mao Tse-tung. This was a result of threatened nuclear weapons use by the United States in the Korean War and Mao's decision to develop China's own nuclear arsenal as a deterrent against future vulnerabilities. To shore up international prestige for China, Mao aimed to place a satellite in orbit by 1959 under Project 581. When Soviet technical assistance was withdrawn, there was realization that this aim for a satellite was not possible, and consequently, Project 581 was abandoned.[110] This did not, however, completely eliminate the space program. Work continued for the next two decades to build the foundations for a long-term program, and finally, in 1970, China's first satellite *Dong Fang Hong 1* was launched on 25 April broadcasting the song "East Is Red" from orbit. Following that successful launch, and after Deng Xiaoping took over as premier of China, the space scientist community received a further boost to lay down specific aims for China's future space program. These were as follows.

In the late 1980s, China declared that it aimed to send a manned spaceflight in the next two decades. While it actually sent its first manned space mission, *Shenzhou V*, in 2003, its first unmanned space mission was successfully launched in 1999. While some argue that China's success in its unmanned and manned mission is due to its 1996 agreement with Russia on space technology acquisition, reengineering of Russian space technology simply does not mean the same technology but added-on technology fitted by Chinese engineers and scientists. In 2004, Wang Yongzhi, the chief designer of China's space program, stated that China plans to have a permanent crewed space station in the next 15 years.[111] That aim was reiterated in its 2016 white paper on space activities. The plans to establish a space station incrementally have been met, again as per stated schedule. In 1992, China established Project 921-2, whose mission was to launch a manned spaceflight in 10 years (mission accomplished 2003), an orbiting station by 2010 (mission accomplished 2011), and finally a permanent space station by 2020–22.[112] In 2007, China announced that between 2008 and 2010, the Shenzhou unmanned and manned spaceflights will be launched to dock with *Tiangong 1* (also mission accomplished).[113] In 2011, China declared its intentions to launch *Tiangong 2* by 2015, later postponed to 2016, followed by the *Shenzhou 11* manned spaceflight to dock with it, to be followed by the Chinese space cargo ship in 2017.[114] All these stated goals have been accomplished, including the successful launch and docking of

the indigenously built Chinese space cargo ship, the *Tianzhou 1*. The success in not only building the technology but also successfully meeting stated timelines gives enormous credibility to China's future stated goals of a 2018 landing on the dark side of the moon, a 2036 manned mission to the moon, SBSP space station by 2050, asteroid mining, and so forth. These goals would require enormous indigenous technology innovation and if successful would establish the independent innovation potential of China's space enterprise. The *Tianzhou 1* is a great example of the growing indigeneity of China's space program. Even with the PRC's delayed record of accomplishing its stated space goals, those who dismiss or ignore China's announced roadmaps for space should consider the fact that achievements in space are directly connected to the CPC's legitimacy and are not taken lightly. The high levels of political engagement with the space program are also grounds for possible conflict.

Conclusion

China's investments certainly suggest a desire to exploit space resources and pursue space settlement. Surely the ability of any nation to gain an advantage in accessing the vast wealth of the inner solar system could have an effect on the balance of power in the international system. Such access and mobility are likewise likely to provide certain military advantages as is true in any domain. However, quite aside from general concerns of changes in the distribution of economic and military power are the specific concerns of how such resources themselves are allocated and whether this can lead to conflict. It remains to be seen whether the shift in China's space goals, as articulated by its scientists and space policy makers, to acquire space-based resources and a permanent space station lead to resource nationalism, territoriality, and expansionism. Furthermore, will Chinese space ambitions result in a scenario of land grabs based on historical claims and counterclaims?

Will Chinese territorial assertion be replicated with regard to space resources? Once China reaches somewhere in space first—for instance, the far side of the moon or an asteroid—will it recreate a similar argument of owning a resource by being there first as it does with regard to the South China Sea and East China Sea? Will similar arguments with regard to being the first to use navigational charts in the South China Sea or issue first historical records with regard to the East China Sea be replicated on the lunar surface, where, by 2018, China aims to carry out

topographic and geological survey of lunar samples?[115] What will be the likely strategic impact if China declares a "Zone of Non-Interference," similar to an air defense identification zone, on the moon once it establishes a permanent base there? And if China passes an act similar to the 2015 US Asteroid Act that favors "first come, first served" with regard to mining rights and ownership of the mined resources, what would transpire if a US private company applies for landing and mining rights on an asteroid, but China rushes in and establishes its base first?[116] What if both US and Chinese companies want to mine the same asteroid? Are there mechanisms that would help peacefully create shared rights?

If the South China Sea is taken as a precedence, to date, China and its fellow disputants have not succeeded in establishing a code of conduct. The absence of a regulatory framework reflects the consequential absence of a standard of behavior that is acceptable to all and thereby leaves room for variable interpretations. This situation could get reflected in space once the technology to mine resources becomes cost effective and on-orbit manufacturing becomes commonplace.

China's ambitions in space over the coming 20–30 year time span show all indications of being successful. Chinese scholars on strategy and space indicate that China would prefer the "global commons" or internationalist perspective when it comes to space resources. None asserted any nationalist vision for celestial bodies or space resources, and all were firmly attached to playing as a "responsible stakeholder" within the existing global governance framework.[117] Nevertheless, China's strategic behavior with regard to the South China Sea and East China Sea, both rich in resources and both claimed by China, is based on a "first presence" argument. Consequently, Chinese behavior during a conflict in space would likely depend to a large extent on the kind of international regulatory regime in place, the ability of the regime to mitigate conflicts, and whether China considers itself to be in a superior or inferior position. China's strategic culture indicates it opts for peaceful conflict resolution when it is inferior to its adversaries but prefers use of force when it is in a superior position. Only those nations that keep up with China with regard to space access and industrial exploitation are likely to have any meaningful rule-making power. Chinese scholars specializing in space law insist that there is no international regulatory mechanism or law to adjudicate space property issues.[118] Given the potential increase in space-related resource activities, including China's

officially stated ambitions to exploit asteroids for resources, build an SBSP, and establish a lunar base, those in the international community who desire a peaceful future in space should promptly craft an international regulatory framework tuned to the realities of the twenty-first–century space ambitions. SSQ

Notes

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Transformation and the War in Afghanistan

Alexander Salt

Abstract

During the 1990s and early 2000s the US military was largely shaped by the concept of the revolution in military affairs (RMA) and subsequent force transformation process, which integrated new information and communication technologies, precision strike capabilities, doctrine, operational approaches, and force structures to allow the military to overcome new strategic challenges. Significant questions, however, have emerged regarding the utility of the RMA and transformation during hybrid wars, where the lines blur between conventional and irregular threats. This article examines the utility of transformation during the war in Afghanistan. It argues that a transformation-influenced "light footprint" of special operations forces and airpower has clear relevancy during present and future hybrid conflicts. This relevancy is enhanced when the use of the light footprint is paired with a clear and achievable war aim.[1]

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A scrimmage in a Border Station—
A canter down some dark defile
Two thousand pounds of education
Drops to a ten-rupee jezail. . . .
Strike hard who cares—shoot straight who can
The odds are on the cheaper man.

—Richard Kipling
"Arithmetic on the Frontier"

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The US military of the 1990s and early 2000s was shaped largely by the concept of the revolution in military affairs and subsequent force transformation process, which integrated new information and communication technologies, precision strike capabilities, doctrine, operational approaches, and force structures to allow the military to overcome new strategic challenges.[2] Following the 11 September 2001 terrorist attacks by al-Qaeda (AQ), the United States responded by launching Operation Enduring Freedom (OEF) and invading Afghanistan. US special operations forces (SOF), intelligence assets, and airpower supported indigenous Afghan allies in a campaign that overwhelmed the Taliban's military forces and overthrew their government.[3] The war in Afghanistan has become the longest conflict in American history, and some scholars question the legacy of the RMA and force transformation on the war effort and whether they hold relevancy during hybrid warfare.[4] Hybrid conflicts have emerged as one of the primary strategic challenges of the contemporary period and are defined as conflicts in which adversaries employ a varying mix of conventional combat, insurgency, terrorism, information operations, and criminal activity to achieve their objectives. The multi-variant threats within hybrid conflicts force a military to respond to fundamentally different challenges simultaneously. The invasion and occupation of Afghanistan would represent the US military's first hybrid war challenge since being shaped by the RMA and subsequent force transformation.[5]

According to several writers in academia and the popular press,[6] the transformation process has actually hindered operations in Afghanistan, and this criticism has increased as the conflict continued. This criticism is driven, in part, by followers of classical counterinsurgency (COIN) theory who advocate against relying on the role of technology when fighting insurgencies in favor of embracing population-centric engagement.[7] In reference to Afghanistan, this debate centers on whether the United States should embrace a "light footprint" approach to COIN and counterterrorism operations that relies on RMA technologies and the pairing of SOF and airpower or whether to follow a "heavy footprint" approach of a traditional, manpower-intensive COIN campaign.

An analysis of the US war effort in Afghanistan shows that, while the light footprint had operational successes, it failed to fully stabilize the security situation across the country. Although the initial invasion was a decisive victory in 2001, the stability of Afghanistan has continued to worsen from 2002 onwards, and this can be attributed in part to the

lack of conventional boots on the ground, which perhaps could have helped quell some of the violence. The insurgency remains undefeated and continues to threaten the Afghan government. However, it would be misguided to lay most of the blame for this with the light footprint approach, as several factors have contributed to this outcome. Many of the Afghan war's problems can be attributed to the muddling over war objectives, which has led to strategic and therefore tactical level confusion. Carl von Clausewitz reminds us that "under all circumstances war is to be regarded not as an independent thing, but as a political instrument."[8] Confusion over what exactly is the overall objective will have a negative, reverberating effect on the strategic, operational, and tactical levels of the war. Furthermore, other factors such as internal corruption within Afghanistan and constraints placed on the US military by different presidential administrations have also helped to undermine the war effort.

Afghanistan has become a tale of two wars; the first is a limited and narrow objective centered on the destruction of AQ's regional presence, and the second is the more ambitious goal of turning Afghanistan into a modern state. The first objective is one that the light footprint is well suited to deal with, as its speed and precision works very well against terrorist groups, particularly those like AQ that lack a core local constituency for support. However, the light footprint is ill suited to dealing with the nation-building objective, because as classical COIN doctrine dictates, technology is less useful here. A heavy footprint centred on manpower-intensive operations may be a better option.

The US government must realize that it will likely never be able to establish a fully functional liberal democratic modern state in Afghanistan, where the situation is too complex; too many hurdles remain within Afghan society and too much corruption within the Afghan government and bureaucracy. What can be achieved is a narrowly focused counterterrorism mission that is designed to eliminate AQ and other groups such as the Islamic State of Iraq and Syria (ISIS) now operating in the region. Not only is such a war aim achievable, it is directly linked to what brought the United States to Afghanistan in the first place: the need to prevent terrorist organizations from using the region as a hub to plan and prepare attacks against the United States. This negates the need to send thousands more troops and calls for a reliance on strengthened SOF and airpower usage and must include a loosening of the rules of

engagement (ROE) to allow them, if necessary, to take offensive actions against the insurgency.

The advantage with the light footprint is that it can allow the US to maintain a longer-term presence in Afghanistan that, while not being able to deliver a decisive victory, can nonetheless continue to degrade the operational capacity of the insurgency so much so that they cannot achieve a clear and present threat. By demonstrating US resilience in its COIN efforts, it can ensure the Afghan government can continue to govern despite its weaknesses. A light footprint, with its lower costs in terms of casualties and financial investment, deprives the insurgency of its ability to secure victory via an attritional strategy. By robbing the insurgency of this advantage, the US can wait and try to find a negotiated settlement with the Taliban while continuing to target terrorist groups in the region.

This article argues that a light footprint of SOF and airpower has clear relevancy during present and future hybrid conflicts. This is demonstrated by the operational successes of both SOF and airpower at targeting terrorists and insurgents in Afghanistan. Further, this relevancy is enhanced when the use of the light footprint is paired with a clear and achievable war aim that is well matched to its strengths. When a war objective is unclear and beyond the capacity of the light footprint, strategic failure will result. The article starts by outlining the RMA and transformation process and links them to theoretical understandings of insurgency and hybrid warfare. Next, it examines the relevancy of the light footprint to the Afghanistan war effort to identify what failed and what succeeded. It concludes with a deeper understanding of the legacy of force transformation in Afghanistan and relevant options for future hybrid wars.

RMA, Transformation, and Counterinsurgency

The concept of an emerging RMA came to light in American military thinking in the late 1980s and into the 1990s, when defense intellectuals such as Andrew Marshall identified a potential shift in the character of modern warfare that was centered on a new generation of technologies.[9] These new technologies included those relating to information technology, advanced digital networking, sixth-generation computers, a variety of electronic sensors, space-based platforms, precision-guided munitions (PGM), and unmanned aerial vehicles (UAV).[10] The RMA technologies were thought to significantly enhance the US military's speed and

lethality of operations, in particular its ability to project expeditionary forces and have superior battlespace awareness via information dominance. The overwhelming success during the 1991 Gulf War seemed to confirm this RMA thesis in the eyes of many within the US strategic community, and by 1993, the term "revolution in military affairs" became firmly embedded in the lexicon of US defense policy.[11] The RMA remains a controversial and contested subject, with some challenging the revolutionary nature of the concept altogether.[12] Ultimately, the RMA refers to a period of major military innovation concerning the exploitation of new technologies related to information processing, communication, surveillance, networking, and precision strike, along with new strategic ideas intended to greatly reshape the character of modern warfare.[13]

To exploit the potential of this RMA concept, US defense planners set in motion a series of organizational and doctrinal changes known as force transformation. The purpose of this process was to shrink the size of the military and increase flexibility while not minimizing lethality. Essentially, force transformation sought to better use RMA technologies to secure qualitative advantages over the enemy.[14] The military was moving toward a light-footprint approach to modern warfare, where high technologies and smaller sized units would be able to dominate future battlefields, rather than the heavy infantry divisions and armored brigades of the Cold War era.[15] SOF's operational role grew significantly under this move toward a light footprint due to their rapid mobility and specialized skills. Furthermore, airpower had become in many ways the central focus of a transforming US military. The US Air Force (USAF) emerged as the largest benefactor of this transformation process as it came to be viewed by some observers as integral to securing a decisive victory in modern war.[16] The US military in the 1990s was shifting from countering the threat of the Soviet Union to becoming a more agile expeditionary force. Broadly, the force transformation process centered on changing the military into a lighter, more modular force structure of networked units that utilized an effects-based approach to operations where the objective would be to disable the enemy's ability to function rather than its total destruction.[17]

This force transformation process accelerated during the tenure of Donald Rumsfeld as secretary of defense, who viewed transformation as key to overcoming the security challenges of the new century.[18] Rumsfeld's enthusiasm for transformation was not shared universally within the

US strategic community, as his brash style along with the eventual worsening situations in Afghanistan and Iraq led to some prominent criticisms. Rumsfeld's insistence that all the services speed up their existing transformation agendas would eventually lead to pushback from senior officers, particularly those not wanting the military to stray too far from heavier platforms like tanks and artillery. Other senior officers were concerned that transformation was relying far too much on airpower to achieve strategic aims.[19]

Transformation sought to change the US military into a force that was lighter and far more technocentric and expeditionary oriented than it had been in the past. Senior defense officials had hoped this process would allow the military to become more effective at war fighting and to better overcome new security challenges including terrorism and insurgency.[20] Transformation is thus defined as the formal introduction of new organizational forms and operational concepts that would allow the US military to better utilize the technologies associated with the RMA and enhance its expeditionary capabilities.

Transformation's enthusiasm for technology's potential to be used against a variety of threats, including insurgency, ran counter to much of the traditional theoretical literature on COIN, which argues technology lacks relevancy in such campaigns. Frederick Kagan argued that transformation has blinded the US military to what is needed to overcome certain strategic challenges encountered during COIN campaigns. Kagan asserts that transformation essentially seeks to apply a "business model" to these conflicts, which emphasizes the reduction of risk to US forces by relying on standoff munitions at the expense of large numbers of boots on the ground.[21] Further, Kagan cites transformation's light footprint approach as one of the main reasons why the security situation in Afghanistan deteriorated following the initial invasion.[22] Stephen Biddle, Julia Macdonald, and Ryan Baker have argued that a light footprint approach is ill suited to dealing with strategic challenges as it forces the United States to form security partnerships with local allies who often prove unreliable. Biddle, Macdonald, and Baker assert that a larger commitment of conventional US ground troops is usually the best option to secure war objectives.[23] Max Boot, an initial champion of Rumsfeld's transformation agenda, felt that its legacy hindered the military's ability to combat insurgencies, which in his view required a substantial number of boots on the ground and nation building in places like Afghanistan

to defeat the insurgents.[24] Keith L. Shimko takes a middling position, arguing that while the RMA concept is certainly valid, it is far more impactful on the US military's ability to wage conventional warfare and is far less revolutionary in COIN situations.[25]

The idea that technology is far less relevant during COIN is hardly new, as that has been a key theme within COIN theory for many years. David Galula, the French military theorist believed by many to be the Clausewitz of COIN, was highly skeptical toward the utility of modern technology, stating that the most useful type of military force is infantry in large numbers and that ultimately complex military sophistication can be counterproductive against insurgencies.[26] Galula further stated that COIN campaigns would require only around 20 percent of military action to solve, as the remaining 80 percent of activities were politically related.[27] Martin van Creveld wrote that the character of modern warfare has in recent years shifted so dramatically that Western conventional military forces are no longer suitable for dealing with irregular actors like terrorists and insurgents. Van Creveld asserts that modern weapons systems such as airpower and precision munitions cannot lead to a decisive victory in this new era.[28] Rupert Smith also follows van Creveld's perspective, arguing that in the contemporary era most conflicts should be classified as "wars among the people," where the objective is not to destroy an enemy but rather to capture the will of civilians, and that Western militaries are not well prepared for such a task.[29]

Few COIN theorists have praise for the role of technology, dismissing it either as unimportant or, worse, harmful to the war effort. Gil Merom argues that the central reason why most modern Western militaries fail to win against insurgencies is due to their self-imposed moral limitations as a result of their liberal-democratic values. According to Merom, this morality prevents them from engaging in the savage tactics and necessary levels of violence that are needed to guarantee a victory. Merom points out that technological advantages have not helped Western forces overcome these self-imposed constraints.[30] Ivan Arreguin-Toft explains the phenomenon of how weak actors frequently overcome stronger opponents, despite the broad assumption that logically the stronger power should prevail. Arreguin-Toft makes the case that stronger actors lose these conflicts when they adopt the wrong strategy and that insurgents tend to win when they follow an indirect strategy that relies on attrition and limits the ability of the stronger actor to maximize advantages in

force of arms. Essentially, Arreguin-Toft argues that the weak win by simply surviving, and thus not losing. The counterinsurgent actor will eventually grow weary of the conflict when it realizes that direct victory cannot be attained and will not wish to continue investing blood and treasure in the war any longer.[31] Andrew Mack also feels that insurgents need to focus on not losing, rather than seeking a direct and decisive victory themselves. Mack points out that insurgents are rarely destroyed via decisive battle where military technology is most impactful, and as long as the insurgents maintain the political will to continue fighting, the conflict will continue despite the power differential between insurgent and counterinsurgent.[32]

Even within the COIN doctrine of the US Army and Marine Corps, technology is viewed as something that is of marginal relevance to hybrid conflicts. *The U.S. Army/Marine Corps Counterinsurgency Field Manual* was drafted in response to operational struggles in Iraq; it overwhelmingly ignores the impact of transformation and technology and instead focuses on population-centric engagement. Only nine pages out of 389 are dedicated to the role of airpower, which is largely relegated to a supporting role. The field manual acknowledges that airpower can be used to strike at insurgent targets, but only in certain situations, and the primary role for airpower in COIN is identified as a means of transport or for surveillance operations.[33] These theoretical writings are mirrored by contemporary critics of transformation who try to link it to the operational difficulties faced by the United States in Afghanistan and Iraq. The central theme is that a technocentric, less manpower-intensive military force will be ill suited for success in hybrid conflicts. However, this argument requires more analysis to determine if that was the case for the US experience in Afghanistan.

Transformation and Hybrid War in Afghanistan

The US war effort in Afghanistan has been mixed in terms of success, and this is the result of multiple factors. The major reason lies with conflicting wartime objectives, which created a negative trickle-down effect on strategy and tactics. The two prominent objectives that have influenced the direction of the war are the counterterrorism campaign against AQ and the nation-building effort across Afghanistan. This muddling of objectives would lead to debates over whether the transformation-influenced light footprint or a manpower-intensive heavy footprint should be at the

center of the war strategy. The war's main successes are the result of when the light footprint is focused on specific objectives, such as the toppling of the Taliban's government or the targeting of terrorist networks. The United States has faced far more difficulties in its nation-building attempts where the light footprint lacks relevancy. Internal problems such as widespread corruption made Afghanistan unsuitable for any nation-building attempt. Further, as the war has continued, the light footprint faced several constraints, such as the diverting of SOF personnel to Iraq or the imposition of restrictive ROEs.

Following the 9/11 attacks, the George W. Bush administration was clear that it wanted a prompt, military-centric response. US Central Command began to plan for the invasion, yet this process began without the White House laying out a specific war aim. There was confusion as to whether the central focus should be against AQ or the Taliban or to focus on both equally.[34] Rumsfeld was adamant that he did not want to commit large numbers of ground forces to Afghanistan to avoid disrupting the lives of the local population. Rumsfeld cited the difficulties that plagued the Soviet Union's invasion of Afghanistan during the 1980s and felt that the United States must avoid similar mistakes. The Soviets had occupied Afghanistan with a large force and were met with fierce resistance from local Afghans as well as foreign fighters who viewed them as imperialist invaders.[35] Clearly this was something that neither the US military nor Rumsfeld wanted to repeat.[36] Even as US forces and their allies were marching on Kabul, the question of what should be the prime political objective of the war lingered in the White House.[37]

The desire to maintain a low profile led the United States to develop the light footprint approach that utilized the advantages of force transformation. During the invasion, this approach, which would also become known to some as the Afghan model, involved a combination of US airpower, intelligence assets, and SOF, which were paired with indigenous ground troops (the Northern Alliance) to achieve strategic effects. The Afghan model began with US airpower destroying Taliban air defenses. Next, SOF and intelligence assets identified new targets that included larger enemy field units and command and control centers for new airstrikes. This all occurred while Northern Alliance forces acted as a screen against enemy counterattacks and held captured territory. The speed of the invasion surprised many, and it led to the decisive defeat of the Taliban forces and their AQ allies. However, OEF was a learning process

for the military, and the light footprint is something that has continued to evolve over time. In particular, there was poor coordination between CIA assets, SOF, and airpower during the initial stages of the invasion.[38] Stephan Biddle, a vocal critic of light footprint, has pointed out that there were difficulties during OEF, arguing that the lack of US ground forces and at times the unreliability of Northern Alliance units led to many AQ fighters being able to slip away and avoid capture at the battle of Tora Bora.[39] Still, despite some operational difficulties, the light footprint was able to achieve success by destroying the central forces of the Taliban and their AQ allies during the initial invasion of the Afghanistan with relative ease.

Following the toppling of the Taliban, Rumsfeld was clear that there was to be no significant presence of US boots on the ground, and his directive was reinforced by the initial successes of OEF. There was a belief that the US had secured a great victory with minimal commitment of casualties and financial investment and had ushered in a new era of military interventions centered on this light footprint approach.[40] However, this new trend was met with significant criticisms. Some observers became highly critical of the Bush administration's handling of Afghanistan in the period of 2002 to 2008 and argued Bush and Rumsfeld should have utilized a heavy footprint of conventional forces to secure the country.[41]

During the period of 2002 to 2008, the security situation across Afghanistan began to decline as an insurgency formed and spread across the country. Geographically, most insurgent activity was centered in the southern and eastern ethnic Pashtun regions of the country, and the northern regions of Pakistan were used frequently by insurgents as safe havens.[42] The Taliban were following an indirect strategy as they were attempting to exhaust the Afghan government and to survive and outlast the US and allied intervention.[43] They were not attempting to defeat the new Afghan government or the US forces in a decisive battle since they quickly realized they lacked the capabilities to do so.[44]

The insurgency in Afghanistan is not a cohesive unified force. Rather, it is a series of networks. It primarily consists of the Taliban, AQ, Haqqani network, the Hezb-i-Islami, various foreign fighters, local warlord militias, and criminal gangs. Even the Taliban is not a singular organization but rather a movement of several loosely aligned networks.[45] All have a vested interest in seeing the central Afghan government fall. The Taliban,

AQ, and Haqqani network are the most prominent groups.[46] There are senior leaders across the insurgency, but there is a lack of centralized direct control. Senior leaders provide guidance rather than direct orders to local fighters. Not all insurgents are driven by ideological fervor, including Taliban fighters, as many are focused on more localized interests. Often insurgents are driven into fighting due to physical threats, humiliation, drug addiction, and opportunistic financial benefit.[47]

In this period of 2002 to 2008, the war objective expanded from focusing on the systematic destruction of AQ toward nation building. Here, the United States and its allies attempted to develop the political infrastructure of the Afghan state at the federal and local level. Every level of governance in Afghanistan had to be established from the ground up, and this was paired with a major social engineering project to implement human rights in a region lacking any tradition of liberalism or experience with modern governance. The military found itself having to perform a broad variety of tasks, from helping to establish a governmental bureaucratic system to instructing locals on new farming techniques. Further, the military had to establish new security forces for the Afghan state, which was going to be a tremendous task.[48] What emerged is a situation where the nation-building and counterterrorism objectives were clashing and leading to incoherent strategies. The counterterrorism goal required high-tempo kinetic operations that centered on capturing and killing terrorists, yet this strategy undermined the holistic goal of state building by ignoring the provision of security to Afghan civilians and forced the US to partner with local allies that were at times less than reliable.[49]

Any attempt at nation building was also gutted by poor decision making from the Bush administration. As noted, Rumsfeld held little interest in overseeing nation building, and so the US sought to outsource the security of the Afghan countryside as quickly as possible, as well as secure allies for counterterrorism operations. This led to the US giving preferential support and considerable financial aid to certain Northern Alliance warlords.[50] Once the Taliban had been defeated, these warlords would fight one another for control over illicit industries like narcotics and toll roads, and they became hated by the average Afghan civilian. This greatly undermined the US attempt at building infrastructure and institutions in Afghanistan. Also, this pattern of instability suggested that the country was not ready for the considerable change necessary to turn into a modern state.[51]

The light footprint's relevancy in 2002–2008 faced major constraints brought on by the Bush administration's decision to invade Iraq, which stripped Afghanistan of much of its SOF personnel and intelligence assets. During the lead up to the Iraq war many SOF personnel disengaged from Afghanistan to prepare for the next war, and some officers had speculated that post–Tora Bora AQ had "gone cold" so there was little need for their continued presence. Sean Naylor observed that at this point the Joint Special Operations Command's (JSOC) Afghan presence consisted of just Seal Team Six, as well as "little more than a Ranger platoon, three Task Force Brown Chinook helicopters and two Predator Drones."[52] Overall, the context of the period following the fall of the Taliban was that of strategic confusion for both the conventional military assets on the ground as well as SOF. Gen Stanley McChrystal wrote that once he was deployed to the country in May of 2002, "it wasn't clear whether there was any war left."[53] McChrystal was also ordered, along with other senior officers, to begin planning for potential operations in Iraq as early as August 2002.[54] The shifting of US military's attention and resources towards Iraq thus severely hindered the light footprint's ability to have operational success in Afghanistan. The light footprint, which had managed to secure several key victories during the initial invasion of Afghanistan, was constrained highly in the 2002–2008 period, much to the detriment of the US war effort.

In 2009, there was a general perception among observers that Afghanistan was heading toward disorder and that the US lacked a proper COIN strategy.[55] During the 2008 presidential campaign, Barack Obama had made Afghanistan a central part of his national defense platform.[56] This would set the stage for debate over war objectives and strategy within the new administration. Some, like Vice President Joe Biden, wanted to utilize the light footprint on a strictly counterterrorism mission, while the senior military leadership, including McChrystal, who was now the commander of the Afghan mission, wanted to shift focus toward a manpower-intensive heavy footprint and embrace traditional population-centric COIN.[57] President Obama opted to side with the heavy footprint option and announced his support for McChrystal's plan in December 2009, deploying an additional 30,000 troops as part of a troop surge to the country.[58]

The troop surge did not lead to a clear victory, and a US troop drawdown was initiated in July 2011; it was later followed by the formal

end of the NATO combat mission in December 2014. Senior military commanders would acknowledge that violence levels had not overall decreased during the surge period.[59] The heavy footprint had failed to achieve its aims. The situation inside Afghanistan remained completely unsuitable for the nation-building objective as corruption remained rampant and the insurgency was able to sustain itself via its safe haven in Pakistan. Afghanistan remains beset with instability across the country, and the US military presence once again resembles the light footprint by relying on airpower and SOF to target terrorists and the insurgency while other military advisors focus on training the Afghan security forces.

Starting in 2015, the Obama administration placed new constraints on the light footprint's relevancy. It implemented new restrictions on the US military's ROE, and so airpower was no longer being used as an offensive tool against the insurgency—rather it was constrained for use only to target some AQ members, respond to close air support requests from Afghan commanders, and protect remaining NATO forces. This decision negatively impacted the operational utility of the light footprint, which requires the freedom for rapid offensive operations. The restrictive ROE allowed the Taliban to have breathing space to better use staging areas for their own offensive actions. US commanders on the ground felt that airpower would need to be used more to undercut Taliban advances.[60] Afghan security forces commanders also preferred a more aggressive US presence, including a loosening of the restrictive ROE to help counter any further gains by the insurgency.[61] The overall strategic situation since 2015 is best described as a stalemate between the United States and the insurgency. The Taliban have achieved some battlefield success yet have been unable to translate that into major strategic gains, such as toppling of the new Afghan government.[62] Afghanistan remains locked in a protracted struggle with no clear end in sight for either side of the war.

Transformation's Relevancy in Afghanistan

Although the US war effort in Afghanistan has hardly led to a decisive victory, there are some clear signs of transformation's relevancy in hybrid war situations. This relevancy is tied to the role of SOF and of airpower, particularly the role of unmanned aerial vehicles in targeting insurgent and terrorist groups.

SOF in Afghanistan undertook two primary roles. The first was direct targeting of the insurgency, and the second was indirect where SOF personnel are integrated with local security forces to increase their readiness and operational capacity. Other indirect roles include community engagement where SOF personnel spent time with village elders. This enabled them to form key partnerships to help in future counterterrorism and COIN operations.

In rural villages, SOF members often acted as dispute mediators and worked in other promotional activities, such as building water wells.[63] SOF and their light footprint allowed the United States to raid areas that were culturally sensitive with greater ease than if they had attempted similar operations with a larger group of conventional soldiers. Conventional troops have a slower operational pace due to their larger numbers, and they often use much heavier equipment such as tanks or other mechanized combat vehicles; their operations are far more disruptive for local civilians. A small SOF team is able to maneuver in and out of a village unnoticed, and its unique skill set often allows it to capture targets without causing widespread destruction during operations. SOF also proved to be, by far, the most effective at integrating with the Afghan National Army (ANA) for conducting offensive operations against insurgents and for gathering intelligence.[64]

While the versatility of SOF was initially championed under Rumsfeld, it was the Obama administration's embrace of the SOF-driven "kill and capture" campaign against insurgent leadership that helped elevate the role of SOF to another level. Kill-capture operations were paired with precision airstrikes to deal with insurgents in an offensive manner, as opposed to passive, traditional, population-centric strategies that rely on overwhelming ground forces. The significant growth of the size and importance of the Special Operations Command (SOCOM) in Afghanistan is tied to the kill-capture campaign, which was spearheaded by JSOC. Here, SOF personnel used signals intelligence capabilities that gave them exponential advantages in surveillance, communications, and information analysis compared to their insurgent opponents.[65]

JSOC embodies how force transformation embraces high technologies and network-centric structures. JSOC is not structured in a traditional hierarchal, pyramid-style command. Instead, various elite units are linked via an innovative joint command. In practice JSOC is quasi-autonomous and decentralized in its operations where information and

intelligence sharing are done with relative ease. The command is highly technologically driven, with operations shaped by near real-time surveillance and targeting data; this is not possible without advanced digital networking.[66] Computer networking also played a significant role in JSOC's effectiveness. Personnel use software to upload intelligence data such as transcripts, images, and biometrics that can then be freely accessed by all other members of the network. JSOC is quasi-independent in that it is allowed to draft its own wanted list of suspects and then pursue their capture or killing.[67]

McChrystal became a strong proponent of this network-centric approach to warfare, stating that, "we had to figure out a way to retain our traditional capabilities of professionalism, technology, and, when needed, overwhelming force, while achieving levels of knowledge, speed, precision and unity of effort that only a network could provide."[68] McChrystal's leadership was integral for letting JSOC maximize its ability to adapt its organizational networks to their full potential. He sought to form interagency networks between JSOC's SOF capacity and other government organizations, particularly those relating to intelligence. McChrystal formalized this by forming a joint interagency task force (JIATF) to assist this process. The primary task of JIATF in Afghanistan was to trace and analyze the transnational connections of local insurgents beyond the border into Pakistan. Once the insurgent networks were mapped, SOF would then seek to eliminate them via targeted strikes.[69]

McChrystal's primary goal with these reforms was to create a quasi-flattened command hierarchy for JSOC, which would allow for maximum organizational efficiency by attempting to streamline information gathering, analysis, and distribution. McChrystal had identified information access as the main obstacle to campaign success among clandestine units and organizations, and this was a challenge that only a networked organization could overcome.[70] JSOC and McChrystal were able to build on lessons learned from their time in Iraq and apply them to Afghanistan.[71]

JSOC became focused on night raids as part of their kill-capture operations. These raids shifted focus from exclusively targeting senior leadership figures to the "middle management" of the insurgency, which include those responsible for logistical support such as arms procurement and financing. The raids also occurred with incredible frequency. In 2010, JSOC averaged 600 unique raids per month. The Obama

administration was highly supportive of JSOC's activities and consistently increased support and granted political approval for its activities in regions like Northern Pakistan.[72] JSOC was responsible for one of the most high-profile victories of the Afghan war, and perhaps the entire Global War on Terror, with the killing of Osama bin Laden in Abbottabad, Pakistan, on 1 May 2011. The raid was symbolically important and also captured a significant amount of hard intelligence data from bin Laden's compound.[73] Given the exceedingly geopolitically sensitive location of the bin Laden compound, which was located in the heart of Pakistan, this operation could only have been achieved with SOF, as regular ground forces would have been too cumbersome and far too high profile.

The SOF kill-capture campaign had a considerable effect on the operational capacity of the insurgents. Despite having a somewhat decentralized structure, terrorist groups such as AQ have a challenging experience replacing individuals in leadership positions due to the influence of their internal organizational dynamics. Insurgent groups are incredibly violent and clandestine in nature, and this creates clear problems for a smooth transition or succession to occur because of infighting between rivals. The highly secretive nature of an insurgent and terrorist organization places increased pressure on the importance of leadership since individuals at lower levels in the organization lack the formal organizational-bureaucratic experience to oversee a smooth transition of power, and potential leaders often view internal rivals with suspicion.[74]

Some of the internal organizational structure of the Taliban helped exacerbate the effects of a kill-capture campaign, as the movement places great value and prestige on individuals who possess information and secrets. As a result, commanders are often reluctant to inform their subordinates of information to which they are privy to maintain their own prestige. Secrecy is valued as it is needed to prevent counterinsurgents from gaining intelligence on the activities of the insurgent cell. When a promotion occurs and a lower level insurgent combatant becomes a midlevel or senior commander, he must then reestablish all the various information networks of the previous commander. In this period, there is a clear loss of initiative and momentum at the local level of the insurgency. Furthermore, some midlevel insurgent commanders have refused leadership promotions out of fear of becoming a target for the US.[75] David Kilcullen has pointed out that the rapid, 24-hour cycle of

intelligence-driven strikes carried out by JSOC against midlevel insurgent targets rather than senior leadership achieved clear success. This is a key factor, as it is the mid-ranked commanders who carry out the operations of the insurgent groups, and thus this type of targeting is highly successful at dismantling and destroying insurgent and terrorist networks.[76]

Airpower is also a key part of force-transformation relevancy in hybrid conflicts. The northern border regions of Pakistan have proved to be a very attractive area of operations for the insurgency.[77] However, the daunting geography of the Afghanistan–Pakistan (Af-Pak) borderlands poses considerable challenges for any counterinsurgent forces. The mountainous region provides the various insurgents networks with natural protection and cover where new fighters train for combat against coalition forces. The Taliban and AQ have formed personal relations with some of the tribal networks of the region.[78] In effect, Northern Pakistan is a safe haven and staging area for insurgents, and this was openly recognized by President Obama.[79]

The Taliban and AQ have been using Northern Pakistan as a base of operations since spring of 2002. Initially, Pakistani security services attempted to crack down on AQ members in urban centers; however, those operating in rural areas were left alone. The Taliban have taken considerable advantage of the lack of Pakistani governmental control by establishing a de facto state in the region.[80] The Pakistani military lacks the capabilities and regional presence to engage in any sustained COIN operations in the northwestern part of the country. The territory is too vast and the insurgents too fierce. At times, thousands of Pakistani troops have been deployed and they have become bogged down fighting local militias, unable to deal adequately with the transnational insurgencies of the Taliban and AQ. The large number of Pakistani troops is necessary because they lack the technological sophistication and structural organization to engage in a light footprint approach in the northern parts of their country. Pakistani forces lack access to the sophisticated electronic sensors, UAVs, or even SOF personnel.[81] Further, the insurgency has received direct and tacit support from members of the Pakistani security services, particularly from within its Inter-Services Intelligence agency.[82]

Classical COIN theory points out that insurgents will favor international border areas if neighboring states are sympathetic to the insurgent cause. Furthermore, rugged and hard terrain filled with natural barriers such as mountain ranges also favor the insurgent.[83] Thus, from a theoretical

position, it would seem that the Afghan insurgency has considerable advantage over the US military given the environment of the Af-Pak borderlands. The borderlands are simply too large and too physically imposing to engage in traditional approaches to COIN. It is nearly impossible to block this Afghan border area with fences and fortifications. The workable alternative is to use a flexible airpower response, more specifically the use of UAVs, to disrupt any insurgent safe havens.[84]

UAVs are primarily used to target insurgent leadership in decapitation strikes and for intelligence gathering.[85] In some ways, drones have allowed the United States to overcome the troubles with national borders and transnational insurgents. The Pakistani government would be strongly against the deployment of US ground forces on its sovereign territory. However, the use of drones is seen as less intrusive and not as politically inflammatory for Pakistani nationalists. Drones therefore prevent Pakistan from becoming a complete safe haven.[86] Some of the local tribal networks in the Af-Pak borderlands have been wary of assisting the insurgency out of fear of being targeted in a strike. Insurgents have been forced to abandon the use of key technologies, such as cell phones, because they will be tracked by US intelligence for a future strike. The new training camps AQ and insurgent groups had established in the borderlands have been dismantled by choice, as the insurgency is no longer able to train in the open. The safe haven no longer appears to be so safe. UAV strikes have also led to infighting amongst insurgents as some have been paranoid that other members have become informants for the US. Ultimately, the use of drones has at times reversed much of the momentum the insurgency generated in the borderlands and has forced them to take a passive rather than offensive posture.[87]

Drone strikes against insurgent leadership produce multiple tangible results. The insurgency is placed in a position of chaos, due to the difficulty it has during leadership transitions. Strikes can also lead to a decrease in large-scale offensive actions, since the remaining members of the organization often go into hiding and their ability to coordinate operations becomes incredibly diminished. Most importantly, these strikes help to create a talent gap within the insurgency. For example, if a drone kills an insurgent network's most skilled bomb maker, the individual replacing him would likely be less efficient in that role, and so the overall operational effectiveness and professionalism is reduced.[88]

The number of high-value AQ targets killed in Pakistan demonstrates the relevancy of precision strikes from drones.[89]

Furthermore, the constant threat of drone strikes has taken a psychological toll on many insurgents. They fear meeting in large groups or even many public places such as mosques due to the possibility of being killed. In some cases, insurgents have abandoned sleeping in buildings, preferring the safety of the outdoors, assuming they are less of a target there.[90] Leadership vacancies caused by the strikes also lead to organizational infighting, as was the case in the Af-Pak borderlands in 2007. Following a series of targeted leadership strikes, infighting broke out between Taliban fighters in South Waziristan and AQ operatives from the group Islamic Movements of Uzbekistan. In this feud several hundred insurgents were killed. The leadership strikes helped exacerbate a growing divide between the groups over AQ's killing of local rivals, whereas the Taliban wish to remain focused on fighting the United States and its allies. Mullah Omar, who was the Taliban's central leader at the time, could have directly intervened in this dispute but decided to rely on intermediaries due to fear of being the target of a drone strike, and this noticeably delayed the process.[91] Prior to his death, bin Laden, along with the rest of AQ's senior leadership, became considerably paranoid about being killed in a drone strike.[92]

The continuous use of kinetic airpower does not follow the traditional COIN paradigm, which emphasizes direct engagement with the local civilians to create a physical and ideological separation between them and the insurgency. There has been much journalistic and academic research dedicated to the impact of drone strikes in northwestern Pakistan, where critics suggest that drone strikes cause the local civilians to support the insurgency due to the level of collateral casualties among civilians. Civilians reacting to the death of their kinsmen may be more susceptible to recruitment by insurgents who are able to use the aftermath of the strikes as a propaganda tool. These critics further assert that, if the United States loses the public opinion battle for local civilians, it will not be able to achieve victory since the insurgent groups rely on local civilians for material supplies and shelter.[93] Critics, including proponents of population-centric approaches to COIN such as David Kilcullen and Andrew Exum, essentially make the case that the collateral damage caused by drones might have overly negative consequences in terms of blowback, particularly within Pakistani territory.[94]

However, much of this literature has to rely on questionable journalistic reports from the affected regions. In the wake of a drone strike, Taliban forces almost always secure the surrounding area, preventing any investigation in the immediate aftermath.[95] Even if you count every "unknown" or unidentified person killed by a drone strike as a civilian, the casualty rate is speculated to still be 4:1 in favor of insurgent deaths. When it comes to high-value targets, the gap is estimated to be even larger with a rate of 36:1. In the period 2004–2010, US drone strikes in northern Pakistan had a considerably lower civilian casualty rate than those of Pakistani ground forces during their offensive campaigns against the insurgents.[96]

Part of the criticism directed at US drone strikes in the Af-Pak borderlands is that such actions run counter to orthodox COIN theory, which rests on the assumption that they turn local public opinion against the US war effort. However, this is at best a half truth. Polling data suggests that public opinion in the Federally Administered Tribal Areas (FATA) regions of northern Pakistan tends to be against the US strikes because of the collateral damage associated with them. Yet the people in the region are still not overwhelmingly anti-American, as they view some of the insurgents with great suspicion, particularly AQ members who are mostly foreign-born fighters and thus lack any direct connection to the local area. The insurgents often inflict violence on civilians who refuse to support them, which in turn causes tensions.

It is very difficult to accurately measure northern Pakistani public opinion on the drone-strike issue. Although several polls have demonstrated the majority of people in the areas are against the strikes, there are some that tell a different story. Farhat Taj conducted interviews with people living in the FATA regions and observed that, "contrary to the wider public opinion in Pakistan, the people of FATA welcome the drone attacks and want the Americans to continue hitting the FATA-based militants with drones until they have been completely eliminated."[97] Many people in these tribal areas actually prefer drones to more intrusive ground operations from the Pakistani army and feel they are more accurate and would cause less collateral damage than Pakistani air strikes.[98]

Aqil Shah points out that public opinion surveys in Pakistan regarding the use of drones tend to disproportionately sample from areas that are largely unaffected by their use. Shah responded by conducting his own surveys from the regions with the highest levels of drone activity and talked to a wide variety of responders including tribal elders, lawyers,

students, and other local people. Shah discovered that the clear majority endorsed their use against the militants. Interestingly, this survey data also found that most responders felt that most of the civilians who are killed in these strikes are either collaborators or sympathisers to the insurgency.[99]

The insurgency has been very active in developing a propaganda response to the strikes. Since insurgents lack the weaponry to counter US airstrikes, they must rely on propaganda to try and dissuade their use.[100] However, a study carried out by Megan Smith and James Walsh indicates that sustained drone strikes have not given the insurgency the ability to increase its propaganda effectiveness. Although the Taliban is an ethno-nationalist Pashtun organization, it has not been able to capture widespread public support among fellow Pashtuns, many of whom actually hold considerably negative opinions of it.[101]

From the start of the drone strike campaign in 2004, thousands of insurgents have been killed and AQ's regional presence has been devastated.[102] The kinetic use of airpower, primarily via drone strikes, has been devastating on insurgent leadership. Drones have allowed the US military to overcome one of the major challenges posed by a rural insurgency, which is the ability to use international borderlands that have noticeably rugged terrain as a way to hide from counterinsurgents. Drones have allowed the United States to maintain constant and threatening presence in the borderlands without having to deploy hundreds of thousands of ground forces.

The relevancy of force transformation in Afghanistan is best demonstrated via the operational successes of SOF and airpower. Their precision allows the US to engage the enemy without fear of overly disrupting the lives of civilians; further, their use has allowed the United States to save considerable amounts of its own blood and treasure in the war. Combined, SOF and airpower have demonstrated the ability to degrade the capacity of the insurgency and proved particularly useful in defeating AQ. Even Gen David Petraeus has argued that SOF raiding, along with airstrikes, became an integral part of any COIN campaign.[103]

Future Options for Hybrid Wars

Hybrid wars have come to categorize the majority of conflicts across the globe, and the debate over the relevancy of the RMA and force transformation is paramount to formulating a successful response to this phenomenon. The debate has considerable bearing on the future of US mili-

tary operations. Particularly, it will influence the size and commitment of future military interventions and can influence whether the US embraces or shies away from COIN in the future.

The United States has been at war in Afghanistan since 2001, so clearly force transformation has not provided a "silver bullet" for hybrid challenges. At the same time, this does not mean it lacks relevancy in this area. Although the expectations of the champions of the RMA and force transformation did not come to fruition, the criticisms and disinterest levelled against technocentrism within existing counterinsurgency theory are also unjustified. While the US experience in Afghanistan has clearly demonstrated that it is far easier to achieve victory in conventional combat than insurgency situations, the employment of SOF and airpower has allowed the military to target hybrid opponents with lethal precision and speed.

Due to the advanced training of SOF, they are able to prepare and engage multiple mission types within unique sociocultural environments. Their low profile allows SOF to operate without inflaming local populations via a large, intrusive presence, and their smaller-scale operations minimize chances for collateral damage. The sheer scale and speed of JSOC's targeting campaign demonstrates they are an integral tool to eliminate not just senior leadership but also mid-level commanders of insurgent groups, thus severely degrading their operational capacity.

Airpower has also allowed the US to target insurgents with lethal efficiency. UAVs have allowed the United States to reduce the strategic effects of the insurgents' safe haven in northern Pakistan. Their use has greatly degraded AQ's regional presence and has embedded a destabilizing psychological sense of fear within the remaining insurgents. Airpower has also acted as a force multiplier, allowing the counterinsurgents to have a wide presence across the large and highly rural area of operations. US conventional aircraft engaging in close-air support missions have prevented a resurgent Taliban from holding territory or from being able to defeat the Afghan government's forces in any large-scale battle.

With the 2016 election of Pres. Donald Trump, there is a window for a new era of the Afghan War. Some observers and even advisors in the White House are calling for the United States to send thousands more conventional boots on the ground to try to break up the stalemate that has characterized the conflict for the past several years.[104] The first thing the US must do to set a new course for the war is to articulate a clear and

actionable objective. In war, strategy is that which connects the political objective to military, economic, and diplomatic power to achieve desirable political consequences. Force essentially is just a means to an end and cannot be fully used to its potential without clear ends.[105]

The new Trump administration's Afghan policy is centered on three core elements. The first is a minor troop increase, including more SOF personnel to help combat the insurgency and terrorist groups in the region. The administration has also loosened the ROE for the troops, to allow them to participate in more offensive-orientated operations.[106] Second, there is an indication that more pressure must be placed on Pakistan to deal with insurgents and terrorists operating within their territory. The third policy is to move away from nation building and refocus US forces on counterterrorism operations while searching for a long-term political settlement with the Taliban. The Trump administration has also decided to move from a timeline-oriented approach for the military's continued role in the war to a conditions-based one.[107]

There are some promising features of this new Trump policy that may allow the light footprint to thrive. By narrowing the US war aim to a counterterrorism objective focused on the elimination of AQ and ISIS networks, while also removing the previous administration's restrictive ROE, the new policy helps to establish a situation in which the light footprint can be used to its fullest potential. The United States has the opportunity to use the light footprint's speed, precision, and firepower to target and destroy the remaining AQ and ISIS terrorist networks. Paired with this renewed counterterrorist campaign, the US can utilize the light footprint to also adopt a strategy of containment against the Taliban and Haqqani insurgent networks to keep them bottled up in northern Pakistan and the most southern regions of Afghanistan. Here, the US can utilize its technological advantages with airpower and SOF to prevent these insurgent networks from taking any major offensive actions against the Afghan central government while also maintaining a lower commitment in terms of its own forces. This containment strategy will not be able to decisively defeat these insurgent networks, but it will be able to deny them the ability to make any further territorial gains and allow for the US to manage the conflict in an acceptable way so that it can focus on its other counterterrorism objectives. By containing the insurgency, the US will to be able to bypass the various internal challenges that are hindering state building in Afghanistan, which continues to be

beset with internal corruption. With the insurgent networks bottled up, the United States can then intensify its diplomatic influence on Pakistan to further pressure the insurgency towards accepting a negotiated settlement with the US and the Afghan government in Kabul.

As of 2017, the Taliban movement remains highly fractional and is largely suffering from a lack of cohesion and direction due to weak centralized leadership plagued by internal power struggles. Mawlawi Haibatullah Akhundzada is the current primary leader of the movement, yet he is widely seen from within as being ineffective. This fragmentation within the movement has prevented the Taliban from capitalizing on some of its more successful combat achievements in 2016, as many subnetworks within the movement feel alienated from its leadership. Many within the Taliban have shown a deep dissatisfaction with the state of the movement and its position in the struggle for control of Afghanistan, and there is a growing sense that the conflict is losing a coherent sense of direction. Events such as the expulsion of Afghan refugees from northern Pakistan have placed further pressures on the movement. Now is the time to try to bypass the centralized Taliban leadership who wish to continue to obstruct the peace process and tap into the wider state of dissatisfaction within the movement.[108] The United States has no need to fight the Taliban forever; it is a regional actor that lacks any global ambitions. By reaching a negotiated settlement with a sizeable portion of the movement, the US can further concentrate on eliminating terrorist networks from the region.

As the United States continues to develop and implement its strategy for the defeat of ISIS in Iraq and Syria, defense planners should heed the lessons of the hybrid conflict in Afghanistan. A light footprint approach can allow the US to severely degrade the capacity of a terrorist group's ability to function. It can allow the US to counter these types of threats with reduced costs in a relatively nonintrusive manner for local civilians in a region wary of the large presence of conventional US troops. However, as the Afghan experience has shown, often such conflicts will take years and do not end cleanly. When the United States considers what to do next, it should be clear that existing capabilities are better suited for limited-scope counterterrorism campaigns rather than any new attempts at nation building or any other objective beyond the capacity of the military. SSQ

Notes

1. The author would like to thank Dr. James Fergusson and Dr. Andrea Charron for providing helpful feedback on earlier drafts of the article, as well as the University of Manitoba's Centre for Defence and Security Studies.

2. For strong overview of transformation, see Frans Osinga, "The Rise of Military Transformation," in *A Transformation Gap: American Innovations and European Military Change*, ed. Terry Terriff, Frans Osinga, and Theo Farrell (Stanford, CA: Stanford Security Studies, 2010), 14–34.

3. Richard B. Andres, Craig Wills, and Thomas E. Griffith Jr., "Winning with Allies: The Strategic Value of the Afghan Model," *International Security* 30, no. 3 (Winter 2005/2006): 124, http://doi.org/dqjrcc.

4. The core idea behind "hybrid war" is that few conflicts are purely conventional or purely irregular in nature. Rather, many conflicts, including the war in Afghanistan, essentially blur the line between conventional combat, insurgency, terrorism, and criminal activity. There have been recent attempts to describe hybrid war as a new phenomenon often associated with the recent Russian involvement in the Ukraine (2014); however, the concept is not new and has been a common aspect of global conflict since ancient times. The only thing that is truly new in contemporary hybrid conflicts is that advances with information technology have added considerable importance to information operations.

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6. Such writers include Frederick W. Kagan, Stephan Biddle, David Kilcullen, and Seth Jones.

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12. For more on revolution in military affairs criticisms, see Michael O'Hanlon, *Technological Change and the Future of Warfare* (Washington, DC: Brookings Institution Press, 2000).

13. Adamsky, *Culture of Military Innovation*, 3.

14. *See* Osinga, "Rise of Military Transformation."

15. Elinor C. Sloan, *The Revolution in Military Affairs* (Montreal: McGill-Queen's University Press, 2002), 11–28.

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17. Theo Farrell, Sten Rynning, and Terry Terriff, *Transforming Military Power since the Cold War: Britain, France, and the United States, 1991–2012* (Cambridge: Cambridge University Press, 2013), 9.

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20. *See* Rumsfeld, "Transforming the Military."

21. Frederick W. Kagan, "A Dangerous Transformation," *Wall Street Journal*, 12 November 2003, https://www.wsj.com/articles/SB122729758616448641.

22. *See* Frederick W. Kagan, *Finding the Target: The Transformation of American Military Policy* (New York: Policy Encounter Books, 2006).

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26. Frank Hoffman, "Neo-Classical Counterinsurgency?," *Parameters* 37, no. 2 (2007): 71, http://ssi.armywarcollege.edu/pubs/parameters/Articles/07summer/hoffman.pdf; and Galula, *Counterinsurgency Warfare*, 32.

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28. *See* Martin van Creveld, *Transformation of War* (New York: Free Press, 1991).

29. *See* Rupert Smith, *The Utility of Force: The Art of War in the Modern World* (London: Penguin Books, 2006).

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31. *See* Ivan Arreguin-Toft, *How the Weak Win Wars: A Theory of Asymmetric Conflict* (Cambridge: Cambridge University Press, 2005).

32. Andrew Mack, "Why Big Nations Lose Small Wars: The Politics of Asymmetric Conflict," *World Politics* 27, no. 2 (January 1975): 175–200, http://www.jstor.org/stable/2009880.

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38. Richard B. Andres, Craig Wills, and Thomas E. Griffith Jr., "Winning with Allies," *International Security* 30, no. 3 (Winter 2005/06): 124–60, http://doi.org/dqjrcc.

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44. Kilcullen, *Accidental Guerrilla*, 52.

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Unbalanced: Rethinking America's Commitment to the Middle East

Emma Ashford

Abstract

The challenges facing the United States in the Middle East require a return to a strategy of offshore balancing. Historical interests in the region—anticommunism and energy security—have been rendered largely irrelevant by geopolitical and technological changes. The regional strategic environment has shifted, and the current US approach to the region carries increasing risks: it enables dangerous behaviors by US allies, engenders moral hazard in local nondemocratic states, and ignores the regional interests of other great powers. American attempts to reshape the region have too rarely achieved stated goals. A more restrained approach has the potential to bring American commitments and interests in the region back into balance.

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There is no better illustration of the scope and duration of America's commitment to the Middle East than the fact that the US has bombed Iraq in every year of the last quarter century. From the Gulf War to 9/11, the wars in Iraq and Afghanistan, the Arab Spring, and even today's fight against ISIS, the United States has been an integral player in the region. The Middle East has itself dominated American foreign policy during this time. As Andrew Bacevich notes, "From the end of World War II to 1980, virtually no American soldiers were killed in action while serving in that region. . . . Since 1990, virtually no American soldiers have been killed in action anywhere *except* in the Greater Middle East."[1] This level of commitment has produced consistently high US troop levels in the region and is the result of a grand strategy that argues for regional

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presence that can help prevent conflict. Yet too often, it is unclear what goals this military presence is intended to achieve, other than to satisfy vague invocations of the need for "engagement." Worse, this presence is reinforced by an all-encompassing approach predicated on the idea that the United States can (and should) seek to shape all aspects of the regional security environment, from regional alliances to domestic capacity and nation building via military, political, or economic development.

This article explores the strategic context and challenges facing the United States in the Middle East and argues for a return to a strategy of offshore balancing. It argues that two of America's most important Cold War–era interests in the region—anticommunism and energy security—have been rendered largely irrelevant by geopolitical and technological changes. Meanwhile, large-scale military force has consistently proven ineffectual at tackling modern interests like counterterrorism. As the regional strategic environment shifts, today's comprehensive approach to the region also carries increasing risks: it enables dangerous behaviors by US allies, engenders moral hazard in local nondemocratic states, and ignores the regional interests of other great powers like China.

The United States remains deeply involved in Middle Eastern affairs. Even the Obama administration, which came into office eager to complete a "pivot" toward Asia, failed to completely extricate America from Middle Eastern wars. In reality, the post–Cold War period has proved to be a costly lesson in the folly of trying to shape this region through military force. Despite the deaths of over 6,500 US service members (and an estimated 300,000 civilians) in Iraq and Afghanistan, as well as costs of more than $3.4 trillion, the Middle East is no more stable, democratic, or prosperous than it was two decades ago.[2] In fact, it is hard to argue that well-intentioned US involvement in the Middle East has not worsened regional outcomes. The war in Iraq destabilized that country, creating a decade-long insurgency that provided fertile ground for the rise of ISIS. It also fundamentally altered the regional balance of power. America's intervention in Libya, initially hailed as a humanitarian triumph, spiraled into a lengthy civil war. Not all of today's turmoil in the Middle East is the fault of US policy makers, but American attempts to reshape the region have too rarely achieved stated goals. A more restrained approach has the potential to bring American commitments and interests in the region back into balance after a long period of overcommitment.

America's Middle East Approach in Historical Perspective

Today's high force posture in the Middle East is a historical anomaly. In fact, US presence in the region was traditionally light; from 1972–79, both Britain and the United States were largely absent from the region, while from 1980–90 the United States kept an extremely light force presence.[3] It is in some ways ironic that this period of low troop presence coincided with America's most important historical interest in the region: the prevention of Soviet domination. Yet Cold War dynamics themselves played a role, as the Soviet Union would have resisted American deployments to the region.

Regardless, it is notable that the United States successfully managed its Cold War–era interests in the Middle East without a substantial military presence, pushing back against Soviet dominance by partnering with and funding local states. During this era, the US generally employed an effective strategy of offshore balancing, first relying on the "twin pillars" of Iran and Saudi Arabia as its regional partners, and then "tilting" towards Iraq during the Iran-Iraq war. Sometimes, this produced poor results: policy makers' overly broad interpretation of US interests and fear of Soviet influence resulted in the overthrow of the Shah, the arming of the mujahideen, and blowback from both choices. Nor were policy makers always content to remain offshore. In key cases where US interests were at stake, such as Operation Earnest Will during the so-called tanker war, and even when they were not, such as Pres. Ronald Reagan's choice to send Marines into the Lebanese civil war, leaders sometimes committed US troops to the region.[4] Yet US foreign policy during this period did not seek to end all strife and did not rely on sustained military presence. Instead, it focused on maintaining the regional balance of power and ensuring key US interests during the Cold War, a task at which it largely succeeded. As one scholar noted in 1996, the "defense of the Middle East has succeeded, and America has achieved hegemony."[5]

Despite the disappearance of Soviet pressure following the Cold War, US military involvement in the Middle East has grown.[6] The initial impetus for this shift was the Gulf War. Though Saddam Hussein's motives for invading and occupying Kuwait remain unclear,[7] the outcome was the rapid deployment of a massive United Nations–backed military force to first defend Saudi Arabia and then push Iraqi troops out of Kuwait. American policy makers, fearful of the consequences of allowing Iraqi aggression to go unanswered and of the risks to Saudi Arabia's

oil fields, responded with a massive influx of men and material. As part of operations Desert Shield and Desert Storm, over 500,000 US troops, 700 tanks, two carrier battle groups, and various air and associated forces poured into the region for a short and successful campaign.[8]

Most of these troops departed after the end of the war. Yet in a marked change from America's Cold War posture, a sizeable cohort remained permanently based in the region as part of the Clinton administration's new strategy of "dual containment." This strategy called for military operations (such as Provide Comfort, Southern Watch, or Desert Fox) to contain Iraq; it thus required the continued presence of a substantial number of US personnel. Naval and aerial patrols, bombing raids, and the management of a no-fly zone inside Iraq were deemed necessary to prevent Saddam Hussein from again trying to dominate the region. As a result, between 1991 and 2003, the United States maintained around 5,000 ground troops, more than 5,000 Airmen, and more than 10,000 naval personnel in the region, stationed at naval regional headquarters in Manama, Bahrain, and on various naval vessels.[9]

Yet this policy of dual containment—and the effective abandonment of offshore balancing—was at best weakly justified. Iraq's armed forces had been crushed during the Gulf War. The other target, Iran, was still suffering the horrendous costs of the eight-year Iran-Iraq war. There was little reason to expect that either state could muster a strong enough force to dominate the region or that other regional powers could not resist such a move. Nor was there any good explanation for why dealing with these two militarily crippled states now required substantial US forward deployments in the region when they had been effectively dealt with from 1970 to the 1990s through adroit balancing of aid and a swift military response to Iraqi aggression.

Indeed, a point often overlooked by critics is that the Gulf War itself was not a failure of offshore balancing.[10] A strategy of offshore balancing does not imply intervention will never be necessary, rather that it will be rare and restricted to specific scenarios. Saddam's invasion of Kuwait easily met this criterion, featuring an aggressive state which threatened to dominate the region and disrupt global energy supplies.[11] Once the threat was dealt with, the United States should have returned to its role as an offshore balancer. Unfortunately, this did not happen. Perhaps, as some scholars have noted, the domestic political benefits of increasing US commitments in the Middle East were simply too strong for the Clinton

administration. Certainly, it provided the "U.S. military a needed and not-too-costly new mission" in the aftermath of the Cold War.[12]

Whatever the cause, both US presence and the scope of our declared interests in the region increased substantially. Though Soviet hegemony was no longer a concern, two Cold War–era interests remained: energy security and counterterrorism. To these, policy makers added human rights, nonproliferation, and even democracy promotion, substantially broadening America's regional goals. These mirrored the broader shift of US foreign policy towards what Barry Posen describes as primacy.[13] With a new focus on values and the threats emanating from weak states, US policy makers were primed to respond to the 9/11 attacks with massively expanded military presence and foreign policy goals.

As a result, deployments swelled in 2002 on Middle Eastern bases supporting the US campaign against the Taliban in Afghanistan and more substantially in 2003 with the George W. Bush administration's invasion of Iraq. The Iraqi occupation was particularly troop-intensive: while only 15,200 US troops were committed to the campaign in Afghanistan in 2004, there were 130,600 boots on the ground in Iraq in the same year.[14] US troop numbers in Iraq and Afghanistan peaked in 2008 at 187,900, a total that does not include support staff on other Middle Eastern bases (which raised that total to 294,355) or US contractors (as high as 45,000 during that year).[15]

The Obama administration drew down these troop levels from the peak of the so-called surge; US forces in Iraq declined by more than an order of magnitude between 2009 and 2011. Yet regionally, the United States continues to maintain a substantial force presence. In 2015, there were still over 12,000 troops between Iraq and Afghanistan.[16] By 2016, anti-ISIS campaign Operation Inherent Resolve had again begun to increase these numbers; though comprehensive figures are difficult to come by, the International Institute for Strategic Studies estimates that there are around 7,000 US service members in Afghanistan, 5,000 in Iraq, 2,000 in Jordan, 13,000 in Kuwait, 5,000 in Bahrain, 8,000 in Qatar and 5,000 in the United Arab Emirates.[17]

Though the Department of Defense often withholds information at the request of host governments, information is publically available about a variety of permanent military installations, ranging from small radar bases in Turkey and Israel to major installations such as Al Udeid air base in Qatar, home to thousands of US personnel and to CENTCOM's

forward headquarters. The Fifth Fleet is headquartered in Bahrain; the Air Force maintains facilities at bases in Kuwait (including Al Salem Air Base, Camp Buehring, and Camp Arifjan), Turkey (Incirlik Air Base), and the United Arab Emirates (Al Dhafra Air Base). Service members at these facilities are engaged in a variety of endeavors, including support for the campaigns against ISIS (and al-Qaeda), training allied militaries, and the protection of trade routes.

Mismatch between Strategy and Interests

Proponents of this heavy American presence in the Middle East often point to a variety of US interests in the region to justify it. Yet policy makers' conceptualizations of those interests have broadened in recent years; it is worth understanding how the goalposts have shifted. The end of the Cold War pushed US policy makers towards a new liberal hegemonic consensus on foreign policy. Democracy promotion, stability, and even economic development became key interests for policy makers, most notably in George W. Bush's "Freedom Agenda." Even Barack Obama, who took a less expansive view than his predecessors, included the protection of allies and partner states alongside counterterrorism, nonproliferation, and energy security as core US security interests in the region.[18] The result has been an emphasis on military solutions, an attempt to shape the internal politics of regional states, and increasing tension between US security needs and prodemocracy goals.[19]

A strategy of offshore balancing would resolve many of these tensions by returning to a substantially narrower conception of core US interests: primarily preventing the rise of a regional hegemon that could threaten the United States. Under offshore balancing, the US would refrain from sustained or permanent basing of troops in the region. In effect, the US would stay "offshore" unless absolutely necessary, only coming "onshore" to prevent any one state from dominating the region. And while offshore balancing could include some scope for other key US security interests such as energy security or counterterrorism, it would also acknowledge the reality that some of these interests are far less pressing today than in previous decades,[20] that proliferation and terrorism are likely to decline in the absence of US presence, and that a large, forward-deployed military is rarely helpful in seeking to achieve US goals.

Many Americans now assume growing domestic shale production has reduced American reliance on Middle Eastern oil and gas.[21] This

is an oversimplification. Fracking has certainly helped to diversify supply and reduce vulnerability, but it cannot insulate us entirely from oil price shocks.[22] In effect, though only around 15 percent of American oil imports come from the Persian Gulf, the status of oil as a globally traded commodity means that supply shortages can create price shocks for everyone, potentially harming the global economy, including the economies of the United States and its allies.[23] Yet even this is not as problematic as typically asserted. Global oil markets adapt well to oil shocks, typically replacing lost supply within three to six months while the infrastructure innovations put in place after the oil shocks of the 1970s, such as the Strategic Petroleum Reserve, mitigate and minimize economic damage during the adjustment period.[24]

Today, only a few scenarios have the potential to actually undermine American energy security: conquest of Middle Eastern oil fields by one country, the closure of key transit routes, or a civil war inside the world's largest oil-producing state, Saudi Arabia. The first of these is extremely improbable, particularly given the conventional military weakness of most regional states. The second and third scenarios are also unlikely, but more to the point, neither could be prevented easily by large-scale US military presence. In the case of transit routes, analysts generally agree that while Iran possesses the capacity to impede shipping in the Strait of Hormuz, a small residual force would be sufficient to prevent this.[25] In the case of Saudi civil strife, substantial US military presence is more likely to incite domestic unrest among the Kingdom's religious conservatives than it is to prevent it. History also suggests that substantial US forces in the region are largely independent of energy security; the energy shocks of the 1970s were politically motivated, and even during the so-called tanker war the oil supply remained relatively secure throughout the light force posture period of the 1980s.[26]

Surprisingly, this observation—that military presence may not be helpful in achieving US policy goals—is true for a wide variety of issues. The US commitment to Israel and policy makers' long-running attempts to resolve the Israel-Palestine conflict, for example, have by necessity always focused more on diplomacy and arms sales than on military force. Policy makers have also tended to rely on diplomacy and economic statecraft in their attempts to prevent nuclear proliferation in the region. While the threat or application of force is sometimes necessary, it does not require large deployments or that forces be based in the region. This is also

the case with counterterrorism, whether we focus on nonstate terrorist groups or on state sponsors of terror. The 1986 US bombing of Libya, for example, was undertaken by American air forces from bases in the United Kingdom and from aircraft carriers rather than from any Middle Eastern base.[27]

More generally, it is clear that even when military action is required, there is simply no need for the large forward-deployed forces that characterize America's commitment to the Middle East today. The lessons of Iraq and Afghanistan highlight that large-scale ground campaigns are of limited utility in responding to terrorist campaigns.[28] Indeed, the Obama administration mostly shifted to a "light footprint" approach for counterterrorism, combining small numbers of special operations forces with standoff strike capabilities, a move that mirrors the shifting consensus on counterterrorism tactics. The light footprint approach has its own problems but is far more useful and less costly than large-scale military conflicts.[29]

Perhaps for this reason, most arguments in favor of a forward presence tend to rely on vaguer rationales. Some warn that the withdrawal of US forces could create a security spiral, while others argue that regional leaders will tend to pick strategies that exacerbate conflicts and instability.[30] Yet there are key problems with these assertions. First, proponents of primacy rely on the ability of the United States to credibly commit to defend other states, always a problematic assumption. Second, they assume that in the absence of the American military, states would not simply balance against one another to find a stable regional equilibrium.[31] Finally, there is little evidence that US presence actually serves to prevent regional states from making destabilizing choices. The region-wide free-for-all that characterized the latter stages of the Arab Spring suggests that such choices can occur even with substantial US involvement. It is possible that the regional security environment *might* be worse if the United States drew down its regional military presence, but it is a contention based on shaky assumptions.

Ultimately, primacists argue that no regional state or combination of states can act as a guarantor of regional stability in the way the US can, a view widely held among top officials. Former US director of National Intelligence James Clapper, for example, recently acknowledged that the US cannot "fix" the Middle East but argued that it is necessary for the United States to be present in the region nonetheless.[32] One top think

tank report recently argued that "only the United States can secure the shipping lanes of the Persian Gulf, contain or rollback Iran's nuclear program . . . bring Israelis and Arabs to the negotiating table, and effectively coordinate responses to regional issues like counterterrorism and counter-proliferation."[33] This may be true. But in playing such a role, we conflate military presence with diplomatic influence and allow regional allies to free ride on American military spending. Many of America's regional allies are among the world's richest states, with access to vast oil wealth. As Marc Lynch points out, even under George W. Bush, Arab states opposed a regional drawdown: "For all their complaints about Bush, the regimes had found his eagerness to use military force and expend massive financial resources on their behalf quite congenial."[34]

Helping or Hindering?

Proponents of American primacy in the Middle East often point to what they term the past failures of offshore balancing, in particular the need for US intervention in the region during the 1991 Gulf War and the 2003 Iraq War. If the strategy had been successful, they argue, such interventions would have been unnecessary.[35] Yet in addition to mischaracterizing the 2003 invasion of Iraq as a necessary intervention rather than a war of choice, they ignore the more numerous failures of American regional policy since 1991. In contrast to the relative stability of the immediate post–Cold War period, today's Middle East is highly complex and conflictual. US foreign policy choices, though not entirely to blame, have substantially contributed to that chaos.

Osama bin Laden was among the earliest critics of America's regional presence, justifying his barbaric terrorist attacks with a narrative of resistance to occupation. He accused the United States of "occupying the lands of Islam in the holiest of places, the Arabian Peninsula" and called for every Muslim to kill Americans until US troops withdrew from Saudi Arabia.[36] It is a terrible irony that while bin Laden's words were widely abhorred by Muslims,[37] US military involvement in the region since 9/11 has helped to popularize this narrative. Polls show a steady decline in favorability towards the United States in almost every Middle Eastern country over the last decade: in Turkey, for example, favorability declined from 52 percent to 19 percent between 2000 and 2014, while in Egypt it has dropped from 30 percent to 10 percent since 2006.[38]

In part, this is the result of America's high-profile military failures, the most visible of which was the invasion of Iraq in 2003. Apparently anticipating a rapid transition to flourishing liberal democracy, the Bush administration largely assumed a new Iraqi government would align with the United States. Unfortunately, they neglected to consider even the most predictable consequences of failing in their quest and largely ignored Iraq's sectarian divides. The key consequence of the invasion was to upend the regional balance of power, destroying an uneasy Iran-Iraq-Saudi Arabia triangle. In particular, by enfranchising Iraq's oppressed Shi'a majority, the US invasion inevitably pushed Iraq closer to Iran.[39]

Yet while sectarian politics played a role, it was the weakness of Iraqi governance in the aftermath of intervention that provided an opening for Iranian influence. It is ironic given the animosity of many neoconservatives within the Bush administration toward Iran that their main accomplishment has been to strengthen to strengthen Iran's position in the region. Yet it should have been easy to predict: Middle Eastern states have often sought to resolve their disputes by intervening in weak neighboring states. One only has to look at Lebanon's tumultuous history or the 1960s struggle between Nasser and conservative monarchies in Syria and Iraq to see this dynamic at work.[40] The US invasion of Iraq transformed one of the Middle East's most populous states into a weakly institutionalized battleground for regional power struggles.

Another high-profile failure was the 2011 US intervention in Libya. Though the rationale was different, the results were similar. In the context of the Arab Spring and growing violence by the region's embattled regimes, the intervention was described as a humanitarian necessity. This narrative undoubtedly helped Britain and France to convince the intervention-skeptical President Obama but also helped secure Russian and Chinese UN Security Council abstentions. Yet the narrowly construed NATO humanitarian mission quickly morphed into air support for the rebel campaign to overthrow Gadhafi. As Alan Kuperman illustrates, interventions and subsequent civil wars may result in a substantially higher death toll than the potential humanitarian costs of nonintervention.[41] Such interventions can also produce moral hazard, fostering rebellion among groups who cannot defend themselves but who believe that the international community will intervene to protect them instead.[42] As the revolutions of the Arab Spring unfolded across the region in 2011, events in one country influenced domestic political movements

in other states. The twisted incentives created by international intervention in Libya contributed to the decision of groups elsewhere, notably in Syria, to take up arms against their repressive governments.[43] This in turn placed pressure on the United States to overthrow the Assad regime for humanitarian reasons. Thanks to moral hazard, "humanitarian" intervention can easily beget future interventions.

Proponents of heavy US involvement in the Middle East also largely ignore the questions raised by the growing regional interests of other states. Indeed, though the United States has been the undisputed regional hegemon since 1991, the expanding interests of other major powers are gradually altering the regional strategic picture. The most obvious of these is Russia, whose 2015 intervention in Syria took many observers by surprise. Russia has long had a naval presence inside Syria, based at Tartus, and sought to protect this strategically valuable port as well as the Assad regime.[44] Russia has been able to use its brief military intervention to become a key player in Syria's peace talks, a role that boosts Russia's international standing and bolsters Pres. Vladimir Putin's domestic legitimacy.

In contrast to Russia, China has shown little interest in military involvement in the Middle East, but its economic and resource interests in the region are growing rapidly. Today, over half of Chinese oil imports come from the Persian Gulf. As China's energy needs grow, it is shifting from its historical alignment with Iran and moving closer to Saudi Arabia, recently signing a deal with the Kingdom to provide nuclear reactors as well as various weapons systems. Sino-Saudi trade is also growing, rising from $24.5 billion in 2007 to $64.32 billion in 2011. It remains unclear whether these growing ties pose a strategic problem for the United States. Some regional states might well prefer a more robust Chinese presence in the region; Chinese leaders often speak of "energy interdependence" with the Gulf and are unlikely to push for democratic or economic reforms. Yet China remains reluctant to play a military role in the Middle East.[45]

Even close US allies have shown interest expanding their regional role. The United Kingdom has returned to Bahrain, opening a new naval base at Mina Salman; France now has troops in Djibouti and the United Arab Emirates.[46] Whether allies or adversaries, it is clear that the future of the Middle East is pluralistic, not hegemonic. Unfortunately, proponents of greater engagement in the region rarely consider either the

benefits or risks posed by the growing number of states with a stake in the region. If this develops at the same time as increasing US presence, it has the potential to raise the risk of conflict, particularly in situations like Russia's Syrian campaign.

Yet perhaps the biggest problem is the fact that American predominance in the region prevents states from balancing or bandwagoning in the face of threats, as they would do in the absence of US presence. As many scholars have noted, the Middle East has typically exhibited "underbalancing," meaning that states that might be expected to form alliances have rarely done so. The most obvious example is the anti-Iranian axis of Turkey, Israel, and Saudi Arabia, but the Gulf Cooperation Council (GCC) has also repeatedly failed to build joint military infrastructure. The recent GCC crisis between Qatar, Saudi Arabia, and the United Arab Emirates likewise suggests that these states prioritize ideological factors over security concerns. As long as the United States continues to act as a regional security guarantor, theory suggests that ideological factors will continue to inhibit alliances.[47]

In fact, though the Obama administration's pivot away from the Middle East was more rhetoric than reality, it did encourage tentative attempts to build better regional alliances. Private rapprochement and cooperation between Saudi Arabia and Israel on the issue of Iran has been growing. The two countries disagree on a variety of issues, the most problematic of which is the Israeli-Palestinian conflict. Yet when retired top Saudi and Israeli officials spoke about the issue at a 2016 forum in Washington, DC, they were keen to highlight that cooperation is possible even if these issues go unresolved.[48] The two states regularly hold informal meetings on security issues. Even the relative lack of criticism expressed by the Gulf States during the 2006 Israeli war against Hezbollah may be indicative of shifting opinion within the region.[49] In providing security guarantees and by acting as a third party cutout, US involvement inhibits these developing ties.

A Challenging Regional Environment

Acknowledging the failures and successes of past US policy towards the Middle East is the key to a robust debate on future involvement in the region. It will help policy makers understand the risks and benefits of continuing with today's strategy. Though this debate began under the Obama administration, it remains unresolved. During his presidential

campaign, Donald Trump challenged the status quo but has largely embraced it since his inauguration. Many of Washington's foreign policy elites continue to endorse either a status quo approach to the region or even an increase in military engagement. In addition to past US successes and failures, however, the regional political context is also important. The tensions in today's Middle East pose unique challenges for American policy makers. Taken as a whole, they raise a key question: Is it even possible to reshape the region in line with American interests? Or, as one observer notes, perhaps it is simply time for US policy makers to accept that "Washington no longer holds most of the cards in the region"?[50]

The most visible regional challenge is ISIS, which emerged from the wreckage of al-Qaeda in Iraq, seized major cities in both Iraq and Syria, and declared itself a caliphate. Following the barbaric slaughter of several Americans in August 2014, the Obama administration authorized an open-ended military campaign against the group. Though a nominal anti-ISIS coalition now includes more than 60 states, the United States has borne the brunt of the military effort, launching over 21,000 airstrikes, at a cost of more than $12.5 billion. The United States now has over 5,000 troops on the ground in Iraq and around 1,000 special operations forces and Marines in Syria, providing artillery support and training for local anti-ISIS forces. Three years on, ISIS is shrinking, but progress is slowed by the lack of effective fighting forces on the ground and by internal domestic political and ethnic struggles.

ISIS is certainly a relatively new phenomenon for US policy makers to grapple with. The group's choice to hold territory, providing social services and other state-like functions, is unusual among jihadi groups. During its peak period of 2014–15, this choice led ISIS to resemble a proto-state more than a traditional terror group. Various scholars speculated that ISIS itself could develop into a weak state if given time, though its revolutionary ideology presented enough of a threat to nearby states that this was unlikely.[51] Yet the extent to which ISIS actually threatens the United States has always been questionable. Despite its unusual structure, rapid growth, and effective publicity, ISIS is no more threatening to the United States than other terrorist groups: it is potentially capable of carrying out tragic attacks against soft targets as it did in Brussels and Paris but unable to fundamentally damage the United States.[52] The regional spread of ISIS is also somewhat of a mirage: though the group claims affiliates in various countries, the majority already existed as local

terrorist groups. The ISIS affiliate credited with bringing down a Russian airliner in Egypt began life as the separatist group Province of Sinai, while Nigeria's Boko Haram was active more than a decade before it swore allegiance to ISIS. In Libya and Yemen, as in Syria, the group's survival is dependent on the outcome of the ongoing civil war.

Indeed, the US campaign against ISIS is nested within the context of the Syrian civil war, itself a product of the broader regional turmoil that began in 2010. Initially described as the "Arab Spring" or "Arab Awakening," the democratic promise of these movements largely foundered on a wave of repression and war. The Syrian conflict is notable for its extreme violence but is otherwise a garden-variety civil war, worsened by the interference of neighboring states. In Syria, Iran and Russia have primarily backed the Assad government, while Saudi Arabia, Qatar, and Turkey have funneled weapons and arms to opposing insurgent groups. As a result, Syria has become a proxy battlefield; much of the early fragmentation and extremism among anti-Assad rebels was the result of contradictory funding streams from the Gulf States and Turkey, as each state attempted to ensure that their own proxies would come out on top after the overthrow of Assad.[53] ISIS is the only major player in the Syrian civil war with no external backer. Yet animosity, fragmentation, and regional rivalries—such as the ongoing Turkish-Kurdish struggle in Northern Syria—make cooperation against the group challenging.

Despite the prominence of ISIS, broader regional concerns pose a bigger challenge in formulating long-term US policy towards the Middle East. Regional dynamics are often framed in sectarian terms, pitting Sunni states (led by Saudi Arabia) against Shi'a ones (led by Iran), and relying on ancient hatreds to explain tensions. This is inaccurate; though both Iranian and Saudi leaders often resort to nakedly sectarian language, sectarian narratives largely mask a more traditional balance-of-power struggle.[54] Casual observers often lump widely dissimilar sects, such as Alawites or Houthis, together to fit a convenient narrative. In reality, the Arab Spring raised distinct fears for different states: the specter of Iranian influence for Saudi Arabia and the United Arab Emirates, concerns about the Muslim Brotherhood for the UAE and Jordan, worry about Salafist influence for Jordan, and fears of the loss of regional influence for Iran.[55]

Indeed, domestic political outcomes, regime stability, and foreign policy are intrinsically linked for most regional states. Throughout the

Arab uprisings, foreign interventions shaped domestic outcomes: in Egypt, for example, Qatari money helped to support Mohamed Morsi's Muslim Brotherhood government, while Saudi and Emirati money has since helped to ensure the survival of the al-Sisi regime. At the same time, foreign policy choices were frequently based on states' domestic fears about instability, such as the 2011 GCC military intervention in Bahrain. The brutal repression of peaceful Bahraini protests was motivated primarily by the regime stability fears of the neighboring Al Saud monarchy. Regional elite networks tie many countries together in ways that are not always obvious. Jordan, for example, is heavily dependent on financial aid from the Gulf States, making domestic stability in those states a security concern for Jordan. Such incestuous ties crisscross the region.

Another common narrative about today's regional tensions is that they pit a conservative monarchical block of states against more revolutionary states and movements. This idea effectively seeks to divide the region into status quo defenders and revisionist spoilers. There is some truth to this, particularly in the extent to which Saudi Arabia tried to prevent the destruction of ancien régime in Bahrain, Yemen, Egypt, and elsewhere. Yet it is also a substantial oversimplification. Since 2011, so-called status quo states have also acted in distinctly revolutionary ways, and traditionally revolutionary states have sought to defend the status quo where it meets their interests. This dynamic is perhaps most visible in Syria, where Iran was forced into the unlikely role of opposing a revolutionary uprising aimed at Bashar al Assad's government.

In reality, even the Sunni-conservative and Shi'a-revolutionary blocs are not monolithic. In spite of Saudi efforts to act as a regional Sunni leader, other states have challenged this influence in various theatres. This "intra-Sunni" conflict primarily separates regimes friendly to Muslim Brotherhood–oriented groups from those favoring more Salafist groups and was most visible in Libya, where fighting between Qatari and Emirati proxies helped undermine a fragile post-conflict settlement. The defeat of Muslim Brotherhood–oriented factions in Egypt and elsewhere and the victory of various Salafi-jihadi-rebel groups have grave implications for the future of peaceful reform in the region but played out almost entirely among Sunni states. Still other states defy easy classification: tiny Oman has consistently avoided aligning with either bloc. The influence of smaller "swing states" in the region in the last few years

cannot be overstated; Qatari and Emirati influence and finance played a major role in conflicts from Libya to Syria.

Today, regional struggles for power and influence are not fought between states but within them, manifesting in a series of proxy wars for the soul of weaker states. In this, it bears a strong resemblance to the 1950s and 1960s, which saw a regional proxy struggle between Nasser's Egypt and various conservative monarchies. Noted historian Malcolm Kerr described that period as an "Arab Cold War" for its similarities to the proxy-driven conflicts of the US-Soviet rivalry.[56] Today, patronage of proxies is often more effective than military might, a fact clearly illustrated by the outsize influence of tiny, natural gas–rich Qatar during the last few years.[57] It is notable that in the limited cases where direct military power has been used—primarily in Syria and Yemen—it has been largely ineffectual in achieving the desired results.

Return to Offshore Balancing

Understanding the turmoil in the Middle East in addition to the past successes and failures of US policy is key to debating the future of American involvement in the region. As this article has highlighted, US policy makers since 1991 have effectively rejected America's Cold War approach to the Middle East. Instead of pursuing offshore balancing and astute diplomacy as their Cold War counterparts typically did, policy makers have embraced substantially broader goals and a heavy reliance on military means. Though US regional deployments have fallen from their global war on terrorism peak, they remain substantially higher than historic levels.

More worryingly, there appears to be little in the way of coherent strategy at play: some traditional regional interests are no longer relevant, some are less pressing than in prior years, and still others are not easily achievable with large-scale military presence. Discussions and analysis of American strategy in the region often focus on ideological factors such as the rise of political Islam, which may be key to shaping the internal dynamics of states but are not central to core US security interests. Indeed, the Middle East exemplifies a phenomenon described by the historian Mel Leffler, in which the growing prioritization of values in American foreign policy has done substantial damage to US interests.[58] It is increasingly clear that America's actions in the Middle East over the last two decades—though undertaken with the best of intentions—have ac-

tually contributed to regional instability. Maintaining the status quo or increasing US involvement in the region carries the potential to entrap the United States in conflict and to encourage destabilizing behavior by both US allies and adversaries.

Given these failures, it is time to try something different: a return to offshore balancing. As it did during the Cold War, a strategy of offshore balancing would define US interests much more narrowly. It would focus on key interests and on the potential for regional hegemons to arise. It assumes that other states can (and will) balance against each other, even without direct US involvement. By relying on over-the-horizon capabilities and local partners, rather than onshore military capabilities, offshore balancing will increase burden sharing and reduce blowback.[59] And while it cannot entirely negate the need for military involvement in certain scenarios, as the case of the first Gulf War shows, military action will be far less frequent than today's primacy-based approach requires. Certainly, offshore balancing during the Cold War was not perfect; the choice of policy makers to engage in the covert suppression of democracy in Iran and elsewhere contributed to today's regional crises. But a shift to offshore balancing today coupled with a rejection of attempts to shape regional states' domestic politics would allow the United States to take a more consistent approach to regional politics. This would alleviate US policy makers' need to "pick a side" in regional disputes; indeed, the most effective offshore balancing strategy today would see the US diminish its military support for the Gulf States and seek to improve long-term relations with Iran.

Under offshore balancing, the US force posture in the Middle East would look substantially different, resembling the Cold War era more than today. It would remove the need to maintain thousands of ground forces at bases across the region; such troops are primarily there to reassure small states like Kuwait.[60] It would not be a complete withdrawal. Small numbers of US troops will need to remain in region to serve advisory and cooperation functions, and groups of special operations forces will remain engaged in counterterrorism activities. Short-term deployments for unexpected emergencies like humanitarian relief operations will sometimes be necessary; the composition and goals of such forces could be decided on a case-by-case basis. However, the bulk of America's troop presence in the region would no longer be required; major bases like Al Udeid could be closed or downsized dramatically. Simply put,

there should be no large sustained or permanent US military presence in the region.

Certainly, it will be important to retain the ability to go back onshore if needed. As Joshua Rovner and Caitlin Talmadge note, there are benefits to leaving certain capabilities in the region, in particular aerial intelligence, surveillance, and reconnaissance (ISR) capabilities as well as coastal patrol vessels. Retaining and maintaining the naval base at Manama and a US naval presence in the Indian Ocean as well as various stocks of pre-positioned materiel is a sensible strategic hedge against potential future conflict in the region.[61] As Daryl Press and Eugene Gholz put it, the United States should "remain close enough to prevent major acts of military aggression but stay out of the daily fray of the region's politics."[62] In short, offshore balancing would allow for US military presence in the region to be reduced dramatically. Yet it is important to note that this approach does not imply that the United States should disengage diplomatically or economically from the Middle East. Indeed, US policy makers may well find that our diplomatic influence on difficult issues is actually improved when it is less entangled with the need to keep local partners happy.

A change in America's approach to the Middle East is long overdue. While major military involvement in the region may have seemed like the right answer in response to the tragic attacks of 11 September, subsequent years have proven that America simply cannot reshape the region through force. Neither US interventions nor substantial military deployments have increased the stability of the region or the security of the United States. Instead, far too often, American involvement in the Middle East has done exactly the opposite. Continuing our hegemonic approach to the region is unlikely to yield better results in the future. Instead, US strategic interests can be managed more effectively by taking a more hands-off approach. It is time for the US military to largely exit the Middle Eastern stage. SSQ

Notes

1. Andrew Bacevich, *America's War for the Greater Middle East: A Military History* (New York: Random House, 2016), 11.

2. These figures are from 2014 and do not include either the financial or human costs of the current campaign against ISIS. *See* Neta Crawford, "War-Related Death, Injury, and Displacement in Afghanistan and Pakistan 2001–2014," 22 May 2015; and "U.S. Costs of

Wars through 2014: $4.4 Trillion and Counting," accessed 25 June 2015, Watson Institute, Brown University, http://watson.brown.edu/costsofwar/costs. As of June 30, 2017, the cost of the campaign against ISIS has been approximately $14.3 billion; see Department of Defense, "Operation Inherent Resolve," accessed 1 August 2017, https://www.defense.gov/News/Special-Reports/0814_Inherent-Resolve.

3. *See* Joshua Rovner and Caitlin Talmadge, "Hegemony, Force Posture, and the Provision of Public Goods: The Once and Future Role of Outside Powers in Securing Persian Gulf Oil," *Security Studies* 23: 3 (2014): 548–58, http://doi.org/cgr8; Jeffrey Macris, *The Politics and Security of the Gulf: Anglo-American Hegemony and the Shaping of a Region* (London: Routledge, 2010); and F. Gregory Gause, *The International Relations of the Persian Gulf* (Cambridge: Cambridge University Press, 2010).

4. Interestingly, both of these cases were impulsive interventions that resulted in poor outcomes. On Lebanon, see Bacevich, *America's War*, 72–77. On the tanker war, see Janice Gross Stein, "The Wrong Strategy in the Right Place: The United States in the Gulf," *International Security* 13, no. 3 (Winter, 1988–1989): 142–67, http://www.jstor.org/stable/2538739.

5. Michael C. Hudson, "To Play the Hegemon: Fifty Years of US Policy toward the Middle East," *Middle East Journal* 50, no. 3 (Summer 1996): 329–43, http://www.jstor.org/stable/4328954.

6. Various scholars have commented on this paradox. *See* Richard Haass, "The Irony of American Strategy: Putting the Middle East in Proper Perspective," *Foreign Affairs* (May/June 2013), 57–67, http://www.jstor.org/stable/23526836.

7. *See* Hal Brands and David Palkki, "Conspiring Bastards: Saddam Hussein's Strategic View of the United States," *Diplomatic History* 36: 3 (2012): 625–59, http://doi.org/cgr9; and the review by Judith Yaphe, Humanities and Social Sciences Online, 9 October 2012, http://www.h-net.org/~diplo/reviews/PDF/AR368b.pdf.

8. *See* Center of Military History, *War in the Persian Gulf: Operations Desert Shield and Desert Storm, August 1990–March 1991* (Washington, DC: United States Army, 2010), http://www.history.army.mil/html/books/070/70-117-1/cmh_70-117-1.pdf; and Joseph Englehardt, *Desert Shield and Desert Storm: A Chronology and Troop List for the 1990–1991 Persian Gulf Crisis* (Carlisle, PA: US Army War College Strategic Studies Institute, 1991), http://www.dtic.mil/get-tr-doc/pdf?AD=ADA234743.

9. Rovner and Talmadge, "Hegemony," 572.

10. John Mearsheimer and Stephen Walt, "The Case for Offshore Balancing," *Foreign Affairs* (July/August 2016): 70–83, https://www.foreignaffairs.com/articles/united-states/2016-06-13/case-offshore-balancing.

11. Eugene Gholz, Daryl Press, and Harvey Sapolsky, "Come Home, America: The Strategy of Restraint in the Face of Temptation," *International Security* 21, no. 4 (1997): 5–48, http://doi.org/cgsc.

12. Hudson, "To Play the Hegemon," 340.

13. Barry Posen, *Restraint: A New Foundation for U.S. Grand Strategy* (Ithaca, NY: Cornell University Press, 2014), 8–11.

14. Amy Belasco, *Troop Levels in the Afghan and Iraq Wars, FY2001–FY2012: Cost and Other Potential Issues* (Washington, DC: Congressional Research Service, 2009), 9, https://www.fas.org/sgp/crs/natsec/R40682.pdf.

15. Heidi Peters, Moshe Schwartz, and Lawrence Kapp, *Department of Defense Contractor and Troop Levels in Iraq and Afghanistan: 2007–2015* (Washington, DC: Congressional Research Service, 2017), 4–11, https://www.fas.org/sgp/crs/natsec/R44116.pdf.

16. Peters, Schwartz, and Kapp, *Contractor and Troop Levels*, 4–11.

17. International Institute for Strategic Studies, *The Military Balance 2016* (New York: Routledge, 2016), 58–60.

18. Barack Obama, "Remarks by President Obama in Address to the United Nations General Assembly," 24 September 2013, https://obamawhitehouse.archives.gov/the-press-office/2013/09/24/remarks-president-obama-address-united-nations-general-assembly.

19. In a memo written shortly before the start of the Arab Spring, President Obama himself spoke of the difficulties in weighing US interests in the region against the desire to promote economic and political reform. Ryan Lizza, "The Consequentialist: How the Arab Spring Remade Obama's Foreign Policy," *New Yorker*, 2 May 2011, http://www.newyorker.com/magazine/2011/05/02/the-consequentialist.

20. Indeed, offshore balancing advocates typically do not include a counterterrorism or nonproliferation role for the US military, arguing that it is to a large extent US military presence that drives states to obtain nuclear weapons or groups to direct terror attacks at the United States. Nonetheless, there undoubtedly will remain some cases in which the United States has an interest in addressing such threats if and when they do emanate from the Middle East. *See* Mearsheimer and Walt, "The Case for Offshore Balancing."

21. Elizabeth Rosenberg, *Energy Rush: Shale Production and U.S. National Security* (Washington, DC: Center for a New American Security, February 2014), 11, https://www.cnas.org/publications/reports/energy-rush-shale-production-and-u-s-national-security.

22. As Barry Posen notes, given the reduced reliance on Middle East oil (as a form of supply vulnerability), it is today questionable whether any potential economic impact of shortfalls in Middle Eastern oil supply on the US economy would be sufficient to justify a large-scale military intervention to reverse it. *See* Posen, *Restraint*.

23. "Petroleum and Other Liquids Dataset," US Energy Information Administration, accessed 1 August 2017, https://www.eia.gov/petroleum/.

24. Eugene Gholz and Daryl Press, "Protecting 'The Prize': Oil and the U.S. National Interest," *Security Studies* 19, no. 3 (2010): 453–85, http://doi.org/frp6qg.

25. *See* Omar Al-Ubaydli, "Iran's Threat to Block Hormuz: A Game Theory Analysis," Middle East Centre Blog, London School of Economics and Political Science, 16 May 2016, http://blogs.lse.ac.uk/mec/2016/05/16/irans-threat-to-block-hormuz-a-game-theory-analysis. Also see Joshua Rovner, "After America: the Flow of Persian Gulf Oil in the Absence of US Military Force," in *Crude Strategy: Rethinking the US Military Commitment to Defend Persian Gulf Oil*, ed. Charles L. Glaser and Rosemary A. Kelanic (Washington, DC: Georgetown University Press, 2016), 141–65. Also see Caitlin Talmadge, "Closing Time: Assessing the Iranian Threat to the Strait of Hormuz," *International Security* 33, no. 1 (2008): 82–117, http://www.jstor.org/stable/40207102.

26. Rovner and Talmadge, *Hegemony*, 564.

27. Judy Endicott, "Raid on Libya: Operation ELDORADO CANYON," in *Short of War: Major USAF Contingency Operations, 1947–1997*, ed. A. Timothy Warnock (Washington, DC: Air Force History and Museums Program, 2000), 145–56.

28. For discussion of this issue, see Paul Pillar and Christopher A. Preble, "Don't You Know There's A War On? Assessing the Military's Role in Counterterrorism," in *Terrorizing Ourselves: Why U.S. Counterterrorism Policy is Failing and How to Fix It*, 61-82, ed. Benjamin Friedman, Jim Harper, and Christopher Preble (Washington, DC: Cato Institute, 2010).

29. Brad Stapleton, "The Problem with the Light Footprint: Shifting Tactics in Lieu of Strategy," Cato Institute Policy Analysis no. 792, 7 June 2016, https://www.cato.org/publications/policy-analysis/problem-light-footprint-shifting-tactics-lieu-strategy.

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31. Christopher Layne, "From Preponderance to Offshore Balancing: America's Future Grand Strategy," *International Security* 22, no. 1 (July 1997): 86–124, http://doi.org/dcx7w5.

32. David Ignatius, "The U.S. Can't Fix It: James Clapper on America's Role in the Middle East," *Washington Post*, 10 May 2016, https://www.washingtonpost.com/opinions/the-us-cant-fix-it-james-clapper-on-americas-role-in-the-middle-east/2016/05/10/377666a8-16ea-11e6-9e16-2e5a123aac62_story.html.

33. Steven Cook, Jacob Stokes, and Alexander J. Brock, *The Contest for Regional Leadership in the New Middle East* (Washington, DC: Center for a New American Security, June 2014), 14, http://www.cnas.org/sites/default/files/publications-pdf/CNAS_RegionalLeadership_CookStokesBrock_0.pdf.

34. Marc Lynch, *The New Arab Wars: Uprisings and Anarchy in the Middle East* (New York: PublicAffairs, 2016), 20.

35. *See* Kenneth Pollack, "Securing the Gulf," *Foreign Affairs* (July/August 2003), https://www.foreignaffairs.com/issues/2003/82/4.

36. Bacevich, *America's War*, 202.

37. A 2005–6 Gallup survey of Muslims in 10 major Islamic states found that vast majority of Muslims believed that the 9/11 attacks were wholly or partially unjustified. *See* John Esposito and Dalia Mogahed, *Who Speaks for Islam? What a Billion Muslims Really Think* (New York: Simon and Schuster, 2008), 69–70.

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39. *See* Lynch, *New Arab Wars*; and F. Gregory Gause, "Ideologies, Alliances and Underbalancing in the New Middle East Cold War" (paper, International Relations and a New Middle East Symposium, Aarhus, Denmark, 7–8 May 2015, http://pomeps.org/2015/08/26/ideologies-alliances-and-underbalancing-in-the-new-middle-east-cold-war/.

40. *See* Curtis Ryan, "The New Arab Cold War and the Struggle for Syria," *Middle East Report* 262 (Spring 2012), http://merip.org/mer/mer262/new-arab-cold-war-struggle-syria; and F. Gregory Gause, "Beyond Sectarianism: The New Middle East Cold War," Brookings Doha Center Report, 22 July 2014, http://www.brookings.edu/research/papers/2014/07/22-beyond-sectarianism-cold-war-gause.

41. Alan Kuperman, "A Model Humanitarian Intervention? Reassessing NATO's Libya Campaign," *International Security* 38, no. 1 (2013): 105–36, http://doi.org/cgsf.

42. *See* Alan Kuperman, "The Moral Hazard of Humanitarian Intervention: Lessons from the Balkans," *International Studies Quarterly* 52, no. 1 (March 2008): 49–80, http://www.jstor.org/stable/29734224; and Alan Kuperman, "Mitigating the Moral Hazard of Humanitarian Intervention: Lessons from Economics," *Global Governance* 14, no. 2 (2008): 219–40, https://doi.org/10.5555/ggov.2008.14.2.219.

43. Lynch, *New Arab Wars*; and Kuperman, "Model Humanitarian Intervention?"

44. *See* Ron Synovitz, "Explainer: Why Is Access to Syria's Port at Tartus So Important to Moscow?," Radio Free Europe Radio Liberty, 27 May 2016, http://www.rferl.org/content/explainer-why-is-access-/24619441.html; and Edward Delman, "The Link between Putin's Military Campaigns in Syria and Ukraine," *Atlantic Monthly*, 2 October 2015, http://www.theatlantic.com/international/archive/2015/10/navy-base-syria-crimea-putin/408694.

45. Jon Alterman, *China's Balancing Act in the Gulf*, Gulf Analysis Paper (Washington, DC: Center for Strategic and International Studies, August 2013), https://www.csis.org/analysis/chinas-balancing-act-gulf.

46. Bilal Y. Saab, *After Hub-And-Spoke: US Hegemony in New Gulf Security Order* (Washington, DC: Atlantic Council Brent Scowcroft Center on International Security, April 2016), 7–9, http://www.atlanticcouncil.org/images/publications/Hub_and_Spoke_0414_web.pdf.

47. Gause, "Beyond Sectarianism," 23–27; also see Mark Hass, *The Ideological Origins of Great Power Politics, 1789–1989* (Ithaca, NY: Cornell University Press, 2005).

48. *See* Todd Rosenblum, "Improving Saudi-Israeli Relations Offers an Opportunity for the US—and a Big Risk," *Politico*, 18 May 2016, http://www.politico.eu/article/middle-east-security-improving-saudi-israeli-relations-offers-an-opportunity-for-the-us-and-a-big-risk; and "A Conversation on Security and Peace in the Middle East: Featuring HRH Prince Turki al-Faisal, Saudi Arabia, and Maj. Gen. (ret.) Yaakov Amidror, Israel," transcript, Washington Institute, 5 May 2016, http://www.washingtoninstitute.org/uploads/Documents/other/alFaisal-Amidror-FINAL2.pdf.

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53. See Lynch, *New Arab Wars*.

54. See Gause, "Beyond Sectarianianism"; or Lynch, *New Arab Wars*.

55. Curtis Ryan, "Regime Security and Shifting Alliances in the Middle East" (paper, International Relations and a New Middle East Symposium, Aarhus, Denmark, 7–8 May 2015), http://pomeps.org/2015/08/20/regime-security-and-shifting-alliances-in-the-middle-east/.

56. Malcolm Kerr, *The Arab Cold War: 1958–1964* (Oxford University Press, 1971).

57. Gause, "Beyond Sectarianism," 2.

58. Melvyn Leffler, "9/11 and American Foreign Policy," *Diplomatic History* 29, no. 3 (2005): 412–13, http://doi.org/bwv4x4.

59. *See* Layne, "America's Future Grand Strategy," or Posen, *Restraint*, for a more complete summary of the benefits of restraint and of offshore balancing. For criticisms of offshore balancing, see Hal Brands, "Fools Rush Out? The Flawed Logic of Offshore Balancing," *Washington Quarterly* 38, no. 2 (2015). However, even though Brands argues it would not necessarily be cheaper to station troops at home, he acknowledges that it would increase burden sharing and reduce blowback

60. Rovner and Talmadge, "Hegemony," 562.

61. Rovner and Talmadge. It should be noted that in contrast to this article, Rovner and Talmadge also advocate that the United States should leave several thousand troops in the Middle East to reassure wary allies.

62. Daryl Press and Eugene Gholz, "Footprints in the Sand," *The American Interest* (March/April 2010), https://www.the-american-interest.com/2010/03/01/footprints-in-the-sand/.

Book Reviews

Strategy & Defence Planning: Meeting the Challenge of Uncertainty by Colin Gray. Oxford University Press, 2014, 225 pp.

Strategy specialist Colin Gray delivers an excellent discussion illustrating how history, politics, and military means all intertwine during defense planning in his work *Strategy & Defence Planning: Meeting the Challenge of Uncertainty*. Dr. Gray considers this work as the third in a series leading from the two previous texts within the same vein: *The Strategy Bridge* (2010) and *Perspectives on Strategy* (2013). The earlier books provide an overview of various national strategy options, while this volume strives to answer the how and why questions for defense planners. After reviewing his previous strategic conclusions, Gray in this text examines how historical perspectives contribute to planning, political influences, and popular factors and then constructs an imminently usable framework for defense planners. Gray's key assumptions emphasize that all future events are unknown and nonquantifiable, so all defense planning serves to reduce uncertainty rather than guarantee outcomes.

Gray provides a theory outline for defense planning within a societal context through strategic, historical, and political references. Working from a solid core provided by the other two volumes, the text details how defense planning functions anticipate challenges without predicting future events. Much like every good intelligence process, planning reduces uncertainty for policy makers about ways and means options for future events. Strategic planners are guided to blend political ends, strategic ways, and military means in creating a comprehensive approach to deal with emerging events. Gray recognizes three potential challenges within his theory: planners cannot know which contingency will happen, what the future context may be, and what cause will initiate those conflicts. For Gray, defense planning serves as a strategic outlook combining historical perspectives with the political realities in attempting to mitigate future crises.

Gray's first step in addressing future concerns looks back to historical perspectives. Historical planning addresses two potential issues: time only moves forward, and, at its best, history only provides a potential pattern rather than specific future events. History's forward movement from past to present recognizes politics as the expression of societal and national power in every age. When pursuing a security end, future contingency events will likely be similar to those of the past, expressing behaviors caused by the cultural and political contexts from which they emerge. Gray notes a key human behavior, constraint, as future actions may not follow any rational pattern. Predicting future events through past occurrences remains problematic as not only do trend analysis type predictions not account for irrational behavior, they may also neglect strategic shifts. In one example, the late 1940s transition to nuclear weapons and the subsequent impact on all strategic planning for the century's remainder was neglected by defense planners prior to that transition. Gray also notes the absence of nuclear employment from any conflict since World War II provides no assurances a nuclear weapon will not be employed next week, next year, or even in the next decade. Anticipating any events still falls within a defense planner's potential challenges and should be addressed during the process.

Gray rapidly shifts from a theoretical perspective to defense planning framework. His framework includes discussing how to transfer political ends into military means that remain supported by the general populace. Politics requires interaction from both the national government and the populace supporting those governments. National populations tend to be motivated by three factors—fear, honor, and interest—which must all be accounted for during

planning. The text suggests addressing current fear regarding what may happen and how those events affect national honor with historical support from Thucydides and Clausewitz. Finally ongoing national interests for stability, growth, and security should be addressed in an understandable and easily conveyable manner. For example, US engagement in World War II after the Japanese attack on Pearl Harbor addressed fears of an invasion of California, defending honor after a sneak attack, and overall interest in popular security. Gray urges planners to consider interactions between civilian and military interests, including responsibility, values, statecraft, and any potential opportunity costs on the various involved actors. He illustrates politicians will primarily continue to seek power while military leaders prefer certainty in purpose aligned with clear leadership decisions. Seeking political power does not always guarantee an alignment between a national strategy, ways to employ military means, and reaching desired ends for all parties.

Gray continues his defense planner framework, identifying several strategic concepts required to even attempt to anticipate future events. Planners should identify motivation and priorities through existing strategies, science and certainty, politics and economics, and historical perspectives. Through all events, planners should maintain an awareness of potential gaps and errors within those fields as well as their own tolerance for shortfalls within planning. Events need breadth, depth, and context to adequately translate through planning, and all sources include some errors based on both recording means and their perspective. Error tolerance builds upon Gray's common themes of future uncertainty, though reinforcing future events is not quantifiable. He further states any metric analysis based on future events should be regarded with suspicion. Gray's framework concludes with two pages of key findings, too long to summarize here, but excellent in suggesting ways to ensure ends, ways, and means are adequately linked within planning (pp. 202–3).

One of the work's true strengths is the constant reference to other strategic contributors. Clausewitz and Thucydides' foundational works, *On War* and *The History of the Peloponnesian War*, are consistently referenced. In addition, Schelling's texts, *The Strategy of Conflict* and *Arms and Influence*, play a central role supporting overall concepts. Gray also notes the influence of Nassim Taleb's *Black Swan* in understanding how, at best, future events remain largely undetermined. For the unfamiliar, Taleb's work examines the influence of potential high impact events, referred to as black swans, which—though statistical outliers—change the shape of everything after within those areas. The terrorist attacks on 9/11 were a black swan event, completely different from all other attacks but sufficiently drastic to change all future planning regarding terrorism.

Gray is a continual contributor to strategic planning discussions and clearly notable within a field with very few truly outstanding authors. If one does not have time to fully consider outside works, Gray's strategic synopsis (p. 71) and defense planning assumptions (pp. 202–3) alone make this work worth adding to your shelf. That said, every chapter should be thoroughly read as each contributes a better strategic understanding and defense planning framework. This work significantly adds to anyone's strategic understanding, through careful source consideration, inclusion of popular motivation, and excellent planning framework. I consider Gray's work a must read for all field grade officers or equivalents involved with planning at any level.

Lt Col Mark Peters, USAF

Lee Kuan Yew: The Grand Master's Insights on China, the United States, and the World by Graham Allison and Robert D. Blackwill. MIT Press, 2013, 224 pp.

Graham Allison and Robert Blackwill artfully compiled Lee Kuan Yew's interviews and selections into *Lee Kuan Yew: The Grand Master's Insights on China, the United States, and the World*. Well educated and experienced to analyze China, the United States, and the World, Lee was prime minister of Singapore for 30 years and secretary general of the People's Action Party. He led Singapore to become one of the wealthiest and least corrupt countries in Asia from extremely humble beginnings. He not only graduated from Fitzwilliam College in Cambridge, the United Kingdom where he studied law, but also passed the English bar. Thus, Lee leveraged both his western and eastern education and extensive political experience in sharing his insights on China, the United States, and the world.

Lee tactfully answers a wide array of questions regarding eight sensitive topics. When he speaks, presidents, leaders, senior policy makers, commentators, heads of government, global corporations, and economic institutions of the world listen. As testimony to Lee's incredible track record, in the foreword, Henry A. Kissinger, stated how Lee transformed Singapore where "per capita income was about $400" to how "it is now more than $50,000" (p. viii). Both readers of the book and listeners of the audio book should remember that Lee Kuan Yew seeks to challenge people's long-held assumptions and precepts even if it is politically incorrect to do so.

Lee's interviews covered eight topics: the future of China, the United States, US-China relations, India, Islamic extremism, national economic growth, geopolitics and globalization, and democracy. The insights and answers to each topic and the slew of questions within each subject are comprehensive, yet succinct. The central theme to his thoughts stems from experience and wisdom instead of idealism from fantasies far removed from reality. For example, Lee is unafraid to both adopt Western values and policy in his administration and offer constructive criticisms to Western beliefs that are not entirely perfect in practice. As another example, Lee states how he has "observed in the last 40 years that even with a poor system of government, but with good strong people in charge, people get a passable government with decent progress" (p. 32). On the other hand, "many ideal systems of government fail" because "societies did not have the leaders who could work those institutions, nor people who respected those institutions" (p. 33). Thus, Lee is not blind to any school of thought when he speaks because he provides original thoughts on issues.

While Lee speaks with conviction, he alludes early on that even he needs to be diplomatic in what he states in public due to the rise of China. Thus, the best gift Lee Kuan Yew bestows upon listeners is not what he has said in the past due to realism, but how one should read between the lines. Furthermore, Lee's use of simple prose to answer complex questions is a testament to how he welcomes his logic to be challenged by anyone. Thus, *Lee Kuan Yew: The Grand Master's Insights on China, the United States, and the World* is a must read for anyone serious about understanding Asia.

1st Lt David Chui, USAF

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