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Remarks of Congressman Mike Rogers

Chairman, House Armed Services Strategic Forces Subcommittee

Presented to the 2017 Space Symposium

In the audience today is Gen William Shelton, USAF, retired, and Lt Gen Sam Greaves, USAF—both are great Americans who helped us make a lot of progress in preparing for a contested space environment. Looking out five or 10 years from now, a question we should ask ourselves is, who will be the next Willie Shelton and Sam Greaves? Well, on 14 March 2017, the Department of Defense published the Air Force list of colonels being nominated to become one-star generals. There are 37 nominees on that list. Would anyone like to guess how many were career space professionals, like then-Colonel Shelton and Colonel Greaves? None.

Admittedly, there were a few career acquisitions officers who did tours in and out of space assignments, but no career space professionals. Would you like to know how many nominees were pilots? The answer is 25 officers. That is 67 percent of the next class of Air Force generals. I have no doubt these are 37 amazing leaders. But if we are looking for our next Gen William Shelton, Gen Jay Raymond, Gen John Hyten, and Lt Gen Sam Greaves—each a career space professional—then we don't have one in this latest group of nominees. This does not bode well for our ability to be ready for the threats we face in space. It is also telling as to the status and priority given to space in the current organizational construct of the Air Force.

Einstein once said, "If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and five minutes thinking about solutions." So, I'm going to take my cue from Einstein and spend most of the time identifying the main problems we face today in the space domain. First, let me discuss the problems as I see them from Congress. I certainly don't need to explain how important space is to our national security, our war fighters, our economy, and our way of life. And I also

The Space Foundation hosted the 2017 Space Symposium in Colorado Springs, Colorado, 3–6 April. This is the premier space event of the year with 12,000 participants and 106 speakers over the course of a week. These remarks have been edited for publication.

don't need to explain how space is not the peaceful domain we would all want it to be. Potential adversaries are developing weapons to take out our space systems in a conflict. It is a war-fighting domain. And if you haven't seen the CNN special "War in Space," I highly recommend you watch it. Just go to YouTube, and you can watch the 45-minute segment. I give a lot of credit to the DOD for supporting this effort and providing such a candid view of the current situation and I hope the DOD does more of this. We have to tell the American people about the threats our potential adversaries are planning. Now this threat didn't develop overnight. The most visible sign of the growing threat was in 2007 when the Chinese blew up one of their own satellites in a test of an antisatellite missile. While potential adversaries have gotten a lot more capable, we've spent the better part of the past 10 years admiring the problem. And in some ways we may have made matters worse with more bureaucracy.

I know there are great people in this room and elsewhere in the department who are working tirelessly to address the space security problem, and they are starting to make progress. But a light is now flashing red for us to act boldly if we expect to maintain our ability to fight and win wars, whether on land, sea, in the air, or even in space. And if you don't believe me, I'll read you a quote from Gen John Hyten, commander of US Strategic Command, who stated, without space "you go back to World War II. You go back to industrial-age warfare." We all remember the massive casualty numbers of previous wars, and while satellites do not have mothers and fathers, those who depend on these systems do. So I ask myself, do we have the organizational structure we need to take us where we need to be? Obviously the answer is no.

What initially got my attention on the organization and management issue was a GAO study that was briefed to me last summer. The most shocking revelation was that most of the information in the study was not new—this was at least the third time this issue was studied over a 16-year period, starting with the Rumsfeld Commission, and each study reached the same result. As the Rumsfeld Commission clearly stated, we are "not yet arranged or focused to meet the national security space needs of the 21st century." So since last summer, I've made space organization and management my number one priority for the rest of this Congress. Along with my friend and ranking member, Jim Cooper, and

other members of the subcommittee, we have been conducting extensive oversight of this topic. So, what are those problems?

Space Organization and Decision-Making Are Extremely Fragmented

When we asked the department for an organizational chart so we could understand who was involved in making decisions in the national security space enterprise and who was in charge below the level of the secretary and deputy secretary, the answer was “we don’t have one.” So we asked the GAO—since they did the study—and their response was “we tried and couldn’t figure it out.” Instead, they gave us a list of 60 offices that are involved in national security space. So I then asked my staff to do it, because they can’t tell me no. What they discovered is a whole lot of people are “in charge” beneath the deputy and secretary of defense. And when everyone is in charge, no one is in charge. Some might say the “Principal DOD Space Advisor (PDSA)” is in charge. The PDSA is also the secretary of the Air Force. However when the word “advisor” is in the title, by definition, they’re not in charge. And does anyone think there might be a conflict of interest between space and the other mission priorities of the Air Force? Moreover, count how many of these leaders are separately Senate-confirmable. My point is there are too many chiefs in the space camp and the nation won’t have a complete space team in place until five to 10 people are nominated and confirmed.

Another problem is the operational, acquisition, and resourcing authorities are not aligned. For example, while General Hyten was the commander of Air Force Space Command, he and his team worked very hard to develop a “space enterprise vision” for the future. While he was able to provide a vision, I don’t believe he ever had the authority to actually implement it. Those decisions rested in the hands of multiple other offices. Dozens of them. Even the best leaders can’t succeed in a system where everyone can say “no” but no one is truly accountable and empowered to say “yes.” Now contrast the military space program with the National Reconnaissance Office (NRO). The director of the NRO has the operational, acquisition, and resourcing authorities aligned, in what is often termed “cradle to grave” authority. Essentially every single expert I have talked to tells me that the NRO is generally working well under this model. Air Force Chief of Staff Gen David Goldfein has seen my chart of the space chain of command and to his credit publi-

cally stated that 60 voices is “no way to run a railroad.” But I’m not sure Chief Goldfein is ready to do what is necessary to fix this railroad. The current bureaucracy moves too slowly; we don’t have the time to wait, and I won’t.

Space Funding Is Not Being Given the Priority It Needs

National security space is competing with other service priorities. For example, the Air Force has 90 percent of the budget for military space, but the Air Force has 12 “core functions” that it budgets for, and space is just one of them. And who here thinks national security space is the number one priority for the Chief of Naval Operations or the Chief of Staff of the Army? Everyone here has heard the phrase “put your money where your mouth is.” In other words, if it’s important to you, you’ll put money behind it. That’s how we in Congress gauge whether something is truly important to a federal department: is the department willing to ask for money for that thing? According to the Office of the Secretary of Defense Cost Assessment and Program Evaluation office (CAPE), the unclassified satellite R&D funding is at a 30-year low right now. I know sequestration is tough on the services, but I’m pretty sure that Air Force aircraft R&D is not at a 30-year low. Some might say that isn’t a fair statistic because many of our military satellites are in production now, and the R&D funding is not a good comparison. So let’s take the total R&D and procurement of Air Force space and compare it to the Air Force total R&D and procurement instead.

My staff and I checked, and we started looking from the fiscal year 2012 budget as a baseline, and then we compared it to fiscal year 2013—the year the Defense sequester kicked in. Space investment went down 28 percent the year of the sequester while total Air Force investment went down 13 percent that year. OK, so, they both went down. But here’s where it gets really revealing. What happens after fiscal year 2013? Where did the Air Force put its money? If we project the budget out through 2021 as based on last year’s Air Force budget request, military space investment remains down 23 percent. And remember the Air Force represents 90 percent of the military space program. Space never recovers from the sequester cuts of 2013. How about the total Air Force investment during that same period? It’s up 30 percent! So to recap: over the 10-year period, Air Force national security space investment is down 23 percent while total Air Force investment is up 30 percent. Now, I’ll

stop talking about numbers, and let's talk about a specific program: the weather satellite program.

After providing key weather collection capabilities from space since the 1960s, the Air Force was willing to walk away from providing DOD satellite collection for the top two priority joint weather requirements and instead rely solely on civil and international sources which did not meet other DOD user requirements. And in the meantime it was willing to throw away a perfectly good weather satellite—DMSP 20—that was built, and upgraded, with over half a billion of taxpayers' dollars spent on it. If nothing else, that satellite may have paid for itself by helping to focus me and my committee on the problems we're facing in national security space funding, organization, and management.

The National Security Space Community Lacks Adequate Professional Development

The Air Force will say it is a good steward for space. And I think its leadership genuinely believes it is. But with the promotion statistics I told you about in the beginning, does this sound like good stewardship? Are we telling the men and women of national security space they are important when the generals' stars overwhelmingly go to pilots? How can we have the world's best national security space program if we don't grow and retain the best men and women to lead it?

Furthermore, according to the CAPE office, the Air Force Space and Missiles Systems Center “does not appear to compete favorably for senior officers (~65 percent fill rate for captains and above, versus 150 percent fill rate for lieutenants).” And I hear a lot from the Air Force about pilot shortages. In the war-fighting domain of space, what is the Air Force space operator shortage? And how about professional military education? According to an official at the Air University—which is in my district and should be prioritizing space—the topic is only covered for a total of two hours in each of the yearlong Air Command and Staff College and Air War College master's degree programs, aside from an optional elective class. If space is meant to be integrated into the Air Force and help its members advance space-power thinking, how can that be done during only two hours of the yearlong professional development programs for future leaders? The total class hours for Air Command and Staff College is 450 hours. Two hours of that for space is equivalent to half of one percent.

Further, space professionals are not managed in a holistic manner, despite calls to do so. In 2001, then-Secretary Rumsfeld directed the Air Force to create a space career management plan to include military and civilian personnel and include the various associated career fields. Unfortunately there is no formal Air Force space career field outside of space operations. In fact, the Air Force used to give a space badge (or space wings) to both acquisitions and operations officers; however, this changed a few years ago to only award the space badge to operations officers. This situation leads to a lack of development of a “tribe” mentality, for a unified group of space war-fighting professionals. This is a cultural issue. How you promote, pay, and retain your people shows whether or not they’re important to you. I don’t like what I’m seeing here when it comes to national security space.

Meanwhile, the Army has over 4,000 space cadre professionals including military and civilian members. If you perform space functions in the Army and have the appropriate training and experience, then you get a space badge. It doesn’t matter if you are doing planning or acquisitions or operations: a space professional is a space professional in the Army. Of note, you can actually find Army Soldiers with a space badge on their uniform. And as an Army officer informally told my staff: “it is the ugliest badge in the Army, but every Soldier wants it.” The Army gets the significance of creating a culture behind key domains of war fighting, whether it’s infantry, armor, paratroopers, or space.

Space Programs Need Better Integration

Now let me stop picking on the Air Force for a little and pick on the Navy. The Navy operates the Mobile User Objective System (MUOS) satellite program, which is essentially like a cell phone tower in space. It’s going to be a great capability—and we have five satellites on orbit—the first of which launched in 2012. Yet for years, 90 percent of the capabilities for the satellite constellation could not be used because of delays with the ground terminals, which is a joint program. This is just unacceptable for a \$7 billion program. More recently, testing of the satellite and ground segments has identified problems that are exacerbating this gap in full-capability service. We see these integration challenges on practically every space program, whether it’s the Family of Beyond the Line of Sight (FAB-T) terminals, M-code use for GPS, or the Space-Based Infrared System’s (SBIRS) ground processing. Related to

integration in the military space program, we also have to make sure that the NRO and the military programs are working closely together. As we head into space being a war-fighting domain, coordination and appropriate integration will be more important than ever. Someone needs to do a better job pulling this all together. Why isn't this someone's priority? Because no one is in charge.

I have talked about a fragmentation, lack of priority, lack of a focus on space culture and development of a military profession, and a poorly integrated program. And this is all in the face of a serious and growing foreign threat [that] is attempting to knock out one of our primary advantages for how we fight and win wars. So what can we do about it?

Historical Context

Before I answer that, I'd like to take you back in time for a little historical frame of reference. We stand here today in the year commemorating the 70th anniversary of the creation of the Air Force, but the origins of the Air Force actually go back 40 years earlier to 1907, with the founding of the "Aeronautical Division" of the US Army Signal Corps. Even in those early years, bold airmen realized that the full promise of airpower could not be attained if it simply remained a division of another Army corps. Well before Billy Mitchell or Hap Arnold, who would come along much later, Infantryman Capt Paul Beck wrote an article in 1912 for the *Infantry Journal* entitled "Military Aviation in America: Its Needs." In this article, Beck advocated for a "permanent organization" as essential to the success of American aviation, laying out the first doctrinal aspects of airpower. We look back today and know that Beck did not have it exactly right, but his basic argument was sound—if you wanted to win in the air, you needed a career steeped in air pursuits and not beholden to the demands of the Signal Corps or the Army itself. Over the next decade the air mission was a subject of recurring debate, study, and organizational change while air leaders pushed forward, and Army leadership generally regarded air functions as an augmentation to Army ground forces. By 1926, there were various viewpoints in Congress, including some who sought an independent Air Force. It was not time, however, and Congress instead adopted the Air Corps Act, which officially created the Army Air Corps. The legislation included an important provision of establishing an Assistant Secretary of War for Air to "help foster military aeronautics." Congress recognized the need to create a steward

of airpower at a sufficient level. This position is the direct lineage to the position of a future secretary of the Air Force. The next significant change happened in 1935, in part to quell the continued voices of separation. The Army relented to these calls and created the General Headquarters of the Air Force, reporting directly to the Army Chief of Staff. The aim was to prevent further movement to separation—but it did nothing of the sort. Gen Frank Andrews, the Air Force General Headquarters commander, immediately began to advocate for a separate force, stating, “I don’t believe any balanced plan to provide the nation with an adequate, effective Air Force . . . can be obtained, within the limitations of the War Department budget, and without providing an organization, individual to the needs of such an Air Force. Legislation to establish such an organization . . . will continue to appear until this turbulent and vital problem is satisfactorily solved.”

Next, with wartime demands at their highest, President Roosevelt issued an executive order on 9 March 1942 [that] took the next step toward a separate Air Force by creating an Army Air Force under a single commanding general, but still within the Army. It finally took an act of Congress in 1947 to create today’s Air Force as a separate military service. The rest, as they say, is history, and it’s a proud history at that.

Now, I went through all that detail for a reason: I find it particularly instructive that from 1907 when we formed a fledgling Aeronautical Division until 1947 when a fully independent military service was created, the Army position was that airpower was there to support the ground and that air forces worked best when integrated with ground forces. There were procurement problems and there were operational problems that kept telling us that things were not quite right, but still, Army orthodoxy insisted that the Army’s generals knew better than the airmen that served beneath them. They didn’t. So, regarding space, if the creation of the Air Force is a guide, where are we in the development timeline, and how does it end?

The Way Ahead

My vision for the future is a separate Space Force within the Department of Defense, just like the Air Force, which had to be separated from the Army in order to be prioritized and become a world-class military service. Simply put, space must be a priority and it can’t be one if you begin each morning thinking about fighters and bombers first. Don’t get

me wrong—I want planes and pilots to be priorities for the Air Force. At the same time, I want space to be as much of a priority for the professionals responsible for military space. I am not suggesting radical surgery. The amputation will not begin tomorrow, so everyone can breathe a sigh of relief. But I believe bold reform is needed—and it must start now. Today I'm not going to tell you what the changes will look like, but you will start to see some of them in the House Armed Services Strategic Forces Subcommittee mark-up this year and next. Here are the principles guiding my view of the way forward.

First, we need to reduce bureaucracy, clarify roles and responsibilities, and have a person leading this effort who wakes up every day and thinks about how to have the best military space program in the world. This leader must have the authority to make things happen and will be accountable for success. If you take a good look at the current organization, you see what we in the South know as “kudzu.” We need to start ripping some of that out by the roots. Again, I'm not trying to denigrate the good men and women who work in those organizations. But we must have clear lines of responsibility and accountability, and our current organization is not it. The kudzu has to go.

Second, space needs to be put on par with the other domains of conflict—land, air, sea, and cyber. We must go beyond just the words, and space must not remain a subservient mission. Until the day comes when we have a separate Space Force, funding needs to be protected above the services so the space accounts are not raided by other service missions.


Third, there must be a clearly identified cadre of space professionals who are trained, promoted, and sustained as space experts. Air Force leaders have talked about normalizing space and treating space as a war-fighting domain. All other domains of air, land, and sea have established cultures, professions, and identifiers. Now it's time for space to have the same. Because at the end of the day, we all know it comes down to people.

Fourth, we need an integrated national security space program. I'm not looking to combine the NRO and military program, but I am looking to ensure the military and NRO work more closely together especially in this new contested domain and that the office of the secretary of defense oversight of these elements of the space program is rationally organized. Additionally, we need to improve the synchronization of terminal-satellite-ground deliveries. Someone has to be held accountable for this portion of the space architecture.

Mike Rogers

Conclusion

I'd be remiss if I didn't say that we have the world's best military and the world's best Air Force. For instance, in Iraq and Syria, the Air Force has led 65 percent of the more than 17,000 coalition airstrikes since 2014. They delivered firepower in partnership with joint, special operations, and coalition ground forces to defeat and degrade ISIS and regain critical territory.

However, we have to acknowledge the national security space organizational structure is broken, and, at the same time, it is our space capabilities that are being targeted by potential adversaries. This is not a question of having good people, it is a question of what structure we put them in. History has shown how difficult it is for a government bureaucracy to fix itself. This is exactly why congressional oversight exists. It is our duty to recognize when the bureaucracy is broken and to then see that it is fixed. This will be a collaborative process, but we are going to change the system before it's too late. So, let's all be clear: now is not the time for Hail Mary efforts to stop reform. Now is also not the time to create additional boxes on the organizational chart without deleting many others. Our ultimate goal must be to align accountability with authority, reduce bureaucracy, and deconflict other mission areas while prioritizing both space investments and the people charged with war fighting in the space domain. I look forward to working with my colleagues in Congress and in the Defense Department to ensure we continue to have the world's best national security space program long into the future. Thank you. 

Congressman Mike Rogers (R-AL)

Chairman, HASC Strategic Forces Subcommittee

Thinking Anew about US Nuclear Policy toward Russia

One of President Donald Trump's first actions after entering office was to direct Secretary of Defense James Mattis to "initiate a new Nuclear Posture Review to ensure that the United States nuclear deterrent is modern, robust, flexible, resilient, ready, and appropriately tailored to deter 21st-century threats and reassure our allies."¹ Secretary Mattis has since reportedly directed that the new Nuclear Posture Review (NPR) be completed in six months.² This new 2017 NPR will be the fourth in a series, following the 1994, 2001, and 2010 NPRs. There has been both significant consistency in these previous NPRs and some significant innovations.³ The forthcoming NPR will confront two overarching questions: First: what are the changes in the security environment since the 2010 NPR? And, second, what do these changes suggest regarding US policies and requirements? The discussion here focuses only on Russia, but there are important parallels with regard to US-Chinese relations and our allies in Asia that are worthy of serious consideration.

The New World Disorder

The most fundamental starting point is to recognize that threat conditions have worsened dramatically since the 2010 NPR. Each of the three previous NPRs presumed a more benign new world order in which nuclear weapons and deterrence would play a declining role. The predominant view has been that the post-Cold War world is moving away from nuclear weapons and that nuclear deterrence is increasingly irrelevant to US relations with Russia and China.⁴ It is difficult to overstate the certainty that has attended this worldview or the significance of the nuclear policy directions it has inspired. The expectation of this more benign new world order corresponded to the conclusions that US nuclear forces and nuclear deterrence were of greatly declining value and that US nuclear policy should address, first and foremost, priorities other than deterrence. The 2010 NPR identified the highest priority goals of US nuclear policy as addressing the threat of nuclear terrorism

This article is adapted from the author's testimony before the Senate Armed Services Committee, Strategic Forces Subcommittee, 8 March 2017.

and promoting nonproliferation and nuclear disarmament. The progressive reduction of US nuclear forces and their roles was linked to advancing these priorities.⁵ The overarching US nuclear policy direction that followed from these beliefs has been that the salience and number of nuclear weapons should be lowered on a continuing basis.

Unfortunately, it is now clear that the expected more benign new world order has been overtaken by reality,⁶ including particularly blatant Russian and Chinese actions to overturn the existing political order in Europe and Asia respectively and the decade-long expansion of nuclear capabilities pursued by both Moscow and Beijing. Today's stark reality is demonstrated by Russia's call for a new "post-West" world order,⁷ its continuing aggression against Ukraine, and explicit nuclear first-use threats against NATO states and neutrals.⁸ The Putin regime has sought repeatedly to coerce the West with threats of nuclear first-use employment. According to Russian military writings and exercises, as reported, the West is expected to concede in the face of Russian nuclear escalation threats or limited nuclear first use.⁹ The former commander of US European Command, Gen Philip Breedlove, USAF, retired, has emphasized this Russian perspective regarding the role of nuclear weapons and the marked difference between Russian and Western views:

NATO policymakers and planners must recognize that their Russian counterparts view nuclear weapons as practical tools for gaining tactical advantage on the battlefield, escalation control, and for intimidation during conflict termination: Russian views on the utility of nuclear weapons are a sharp departure from most Western thinking and thus represent a potentially dangerous risk during a crisis. The more Russian decision-makers believe this gap in perceptions exists, the more tempted they could be to threaten the use of nuclear weapons during a crisis, or actually employ them.¹⁰

Correspondingly, Russia is not interested in limiting its theater conventional or nuclear forces and has deployed a nuclear-capable cruise missile, reportedly the SSC-8, in direct violation of the 1987 Intermediate-Range Nuclear Forces (INF) Treaty.¹¹ According to Col Gen Sergei Ivanov, then-Kremlin Chief of Staff, Russia has little incentive for further nuclear arms control negotiations with the United States because Russian systems "are relatively new" while the United States has "not conducted any upgrades for a long time."¹² While this is an overstatement, it is true that until recently US nuclear modernization has been on a hiatus for decades.¹³

Russia's coercive nuclear threats and reported planning for nuclear first use presents a profound new challenge for Western deterrence and assurance strategies.¹⁴ Russia now brandishes nuclear strike capabilities, including long-range capabilities, for coercive purposes, including, as a recent report by the Joint Chiefs of Staff states, "to change the decision calculus of [US] leaders or the public's appetite for foreign military operations." Indeed, the Joint Chiefs of Staff recently released its Joint Operating Environment 2035 report, which states:

Over the next two decades, there will be a significant evolution in long-range strike weapons capable of ranging the U.S. homeland. . . . The purpose of state adversary investments in global strike assets capable of reaching North America is to threaten key targets within the United States during a conflict. . . . Adversaries will threaten the homeland not to physically destroy the United States, or even in anticipation of materially hindering its economic or military potential, but rather to change the decision calculus of leaders or the public's appetite for foreign military operations.¹⁵

This reality takes aim at the heart of US deterrence and assurance goals and strategies. It is not speculation about some dark future; this challenge is emerging here and now.¹⁶ In response, some commentators in Europe, including in Germany, are discussing an independent nuclear "Euro-deterrent."¹⁷ NATO's deputy supreme allied commander, Sir Adrian Bradshaw, describes the current threat context in stark terms: "The threat from Russia is that through opportunism and mistakes and a lack of clarity regarding our deterrence we find ourselves sliding into an unwanted conflict which has existential implications."¹⁸

These are the unfolding threat realities of the post-Cold War security environment, and they present both familiar and unprecedented challenges for US deterrence and assurance goals. Consequently, priorities for the forthcoming US Nuclear Posture Review should include: identifying Russian goals and strategy, explaining why Moscow believes it has exploitable advantages that now enable it to change the post-Cold War order and issue coercive nuclear first-use threats, and identifying in light of those goals and beliefs steps that the West should undertake to strengthen its deterrence of Moscow and assurance of allies.

Russian Goals

First, based on open Russian leadership writings and speeches over the years, it is clear that Moscow is driven to correct what it perceives to be

the geopolitical injustices forced on it by the West in Russia's post-Cold War time of weakness. President Vladimir Putin famously called the collapse of the Soviet Union the greatest catastrophe of the twentieth century¹⁹ and sees in it a legacy that must be corrected. Moscow believes that the West has pushed Russia too far and has further highly aggressive designs against Russia, including regime change. Consequently, the Putin regime is rearming Russia and changing European borders with the expressed goal of overturning the current post-Cold War settlement and restoring Russia's power position. This combination of Russian goals and perceptions makes friction with the West inevitable: it carries the potential for high-stakes conflict and even escalation to nuclear use.

Russian Perceptions of Exploitable Advantage

Russia believes it has exploitable advantages of military capability and political will that undergird its goal of overturning the status quo. Significantly, it appears to doubt NATO's resolve to resist if Russia poses the threat of war and nuclear coercion. In addition to its apparent skepticism regarding NATO's resolve, Moscow's self-image threatens deterrence in Europe and understandably frightens US allies. A related theme in Russian writings is Moscow's apparent belief that Russia has exploitable nuclear and conventional force advantages over the West. These include greater, immediately available local conventional force capabilities and readiness. President Putin has boasted that he can have Russian troops in five NATO capitals in two days.²⁰ These advantages perceived by Russia also include nuclear escalation options. Given Russian skepticism about the West's will to resist, Moscow appears to believe its escalation of a conflict will leave NATO with no credible response options. The commander of the US European command, Gen Curtis Scaparrotti, recently observed, "Most concerning, however, is Moscow's substantial inventory of non-strategic nuclear weapons in the [European Command area of responsibility] and its troubling doctrine that calls on the potential use of these weapons to escalate its way out of a failing conflict. Russia's fielding of a conventional/nuclear dual-capable system that is prohibited under the INF Treaty creates a mismatch in escalatory options with the West."²¹

The difference today, of course, is that NATO frontline states are former parts of the Soviet Union or former members of its Warsaw Pact. This point may be extremely significant because cognitive studies typically

conclude that humans will accept greater risk to recover a value considered unfairly lost than to acquire a new gain.²² The leadership in Moscow clearly believes the West has inflicted great losses on Russia that must be recovered. This point suggests the considerable challenge of deterring the Russian leadership in this second nuclear age and that Western Cold War approaches to deterrence are incomplete guides for contemporary deterrence strategies. I am not suggesting here that Russia wants war or is cavalier about the prospect of nuclear war. Rather, Moscow appears to feel privileged to take aggressive positions against the West given its perception of exploitable asymmetries in capability, resolve, and readiness to risk war. This perception is key to the potential for deterrence failure in Europe and the growing need to further assure threatened allies. Just how much freedom Russia believes it has to expand its position aggressively and how it will act with that freedom likely depends on Moscow's calculations of NATO's determination, readiness, and power to resist. That is a calculation the West can affect by its statements, capabilities, and actions. For example, some commentators assert that the Putin regime has dangerous designs on the Baltic states; others say it has no such designs. My point is that there probably is not a fixed answer to this question regarding Russia's readiness to act on its aspirations and perceptions of advantage. Rather, the Putin regime is pragmatic—and thus the West can act to limit Moscow's agenda and actions vis-à-vis the Baltic states and elsewhere. This possible constraint on Moscow's ambitions and moves is one that makes Russia today different from Hitler's Germany of 1939 and is why strengthening NATO's deterrence position now is so critical.

US Policies to Strengthen Deterrence and Assurance

What are the implications of these realities for Western deterrence and assurance strategies and requirements? The most basic need is to end Russia's misperceptions that its capability, resolve, and readiness to break the West at the risk of war are greater than the West's capability, resolve, and readiness to prevent it from doing so. Prudently addressing this need for deterrence and assurance purposes demands US policies and forces that are of sufficient size and flexibility to adapt as necessary to an increasingly hostile and dynamic nuclear threat environment.²³ That fundamental principle and metric for defining US adequacy is very different from the previous dominant post-Cold War policy direction,

which sought largely to reduce and constrain US nuclear capabilities on a continuing basis to serve a different set of priority goals. This new principle mandates that the decisive question now is “how much capacity is enough” rather than how rapidly can the United States further reduce nuclear forces so as to advance the highest priority goals of nonproliferation and nuclear zero.²⁴

Helpful in this regard would be consistent, resolute, alliance-wide declaratory policies along with relevant exercises that signal a message of resolve to Moscow that the United States and NATO will not prove wobbly, even under Moscow’s coercive nuclear threats. To wit, for deterrence purposes, the West must deny Moscow any expectation of an exploitable advantage in political will, nuclear threats, or nuclear escalation. A useful example of a helpful declaratory policy was provided in 2016 by then-new British Prime Minister Theresa May. When asked in Parliament if she would ever authorize a nuclear strike given the dangers involved, she responded yes without hesitation. May added, “The whole point of a deterrent is that our enemies need to know that we would be prepared to use it. . . . We must send an unequivocal message to any adversary that the cost of an attack on our United Kingdom or our allies will be far greater than anything it might hope to gain.”²⁵ No doubt Moscow paid considerable attention to that unambiguous deterrence signal.

The interaction between increased Western nonnuclear defense preparedness in Europe and the perceived credibility of the West’s nuclear deterrent is important. In response to Russian threats and expansionism, Western efforts to deploy high-readiness, nonnuclear defensive capabilities to protect NATO frontline states from a Russian military *fait accompli* will likely reduce Moscow’s perceptions of exploitable advantage and also strengthen the credibility of US extended deterrence commitments. Why? Because doing so will help deny Moscow’s perceptions of an easy Russian *fait accompli* and demonstrate united Western resolve to put itself on the line for this cause. The West understood this point well during the Cold War. To use Cold War terms, a NATO conventional tripwire or plate-glass door that is understood by Moscow to lead to intolerable loss if it should attack and escalate can be of great value for deterrence. But, Estonian President Kersti Kaljulaid recently observed that NATO now needs more than “just a tripwire” to make “our deterrent believable.”²⁶ The Lithuanian defense minister has similarly said that NATO must improve its reaction time and add “more capability,

and not only land troops but also air defenses and capabilities to counter any blockade.”²⁷

The level of additional, forward-deployed NATO defensive capability needed for this deterrent purpose is an important question with no obviously correct, precise answer. Lt Gen Valery Zaparenko, a former deputy chief of the Russian general staff, commented recently in this regard, “You can’t deter much with a few battalions.”²⁸ A pertinent 2016 RAND study concluded: “Having a force of about seven brigades, including three heavy armored brigades—adequately supported by airpower, land-based fires, and other enablers on the ground and ready to fight at the onset of hostilities” might provide an adequate initial deterrent.²⁹

Because Moscow views nuclear escalation as an exploitable threat or act—based in part on its perceived ability to control escalation to its advantage—the West’s deterrence and assurance strategies can neither escape the nuclear dimension nor be limited to in-theater capabilities. There are no solely nonnuclear or wholly local fixes that can fully address NATO’s deterrence and assurance need to counter apparent Russian perceptions of exploitable advantage. However, as former Defense Secretary Leon Panetta recently observed, in some cases credible deterrence demands that the United States “make it very clear” that “we will respond in kind.”³⁰ Some Western steps to undertake or consider in this regard include the following:

- Modernizing the US nuclear triad, to include some very low-yield options on accurate US strategic missile systems,³¹ and strengthening command-and-control systems.
- Deploying US national missile defense capabilities sufficient to deny any opponent a plausible strategy of coercing Washington via threats of limited nuclear attack³² (this step is essential if only given the emerging North Korean ICBM threat to the United States³³).
- Advancing the delivery date of the nuclear-capable F-35 and B61-12 combination.³⁴
- Having capabilities to hold at risk hard, deeply buried targets.
- Increasing NATO dual-capable aircraft (DCA) survivability and readiness.³⁵
- Expanding DCA burden sharing among allies by involving more allies in important nonnuclear activities related to NATO’s nuclear

deterrent and possibly by inviting personnel from additional NATO states to serve as DCA pilots.

- Ensuring that NATO conventional forces can survive and fight in the context of limited Russian nuclear escalation.
- Increasing the active and passive defense of key NATO nodes and assets against conventional and nuclear strike.
- Ensuring the capability to penetrate advanced defensive systems such as the Russian S-500.
- Expanding Western nonstrategic nuclear deterrent options, possibly including a nuclear-capable SLCM and/or a nuclear-capable F-35C.

The development of “new” US nuclear capabilities should not be ruled out peremptorily by policy.³⁶ At the same time, increased US nuclear force numbers may well be unnecessary. But some plausible nuclear capabilities could help reduce Moscow’s perceptions of exploitable advantages. Some commentators suggest that any “new” US nuclear capability would likely upset the delicate domestic political consensus in favor of US nuclear modernization and thus must be rejected.³⁷ This domestic political concern may be valid and an important consideration, but any review of emerging policy and force needs must at least identify all those steps that could serve to strengthen deterrence and assurance—even if a subsequent political decision might avoid some such steps given anticipated domestic political costs. The possible cost of a decision to forego a potentially helpful capability for fear of domestic political reactions must at least be understood and conveyed to US political leaders to support their informed decision-making. With regard to defining what “new” steps may be politically viable, it may be helpful to recall that the fiscal year 2016 National Defense Authorization Act’s discussion of the US Stockpile Responsiveness Program indicates bipartisan support for “the policy of the United States to identify, sustain, enhance, integrate, and continually exercise all capabilities required to conceptualize, study, design, develop, engineer, certify, produce, and deploy nuclear weapons to ensure the nuclear deterrent of the United States remains safe, secure, reliable, credible, and responsive.”³⁸ Recall also that then-commander of US Strategic Command, Gen Kevin Chilton, USAF, observed publicly that the US nuclear force posture deemed adequate for the 2010 NPR was predicated on the assumptions that Russia would abide by its

arms control treaty commitments and that there would be no call for additional capabilities.³⁹ The Russians have since violated the former assumption, and the latter is now an open question given Moscow's expansionism, buildup of new nuclear forces, and extremely dangerous views of escalation.

However the delineation of necessary and politically viable Western steps to support deterrence and assurance may unfold, a more direct and unified Western declaratory policy should complement any plan. The long-held policy notion that uncertainty and ambiguity with regard to Western deterrence strategy are adequate for deterrence needs to be reconsidered. Historical and contemporary evidence is overwhelming that, as with conventional forces, uncertainty and ambiguity sometimes are not adequate for deterrence or assurance. Rather, explicit and direct statements are necessary in some cases; establishing effective deterrence of the Putin regime in particular appears to be such a case. ■■■

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Notes

1. President, National Security Presidential Memorandum, "Rebuilding the U.S. Armed Forces," WhiteHouse.gov, 27 January 2017, <https://www.whitehouse.gov/the-press-office/2017/01/27/presidential-memorandum-rebuilding-us-armed-forces>.

2. Rachael Karas, "Air Force Nuclear Chief: Mattis Wants Nuclear Review Completed within Six Months," Inside Defense, 29 March 2017, <https://insidedefense.com/daily-news/air-force-nuclear-chief-mattis-wants-nuclear-review-completed-within-six-months>.

3. For a careful comparison of the previous Nuclear Posture Reviews (NPR), see Kurt Guthe, "Summaries of the 1994, 2001, and 2010 Nuclear Posture Review," *Information Series*, no. 405 (Fairfax, VA: National Institute Press, 12 May 2016).

4. This worldview was reflected in a highly regarded 1991 *Foreign Affairs* article written by three senior former officials and authors, including the late Robert McNamara. To wit, hostility with Russia was described as "hardly more likely to be revived as the religious wars of the sixteenth and seventeenth centuries between Catholics and Protestants in Europe." Carl Kaysen, Robert S. McNamara, and George W. Rathjens, "Nuclear Weapons After the Cold War," *Foreign Affairs* 70, no. 4 (Fall 1991): 96. Over two decades later, the Global Zero Commission study, chaired by a former vice chairman of the Joint Chiefs of Staff, similarly said, "The risk of nuclear

confrontation between the United States and either Russia or China belongs to the past, not the future.” James Cartwright, chair, Global Zero U.S. Nuclear Policy Commission, *Modernizing U.S. Nuclear Strategy, Force Structure and Posture* (Washington, DC: Global Zero, May 2012), 6, http://www.globalzero.org/files/gz_us_nuclear_policy_commission_report.pdf.

5. Department of Defense, *2010 Nuclear Posture Review Report* (Washington, DC: Department of Defense, April 2010), i, iii–vii, https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

6. So much so that Sweden has decided to return to military conscription, and the Swedish defense minister, Peter Hultquist, has acknowledged: “Politicians at the time maybe thought that the future would be more sunny than the reality is today. . . . The security situation and what could come in the future was underestimated.” See Martin Selsoe Sorensen, “Sweden Reinstates Conscription, with an Eye on Russia,” *New York Times*, 2 March 2017, https://www.nytimes.com/2017/03/02/world/europe/sweden-draft-conscription.html?_r=0.

7. Russian Foreign Minister Sergei Lavrov, quoted in Hui Min Neo and Bryan McManus, “US Pledges ‘Unwavering’ Commitment, Europe Lukewarm,” AFP, 18 February 2017, <https://www.yahoo.com/news/pence-caps-week-us-diplomatic-efforts-calm-allies-055812729.html>.

8. Gen Philip Breedlove, commander of US European Command, US European Command Posture Statement 2016, 25 February 2016, <http://www.eucom.mil/media-library/article/35164/u-s-european-command-posture-statement-2016>. “Russia’s continued aggressive actions and malign influence remain a top concern for our nation and my highest priority as EUCOM Commander.”

9. See, for example, Keith Payne and John Foster, *Russian Strategy: Expansion, Crisis and Conflict* (Fairfax, VA: National Institute Press, 2016). See also Dave Johnson, “Nuclear Weapons in Russia’s Approach to Conflict,” *Recherches & Documents*, no. 6 (November 2016): 13, www.FRSTRATEGIE.org.

10. Gen Philip Breedlove, USAF, Retired, *Memo to Washington: Reforming National Defense to Meet Emerging Global Challenges* (Arlington, VA: Mitchell Institute, March 2017), 8, http://media.wix.com/ugd/a2dd91_8b654eeae2fa4980a648d92c3f62d796.pdf.

11. Michael Gordon, “Russian Cruise Missile, Deployed Secretly, Violates Treaty, Officials Say,” Boston.com, 14 February 2017, <https://www.boston.com/news/world-news/2017/02/14/russian-cruise-missile-deployed-secretly-violates-treaty-officials-say>. See also Adm Harry Harris, commander, US Pacific Command, “The View from the Indo-Asia-Pacific” (address, WEST 2017 Conference, San Diego, CA, 21 February 2017), 4, <http://www.pacom.mil/Media/Speeches-Testimony/Article/1089966/west-2017-keynote-the-view-from-the-indo-asia-pacific/>.

12. Quoted in “Russia Today Is Not Interested in U.S.-Proposed Arms Reduction—Sergei Ivanov,” Interfax, 5 March 2013, <http://www.interfax.com/newsinf.asp?id=400700>.

13. The commander of US Strategic Command, Gen John Hyten, USAF, has rightly said of the US strategic nuclear force: “It’s still ready, safe, secure, reliable. But it’s old.” Quoted in “Hyten: Modernize, Don’t Increase Number of Nukes,” *Air Force Magazine Daily Report*, 2 March 2017, <http://airforcemag.com/DRArchive/Pages/2017/March%202017/March%202017/Hyten-Modernize,-Don't-Increase-Number-of-Nukes.aspx>.

14. There are many open discussions regarding allied concerns. See, for example, Bradley Peniston, “A Key NATO Ally Looks Nervously at Putin—and Trump,” *Defense One*, 23 January 2017, <http://www.defenseone.com/threats/2017/01/key-nato-ally-looks-nervously-putin-and-trump/134765/>.

15. Joint Chiefs of Staff, *Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World* (Washington, DC: Joint Chiefs of Staff, 14 July 2016), 25, 27, http://www.dtic.mil/doctrine/concepts/joe/joe_2035_july16.pdf.

16. Given these unfortunate realities, key Obama administration officials rightly concluded that we are now playing catch-up as the modernization of US nuclear capabilities is priority number one for the deterrence of enemies and the assurance of allies. As a 2016 DOD report states: “The nuclear deterrent is the DoD’s highest priority mission.” Department of Defense, Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, *Strategic Planning Guidance FY 2018–2022*, February 2016, 2. And, as former Secretary of Defense Carter noted in November 2016, “While we didn’t build anything new for 25 years, and neither did our allies, others did—including Russia, North Korea, China, Pakistan, India, and for a period of time, Iran. We [now] can’t wait any longer.” Quoted in Jamie McIntyre, “Carter Says Nuclear-Armed Foes Catching Up to the US,” *Washington Examiner*, 3 November 2016, <http://www.washingtonexaminer.com/carter-says-nuclear-armed-foes-catching-up-to-the-us/article/2606380>.

17. Max Fisher, “Fearing U.S. Withdrawal, Europe Considers its Own Nuclear Deterrent,” *New York Times*, 6 March 2017, <https://www.nytimes.com/2017/03/06/world/europe/european-union-nuclear-weapons.html>. For a discussion that suggests this is not a serious consideration in Germany but is in other allied countries, see Hans Rühle and Michael Rühle, “German Nukes: The Phantom Menace,” *Information Series*, no. 419 (Fairfax, VA: National Institute Press, 22 March 2017), <http://www.nipp.org/2017/03/21/ruhle-hans-and-michael-ruhle-german-nukes-the-phantom-menace/>.

18. Sam Jones, “NATO and EU Need ‘Grand Strategy’ to Resist Putin, Says General,” *Financial Times*, 2 March 2017, <https://www.ft.com/content/e8dc5f7c-ff67-11e6-8d8e-a5e3738f9ae4>.

19. Andrew Osborn, “Putin: Collapse of the Soviet Union Was ‘Catastrophe of the Century,’” *Independent*, 26 April 2005, <http://www.independent.co.uk/news/world/europe/putin-collapse-of-the-soviet-union-was-catastrophe-of-the-century-521064.html>.

20. Quoted in Justin Huggler, “Putin ‘Privately Threatened to Invade Poland, Romania and the Baltic States,’” *Telegraph*, 18 September 2014, <http://www.telegraph.co.uk/news/worldnews/europe/russia/11106195/Putin-privately-threatened-to-invade-Poland-Romania-and-the-Baltic-states.html>.

21. Statement of Gen Curtis M. Scaparrotti, commander, United States European Command, in House, *Military Assessment of Russian Activities and Security Challenges in Europe: Hearings before the Subcommittee on Armed Services*, 115th Cong., 1st sess., 28 March 2017, 6, <http://docs.house.gov/meetings/AS/AS00/20170328/105780/HHRG-115-AS00-Wstate-ScaparrottiC-20170328.pdf>.

22. For more information, see Thomas Scheber, “Evolutionary Psychology, Cognitive Function, and Deterrence,” in *Understanding Deterrence*, ed. Keith B. Payne (New York: Routledge, 2013), 65–92.

23. This need for adaptability has been emphasized by the Trump administration’s national security advisor. See Lt Gen H. R. McMaster, USA, “Strategy, Policy and History” (address, Foreign Policy Initiative Forum, Washington, DC, 20 November 2016), 10, <http://foreignpolicy.org/2016forum/mcmaster>.

24. Considerable scholarly analysis now concludes that the commonly claimed linkage between US nuclear reductions and the prevention of nuclear nonproliferation does not, in fact, exist. See Matthew Kroenig, “US Nuclear Weapons and Non-Proliferation: Is There a Link?” *Journal of Peace Research* 53, no. 2 (1 March 2016): 166–79, <http://doi.org/bsjp>.

25. Quoted in House of Commons Hansard, “UK’s Nuclear Deterrent,” *Parliament.uk*, 18 July 2016, <https://hansard.parliament.uk/Commons/2016-07-18/debates/7B7A196B-B37C-4787-99DC-098882B3EFA2/UKSNuclearDeterrent>.

26. Lally Weymouth, “Russia Is a Threat’: Estonia Frets about its Neighbor,” *Washington Post*, 24 March 2017, https://www.washingtonpost.com/opinions/russia-is-a-threat-estonia-frets-about-its-neighbor/2017/03/24/011ad320-0f2b-11e7-9b0d-d27c98455440_story.html?utm_term=.a5d5a3c22108.

27. Andrius Sytas, “Lithuania Says Russia Has Ability to Launch Baltic Attack in 24 Hours,” Reuters, 3 April 2017, <http://www.reuters.com/article/us-lithuania-russia-idUSKBN1750Z0>.

28. Matthew Bodner, “No End in Sight for Russia’s Baltic Tit-for-Tat,” *Moscow Times*, 23 September 2016, <https://themoscowtimes.com/articles/baltic-tit-for-tat-55434>.

29. David A. Shlapak and Michael W. Johnson, *Reinforcing Deterrence on NATO’s Eastern Flank: Wargaming the Defense of the Baltics* (Washington, DC: RAND Corporation, 2016), 1, https://www.rand.org/content/dam/rand/pubs/research_reports/RR1200/RR1253/RAND_RR1253.pdf.

30. Brian Everstine, “Thornberry: Expect Nuclear Tests during the Lame Duck,” *Air Force Magazine Daily Report*, 2 December 2016, <http://www.airforcemag.com/DRArchive/Pages/2016/December%202016/December%2002%202016/Thornberry-Expect-Nuclear-Tests-During-the-Lame-Duck.aspx>.

31. Defense Science Board, *Seven Defense Priorities for the New Administration* (Washington, DC: Defense Science Board, December 2016), 24, <http://www.acq.osd.mil/dsb/priorities.htm>.

32. Tom Karako, Keith Payne, Brad Roberts, Henry A. Obering III, and Kenneth Todorov, *Missile Defense and Defeat: Considerations for the New Policy Review* (Washington, DC: Center for Strategic and International Studies, March 2017), https://csis-prod.s3.amazonaws.com/s3fs-public/publication/170228_Karako_MissileDefenseDefeat_Web.pdf?oYefXlARU6HCqtRN3Zuq7mKljU3jllq.

33. Chairman of the Joint Chiefs of Staff Gen Joseph Dunford recently observed, “Clearly we see now a combination of both intercontinental ballistic missile capability as well as an effort to put a nuclear warhead on that intercontinental ballistic missile. So North Korea not only threatens South Korea and not only threatens the region, but now presents a threat to the homeland as well.” Gen Joseph Dunford, USMC, interview with Michael O’Hanlon, Brookings Institution, 23 February 2017, <https://www.defense.gov/Video?videoid=511122>.

34. See Oriana Pawlyk, “F-35 Could Carry B61 Nuclear Warhead Sooner Than Planned,” *DefenseTech*, 10 January 2017, <https://defensetech.org/2017/01/10/f-35-carry-b61-nuclear-warhead-sooner-planned/>.

35. A December 2015 NATO report states that dual-capable aircraft “are available for nuclear roles at various levels of readiness—the highest level of readiness is measured in weeks.” An earlier Government Accountability Office (GAO) report to Congress places that time at 30 days. See, respectively, “NATO’s Nuclear Deterrence Policy and Forces,” North Atlantic Treaty Organization, 3 December 2015, http://www.nato.int/cps/en/natohq/topics_50068.htm; and GAO, *Nuclear Weapons: DOD and NNSA Need to Better Manage Scope of Future Refurbishments and Risks to Maintaining U.S. Commitments to NATO*, GAO-11-387 (Washington, DC: GAO, 2 May 2011), 5, <http://www.gao.gov/products/GAO-11-387>.

36. Defense Science Board, *Seven Defense Priorities*. See also comments by Air Force Chief of Staff Gen David Goldfein in “Nuclear Posture Review Due in Spring: Air Force Chief,” *Exchange Monitor*, 9 February 2017, <http://www.exchangemonitor.com/publication/morning-briefing/nuclear-posture-review-due-spring-air-force-chief/>.

Thinking Anew about US Nuclear Policy toward Russia

37. James M. Acton, codirector, Nuclear Policy Program, Carnegie Endowment for International Peace (address, Nuclear Deterrence Summit, Washington, DC, 28 February 2017).

38. National Defense Authorization Act for Fiscal Year 2016, Public Law 114-92, 114th Cong., 1st sess. (25 November 2015), Sec. 4220(a).

39. Statement of Kevin Chilton, in Senate, Nuclear Posture Review: Hearing before the Armed Services Committee, 111th Cong., 2nd sess. (22 April 2010), <https://www.gpo.gov/fdsys/pkg/CHRG-111shrg63689/html/CHRG-111shrg63689.htm>.

Much Ado about Nothing?

Status Ambitions and Iranian Nuclear Reversal

Andrew Prosser

Abstract

The prospect of Iran obtaining nuclear weapons remains a prominent regional and global security issue. In recent years, the election of a new Iranian president and a landmark nuclear deal limiting Iran's nuclear activities have fueled optimism that Iran will not get the bomb. Yet skepticism persists in expert and official circles over Iran's nuclear intentions. How can Iran's nuclear path be explained, and what factors could foster nuclear reversal? This article proposes a sociological perspective on states' nuclear choices. Notably, international standing is frequently pursued not for military power but for achievements such as cooperative diplomacy, upholding global rules, and advocacy for progressive reform. When controversial nuclear pursuits endanger highly valued status goals, states become less favorable to having nuclear weapons. Existing studies also highlight how an improving external security environment can facilitate nuclear reversal, yet this article offers a hybrid explanation combining status and security threat reduction. The present research suggests that Iran is not on an inexorable path toward nuclear acquisition. In particular, global policies that encourage nonnuclear status conceptions and diminish the security incentives for going nuclear would reduce the likelihood of a nuclear-armed Iran.¹

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Iran's nuclear program has been one of the foremost global security issues of the twenty-first century. According to the director-general of the International Atomic Energy Agency (IAEA): "a range of activities relevant to the development of a nuclear explosive device were conducted in Iran

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prior to the end of 2003 as a coordinated effort, and some activities took place after 2003.”² In some cases analysts and officials have gone so far as to contemplate military strikes to counteract Iran’s nuclear efforts.³ For years, atomic diplomacy faltered and international condemnation and sanctions ratcheted up the political and economic pressures on Iran over its nuclear activities.⁴ However, the 2013 election of Iranian Pres. Hassan Rouhani and the 2015 signing of the Joint Comprehensive Plan of Action (JCPOA) between Iran and China, France, Germany, Russia, the United Kingdom, the United States, and the High Representative of the European Union for Foreign Affairs and Security Policy augmented hopes of easing nuclear tensions and Iran staying nuclear weapons-free.⁵ While IAEA and US assessments indicate that Iran scaled back its nuclear bomb efforts years ago, concerns have lingered among experts and policymakers that Iran could acquire nuclear arms.⁶

Much analysis of the Iran nuclear issue is plagued by problems such as threat inflation and ideological bias in assessing the merits of specific nonproliferation policies—which may be relatively more cooperative or confrontational. As a result, systematic exploration of the nuclear puzzle in terms of the various potential motivating factors is needed now as much as ever. How can states’ nuclear decisions be explained, and what factors influence Iran’s nuclear choices?

This article holds that when a state does not covet power status but rather emphasizes less forceful means of setting its status apart from other states, it facilitates nuclear reversal.⁷ *Nuclear reversal* occurs when a state aspiring to have nuclear weapons, or even possessing them, gives up its nuclear ambitions and any nuclear weapons it has.⁸ *Status* may be defined as a state’s assessed position in a valued international or regional hierarchy.⁹ Status and prestige are often cited as nuclear incentives,¹⁰ but status explanations for nuclear policy could be more fully articulated, particularly for forms of status that are incompatible with nuclear designs. The quest for status does not inevitably favor nuclear weapons. While status deficiencies may spur frustration and power aggrandizement, states frequently prefer status for alternative endeavors such as cooperative diplomacy, upholding global rules, and progressive reform. When controversial nuclear pursuits endanger important status goals, states become favorable to nuclear reversal.

In addition, studies have demonstrated that external security factors also play a role: as a state’s security environment improves and the prospect

of armed conflict diminishes, the perceived utility of a nuclear deterrent declines and this favors nuclear reversal.¹¹ Consequently, an explanatory framework incorporating both status and security threat reduction offers a better account of nuclear reversal than either status or security alone.

The article proceeds by first discussing the link between status, sociology, and nuclear choices. Next, it presents the concept of nuclear reversal and the various pathways to reversal. It then applies the approach to derive insights on Iran's nuclear choices and how nuclear reversal could happen. A final section offers some theoretical and policy conclusions, while also assessing the potential impact of the Iran nuclear deal (JCPOA). Overall, the research suggests that Iran is not on an inevitable path toward nuclear acquisition. In particular, global policies that promote nonnuclear status conceptions and diminish the security incentives for nuclear weapons would reduce the likelihood of Iran getting the bomb.

Status-Based Sociological Perspective on Nuclear Choices¹²

Existing nuclear explanations provide useful insights, but a status-based sociological perspective merits further consideration.¹³ Indeed, nuclear choices are made by humans (state leaders) in a social sphere (world politics) where interstate interaction makes attentiveness to relative position almost inevitable. Governments care a great deal about their standing in comparison to other states, which can bring better international treatment, influence, and self-esteem.¹⁴ Scholars are increasingly discovering the importance of status motivations in state behavior, due in part to growing research evidence that humans are intrinsically driven to seek social standing and care about their relative position.¹⁵ At times, states will openly express their interest in status in international affairs. For example, Japan's Foreign Ministry has characterized its diplomatic efforts as "a way to enhance its international status," and its annual diplomatic reports have repeatedly alluded to Japan's global standing.¹⁶ Similarly, when Brazil was awarded the 2016 Olympic games, Pres. Luiz Inácio Lula da Silva wept as he declared that Brazil had moved from being a "second-class country to a first-class country" and had begun "to receive the respect we deserve."¹⁷ In many other instances it is plausible that status motives are kept concealed—especially on matters of national security. However, the global nuclear landscape appears less

puzzling when one accounts for the diverse array of status aspirations driving states to improve their position in relation to others.

To comprehend nuclear choices, one can look to sociological notions that Johan Galtung seminally applied to international politics.¹⁸ Sociologists have shown that in a stratified social system with differing levels of individual accomplishment across multiple dimensions (for example, occupation, income, education), status disequilibria can be destabilizing.¹⁹ In an achievement-oriented world, individuals with low status across the board will not perceive much entitlement to higher status. But those with higher status on some dimensions that contrast with other status shortfalls are reminded of their relative deprivation due to differential treatment. Such disequilibria create tensions between expected status and treatment and what one actually receives, causing frustration and aggressive attempts to augment one's status—and even change the structure of the system.²⁰ For example, sociologist Gary Rush has demonstrated that individuals whose occupational, income, and educational statuses are divergent are more prone to right-wing extremism.²¹

In the international arena, Galtung postulates that states experiencing status disequilibria will resort to aggression as a status-gratifying tool, unless alternative status channels allow upward mobility through less provocative measures.²² As Galtung writes, “it is socially guaranteed, by the very structure of the system, that the disequilibrated is never left in peace with his disequilibrium. . . . In this unstable situation he has both the resources and the inner justification needed for acts of deviance.”²³ The current article extends this logic, arguing that state leaders' frustration with what they view as their state's inadequate status may reinforce nuclear ambitions.²⁴ Nuclear weapons could be viewed as a direct and appealing means of overcoming status deficiencies. The inherent system-changing capability might entice states yearning for status gratification.²⁵ Table 1 lists some notable status dimensions.

Which status deficiencies are potent enough to spur nuclear weapons interests?²⁶ First, nonnuclear *major powers* should perceive an appreciable deficiency when other states have nuclear weapons. Because of their extraordinary overall status, the major powers display a heightened sensitivity to power status discrepancies with other states. Particularly when other states go nuclear, major powers feel entitled to similarly equilibrate their status to this higher level. In this way, policy analyst Klaus Schubert likens France's nuclear trajectory to “the struggle of the

grande nation to achieve the position to which it is rightfully entitled in the hierarchy of world powers.”²⁷

Table 1. Status dimensions in world politics

Status type	Primary indicators
Autonomy	<ul style="list-style-type: none"> • Percent of policy decisions not influenced by external coercion or pressure
Diplomatic-political	<ul style="list-style-type: none"> • Diplomatic recognition by other states • Mediation/negotiations involvement • International organization participation rate
Economic	<ul style="list-style-type: none"> • Gross Domestic Product (GDP)
Economic development	<ul style="list-style-type: none"> • GDP per capita
Population	<ul style="list-style-type: none"> • Population size
Power	<ul style="list-style-type: none"> • UN Security Council permanent seat • Conventional military capabilities • Nuclear weapons possession
Progressive reformer	<ul style="list-style-type: none"> • Amount of foreign humanitarian and development assistance provided • Promotion of progressive norms/causes: social justice, poverty reduction, human rights, environment/climate protection
Rule defender	<ul style="list-style-type: none"> • Compliance with international law • Protecting rule-based international system
Technical-scientific	<ul style="list-style-type: none"> • Number of scientists/engineers • Number of high-technology companies • Number of Nobel prizes in sciences
Territory	<ul style="list-style-type: none"> • Total geographical area

Second, near-major powers that have high overall status but lack a permanent UN Security Council seat will perceive a status deficiency, especially when they do not possess nuclear arms but other states have them. This inconsistency breeds frustration, as such states already experience preferential treatment due to considerable accomplishments in other areas. Nuclear weapons will be favored to aggressively overcome this status deprivation. For example, India’s nuclear weapons acquisition can be traced to the discrepancy between exceptional Indian status accomplishments on the one hand and on the other its absence from the “closed club of the five permanent members of the U.N. Security Council” as well as perceived discrimination of India as a nuclear “have-not” by the Nuclear Non-Proliferation Treaty (NPT)-recognized nuclear “haves.”²⁸

Third, diplomatic recognition is a key status indicator in world politics. Hence isolated states experience status deprivation due to their minimal diplomatic status, which can be exacerbated by the perception that upward status mobility is circumscribed.²⁹ Particularly where status accomplishments such as technical-scientific or other achievements confer the needed impetus, nuclear weapons will appear as an attractive status device for a diplomatic pariah.³⁰ Exemplifying the status frustration of isolation, when North Korea announced plans for its October 2006 nuclear test it decried foreign efforts to isolate it. An official statement read: “[u]nder the present situation in which . . . U.S. moves to isolate and stifle the DPRK have reached the worst phase, going beyond the extremity, the DPRK can no longer remain an on-looker to . . . [these] developments.”³¹

As key status deficiencies diminish, states should be more favorable to a nonnuclear posture. It can likewise be observed that—often due to historical or cultural influences—many states prefer alternative (non-power-based) forms of international standing. Specifically, states often seek to set themselves apart through cooperative diplomatic efforts, promoting global rules, or progressive reform. Controversial nuclear pursuits can thwart these status objectives, especially since the international nuclear nonproliferation norm’s emergence several decades ago, which stigmatized nuclear proliferation as an improper action—a violation of international rules. The prevalence of non-power-based status notions, and the fact nuclear weapons can harm these status ambitions, help explain why many states opt for nuclear reversal.

When do status priorities favor nuclear reversal? First, diplomatic integration dampens a state’s nuclear weapons affinity, due to status fulfillment and the tendency of integrating states to value status for cooperative diplomacy and defending international rules. Particularly since the emergence of the global norm against nuclear proliferation, having nuclear arms jeopardizes these status priorities. Second, middle states embracing multilateralism, international compromise, and good global citizenship prefer status for cooperative diplomatic action, protecting international rules, and progressive reform.³² In the shadow of the nuclear nonproliferation norm, middle states are unlikely to want nuclear arms because they endanger these key status goals. Lastly, military delegitimization decreases a state’s favorability to having nuclear weapons. The hierarchy of power permeates military preferences as a result of the

assigned functions militaries perform; when domestic military legitimacy falls, nuclear weapons should become less compatible with, and even harmful to, the state's status objectives.

Nuclear Reversal Pathways

Analysts and commentators usually focus on nuclear proliferation and crisis in the nonproliferation regime.³³ This can be misleading, since the rate of nuclear reversal in world politics is surprisingly high—much higher in recent decades than the incidence of new nuclear aspirants or possessor states.³⁴ As noted earlier, nuclear reversal occurs when a nuclear aspirant state, or even a nuclear possessor state, gives up its nuclear ambitions and any nuclear weapons it has. Of the 31 states that have at least had nuclear ambitions since 1945, more than 20 have undertaken nuclear reversal.³⁵ Table 2 lists the states that have engaged in nuclear reversal.

Table 2. Nuclear reversal since 1945

State	Year of reversal	State	Year of reversal
Algeria	1992	Japan	1970 (1995)
Australia	1973	Libya	2003
Argentina	1990	Norway	1950
Brazil	1990	Romania	1989
Canada	1945 (1958)	Saudi Arabia	2004
Egypt	1970 (1981)	South Africa	1991
Germany (Federal Republic of Germany)	1960	South Korea	1982
Indonesia	1965	Sweden	1972
Iran	1979 (n/a)	Switzerland	1969
Iraq	2003	Taiwan	1988
Italy	1957	Yugoslavia	1987

Notes: South Africa is the only nuclear possessor that engaged in nuclear reversal. Canada, Egypt, and Japan briefly restarted nuclear de-liberation some years after their first nuclear reversal and then engaged in reversal a second time. These three episodes of re-nuclearization lasted only one to two years in each case. The year of each state's second reversal is listed in parentheses. Iran was the only state that maintained nuclear aspirations as of the end-year for our global data (2007), after its nuclear aspirations reemerged in 1984. The former Soviet states of Belarus, Kazakhstan, and Ukraine did give up the nuclear arms on their territory but they are not included here because they did not independently control the weapons, which were Soviet holdovers inherited with statehood upon the fall of the Soviet Union in the early 1990s. For coding details, see Andrew Prosser, "Nuclearization and Its Discontents: Status, Security, and the Pathways to Nuclear Reversal" (PhD diss., Graduate Institute of International and Development Studies, Geneva, 2010).

Clearly, states' nuclear choices are susceptible to restraining influences. Which factors might play a role? Nuclear policy expert Ariel E. Levite insightfully claims that nuclear reversal results from "a combination of factors, the exact combination of which varies between the cases . . . and over time."³⁶

Therefore analysts wishing to elucidate why nuclear reversal happens are tasked with identifying the different constellations of variables, or pathways, which may lead states to abandon their nuclear weapons pursuits. The following pathways combine status with security developments—as well as the influence of the nuclear nonproliferation norm—enumerating the hypothesized routes a state may follow to nuclear reversal.³⁷

Reversal Pathway 1: Diplomatic Integration

Status-seeking is a pervasive phenomenon in global affairs, but it can be pursued in highly disparate ways. Notably, diplomatic integration tends to be associated with nonnuclear approaches to status enhancement. Two different status arguments help explain why integrating states are prime candidates for nuclear reversal. First, lessening diplomatic isolation signifies the easing of a key source of status deprivation in international politics. Diplomatic integration alleviates the systemically derived frustration of isolation and confers status in the form of participation in regional and international diplomatic interaction and a more palpable sense of belonging to a global diplomatic community, making the state's leadership less apt to covet nuclear weapons as a forceful means to augment status. Second, states that integrate diplomatically can be expected to display a predilection for status-garnering activities that favor the existing global order, such as cooperative diplomatic engagement and defending international rules. These status preferences go hand-in-hand with nuclear reversal because controversial nuclear weapons pursuits can jeopardize such status priorities—especially in the shadow of the nuclear nonproliferation norm.³⁸

As argued above, security threat reduction also tends to be fundamental in promoting nuclear reversal. When external security challenges fade, state leaders have fewer justifications for a nuclear arsenal to deter or counteract armed violence. Particularly when the threat of interstate conflict recedes, reversal becomes more likely. The incidence of interstate disputes a state is involved in provides a key indication of its security threat environment.³⁹ Hence, pathway 1 dictates that diplomatic integration, when combined with a decline in a state's interstate disputes, will increase the likelihood of nuclear reversal.⁴⁰

Quite a few diplomatically integrating states have chosen a nonnuclear path, and empirical investigation suggests that Libya and South Korea, as well as former nuclear possessor South Africa, followed this reversal

pathway. For example, South Africa terminated its nuclear weapons program and dismantled its small atomic arsenal in the early 1990s. While improving regional security conditions facilitated this process, status motivations were integral to South Africa's nuclear turnaround. During the apartheid era, South Africa's diplomatic isolation and exclusion from global political and scientific circles increasingly bred dissatisfaction and the perception that its international treatment was incommensurate with the country's past diplomatic accomplishments, scientific and economic achievements, and professed role as a leader in Africa.⁴¹ As analyst Robert S. Jaster points out, the "perceived failure of South African diplomacy . . . led to frustration and impatience on the part of successive South African prime ministers."⁴² An inability to counter its faltering international standing fueled relatively forceful approaches to status-seeking, notably, nuclear arming.⁴³ However, Pres. F. W. de Klerk's historic domestic reforms brought new opportunities to bolster South Africa's beleaguered status in ways that were impracticable with discriminatory domestic policies abhorred by other states. South Africa prioritized more cooperative, non-power-based forms of international standing such as diplomatic-political engagement when such status avenues appeared within reach. De Klerk told the parliament in June 1990: "[T]he prospect of once again playing a full and unrestricted role in the international community holds out the promise of immense . . . benefits for our country and all its people. . . . We have a right to make our voice heard in the councils of the nations. . . . We must . . . secure for our country its rightful place in the community of nations."⁴⁴ Evidently, South Africa sought to repair its international relations and cultivate its status as a responsible diplomatic actor partly to ensure external support for a peaceful domestic transition and to avoid sliding into a downward spiral of internal conflict that could destabilize the country.⁴⁵ Its nuclear reversal took place mainly because the political leadership understood that nuclear weapons—in violation of the global nuclear nonproliferation norm—would imperil the rehabilitation of South Africa's status in the world community.⁴⁶

Reversal Pathway 2: Middle State Status Ambitions

Middle states are nonmajor powers that attempt to preserve global peace and stability and shape global affairs through multilateralism, diplomatic action and international compromise, and exercising soft power

rather than military force. Middle states' foreign policies emphasize conflict resolution and mediation, UN peacekeeping, and aspiring to be "good international citizens."⁴⁷ These states covet international status for cooperative diplomacy and protecting global rules from violations by even the most powerful states. They also prefer to gain status through advocacy for progressive reform, including efforts toward social justice and overseas development assistance.⁴⁸ Nuclear weapons are unattractive for middle states since the inception of the nuclear nonproliferation norm, as having the bomb could be seen as threatening global rules and stability and thus undermine status objectives. Crucially, pathway 2 identifies middle states as being likely to exercise nuclear reversal once global nonproliferation views stigmatized proliferation as a violation of international rules and norms beginning in the 1960s. Hence this nuclear reversal pathway was common in the 1960s and 1970s but it is less so today.⁴⁹

Just as in the first reversal pathway, security threat reduction similarly influences nuclear reversal in pathway 2. Thus, in this pathway a decline in a state's interstate disputes (as described in pathway 1 above), together with middle state status priorities as of the 1960s, should augment the likelihood of nuclear reversal.

For example, empirical inquiry suggests that Sweden and Switzerland both followed the middle state path to nuclear reversal. Notably, a major thrust in Sweden's postwar foreign policy was to exert diplomatic leadership as a Cold War peacemaker and fortify its stature as a promoter of the rule of law and progressive causes.⁵⁰ Accordingly, Sweden critiqued the respective US and Soviet military interventions in Vietnam and Czechoslovakia as well as advocated in international fora for ending the superpower arms race, poverty reduction, and social justice. As political scientist Christine Agius observes, "Sweden saw the UN as a platform to project its particular brand of internationalism which was to give it the label of an 'active neutral.' . . . Swedish participation in the UN has tended to revolve around a number of issues, such as mediation and peacekeeping, disarmament, and development. Sweden was also a key critic of superpower behaviour in the UN."⁵¹ When the international normative proscription on nuclear proliferation materialized in the 1960s, Sweden appears to have abandoned its nuclear weapons aspirations to avoid damaging its middle state status. Security threat reduction also affected Sweden's changing nuclear attitudes during this time,

as military confrontation with the Soviet Union became less palpable and the progress of détente made Swedish embroilment in a superpower conflict less likely.

Reversal Pathway 3: Military Delegitimization

Military delegitimization means the military's perspectives on status hold less sway over government policy. When domestic military legitimacy falls, nuclear weapons tend to become less desirable and lose their importance to official status aspirations. Pathway 3 holds that a substantial downturn in the amount of government resources devoted to the military (as a share of GDP) is a primary indicator.⁵²

As with the earlier pathways, diminishing security threats are recognized to be conducive to nuclear reversal as well. Overall, pathway 3 stipulates that military delegitimization, in tandem with a decline in a state's interstate disputes (as described above), should enhance the likelihood of nuclear reversal.

For instance, empirical evidence from Brazil and Argentina—and perhaps Germany and Japan—points toward this nuclear reversal path. As political scientist Gamaliel Perruci has noted: “Brazil, in its drive for super power status under military rule (1964–85), placed strong emphasis on military might as a source of prestige and political independence.”⁵³ Brazil's military rulers wielded nuclear ambitions for years while disparaging the international nonproliferation regime as an attempt by external powers to deprive Brazil of its rightful power status.⁵⁴ According to professor Jean Krasno, “Brazil's leaders . . . expressed the intent to develop nuclear weapons primarily as a symbol of attaining world-power status.”⁵⁵ A persuasive argument holds that Brazil ultimately reversed its nuclear designs when the Brazilian military's status conceptions were discredited along with the downfall of the military regime in the 1980s. This domestic transition relegated notions of power status to a lesser priority than diplomatic-political and economic status objectives. Security trends also encouraged Brazil's nuclear reversal, which notably occurred amid an accelerating bilateral rapprochement between Brazil and Argentina: an agreement was concluded in 1979 to resolve disputes in the Plate River area and all Brazilian interstate dispute involvement ceased by the late 1980s.⁵⁶

Impact of Nonproliferation Norms

Observers have claimed that the global nuclear nonproliferation norm has facilitated nuclear restraint.⁵⁷ But existing explanations are not always satisfying. The nuclear nonproliferation norm is influential for many states because it magnifies incongruities between nuclear weapons and certain highly valued status goals. All other things being equal, the nonproliferation norm is expected to increase the perceived benefits of reversal, especially for states favoring diplomatic-political, rule defender, and progressive reformer status, as it associates nuclear weapons with improper behavior and flouting international rules and norms. In contrast, earlier nuclear norms in the 1940s and 1950s were largely connected to the perceived tactical military advantages of nuclear arms as well as notions of scientific and economic advancement. This meant nuclear weapons were often viewed less as a status burden and more as bolstering international status in the early nuclear era.⁵⁸ In our reversal pathways, the nonproliferation norm applies from the 1960s onwards.⁵⁹ Table 3 summarizes the different pathways that are hypothesized to lead to nuclear reversal.

Table 3. Pathways to nuclear reversal

Pathway	Description
Diplomatic integration	<ul style="list-style-type: none"> • Evolving status interests along with diplomatic integration AND • Security threat reduction
Middle state status ambitions	<ul style="list-style-type: none"> • Middle state status interests (especially upon emergence of nuclear nonproliferation norm) AND • Security threat reduction
Military delegitimization	<ul style="list-style-type: none"> • Evolving status interests along with military delegitimization AND • Security threat reduction

Note: Ceteris paribus, reversal becomes more likely upon the emergence of the nuclear nonproliferation norm in the 1960s. The pathways do not appear to be applicable for major powers or near-major powers that already possess nuclear arms.

Notably, even a cursory examination suggests the major powers operate with a distinct nuclear logic.⁶⁰ The reversal pathways laid out above are not considered to be applicable to the major powers—at least not in the present international context.⁶¹ Such powers are less likely to forgo nuclear arsenals, chiefly because of aversion to an expected power status deficiency. These states would perceive nuclear reversal as downgrading their international standing and treatment, since they are accustomed to first-rank status. According to our approach, major power reversal would

in all likelihood require a substantial shift in the most powerful states' notions of what it means to be a leading world power. For instance, one incremental step might be if these states were to significantly lessen the role of nuclear arsenals in their respective national security doctrines.⁶²

According to our study Iran still qualified as a nonpower at the outset of the twenty-first century. Despite some data limitations, in more recent years Iran has in all likelihood reached the near-major power level in terms of its military and economic capabilities and its sizeable population of around 80 million people.⁶³ These comparatively high-status achievements can be expected to reinforce Iran's sense of status entitlement and its susceptibility to frustration as a result of the nonpossession of the trimmings of power status that the major powers already have, such as nuclear arms and permanent UN Security Council membership. As discussed below, there are revealing indications that such near-major power status dynamics are present in Iran's case. Nevertheless, it is clear that nuclear reversal is feasible even for near-major powers—particularly those that have not yet crossed the nuclear acquisition threshold. For example, Brazil, Germany, and Japan are all near-major powers that have forsworn nuclear ambitions. We now turn to exploring Iran's nuclear path in light of the approach presented above.

Examining Iran's Nuclear Path⁶⁴

Despite an inevitable degree of uncertainty, a reasonable understanding of the history of Iran's nuclear endeavors is possible based on open-source information. The beginnings of Iran's involvement in the nuclear field can be traced to the reign of Shah Mohammad Reza Pahlavi. Iran received civilian nuclear assistance as early as the 1950s through cooperation with the United States under the Atoms for Peace program. A small nuclear research reactor purchased from the United States began operating in Tehran in 1967.⁶⁵ Iran signed the Nuclear Non-Proliferation Treaty in 1968 and ratified it in 1970.

Iran's nuclear efforts expanded in the 1970s as the shah set up the Atomic Energy Organisation of Iran (AEOI) in 1974 and plans were made for an ambitious nuclear energy program consisting of at least twenty nuclear reactors.⁶⁶ Although some sources assert that a clandestine nuclear arms project was begun in the 1970s, it is not clear that an actual decision to get the bomb was made during this phase.⁶⁷ Akbar Etemad, the head of the AEOI between 1974 and 1978, has said that

while the shah “didn’t want nuclear weapons” the Iranian nuclear program at the time was not to exclude the possibility of acquiring them in the future and aimed to pursue a range of relevant nuclear technologies.⁶⁸ On balance, there is sufficient evidence to categorize Iran as having nuclear aspirations in the mid- to late-1970s. Its nuclear activities were subsequently interrupted in part as a result of the 1979 revolution and the start of the Iran-Iraq War.

Under the Khomeini regime Iran’s nuclear initiatives increased markedly in the mid-1980s. In 1984, amid the ongoing war with Iraq, Iran established a new nuclear research center at Esfahan.⁶⁹ There are indications of secret nuclear work during this period aiming at increasing Iran’s technical capabilities relating to nuclear armaments.⁷⁰ From at least the late 1980s and into the 1990s Iran received nuclear weapons-related designs, drawings, and uranium centrifuge components from the illicit A.Q. Khan procurement network.⁷¹ In the civilian nuclear sphere, Russia provided technical assistance to Iran in the 1990s and worked to rebuild a partially completed nuclear power reactor at Bushehr which had been damaged during the Iran-Iraq War.⁷²

In 2002, the existence of a clandestine uranium enrichment complex at Natanz and heavy water facility at Arak was revealed. Thereafter the IAEA repeatedly cited Iran’s noncompliance with its safeguards obligations and expressed concerns about potential military dimensions of Iran’s nuclear activities.⁷³ In 2013, it declared, “since 2002, the Agency has become increasingly concerned about the possible existence in Iran of undisclosed nuclear related activities . . . including activities related to the development of a nuclear payload for a missile.”⁷⁴ In late 2015, the IAEA determined that Iran had a coordinated nuclear weapons program prior to the end of 2003.⁷⁵ But it also judged that Iran had scaled back its nuclear weapons activities since 2003, and the US government has assessed that in recent years Iran has not made any decision to acquire nuclear arms.⁷⁶ While Iran has stated its nuclear activities are exclusively peaceful, the evidence presented here suggests that, for the past several years, it has attempted to keep its nuclear options open by working on its technical capacities relating to nuclear weapons without actually seeking to build the bomb.

Overall, Iranian nuclear aspirations have reasonably existed from 1974 to 1979 as well as from 1984 onwards. Based on IAEA safeguards

and US national intelligence reports, it is also warranted to categorize Iran as a nuclear weapons pursuer from 1989 to 2003.⁷⁷

Iran's Nuclear Motivations

Any investigation into Iran's nuclear decision-making must admit the challenges posed by the limits of available information and secrecy. Nevertheless, there exists substantial evidence that status and security influences have played a fundamental role in Iran's nuclear choices.

As regards security motives, Iran's involvement in interstate disputes increased from the mid-1960s to the mid-1970s.⁷⁸ Notably, tensions existed with neighboring Iraq in connection with the disputed Iran-Iraq border and the Kurdish conflict. The shah's navy patrolled the region's seas, in line with the Nixon Doctrine, in the shadow of rivalry with the nuclear-armed Soviet Union and absent a reliable security guarantee from a nuclear power.⁷⁹ Due in part to security concerns, Iran engaged in a massive military buildup in the 1960s and 1970s—a period overlapping Iran's initial nuclear weapons interest.⁸⁰

Upon resuming its nuclear aspirations in the mid-1980s, Iran was in the midst of a devastating war with Iraq in which hundreds of thousands of Iranians died and the Saddam Hussein regime attacked Iran using chemical weapons. Additionally, in the years following the 1979 Iranian revolution and the hostage crisis, Iran was involved in hostile altercations with the nuclear-armed United States.⁸¹ Iran's interstate dispute involvement peaked in the late 1980s.⁸² Despite the end of the war with Iraq in the second half of the 1980s, Iran-Iraq relations in the 1990s remained problematic, and Iraq deliberately cultivated a sense of ambiguity among its regional adversaries regarding its weapons of mass destruction (WMD) capabilities.⁸³ More recently, although the Iraq threat diminished with the 2003 US invasion and toppling of the Saddam Hussein regime, Iran's threat landscape remained ominous in light of security tensions with Israel, the sizeable US military presence in the region (including the conflicts in neighboring Afghanistan, Iraq, and Syria), and the refusal of the George W. Bush and Barack Obama administrations to rule out the use of US military force against Iran in relation to its nuclear program.⁸⁴

There are convincing signs that security considerations have influenced Iran's nuclear logic. For example, Iranian Pres. (and later Supreme Leader) Ali Khamenei apparently encouraged a gathering of Iran's scientists in

1987 to develop nuclear technology as a way to protect the state against external threats.⁸⁵ Later, Iranian political strategist and advisor Ali Reza Alavi-Tabar remarked in 2003: “Israel is always threatening us. If we were sure Israel wasn’t going to hit us, we wouldn’t be thinking about a bomb.”⁸⁶ Iran addressed an official letter to the UN secretary-general in 2006 protesting “unlawful, unacceptable and dangerous threats of use of force” by the United States.⁸⁷ In a 2007 poll of Iranians, nearly half of the respondents believed the United States would take military action against Iran in the next one to two years.⁸⁸ Revealingly, Iran repeatedly raised its security concerns as a topic to be addressed in international discussions over its nuclear program.⁸⁹ Lending further weight to security arguments, experts have cited external security reasons for Iran’s nuclear weapons aspirations. Ray Takeyh, a leading Iran analyst, has ascribed the country’s nuclear calculations to its “desire to craft a viable deterrent capability against a range of evolving threats.”⁹⁰ David Cortright and George A. Lopez from the Kroc Institute for Peace Studies have likewise posited that, “Given the worsening insecurities in the region and its hostile political relations with the United States and Israel, Iran is likely to continue feeling the need for greater deterrent capabilities, perhaps including a nuclear option.”⁹¹ Similarly, RAND policy analyst Alireza Nader observes that “the Islamic Republic appears to be pursuing a nuclear capability as a form of deterrence against an attack by a superior military foe such as the United States.”⁹² But there are also indications that status has played a role in Iran’s nuclear priorities.

In particular, Iran’s foreign relations have been hampered by key diplomatic-political setbacks. In the late 1960s and early 1970s, in the run-up to Iran’s early nuclear deliberation, diplomatic recognition of Iran was noticeably lower than it had previously been.⁹³ In the 1980s, Iran suffered regional diplomatic ostracism fueled by the post-revolutionary Islamic regime’s controversial policies and the Iran-Iraq War.⁹⁴ In recent decades multilateral sanctions and political estrangement due in part to Iran’s nuclear program have frustrated its international status, and Iran has been the subject of extensive official scrutiny emanating from the UN Security Council, IAEA, United States, and European Union over its nuclear activities.⁹⁵ Iran was notoriously included as part of the so-called “axis of evil” in a speech by Pres. George W. Bush in 2002. Even though Iran sought international engagement, evidenced through initiatives such as President Khatami’s “Dialogue of Civilizations”

(announced in the late 1990s), Iran's mediation efforts during the Tajikistan civil war (1992–1997), and Iranian relations with Russia, Brazil, and the nonaligned states, it was unable to escape diplomatic exclusion in many respects.⁹⁶ Sanguine expectations in some circles that the 2015 Joint Comprehensive Plan of Action would reverse Iran's isolation and revitalize its international relations have thus far not come to satisfactory fruition.

The leadership in Tehran has undoubtedly perceived its faltering diplomatic-political status and treatment as incommensurate with other Iranian attributes such as Iran's geostrategic importance and technical-scientific accomplishments—all the more so given the illustrious legacy of the Persian civilization.⁹⁷ As one knowledgeable expert observed in 2005: "Iranian leaders have been shaken by the negative attention, pressure and potential isolation they have experienced over the nuclear issue. . . . Ostracism of such a great nation as Persia—Iran—would be a major setback."⁹⁸ Indicative of Iran's diplomatic frustration, Iranian officials decried an alleged US-Israeli "conspiracy" to isolate Tehran.⁹⁹ Diplomatic-political status shortfalls can be particularly vexing since overcoming them often depends on other states' actions such as granting diplomatic recognition or refraining from admonishing the state in international fora. In line with our expectations, the ever-present drive for status in world politics has conceivably pushed an isolated Iran towards more forceful methods of status fulfillment. As with the case of South Africa, even ambiguous or "opaque" nuclear activities may be seen as a relatively direct and accessible route to status improvement.¹⁰⁰

As noted earlier, data suggests Iran has reached the level of a near-major power—an overall status that can be expected to intensify Tehran's sense of entitlement to elevated power status. This phenomenon is not unlike what has occurred with other states in the category such as India or Brazil. As a result, Iranian policymakers commonly view their country as deserving of status as a "natural" regional or world power.¹⁰¹ In 2009, President Ahmadinejad called for "Iran to occupy its rightful place as a world power."¹⁰² Reflecting the sentiments of many Iran specialists, one expert writes, "all factions, from hard-liners to reformists, agree that Iran is entitled to regional power status."¹⁰³ Members of Iran's Islamic Revolutionary Guard Corps have unsurprisingly been no exception to this trend.¹⁰⁴ Analysts at times associate this penchant for power status with the ancient Persian empire, and one study refers to Iran's "historical sense

of imperial mission.”¹⁰⁵ According to middle east scholar Bahman Baktiari, “Iranian leaders have long been preoccupied with how to sustain a perception of Iran as a country with 2,500 years of recorded history and a civilization that deserves recognition and respect. Most Iranians perceive their nation as a great civilization that has been deprived of its rightful status as a regional superpower by foreign intervention, including that of tsarist Russia, Britain, the Soviet Union, and the United States.”¹⁰⁶

Significantly, a recurring theme in the literature on Iranian policy-making is one of Iranian resentment of foreign interference that has allegedly sought to preclude Iran’s status as a regional leader or powerful state. Whereas in previous centuries such Iranian sentiments focused on great powers active in the region, notably Russia and Britain, lately they have been directed mostly at the United States and Iran’s regional neighbors such as the Sunni Arab states and Israel. As one study explains, “Iranian leaders are convinced that Western powers have systematically worked to prevent the country’s emergence as an independent regional power.”¹⁰⁷ Iranian journalist Rahman Ghahremanpour argues that this perceived external meddling to keep Iran down has bred dissatisfaction: “The majority of Iranians are not satisfied with their current role in the region nor in the international system. Western policies—perceived or real—aimed at restricting and isolating Iran intensifies [*sic*] this sense of frustration.”¹⁰⁸ In terms of Iran’s regional neighbors, Saudi Arabia is an example of a state Iranian leaders believe “harbors a deep mistrust of Iran and has been the most active in working to deny Iran a status commensurate with its aspirations.”¹⁰⁹ This tendency in Iranian policy discourse to view Iran as the victim of foreign interfering “chimes with Shia Islam’s historic perception of itself as oppressed in historical, theological and political terms.”¹¹⁰

I argue that Iran’s nuclear ambitions have been spurred on by its considerable status expectations on the one hand and disappointment over deficiencies in its regional and global standing on the other—apparently reinforced by the belief that foreign powers have sought to limit Iran’s status. Clearly, Iranian officials have made their interest in international status and respect plainly evident. For instance, former Pres. Hashemi Rafsanjani spoke in 2005 of a “powerful Iran” that could “find a distinguished and lofty standing among the nations of the world, a status and standing which befits the civilized nation of Iran.”¹¹¹ It may be difficult to unearth conclusive evidence of the extent to which Iran’s leadership

has associated nuclear weapons with status, but there are indications of status concerns underlying Iran's nuclear pursuits. In this regard, the US Director of National Intelligence stated in 2016 that status was a motivation behind Iran's nuclear designs.¹¹² In the view of nonproliferation expert Mark Fitzpatrick, Iran's nuclear efforts seek "prestige" and "national pride."¹¹³ Likewise Shahram Chubin, an Iran security specialist, argues that "Iran is seeking a nuclear capability, at least a weapons option, the benefits of which it sees as prestige and domestic legitimation, regional status, and a greater voice in international relations."¹¹⁴ A few astute observers have drawn attention to Iranian status discrepancies as a driver of Iran's revisionist policies and perhaps its nuclear ambitions. For example, middle east analyst Thomas Juneau argues there is a strong sense among Iran's leadership "that the country's rightful status is being denied by the United States and its allies. Iran therefore suffers from a status discrepancy as a result of the differential between its aspirations and the status it perceives the international community ascribes to it. Iran is thus dissatisfied, a key driver of revisionism."¹¹⁵ With regard to the nuclear program, Chubin insightfully identifies "frustration over status and the ambition to be taken more seriously and to play a larger, more global role" as a key driver of Iran's nuclear aspirations.¹¹⁶

It is revealing that Iran does not appear to be on an unrestrained push to have nuclear weapons. Instead, it has evidently embraced an "option" or hedging strategy, at least since 2003, moving closer to the technical capability to produce nuclear arms without actually acquiring them. This suggests competition among diverse status perspectives in the Iranian policy-making context, to some extent presumably a reflection of Iran's less than extreme levels of isolation in recent years.¹¹⁷ In this regard, Iran's nuclear program also appears closely tied to status aspirations in terms of national autonomy and scientific-technical prowess—status pursuits which might plausibly be achieved through civilian nuclear applications (such as energy or medicine) instead of nuclear weapons. With regard to autonomy, the desire for stature as an independent and self-sufficient actor in global affairs is a familiar aspect of the official Iranian worldview.¹¹⁸ This is reflected in the revolutionary slogan "independence, freedom, Islamic Republic." From Tehran's standpoint, having status for autonomy reaffirms the credibility of Iran's nonaligned global stance—embodied in another Iranian revolution slogan, "neither East nor West"—and bolsters its aim of leading an "anti-hegemonic

movement in the Islamic world.”¹¹⁹ As for nuclear projects bolstering Iran’s status in terms of scientific and technical achievement, Supreme Leader Ayatollah Khamenei has stated that Iran could become the “world leader in science in fifty years” and holds the “nuclear program as a symbol of scientific and technological prowess.”¹²⁰ As elaborated above, many status priorities can be distinct from or wholly incompatible with nuclear arms. Such status preferences may gain traction in a state when power status falls out of favor and new alternative routes to international standing take priority.

How Might Iranian Nuclear Reversal Happen?

The theoretical arguments presented earlier provide a basis for outlining some of the plausible reversal scenarios for Iran. Specifically, two of the reversal pathways stand out as potentially applicable: diplomatic integration (pathway 1) and military delegitimization (pathway 3). The middle state path (pathway 2) appears less relevant because Iran does not fit the definition of a middle state and because of the fact most middle state reversals occurred decades ago in closer proximity to the emergence of the nuclear nonproliferation norm. For Iran, reversal pathways 1 and 3 could serve to increase the likelihood of nuclear reversal. Hybrid combinations are possible, meaning that both pathways may occur together. It is essential to now explore these options in the Iranian context as well as consider a few alternative nuclear reversal arguments and their potential relevance to Iran.

Pathway 1: Diplomatic Integration

To imagine how Iranian reversal might occur under pathway 1, the case of South Africa may offer an applicable precedent. South Africa abandoned its small cache of nuclear weapons as domestic policy changes (the end of apartheid) were enabling South Africa’s leadership to lay claim to more cooperative forms of status. Nuclear reversal was made likely when the leadership came to view nuclear weapons as a liability for South Africa’s status goals. A similar trajectory could be envisaged whereby Iran’s frustration with its diplomatic-political standing and treatment is lessened as higher diplomatic status is attained or becomes more accessible. Such developments would be aided by credible offers or prospects of diplomatic recognition from key states—regional states and

major powers in particular. Under pathway 1, the continued lifting of sanctions on Iran and lessening official criticism of Iran's behavior might help promote reversal by reducing Iran's international exclusion. In general, this pathway would involve the easing of Iran's status deprivation and Iranian emphasis on alternative channels of status enhancement rather than power aggrandizement. Regional states and world powers would contribute by opening up such new methods of status fulfillment, perhaps accepting a larger role for Iran in regional diplomacy. Finally, pathway 1 calls for an improved security threat environment, a main indicator of which would be a declining rate of interstate disputes between Iran and key interlocutors such as the United States, Israel, and Arab states in the region.

How might Iran's quest for status be expected to shift under pathway 1? Official Iranian perspectives would be expected to shift toward status conceptions that are less focused on relative power. Past diplomatically integrating states have typically sought cooperative types of international standing, such as through peaceful multilateral engagement, promoting the international legal order, and fostering socioeconomic progress. For example, postapartheid South Africa achieved status through playing a greater role in African and global governance, becoming a leading contributor to peacekeeping missions on the continent, and working at the international level towards economic development for the global south. In the case of Libya, another state that apparently followed pathway 1, comparable changes in status priorities preceded nuclear renunciation. Hence an emergent thrust of Libyan policy was to normalize its international relations (including with the United States) and garner status as a global diplomatic player and peace arbiter. Mu'ammar Gadhafi's son Seif al-Islam stated, "[Our] leader believed that . . . Libya would emerge from . . . international isolation and become a negotiator and work with the big powers to change the Arab situation."¹²¹ As political psychologist Maria Rost Rublee elucidates, "giving up WMD would allow [Gadhafi] to take on a new leadership role and give him the international acceptance he had desired for so long."¹²² Interestingly, there are signs that Iran seeks status for non-power-oriented activities, but under pathway 1 these status outlets would become more prominent, turning controversial nuclear weapons pursuits into a greater hindrance for Iran's status ambitions. Notably, Iranian leaders have shown interest in taking a leading position in matters like inter-civilizational dialogue and science and technology. Civil nuclear advancement is seen as bringing status for

Iran's scientific accomplishments and energy self-sufficiency, the latter being linked to the aforementioned primacy of autonomy in Iranian foreign policy. Iranian Pres. Hashemi Rafsanjani highlighted such interests in a 1996 speech, stating that "making use of nuclear technology for peaceful purposes is something without which a country could not find its real standing in the world."¹²³ Nuclear reversal pathway 1 envisages Iran's global exclusion subsiding and Tehran placing more value on such alternative forms of international standing.

What specific steps might facilitate nuclear reversal pathway 1 for Iran? Though various possible sequences might be envisioned, efforts by key states like the United States would appear indispensable. For example, movement towards restoring US diplomatic relations with Iran and significant progress on US-Iran security issues could be pivotal for Iran to follow pathway 1. As regards status, it could be conducive to pathway 1 for the United States and regional states like Saudi Arabia to present Iran with concrete, feasible options for the restoration of diplomatic relations. This would demonstrate the availability of non-power-oriented status options and create space for pragmatic Iranian officials and elites to successfully push for such alternative routes to status. In a similar way, states might seek to bestow a more prominent role on Iran as a diplomatic-political intermediary on regional and even global issues regarding Iraq, Afghanistan, dialogue with the Gulf Cooperation Council (GCC), or initiatives on intercultural understanding. Iran has shown an interest in playing a larger diplomatic part in many such matters, and this would be reminiscent of the negotiator role that Gadhafi aspired to for Libya in the run-up to its nuclear turnaround. Pathway 1 could also be facilitated if the United States and other states promoted increased Iranian participation in international organizations as well as lessened criticism of Iran in regional and international institutions to reduce Iran's sense of global marginalization. As one notable example, admitting Iran to the World Trade Organization (WTO) could be a promising move. WTO membership could confer much-needed status to Iran—the world's largest economy that is not a WTO member—and Iran's government has said that WTO membership is a priority.¹²⁴ Additionally, it would be propitious for the United States and the other nuclear deal signatories to ensure that sanctions relief for Iran continues as laid out in the JCPOA. The new US administration could hence contribute to alleviating Iran's sense of ostracism by honoring its JCPOA

sanctions relief pledges. In the same vein, the further release of Iranian assets frozen by the US government and held in US and foreign banks might indirectly improve Iran's embattled international status and treatment in line with this reversal pathway.

Each of these developments could contribute to a sort of "status accommodation"—not unlike what scholars have discussed in terms of reducing the war-making proclivities of rising powers—which could fulfill the Iranian quest for status through attainments other than nuclearization.¹²⁵ Nevertheless, the earlier reversals in South Africa and Libya suggest a more profound Iranian reassessment of the state's behavior and role in the world may be needed for Iran to truly embrace less power-centric status, as apparently occurred with both de Klerk and Gadhafi. Due to the fragmented nature of postrevolutionary Iran's domestic politics, such an outcome might have to emerge from a potential convergence of sufficiently influential Iranian officials. This type of rethinking—à la South Africa and Libya—is a distinct possibility; Iranian foreign policy has a tendency to vacillate between engagement and pragmatism on the one hand and relatively greater defiance and ideological opposition to the rest of the world on the other. It is imaginable that the impetus for this type of change might emanate from a president such as Rouhani, the Supreme Leader or a future successor, and/or other key domestic actors. Overall, I argue that the provision of diplomatic-political status as outlined above may well stimulate such a fundamental Iranian reassessment, by showing Iran's leaders that alternative ways of augmenting the state's status are accessible. Outside states could in this way encourage Iranian domestic actors to see value in reorienting Iran's search for status, as well as creating opportunities for them to do this and lending them credibility within Iran. Another lesson from the Libyan case is that confidants whose advice is valued by top decision-makers—like Gadhafi's son Seif al-Islam—may be important in convincing national leaders of the state's preferred role and status in world affairs. Such developments may well take time, hence one crucial added-value of the JCPOA could be in limiting Iran's technical nuclear capabilities to buy enough time for a broader policy and status shift. A window of opportunity may be open under the Rouhani presidency to make headway in this direction, although the Iranian presidential election of May 2017 will likely affect such prospects.

In terms of threat reduction, several potential conflict-reducing steps could encourage Iranian progress down pathway 1. It would be beneficial to hold joint US-Iran security discussions to build confidence and decrease the prospects of any hostilities involving Iran. For instance, working-level talks might be dedicated to seeking ways to prevent incidents and unintended escalation among the two states' naval vessels which often operate in close proximity in the Persian Gulf. US military policies and deployments in the region might be reviewed for any reasonable revisions that could be made to decrease Iranian threat perceptions and make armed conflict less likely. In addition, the United States could be well positioned to quietly facilitate nonaggression pledges and other threat-reduction measures between Iran and Israel, assuaging mutual security concerns between the two adversaries. The United States and other interested parties could work with Iran on plans for improving the security situation in Iraq and Afghanistan, with both states bordering on Iran and strongly impacting Iranian security threat perceptions. As regards Afghanistan, for example, Iran has shown an enduring interest in being involved in security actions there; Iran faces transnational threats such as drug trafficking and terrorism emanating from its Afghan border. Stepped-up global efforts to find solutions to end the protracted conflict in Syria, in which Iranian and US forces are combatants, would also have clear advantages in terms of ameliorating Iranian security. The United States and the international community could also contribute by supporting the settlement of disputes among Iran and its Gulf neighbors. Notably, the United States and Arab states might foster talks between Iran and the GCC states to jointly address security concerns, which have escalated particularly between Iran and Saudi Arabia over the past few years—reinforced by Iran's nuclear activities and the conflict in Yemen, which has pitted the two states on opposite sides of the hostilities. While these security steps would undeniably require significant efforts and political willingness, auspicious precedents favor progress. In this respect, some US-Iran security cooperation has already occurred regarding both Afghanistan and Iraq.¹²⁶ Further, Iran has participated in international talks on the Syria conflict. The fact that a multilateral nuclear deal was concluded in 2015 provides further evidence that agreement is possible with Iran on crucial security issues. Finally, the United States and Iran as well as other regional and European states share numerous mutual interests, such as stabilizing Iraq and Afghanistan as well as the fight

against Daesh (ISIS), which suggest that collaborative security initiatives may produce meaningful results.

To conclude, some key hurdles would need to be surmounted for Iran to take pathway 1 to nuclear reversal. First, there are domestic interests in both Iran and the United States that would oppose such steps and who in some cases benefit from continued Iranian isolation or nuclear ambitions.¹²⁷ As for any diplomatic or security rapprochement between the United States and Iran, such efforts face mutual distrust stemming from incidents such as the US-aided overthrow of Iranian Prime Minister Mohammad Mossadegh in 1953 and the 1979–1981 Iran hostage crisis. Further, the willingness of states to grant Iran diplomatic recognition and status may be made conditional upon reciprocal measures by Iran regarding Iranian policies viewed by Western powers and Middle Eastern and Persian Gulf states as inappropriate or destabilizing, including Iranian support for militant groups like Hezbollah. As a result, a good measure of policy flexibility on various sides would be required. In terms of security concerns, many of Iran's perceived threats are firmly rooted and involve not only the United States but also other regional actors (such as Israel and Saudi Arabia)—and thus may not dissipate quickly. The persistence of conflict among multiple warring parties in Syria is but one complicating facet of the regional security situation for which solutions are not easy. The risk of US-Iran confrontation in the Persian Gulf remains palpable and demands restraint on both sides. Nevertheless, many such obstacles could be overcome with the right mix of political determination, timing, and ingenuity. The data indicates that Iran's diplomatic isolation may not be as extreme as other diplomatic pariahs—such as South Africa and North Korea—that have gone nuclear.¹²⁸ Overall pathway 1 appears to be plausible for Iran even if some challenging steps remain before it moves down this reversal path.

Pathway 3: Military Delegitimization

Military delegitimization is another pathway Iran could follow to nuclear reversal. This pathway represents an intriguing reversal scenario for Iran because it has previously led near-major powers such as Brazil to nuclear forbearance. Indeed, Brazil's abandonment of its nuclear ambitions more than two decades ago may offer relevant historical insights. The end of Brazilian military rule in the 1980s marked the discrediting of the military's power-oriented status conceptions. As alluded to

above, Brazilian officials came to value regional political leadership and economic forms of standing more than prospective status as a nuclear power, whereupon contentious nuclear activities became an obstacle to Brazil's status goals. Pathway 3 deserves consideration in Iran's case due to the country's substantial military expenditures that have accompanied its nuclear ambitions as well as the noticeable domestic influence particularly of the Islamic Revolutionary Guard Corps (IRGC).¹²⁹ Accordingly, Shahram Chubin describes the IRGC as a "formidable policy actor with security as well as commercial interests."¹³⁰ While the IRGC can lack popular support owing in part to its internal security role, the IRGC's domestic political clout is highlighted by the vast number of current or former IRGC members in government in recent years; for example, Pres. Mahmoud Ahmadinejad (2005–2013) was an IRGC veteran, and dozens of parliamentarians elected to Iran's majlis have had IRGC experience.¹³¹ As expected, prominent IRGC members have also expressed an interest in Iran's standing as a powerful state. One past IRGC commander, for instance, has stated that the United States has "no option' but to recognize Iran as a regional power."¹³² While the IRGC generally did not oppose the 2015 nuclear deal—perhaps largely out of IRGC business interests in having sanctions lifted—experts have nevertheless found support for nuclear weapons among the IRGC's membership.¹³³ Under pathway 3, Iranian nuclear reversal could take hold if military status perspectives—notably, those of the IRGC—were to lose sway among Iran's leadership. This might be observed through a sizeable downturn in the share of government resources devoted to IRGC/military expenditures, probably in tandem with a substantial drop in the number of IRGC members holding political office. Like in pathway 1, security threat reduction is also necessary for this reversal pathway. As discussed earlier, this could be seen through a decline in Iran's incidence of interstate disputes with key countries like the United States and other states in Iran's region.

How would the Iranian status priorities be expected to change under pathway 3? Power-based status would be superseded by other goals, such as the desire to achieve political and economic standing in international affairs. The status leanings of the IRGC, which focus upon the hierarchy and instruments of power, would be downgraded so as to no longer shape Iranian policy priorities. A relative proclivity for non-power-oriented status would make nuclear weapons appear as more of a hindrance to enhanc-

ing Iran's status. In this regard, while near-major power Brazil has continued to pursue recognition as a "big country" in world affairs, Brazil's civilian officials placed renewed emphasis upon earning regional and global standing through diplomatic engagement, cooperation within multilateral regimes, regional economic integration, and national economic progress. As John R. Redick argues, Brazilian officials "came to accept the view that maintenance of the independent nuclear policy would seriously jeopardize their relations with nations that could affect another, more central, policy objective: achieving world stature and leadership for Brazil."¹³⁴ Another component of Brazil's search for status has been to seek reforms of the UN Security Council, enabling permanent Brazilian membership along with fellow "G4" states Germany, India, and Japan—which may be associated with power status but is also closely tied to diplomatic-political stature.¹³⁵ If Iran were to follow pathway 3, it might be expected to reconceive of near-major power standing in this manner by focusing on earning status through playing a prominent role diplomatically and economically, in line with global rules and norms, and wielding "soft power" rather than nuclear arms.

What are some concrete steps that might bring about reversal pathway 3 in Iran's case? As one possibility, it is conceivable that specific domestic events could amplify domestic enmity of the IRGC and weaken its legitimacy. This would set off a domestic shift or realignment causing power-oriented status perspectives to lose influence in Iranian policy making. For example, if large-scale popular protests or demonstrations were to occur (not unlike the upheaval typifying the contested 2009 Iranian presidential election), this might alter the IRGC's extensive influence in the country—for example, by provoking a backlash to IRGC repression of demonstrators or by exerting pressure for domestic institutional reforms. In similar fashion, various other potential domestic or international events may be envisaged, such as major IRGC scandals or civil society campaigns, which could impel key figures such as the supreme leader to push further in downgrading the extensive domestic position of the IRGC. Such domestic reforms might be seen, for instance, in moves to curtail the IRGC's role and financial resources. Future elections might also promote pathway 3 by decreasing the presence of IRGC members holding government office. Observers have noted that the Ahmadinejad presidency (2005–2013) marked a period of particularly "militarized" Iranian governance, hence to some extent President Rouhani's election

in 2013 may have tipped the balance back towards pathway 3—although not yet to a sufficient extent to cause nuclear reversal.¹³⁶ Hence the next Iranian presidential election can also be expected to have consequences pertinent to pathway 3. It can equally be postulated that a successive new supreme leader after Ali Khamenei, who is less favorable to (and less strategically reliant upon) the wide-ranging economic, political, and military engagements of the IRGC, could use his position to rein in the Revolutionary Guards' domestic political role and influence, which could stimulate Iran's movement along pathway 3. The interconnections between the IRGC and the conservative clerical network in the country present challenges for this pathway, however.¹³⁷ Finally, this pathway would require steps towards lessening Iran's perceived security threats in the region, as explained for pathway 1 above. It is interesting to note that Iran's status and security can also be viewed as somewhat interrelated; for example, a more peaceful regional security environment could feasibly provide the impetus for reduced Iranian security spending and reliance upon the IRGC.

What actions from outside Iran could be conducive to pathway 3? Undoubtedly, the ability of external parties to alter domestic military legitimacy and status priorities in Iran is somewhat constrained. Moreover, any attempt to interfere would need to proceed cautiously and with sensitivity to avoid counterproductive reactions within Iran in light of its past experience with external interference in Iranian domestic affairs. At the same time, there are steps that the international community might take. For example, military-to-military cooperation and engagement between Iran—including Revolutionary Guard personnel—and other states, centering on experience and training in relation to humanitarian and peacekeeping operations, could serve to stimulate interest in non-nuclear approaches to international status and recognition. Nonnuclear states that participate significantly in UN peacekeeping missions might be candidates for such collaboration and exchange, for instance Brazil, Spain, and Sweden. Another type of external step that could advance pathway 3 would be to prudently offer educational and material support to civil society and nongovernmental organizations that advocate non-militaristic visions of Iranian society and policy. Likewise, the expansion of civil society, cultural, and sports exchanges between Iran and Western states may reinforce the availability of a range of non-power-oriented global status opportunities among Iranian society. Notably, it bears

mentioning that the IRGC is not a homogenous entity and its members have diverse perspectives, including on politics and the potential role of nuclear weapons in Iran's international status.¹³⁸ Indeed, the IRGC did largely go along with the 2015 nuclear agreement, even if mostly for pragmatic economic reasons, and certainly some IRGC members support pragmatic or reformist policies. With a view to pathway 3, external states might explore reasonable ways of reaching out to or supporting such constituencies. Finally, alleviating Iran's security threats is another important component of pathway 3 where outside states could make a difference. Hence, as described under pathway 1 above, the United States, Iran's regional neighbors, and other international actors might take steps to improve Iran's security environment as laid out for pathway 1.

Overall, while the evidence does not dictate that Iran will imminently move down reversal pathway 3, there are some promising indications and the pathway is quite relevant to Iran—especially in view of its apparent position as a near-major power.¹³⁹ It should also be stated that, given Iran's embattled diplomatic-political situation, pathway 3 may be more effective in bringing Iranian nuclear reversal if complemented by parallel progress down pathway 1 as well.

Potential Alternative Arguments

It is worthwhile to consider some alternate nuclear reversal explanations in the case of Iran. In this regard, key arguments might be envisaged in relation to: (1) external security environment (without status arguments); (2) domestic politics/political economy; (3) coercive pressure; and (4) regime change. We now explore the conceivable impact of these factors in turn.

External Security Environment

Since nuclear weapons are frequently associated with deterring aggression from other states, we might ask whether security threat reduction alone can explain nuclear reversal? Analysts have frequently relied upon security factors as a core argument to explain nuclear weapons choices. Further, all but two past nuclear reversals occurred in tandem with a measurably improved external security situation.¹⁴⁰ However, as observed by Stanford experts Scott D. Sagan and Ariel E. Levite, the empirical record is replete with instances of nuclear decisions that do

not fit neatly with an account solely focused on security.¹⁴¹ For instance, while Libya's long-held nuclear ambitions were driven partly by regional security realities and its reversal was indeed preceded by a drop in Libya's interstate disputes, to ascribe the Gadhafi regime's nuclear about-face exclusively to external security would be to overlook critical aspects of the reversal picture. Libya in the 1990s and early 2000s rethought its revolutionary agenda and role in the world—with profound implications for Libya's policy and status interests.¹⁴² As Libya moderated its objectionable policies and attempted to burnish its diplomatic standing, its controversial nuclear pursuits became a serious impediment to Libya's revised status goals. Sweden's nuclear history offers a further case in point. As suggested above, Sweden's nuclear reversal can be partially traced to lower threat levels and East-West détente. However, Sweden's interstate dispute involvement was generally modest in the decades following World War II. Further, as nuclear policy specialist Eric Arnett has pointed out, most studies on Sweden point primarily to non-security-based reasons to explain its nuclear choices.¹⁴³ Sweden's reversal can be more convincingly explained if one accounts for Swedish beliefs about the country's stature as a role model and “active neutral” promoting peace, the rule of law, and progressive causes such as disarmament and humanitarian action, along with its desire to avoid jeopardizing its status with contentious nuclear activities that contravened an emerging global norm against nuclear proliferation. Finally, the absence of nuclear renunciation among the major powers further supports the contention that security threat reduction must be combined with additional factors to comprehend nuclear reversal patterns. For example, British Prime Minister Harold Macmillan stated decades ago that Britain's independent nuclear force “gives us a better position in the world, it gives us a better position with respect to the United States. It puts us where we ought to be, in the position of a Great Power.”¹⁴⁴ Hence although the United Kingdom's interstate disputes subsided with the end of the Cold War and Britain entered an era of objectively lower threat from interstate violence, Britain has maintained its nuclear force.¹⁴⁵ The British case lends further weight to nuclear arguments focusing on status interests.

Could security threat reduction alone lead to Iranian reversal? This is unlikely because, as the empirical record shows, the choice for nuclear forbearance typically derives from security in conjunction with other factors. As Levite has sensibly pointed out, “although a favorable

external security outlook appears necessary to bring about nuclear reversal, it rarely if ever appears to be sufficient, by itself, to produce this outcome.”¹⁴⁶ Iran is no exception to this observation and its security environment is best understood not as an alternate, competing explanation of nuclear reversal but rather as an integral complement to status arguments.

Domestic Politics/Political Economy

How might domestic political competition and factional interests impact nuclear reversal? Domestic arguments view the preferences and actions of specific domestic constituencies, such as government bureaucracies or even nongovernmental groups, as crucial in determining policy outcomes.¹⁴⁷ Domestic actors—notably, nuclear scientists, military officers, and election-minded officials—may develop preferences favoring nuclear arms and seek to mobilize pro-bomb coalitions which could impede nuclear reversal, at times uniting with international supporters and norms.¹⁴⁸ For example, national security strategist Peter R. Lavoy describes how national political and military elites establish myths about the state’s “insecurity or its poor international standing” to popularize nuclear weapons as sources of military security and international influence.¹⁴⁹ Levels of democratic governance may also shape nuclear choices, as elites in democracies might have relatively less autonomy to promote nuclear weapons based on parochial incentives.¹⁵⁰ In political-economic terms, professor Etel Solingen holds that leaderships advocating global economic integration and liberalizing reforms should seek to avoid the domestic political costs of nuclearization, whereas “nuclearization implies fewer costs for inward-looking leaders and for constituencies less dependent on international markets, investment, technology, and institutions, who can rely on nuclear weapons programs to reinforce nationalist platforms of political survival.”¹⁵¹ There is evidence that domestic factors have impacted the outcome or timing of states’ nuclear decisions. For instance, key atomic technocrats and military strategists in the official bureaucracies in India and France apparently pushed their respective states’ nuclear programs forward.¹⁵² And as Solingen points out, nuclear reversal in Argentina, Brazil, Egypt under Sadat, Japan, South Africa, South Korea, and Taiwan was conducted under leaderships relying for their political survival on exported industrialization.¹⁵³ However, in some cases the evidence on domestic

politics is mixed; hence in Libya and South Africa nuclear reversal took place in spite of any bureaucratic opposition and by regimes that were relatively undemocratic.

With regard to Iran, much has been written about the role of factional politics and internal disputes in Iranian policymaking.¹⁵⁴ Domestic bureaucratic interests may shed light on aspects of Iran's nuclear path, such as the persistence of nuclear ambitions even under relatively moderate or reform-minded leaders such as the Mohammad Khatami presidency (1997–2005). Though Supreme Leader Ali Khamenei is routinely described as the ultimate arbiter of Iranian security and defense policies and Iran's rulers have emphasized that nuclear decision-making is based on "consensus," indeed several often-competing domestic actors vie for influence on the nuclear issue.¹⁵⁵ While there may be broad domestic consensus on Iran's right to nuclear technology for scientific and economic development, the positions of domestic leaders and elites on nuclear weapons are thought to diverge significantly in many instances.¹⁵⁶ It is not always easy to ascertain specific Iranian domestic actors' views on nuclear arms since such positions are not typically publicly revealed, but, for example, analysts have in the past cited the IRGC and perhaps Iran's atomic agency (the AEOI) as potentially having pronuclear weapons interests.¹⁵⁷ From a domestic politics approach, reversal might occur in Iran if antinuclear coalitions were to gain influence or if pronuclear lobbies within the IRGC or atomic establishment were to lose domestic political clout. Solingen's political-economic account would predict reversal if the Iranian government were to further embrace economic liberalization as its political model—a perspective that might view Hassan Rouhani's presidency as fairly promising. It is hard to dispute that domestic political realities would be involved in any Iranian nuclear reversal. Moreover, there are some interesting points of overlap between our status-based approach and domestic accounts; as one example, both perspectives might postulate that declining IRGC influence in politics would increase prospects for nuclear forbearance. However, domestic politics can usefully be seen as shaping the broader status motivations affecting states' nuclear choices, which are conditioned by regional and systemic factors as well as domestic influences. Notably, the way in which domestic political differences play out with regard to Iran's long-running foreign policy dichotomy between ideological opposition to the outside world and international engagement will likely have major re-

percussions for the nuclear issue. As Chubin observes, “the nuclear issue has long been a proxy for the broader question of how Iran should relate to the world—and whether it should pursue its interests unilaterally or with reference to others’ concerns.”¹⁵⁸ In line with our approach, the way this broad question is resolved within Iran should be indicative of whether the Iranian leadership prefers to seek Iranian standing through controversial nuclear pursuits or through alternative endeavors less focused on power status.¹⁵⁹

Coercive Pressure

Might coercive interstate pressure facilitate nuclear reversal? Coercion may involve external threats to use military force or the threat or imposition of other costly measures such as economic sanctions. As regards Libya, “strong” versions of the coercion argument are unconvincing. For example, US Vice President Dick Cheney controversially asserted in 2004 that Libya’s relinquishing of its nuclear aspirations was “one of the great by-products” of the American military interventions in Iraq and Afghanistan.¹⁶⁰ This assertion is problematic because, in reality, Gadhafi had officially offered to give up his WMD activities as early as May 1999—well before the Iraq and Afghanistan invasions—and he gave secret assurances to the British Foreign Office on WMD renunciation in August 2002.¹⁶¹ But there is evidence that more modest coercive measures such as the US and multilateral economic sanctions imposed on Libya, particularly in the 1990s, may have helped augment the potential incentives (that is, sanctions removal) for Libya’s broader shift towards more cooperative foreign and security policies.¹⁶² As regards South Africa, former Atomic Energy Corporation (AEC) Chairman J. W. de Villiers has denied that US pressure affected South Africa’s nuclear reversal. Waldo Stumpf, the AEC chief executive officer who oversaw South Africa’s nuclear dismantlement, has stated that US nonproliferation pressure actually kept South Africa “out of the NPT longer.”¹⁶³ While US nonproliferation advocacy probably reinforced for de Klerk the benefits of denuclearization, it is unclear that American pressure was decisive. In the case of Brazil, restrictive US export policies, “rather than encouraging a change . . . tended to reinforce a sense of victimization and provided fuel for the nationalistic nuclear theology. Ultimately, change came from within . . . Brazil, rather than being imposed from the outside.”¹⁶⁴ Mitchell Reiss similarly finds that in Brazil’s case, “U.S.

officials admit that American pressure had little or no influence.”¹⁶⁵ Experts and policy makers have at times lauded the efficacy of coercion, but this influence can be overstated. Political scientist Russell J. Leng’s work illustrating the limits of coercive diplomacy provides valuable insights. Leng finds based on a study of 677 influence attempts that states tend to reply to coercion in kind, hence coercion often begets more coercion. Drawing on psychological insights, Leng argues, “States tend to respond in kind to both coercive and cooperative influence tactics. The most effective influence strategy, in terms of achieving a diplomatic success without going to war, appears to be a reciprocating strategy in which the state begins with tit-for-tat responses to coercive influence tactics and then offers cooperative initiatives, most often in the form of carrot-and-stick inducements.”¹⁶⁶ Thus Leng’s findings suggest that coercive measures such as sanctions or threats of force targeting states with nuclear ambitions would normally lead to coercive responses rather than compelling any desired nuclear reversal outcome.

As for Iran, nonproliferation specialists Celia L. Reynolds and Wilfred T. Wan have noted that “sanctions have exacerbated economic problems arising from the structural weaknesses and mismanagement of Iran’s economy, especially under Ahmadinejad’s presidency and since his contested re-election in June 2009.”¹⁶⁷ Iran’s economic reliance on oil exports and related aspects of the rentier state would seemingly ripen its vulnerability to sanctions. Further, domestic discontent with the negative economic impacts of sanctions previously imposed by the UN Security Council, the United States, United Kingdom, and others appears to have contributed to the election of President Rouhani in 2013 as well as the conclusion of the JCPOA. Yet it would be less convincing to argue that coercive measures will reverse Iran’s nuclear aspirations. Alireza Nader wrote in 2012, “[i]t is unclear if sanctions have weakened or strengthened the Iranian regime’s resolve to pursue the nuclear program.” He also observes “sanctions . . . may convince certain factions to take escalatory actions and continue or even accelerate the nuclear program’s development.”¹⁶⁸ Such measures have for many years failed to induce Iranian reversal and in the future could be expected to prompt the sort of tit-for-tat escalation described by Leng—a counterproductive outcome from the nonproliferation point of view. Indeed, according to our approach, sanctions can be expected to augment the international exclusion of isolated states and hence could actually reinforce the status

incentives for nuclear weapons. While coercive measures may find relative success in situations of asymmetric bargaining leverage over the coercion target (e.g., US-South Korea, US-Taiwan), this is hardly apparent for Iran.

In terms of more forceful coercive approaches, previous threatening rhetoric about military force by the United States and Israel has not elicited Iran's reversal. The covert assassination of Iranian nuclear scientists by foreign agents and cyber attacks against Iran's nuclear facilities have represented technical setbacks but have not visibly altered Iran's fundamental nuclear priorities. Moreover, nuclear researchers Sarah Kreps and Zain Pasha find that military threats empower domestic coalitions that are hostile to international regimes such as the NPT.¹⁶⁹ Finally, Israel's and Iraq's past military strikes to destroy nuclear installations in Iraq and Iran, respectively, failed to subdue the latter states' nuclear aspirations.¹⁷⁰

Regime Change

What can be said of the potential role of a leadership transition or "regime change" in eliciting nuclear reversal? In its most extreme form, regime change under military force in Iraq in 2003 did erase any lingering nuclear ambitions wielded by the Saddam Hussein regime—but this came with vast human, material, and other negative consequences. In South Africa and Brazil domestic leadership transitions preceded nuclear reversal, although both cases consisted of internal political successions due to elections rather than being imposed by external force. However, nuclear forbearance came about in Libya in the absence of any regime change.

In the case of Iran, would the emergence of a new supreme leader facilitate nuclear forbearance? Has the 2013 election of President Rouhani made a difference regarding a prospective Iranian nuclear reversal? I contend that a high-level "changing of the guard" may contribute to making reversal easier. But this would be contingent largely upon any potential changes in fundamental nuclear motivations, notably status and security. For instance, if the new official(s) were to moderate policies disliked by other states this could favor the pursuit of diplomatic-political or other alternative types of standing for Iran that would obviate its nuclear aspirations. Similarly, if the new leader(s) were able to rein in the influence of status perspectives such as those of the IRGC, then this could encourage Iranian status approaches favoring reversal. Or if they were

to foster regional conflict resolution and engage further with the United States towards reducing perceived security threats, this could foster nuclear reversal. Hopes were raised that President Rouhani's election could lead to nuclear renunciation, but this has not yet happened and clearly the 2015 JCPOA—albeit a significant step towards tension reduction, building confidence, and limiting technical nuclear capabilities—cannot be equated with nuclear reversal. More generally, previous reversal cases such as Libya and arguably Sweden demonstrate that regime change may not be essential for Iranian nuclear reversal to happen, as such policy change can also emerge from within the regime under the right conditions.

Overall, the implication here is that alternate explanations of nuclear reversal may hold value, and for some states arguments such as domestic politics and leadership transitions may complement our status and security account.¹⁷¹ But in Iran's case, it is not evident that these alternate explanations tell us more about how nuclear reversal could occur than could a status and security-based approach.

Conclusion: Much Ado about Nothing?

This article has outlined an original explanation of states' nuclear weapons choices to shed light on Iran's nuclear path. Comparatively few studies have shifted the focus from proliferation to nuclear reversal—despite the empirical prevalence of this phenomenon. The approach presented here yields innovative theoretical conclusions about the reasons for nuclear reversal as well as concrete policy insights. Significantly, status perspectives merit renewed attention in accounts of nuclear behavior. States frequently seek to earn status and set themselves apart in world politics. Moreover, most states prefer accomplishments that do not involve nuclear weapons as a route to higher global standing. While frustrating status deficiencies foster nuclear aspirations, the widespread predilection for status through activities like cooperative diplomacy, promotion of global rules and progressive reform, and perhaps economic achievements, explains why many states opt for nuclear reversal.

Several distinct pathways exist where status and security factors bolster prospects for nuclear reversal. Within these pathways, developments such as diplomatic status improvement and the decline of domestic military legitimacy are associated with nonnuclear status ambitions. The evolution of the global nuclear nonproliferation norm is also an integral part

of the reversal story, as is the improvement of a state's security threat environment. Notably, our approach helps clarify the puzzle of norm compliance: the global norm against nuclear proliferation is argued to induce nuclear reversal particularly when it results in nuclear weapons impinging on a state's ability to accumulate preferred types of international status, such as for diplomatic-political accomplishments and defending global rules and norms.¹⁷²

What policy insights can be identified regarding Iran? Importantly, an Iranian bomb is not inevitable. This research provides a clear blueprint for those seeking to prevent Iran from going nuclear, one that requires policy evolution beyond the breadth of the 2015 nuclear deal. First, strategies focusing on isolation and sanctions are unlikely to have the desired nonproliferation effect. Instead, effective policies under reversal pathway 1 would promote diplomatic recognition of Iran and minimize its international exclusion. Progress toward the normalization of US-Iran diplomatic relations would be a promising step. In general, the United States and the international community should present Iran with concrete opportunities for enhancing its diplomatic recognition and could seek for Iran a more prominent role as a diplomatic-political intermediary—for instance on regional issues such as Afghanistan or on intercultural initiatives. This should have the effect of opening up non-power-oriented routes to Iranian status and create space for receptive Iranian officials to push for such standing; the result would be a kind of nonnuclear “status accommodation” of Iran in world politics. In a similar vein, the United States and others could promote increased Iranian participation in international organizations such as the World Trade Organization—an Iranian priority—while also toning down criticism of Iran in multilateral fora to reduce Iran's perceived global exclusion. If the new US administration aims to encourage Iranian reversal, it would do well to honor US commitments to sanctions relief made in the JCPOA as a means to reduce Iran's ostracism. In addition, reversal pathway 3 points to delegitimizing military status notions. Though this path will likely depend mainly on domestic events in Iran, external measures can be envisaged. These efforts would need to proceed with sensitivity to Iranian attitudes on foreign interference in Iran's domestic affairs to avoid counterproductive effects. Thus, states could seek military-to-military engagement with Iran's military and Revolutionary Guards, centering on experience with humanitarian operations, to foster

interest in nonnuclear avenues to international standing. States might also consider prudent educational and material support to civil society organizations that advocate nonmilitaristic visions of Iran's society and role in the world. Likewise, the expansion of civil society, cultural, and sports exchange programs between Iran and other states could highlight alternative global status opportunities among Iranian society and elites.

Iranian reversal also requires reducing Iran's perceived security threats. Policies that defuse conflicts in the Middle East and ameliorate Iran's security environment should be more effective than the threat of military force. Such conflict-reducing steps are essentially a universal requirement for nuclear reversal. Efforts by the United States to prevent or peacefully resolve interstate disputes with Iran would constitute progress. For example, US-Iran security dialogue should be undertaken to build confidence and avoid hostilities such as potential mishaps between naval vessels in the region. Talks should likewise be held with the aim of finding ways to improve the security situation in Iraq and Afghanistan, bearing in mind Iran's interest in alleviating transnational threats on its borders. The United States should review its military policies in the region for any reasonable modifications that could decrease Iran's perceived threats. Finding solutions to end the protracted Syria conflict should similarly be a priority in order to reduce Iran's security motivations for nuclear weapons. The United States may likewise be well positioned to discreetly broker nonaggression pledges and threat-reduction measures between Iran and Israel. The resolution of disputes between Iran and the Gulf Cooperation Council states, including Saudi Arabia, should also be supported. There are multiple security interests shared by Iran, the United States, European states, and other actors, such as stabilizing Afghanistan and the fight against Daesh Islamic extremists, which should enable many of these security efforts to make progress.

What is the role of the 2015 Iran nuclear deal? While the JCPOA is a noteworthy achievement in terms of easing tensions and limiting Iran's technical capacity in relation to nuclear arms, it would be erroneous to equate the JCPOA with a more fundamental reversal decision. This article has taken a relatively long-term perspective on Iran's nuclear motivations and its focus is not on the nuclear deal. In general, the JCPOA is certainly no nuclear reversal panacea. That being said, despite the considerable political discourse focusing on limiting Iran's capabilities, it is conceivable that the nuclear deal could, in the final analysis,

have lasting effects in lessening Iran's nuclear motivations. In this way, aspects of the deal might have the effect of nurturing some of the status and security dynamics noted above. This could be anticipated, for example, if relief from coercive sanctions on Iran—potentially leading to further diplomatic and political interaction and cooperation—were to decrease the burden of Iranian isolation and encourage alternative Iranian status aspirations. Or the nuclear agreement might contribute to assuaging Iran's security concerns, notably if it were to act as a catalyst for subsequent bilateral US-Iran security reassurance. Hence the nuclear deal's impact should be foreseen mainly insofar as it influences the basic status and security motivations driving Iran's nuclear ambitions—and it remains too early to assess the extent of these effects. Reversal may require several years in Iran's case; meanwhile, the JCPOA could impose enough technical constraints over a decade-and-a-half window for these status and security processes to advance.

In sum, global policies targeting Iran's status and security concerns should be expected to augment the prospects for nuclear reversal. The success of the world community in securing Iran's reversal will potentially hinge upon whether Iranian status interests are addressed, including by bringing Iran into the international diplomatic fold, as well as sufficiently easing Iran's security threats. While numerous political hurdles and intermediate steps can be expected along the way, such a course of action could align Iranian status seeking toward nonnuclear pursuits. These developments can be encouraged by key states willing to take supportive measures. On the Iranian domestic front, the election outcomes of 2013 and 2016 may have been a step toward greater official receptiveness to nonnuclear status ambitions. However, this is not yet fully apparent and the next Iranian president could alter the domestic landscape. As a further observation, it merits reiterating that continuing international support for the nuclear nonproliferation regime is essential to maintaining the strength of the global norm against nuclear proliferation, which in turn is crucial to preserving a situation where nuclear arming is unappealing to most states as they search for status in the world. Therefore the United States and other states should steadfastly support the nonproliferation regime and efforts to discredit nuclear proliferation if the desire is to effectively prevent an Iranian bomb. **SSQ**

Notes

1. An earlier version of this article was presented at the annual convention of the International Studies Association (ISA), San Francisco, CA, 3–6 April 2013. I wish to thank the ISA panel participants as well as the *Strategic Studies Quarterly* editor, Mike Guillot, and reviewers for their helpful comments on earlier versions.

2. International Atomic Energy Agency (IAEA), *Final Assessment on Past and Present Outstanding Issues regarding Iran's Nuclear Programme*, Report by the Director General, GOV/2015/68, 2 December 2015, 15. Iran has maintained that its nuclear activities are not for nuclear arms and that it is exercising its right to peaceful nuclear technology.

3. See Jamie M. Fly and Gary Schmitt, "The Case for Regime Change in Iran," *Foreign Affairs*, 17 January 2012, <http://www.foreignaffairs.com/articles/137038/jamie-m-fly-and-gary-schmitt/the-case-for-regime-change-in-iran>; Matthew Kroenig, "Time to Attack Iran," *Foreign Affairs* 91, no. 1 (January/February 2012): 76–86, <http://www.jstor.org/stable/23217150>. US Pres. Barack Obama previously had suggested that the use of military force could be an option with regard to Iran's nuclear activities, echoing earlier statements by Pres. George W. Bush; see Laura MacInnis, "Obama: No Options Off Table On Iran Nuclear Program," *Reuters*, 25 January 2012, <http://in.reuters.com/article/2012/01/25/usa-obama-speech-iran-idINDEE8004C20120125>.

4. Nuclear negotiations often focused on obtaining Iran's commitment to limit certain sensitive nuclear activities, notably uranium enrichment operations, and persuading Iran to enhance transparency of its nuclear program to build confidence in its peaceful nature. From Iran's side, it notably sought sanctions relief and recognition of its right to the peaceful use of nuclear technology. Sanctions on Iran have been multilateral through the UN Security Council, as well as regional (e.g., EU) and unilateral (e.g., United States).

5. Key provisions of the 2015 Joint Comprehensive Plan of Action (JCPOA), informally the Iran "nuclear deal," include: Iran agreeing to limit its uranium enrichment capacity to 5,060 IR-1 centrifuges at the Natanz Fuel Enrichment Plant for 10 years, with some advanced centrifuges also being introduced over time; Iran pledging to perform uranium enrichment only at the Natanz site; Iran limiting its maximum uranium enrichment level to 3.67 percent for 15 years; Iran reducing its low-enriched uranium stockpile to under 300 kilograms for 15 years; Iran converting its Fordow facility into a nuclear technology center engaging in joint international scientific partnerships; Iran converting the Arak nuclear reactor to limit plutonium production; Iran refraining from reprocessing plutonium for 15 years; Iran increasing the number of designated IAEA inspectors in the country to approximately 130–150; and the comprehensive lifting of all UN Security Council sanctions as well as multilateral and national sanctions related to Iran's nuclear program, and, eventually, restrictions on conventional arms and missile-technology acquisition. Iran's negotiating partners apparently aimed through the nuclear deal to shut off the various possible Iranian pathways to the bomb for a significant period of time, as well as to increase the amount of warning time in case Iran were to attempt to rush to build nuclear weapons.

6. IAEA, *Final Assessment*; James Risen and Mark Mazzetti, "U.S. Agencies See No Move by Iran to Build a Bomb," *New York Times*, 24 February 2012, <http://www.nytimes.com/2012/02/25/world/middleeast/us-agencies-see-no-move-by-iran-to-build-a-bomb.html>; and Office of the Director of National Intelligence (ODNI), *Iran: Nuclear Intentions and Capabilities*, National Intelligence Estimate, November 2007. For recent concerns regarding Iran getting nuclear arms, see for example: David E. Sanger and Michael R. Gordon, "Future Risks of an Iran Nuclear Deal," *New York Times*, 23 August 2015, <https://www.nytimes>

.com/2015/08/24/world/middleeast/in-pushing-for-the-iran-nuclear-deal-obamas-rationale-shows-flaws.html; David Albright, Andrea Stricker, and Serena Kelleher-Vergantini, *Analysis of the IAEA's Report on the Possible Military Dimensions of Iran's Nuclear Program*, Institute for Science and International Security, 8 December 2015; Joni Ernst, "The Danger of the Iran Deal," *CNN.com*, 11 September 2015, <http://edition.cnn.com/2015/09/10/opinions/ernst-iran-nuclear-deal/>; and Barak Ravid, "Netanyahu: Iran Nuclear Deal Makes World Much More Dangerous, Israel Not Bound by It," *Haaretz*, 14 July 2015, <http://www.haaretz.com/israel-news/1.665821>.

7. Overall, it can be argued that a probabilistic understanding of nuclear choices is preferable to a deterministic causal approach; see Sonali Singh and Christopher R. Way, "The Correlates of Nuclear Proliferation: A Quantitative Test," *Journal of Conflict Resolution* 48, no. 6 (2004): 859–85, <http://www.jstor.org/stable/4149798>.

8. Similarly, *nuclear forbearance* refers to when a state is neither wielding nuclear ambitions nor in possession of nuclear bombs.

9. Status is a relational good that is gauged relative to other states. Status is assessed by the state itself or other states or actors, although it can be assumed to roughly correspond to some underlying measure of a state's rank. Status is evaluated with respect to one specific hierarchy or more generally refers to a state's composite status over a number of hierarchies (or dimensions). Different states and actors may place relatively more or less emphasis on certain status hierarchies, perhaps wishing to promote the value of certain forms of status and discredit other hierarchies. Ideational beliefs about what types of status are most appropriate or beneficial are thus relevant. Yet status is conceptualized here as closely linked to material properties or activities. Each of the status categories identified herein should be valued by some percentage of states in the international system. For studies on status in international affairs, see Johan Galtung, "A Structural Theory of Aggression," *Journal of Peace Research* 1, no. 2 (1964): 95–119, <http://www.jstor.org/stable/423250>; T. V. Paul, Deborah Welch Larson, and William C. Wohlforth, eds., *Status in World Politics* (New York: Cambridge University Press, 2014); William C. Wohlforth, "Unipolarity, Status Competition, and Great Power War," *World Politics* 61, no. 1 (2009): 28–57, <http://www.jstor.org/stable/40060220>; J. David Singer and Melvin Small, "The Composition and Status Ordering of the International System: 1815–1940," *World Politics* 18, no. 2 (1966): 236–82, <http://www.jstor.org/stable/2009697>; Reinhard Wolf, "Respect and Disrespect in International Politics: The Significance of Status Recognition," *International Theory* 3, no. 1 (2011): 105–42, <http://doi.org/c2hv96>; David Sylvan, Corinne Graff, and Elisabetta Pugliese, "Status and Prestige in International Relations" (paper prepared for the International Studies Association Meeting, Vienna, September 1998); and Barry O'Neill, *Honor, Symbols, and War* (Ann Arbor: University of Michigan Press, 1999).

10. Jo L. Husbands, "The Prestige States," in *Nuclear Proliferation in the 1980s*, ed. William H. Kincade and Christoph Bertram (New York: St. Martin's, 1982), 112–36; Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security* 21, no. 3 (1996–1997): 54–86, <http://doi.org/dgvzvt>; Richard N. Rosecrance, ed., *The Dispersion of Nuclear Weapons: Strategy and Politics* (New York: Columbia University Press, 1964); George Quester, *The Politics of Nuclear Proliferation* (Baltimore: Johns Hopkins University Press, 1973); and Barry O'Neill, *Nuclear Weapons and National Prestige*, Cowles Foundation Discussion Paper no. 1560 (New Haven, CT: Cowles Foundation for Research in Economics, Yale University, 2006). With regard to the work by Sagan (1996–1997), it can be pointed out that there are similarities between Sagan's description of prestige motivations ("norms model") and our arguments. For instance, both approaches highlight how international stature may be sought through alternative, nonnuclear accomplishments as well as recognize that normative

and historical factors can affect any given state's nuclear priorities. However, the current article can be distinguished in that it emphasizes the drive for status (in different forms) as a nearly universal facet of world politics; it identifies various key status dimensions; it applies the notion of status deficiencies as conceived by sociologists as nuclear motivating factors; and it tries to more broadly account for global patterns of nuclear reversal using status insights. As a definitional matter, it may be noted following Paul et al., *Status in World Politics*, that "status" implies a hierarchy whereas the term "prestige" is not hierarchical.

11. T. V. Paul, *Power Versus Prudence: Why Nations Forgo Nuclear Weapons* (Montreal: McGill-Queen's University Press, 2000); and Ariel E. Levite, "Never Say Never Again: Nuclear Reversal Revisited," *International Security* 27, no. 3 (2002–2003): 59–88, <http://www.jstor.org/stable/3092114>. For more on the relations between a state's security threat environment and its nuclear weapons choices, see Sagan, "Why Do States Build Nuclear Weapons?"; Richard K. Betts, "Paranoids, Pygmies, Pariahs and Nonproliferation Revisited," in *The Proliferation Puzzle*, ed. Zachary S. Davis and Benjamin Frankel (London: Frank Cass, 1993), 100–124; Leonard Beaton and John Maddox, *The Spread of Nuclear Weapons* (New York: Praeger, 1962); Saira Khan, *Nuclear Proliferation Dynamics in Protracted Conflict Regions: A Comparative Study of South Asia and the Middle East* (Aldershot, UK: Ashgate, 2002); Singh and Way, "The Correlates of Nuclear Proliferation."

12. This section draws upon the author's paper, "The Road to Global Nuclear Zero? Why the Nuclear Powers are Unlikely to Follow in South Africa's Footsteps," prepared for the Annual Convention of the International Studies Association, Montreal (March 2011).

13. The nuclear literature often emphasizes external security, domestic, or normative drivers of nuclear weapons choices; see Sagan, "Why Do States Build Nuclear Weapons?" For example, T. V. Paul distinguishes between high, medium, and low conflict regions and anticipates nuclear forbearance when states do not face regional security tensions from protracted conflicts and enduring rivalries; see Paul, *Power Versus Prudence*. Focusing on domestic political-economic aspects, Etel Solingen contends that leaderships advocating global economic integration prefer to avoid risky nuclear weapons pursuits that could impede trade and capital flows, endanger economic reforms, and alienate political constituencies; see Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East* (Princeton, NJ: Princeton University Press, 2007). Differently, Jacques E. C. Hymans attributes states' nuclear weapons preferences to individual leaders' national identity conceptions; see Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy* (Cambridge, UK: Cambridge University Press, 2006). From a normative perspective, Maria Rost Rublee, relying on social psychology and constructivism, unpacks three distinct mechanisms—persuasion, social conformity, and identification—by which the international nuclear nonproliferation norm takes hold within a state; see Maria Rost Rublee, *Nonproliferation Norms: Why States Choose Nuclear Restraint* (Athens, GA: University of Georgia Press, 2009).

14. Galtung, "A Structural Theory of Aggression"; Paul et al., *Status in World Politics*.

15. See for instance Paul et al., *Status in World Politics*; Wohlforth, "Unipolarity"; and Wolf, "Respect and Disrespect in International Politics." For research on the significance of status motivations in human behavior, see Klaus Fliessbach, Bernd Weber, Peter Trautner, Thomas Dohmen, Uwe Sunde, C. E. Elger, and Armin Falk, "Social Comparison Affects Reward-Related Brain Activity in the Human Ventral Striatum," *Science* 23, no. 318 (2007): 1305–1308, <http://doi.org/dqvgb5>; Christoph Loch, Michael Yaziji, and Christian Langen, "The Fight for the Alpha Position: Channeling Status Competition in Organizations," *European Management Journal* 19, no. 1 (2001): 16–25, <http://doi.org/dtrvsr>; and Robert H.

Frank, *Choosing the Right Pond: Human Behavior and the Quest for Status* (New York: Oxford University Press, 1985).

16. Ministry of Foreign Affairs of Japan, *Diplomatic Bluebook 1983* (Tokyo: Ministry of Foreign Affairs, 1983); see in general the *Diplomatic Bluebook* of various years, from 1971 onward, <http://www.mofa.go.jp/policy/other/bluebook/>. The *Diplomatic Bluebooks* refer frequently to Japan's substantial international "status," "standing," and/or "position."

17. Alexei Barrionuevo, "Dancing Into the Evening, Brazil Celebrates Arrival on World Stage," *New York Times*, 3 October 2009, <http://www.nytimes.com/2009/10/04/world/americas/04brazil.html>. As a further example, the Georgian government's foreign policy seeks to "enhance the security and international status of Georgia" and achieve an "appropriate and dignified position in the system of international relations," quotation from the Ministry of Foreign Affairs website, accessed 1 March 2017, <http://www.mfa.gov.ge/MainNav/DiplomatService/MissionValues.aspx?lang=en-US>. Similarly, Singapore has pointed out its intention for the state "to be an extraordinary nation by strengthening . . . our international standing," Ministry of Foreign Affairs statement, 18 January 2016, https://www.mfa.gov.sg/content/mfa/media_centre/press_room/pr/2016/201601/press_20160118.html.

18. Galtung, "A Structural Theory of Aggression."

19. For sociological literature on status consistency/equilibrium, see Gerhard E. Lenski, "Status Crystallization: A Non-Vertical Dimension of Social Status," *American Sociological Review* 19, no. 4 (1954): 405–13, <http://www.jstor.org/stable/2087459>; Edward E. Sampson, "Status Congruence and Cognitive Consistency," *Sociometry* 26, no. 2 (1963): 146–62, <http://doi.org/bt593x>; Moshe Hartman, "On the Definition of Status Inconsistency," *American Journal of Sociology* 80, no. 3 (1974): 706–21, <http://www.jstor.org/stable/2777255>; R. David Smith, "The Career of Status Crystallization: A Sociological Odyssey," *Sociological Research Online* 1, no. 3 (1996), <http://www.socresonline.org.uk/1/3/3.html>; and Samuel B. Bacharach, Peter Bamberger, and Bryan Mundell, "Status Inconsistency in Organizations: From Social Hierarchy to Stress," *Journal of Organizational Behavior* 14, no. 1 (1993): 21–36, <http://www.jstor.org/stable/2488127>.

20. Elton F. Jackson, "Status Consistency and Symptoms of Stress," *American Sociological Review* 27, no. 4 (1962): 470, <http://www.jstor.org/stable/2090028>; Galtung, "A Structural Theory of Aggression."

21. Gary B. Rush, "Status Consistency and Right-Wing Extremism," *American Sociological Review* 32, no. 1 (1967): 86–92, <http://www.jstor.org/stable/2091721>.

22. Galtung, "A Structural Theory of Aggression," 111.

23. *Ibid.*, 100.

24. External constraints on upward status mobility may reinforce this frustration.

25. Two main assumptions are made here. First, states wish to demonstrate status as a central impulse in international affairs. Second, international politics can be conceived of as a stratified social realm of interacting units (states). We do not aim to test a full-fledged status inconsistency theory as sociologists have done; instead, we identify the status deficiencies most likely to spur dissatisfaction and hence favorability to having nuclear weapons.

26. Nuclearization also appears to be influenced by external security factors (notably interstate disputes, nuclear rivals, and lack of a security guarantee from a nuclear power), international nuclear norms (especially norms in the early nuclear age relating nuclear arms to military and scientific-technical prowess), and technical opportunity factors; see Andrew Prosser, "Nuclearization and Its Discontents: Status, Security, and the Pathways to Nuclear Reversal" (PhD diss., Graduate Institute of International and Development Studies, Geneva, 2010).

27. Klaus Schubert, "France," in *Security With Nuclear Weapons? Different Perspectives on National Security*, ed. Regina Cowen Karp (Oxford, UK: Oxford University Press, 1991), 173.

28. Jaswant Singh, "Against Nuclear Apartheid," *Foreign Affairs* 77, no. 5 (1998): 41–52, <http://doi.org/cwcp5>.

29. States may be stymied in their efforts to improve diplomatic status given the strong dependence of this form of status on other states. Thus low diplomatic status often elicits frustration. Isolated states envisage little status to be lost, and likely much to gain, by challenging the nuclear status quo.

30. Isolated states such as Israel, South Africa, and North Korea acquired nuclear arms and other former pariahs, including South Korea and Taiwan, have had past nuclear ambitions; see Betts, "Paranoids, Pygmies, Pariahs." However, sociological status reasons for this trend are underexplored.

31. Democratic People's Republic of Korea (DPRK), Statement by the Foreign Ministry (Pyongyang), 3 October 2006, http://www.europarl.europa.eu/meetdocs/2004_2009/documents/fd/dkor20061010_0015/dkor20061010_0015en.pdf.

32. As suggested earlier, these preferences can partly reflect state-specific historical and cultural attributes.

33. See for example: Victor A. Utgoff, ed. *The Coming Crisis: Nuclear Proliferation, U.S. Interests, and World Order* (Cambridge, MA: MIT Press, 2000); Thomas C. Reed and Danny B. Stillman, *The Nuclear Express: A Political History of the Bomb and Its Proliferation* (Minneapolis, MN: Zenith Press, 2009); Ariel E. Levite, *Heading for the Fourth Nuclear Age*, IFRI Security Studies Center Proliferation Paper (Paris: Institut Français des Relations Internationales, 2009); Eric Gartzke and Matthew Kroenig, "A Strategic Approach to Nuclear Proliferation," *Journal of Conflict Resolution* 53, no. 2 (2009): 151–60, <http://www.jstor.org/stable/20684579>; Gordon Corera, *Shopping for Bombs: Nuclear Proliferation, Global Insecurity, and the Rise and Fall of the A.Q. Khan Network* (Oxford, UK: Oxford University Press, 2006); Chaim Braun and Christopher F. Chyba, "Proliferation Rings: New Challenges to the Nuclear Nonproliferation Regime," *International Security* 29, no. 2 (2004): 5–49, <http://www.jstor.org/stable/4137585>; and Leonard Spector, *Going Nuclear* (Cambridge, MA: Ballinger, 1987). The relatively smaller body of literature which has focused wholly or partly on nuclear restraint includes: Paul, *Power Versus Prudence*; Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*; Mitchell Reiss, *Bridled Ambition: Why Countries Constrain their Nuclear Capabilities* (Washington, DC: Woodrow Wilson Center, 1995); Mitchell Reiss, *Without the Bomb: The Politics of Nuclear Nonproliferation* (New York: Columbia University Press, 1988); Rublee, *Nonproliferation Norms*; James Joseph Walsh, "Bombs Unbuilt: Power, Ideas, and Institutions in International Politics," PhD diss., Massachusetts Institute of Technology, 2001; and Levite, "Never Say Never Again."

34. For the purpose of this article, a state may nuclearize in any given year to one of three distinct levels: (1) executive deliberation of the possibility or utility of acquiring nuclear weapons and/or authorization of research with nuclear weapons applications to be conducted for defense purposes rather than for purely civilian ends (*nuclear deliberation*); (2) authorization of nuclear weapons acquisition (*nuclear pursuit*); or (3) possession of nuclear weapons (*nuclear possession*). Nuclear *aspirations* or *ambitions* indicate the state is either a nuclear deliberator or a pursuer. This scheme is adapted from Singh and Way, "The Correlates of Nuclear Proliferation."

35. In addition, the three post-Soviet states of Belarus, Kazakhstan, and Ukraine all rid themselves of the nuclear weapons on their territory during the 1990s and hence may offer some relevant insights regarding nuclear reversal incentives. For example, authors have pointed out that Ukraine gave up its nuclear weapons in part because Ukrainian officials viewed nuclear

renunciation as a better route to international standing than keeping the weapons; see Sagan, "Why Do States Build Nuclear Weapons?," 81; and William C. Potter, *The Politics of Nuclear Renunciation: The Cases of Belarus, Kazakhstan, and Ukraine*, Henry L. Stimson Center Occasional Paper no. 22 (Washington, DC: Stimson Center, 1995), 44. However these three states cannot be considered as cases of reversal per se since they did not operationally control their nuclear weapons and their arsenals were obtained not due to their independent sovereign decision but rather under the Soviet program.

36. Levite, "Never Say Never Again," 69.

37. The reversal pathways are ideal-types, to which specific states may conform to varying degrees. Hybrid combinations of multiple pathways may be possible. Each pathway is expected to increase the likelihood of nuclear reversal rather than embodying a deterministic causal path.

38. In particular, pathway 1 stipulates that a state's diplomatic isolation level fall below one-half. This measure uses diplomatic isolation data which account for (absence of) diplomatic recognition from neighboring states and major powers. The data come from Dong-Joon Jo and Erik Gartzke, "Determinants of Nuclear Weapons Proliferation," *Journal of Conflict Resolution* 51, no. 1 (2007): 167–94, <http://www.jstor.org/stable/27638542>.

39. Interstate disputes are measured with data indicating the five-year moving average of the number of militarized interstate disputes per year for each state; Singh and Way, "The Correlates of Nuclear Proliferation." These data draw on the Correlates of War militarized dispute data, <http://www.correlatesofwar.org/>. Other security developments such as nuclear rivalries ending and a security alliance with a nuclear-armed power could impact reversal in some cases, but these factors are not included in the reversal pathways.

40. In particular, a decline in a state's interstate dispute average to one-half the highest level since its nuclear ambitions emerged is a critical threshold.

41. Notably, South Africa's level of diplomatic isolation in the 1970s and 1980s was substantially higher than in the two preceding decades and its participation in international organizations had fallen from 40 organizations to just two by 1972; see Helen E. Purkitt and Stephen F. Burgess, "South Africa's Nuclear Decisions," letter to the editor, subject: "The Rise and Fall of the South African Bomb" by Peter Liberman *International Security* 27, no. 1 (2002): 187, <http://www.jstor.org/stable/3092157>. Similarly, South Africa was denied participation in the UN General Assembly in 1974, contributing to its perceived diplomatic estrangement.

42. Robert S. Jaster, *The Defence of White Power: South African Foreign Policy under Pressure* (London: Macmillan, 1988), 32.

43. James Barber and John Barratt describe South Africa's failure "to rid itself of the stigma of racism or improve its international status. Its hopes of transforming the situation on the foundation of the outward policy and dialogue were dashed. . . . In its frustration it talked of establishing a new international role, of turning its back on the West"; see James Barber and John Barratt, *South Africa's Foreign Policy: The Search for Status and Security 1945–1988* (Cambridge, UK: Cambridge University Press, 1990), 152. South African Foreign Minister Hilgard Muller spoke of an "international vendetta" being waged against the country while also emphasizing South Africa's prominence as a major trading nation; *ibid.*, 155; and D. J. van Vuuren, "South Africa's Foreign Policy and International Practice during 1976 as Reflected Mainly in Speeches, Statements and Replies by the Government in Parliament," in *South African Yearbook of International Law* (Pretoria: University of South Africa, 1976), 317.

44. Henk Botha, "South Africa's Foreign Policy and International Practice – 1990," in *South African Yearbook of International Law* (Pretoria: University of South Africa, 1990–1991), 191.

45. In this regard, de Klerk stated in 2006: “I wanted South Africa to return as soon as possible to the international arena, and I wanted to convince the rest of the world that we really were not playing with words, we really were prepared to undertake negotiations which would result in fundamental change. I wanted to achieve international support for the change process in South Africa, and I wanted to ensure that the leading countries of the world would keep an eye over the negotiation process and that if [there were] a threat of the negotiations deteriorating into further conflict, then they would step in to assure that a negotiated solution is guaranteed.” “Q & A: F. W. de Klerk on Iran, Nukes,” *Newsweek*, 12 May 2006, <http://europe.newsweek.com/qa-f-w-de-klerk-iran-nukes-109987?rm=eu>.

46. De Klerk would later state: “A nuclear deterrent had become not only superfluous, but in fact an obstacle to the development of South Africa’s international relations.” Anne-Marie Kriek, “South Africa’s Foreign Policy and International Practice – 1992 – an Analysis,” in *South African Yearbook of International Law* (Pretoria: University of South Africa, 1992–1993), 204.

47. For literature on middle states (powers), see: Andrew Hurrell, Andrew F. Cooper, Guadalupe González González, Ricardo Ubiraci Sennes, and Srinu Sitaraman, *Paths to Power: Foreign Policy Strategies of Intermediate States*, Latin American Program Working Paper no. 244 (Washington, DC: Woodrow Wilson International Center for Scholars, 2000); Andrew F. Cooper, Richard A. Higgott, and Kim Richard Nossal, *Relocating Middle Powers: Australia and Canada in a Changing World Order* (Vancouver, Canada: University of British Columbia Press, 1993); Laura Neack, “Middle Powers Once Removed: The Diminished Global Role of Middle Powers and American Grand Strategy” (paper prepared for the Annual Convention of the International Studies Association, Los Angeles, CA, March 2000); and Yolanda Kemp Spies, “Middle Power Diplomacy,” in *The Sage Handbook of Diplomacy*, ed. Costas M. Constantinou, Pauline Kerr, and Paul Sharp (London: Sage, 2016), 281–93. Middle states also tend to be democratic states that stand to benefit in significant ways from the existing international political and economic order. I use the term “middle states” to preclude any conceptual ambiguities surrounding the term “middle powers”; see Hurrell et al., *Paths to Power: Foreign Policy Strategies of Intermediate States*. On “soft power,” see Joseph S. Nye Jr., “Soft Power,” *Foreign Policy* 80 (1990): 153–71, <http://www.jstor.org/stable/1148580>; Joseph S. Nye Jr., *Soft Power: The Means to Success in World Politics* (New York: PublicAffairs, 2004).

48. Middle state status preferences are often molded by specific historical, geographical, and/or cultural influences, which could variously include: previous wars, proximity to or relations with major powers, or other significant national experiences.

49. I classify Finland, Denmark, Norway, Sweden, Australia, Canada, and Switzerland as middle states, in line with the literature on middle states which regularly mentions the Scandinavian states, Australia, Canada, and Switzerland. This categorization, albeit somewhat rough, aligns with our conceptualization of middle state status priorities.

50. Sweden’s inclinations toward diplomatic compromise, respect for the rule of law, and reformism stemmed partly from Swedish Social Democratic values as well as costly past experience with great power conflicts in earlier centuries, which had only harmed Sweden’s interests; see for example Paul M. Cole, *Atomic Bombast: Nuclear Weapon Decisionmaking in Sweden, 1945–1972*, Henry L. Stimson Center Occasional Paper no. 26 (Washington, DC: Stimson Center, 1996), 7.

51. Christine Agius, *The Social Construction of Swedish Neutrality: Challenges to Swedish Identity and Sovereignty* (Manchester, UK: Manchester University Press, 2006), 108.

52. Data on military expenditure as a share of GDP come from the Stockholm International Peace Research Institute (SIPRI), SIPRI Military Expenditure Database, http://www.sipri.org/research/armaments/milex/milex_database. Some additional pre-1980s data are ob-

tained from SIPRI, *SIPRI Yearbook 1980* (London: Taylor and Francis, 1980). Two additional indicators are also relevant: (1) a government shift from military to civilian hands (i.e., when the highest executive officeholder changes from a military to a civilian official); and (2) constitutional restrictions that substantially limit the military's activities. Due to data limitations, the two supplementary indicators are not comprehensively coded for all states.

53. Gamaliel Perruci, "The North-South Security Dialogue in Brazil's Technology Policy," *Armed Forces & Society* 21, no. 3 (1995): 372, <http://doi.org/brzm8c>.

54. H. Jon Rosenbaum, "Brazil's Nuclear Aspirations," in *Nuclear Proliferation and the Near-Nuclear Countries*, ed. Onkar Marwah and Ann Schulz (Cambridge, MA: Ballinger, 1975), 268; Paul, *Power Versus Prudence*, 110.

55. Jean Krasno, "Brazil's Secret Nuclear Program," *Orbis* 38, no. 3 (1994): 431, <http://doi.org/b9xbh2>; see also Leonard Spector, *Going Nuclear* (Cambridge, MA: Ballinger, 1987). Michael Barletta similarly concludes that a fundamental motivation for Brazil's military nuclear program "was that it was viewed by military officers as a means to realize their ambition to enhance Brazil's international stature." Barletta, *The Military Nuclear Program in Brazil* (Stanford, CA: Center for International Security and Arms Control, 1997), 16.

56. John R. Redick, *Nuclear Illusions: Argentina and Brazil*, Henry L. Stimson Center Occasional Paper no. 25 (Washington, DC: Stimson Center, 1995), 19–20; and John R. Redick, Julio C. Carasales, and Paulo S. Wrobel, "Nuclear Rapprochement: Argentina, Brazil, and the Nonproliferation Regime," *The Washington Quarterly* 18, no. 1 (1994): 107–122, <http://doi.org/ctmmcz>.

57. This norm is defined as a commonly held belief among states that nuclear weapons acquisition violates standards of appropriate behavior in world politics; cf. Martha Finnemore and Kathryn Sikkink, "International Norm Dynamics and Political Change," *International Organization* 52, no. 4 (1998): 887–917, <http://www.jstor.org/stable/2601361>; and Peter J. Katzenstein, ed., *The Culture of National Security: Norms and Identity in World Politics* (New York: Columbia University Press, 1996).

58. Notably, the Cuban missile crisis in the early 1960s was a factor in disrupting prevailing nuclear norms and augmenting the status costs of nuclear weapons.

59. The nuclear nonproliferation norm can be traced to the 1960s. An Irish UN General Assembly resolution was adopted in 1961 calling for measures to halt the spread of nuclear arms; see Emily Bailey, Richard Guthrie, Darryl Howlett, and John Simpson, *PPNN Briefing Book, vol. I, The Evolution of the Nuclear Non-Proliferation Regime* (Southampton, UK: Programme for Promoting Nuclear Non-Proliferation, 2000). Furthermore, the Nuclear Non-Proliferation Treaty (NPT) was negotiated during the 1960s, with its adoption taking place in 1968.

60. The major powers are states that reach high composite power, economic, and population levels and are permanent UN Security Council members. For recent years, the major powers include the United States, Russia, United Kingdom, France, and China. For coding details regarding major powers, near-major powers, and non-powers, see Prosser, "Nuclearization and Its Discontents."

61. Nor do the reversal pathways apply to near-major power nuclear possessors (i.e. India). However they do appear to apply to non-possessor near-major powers such as Brazil, Germany, and Japan—and likely Iran.

62. For further discussion of the major powers' nuclear logics and the potential for nuclear disarmament, see Prosser, "Nuclearization and Its Discontents," chap. 10; and Prosser, "The Road to Global Nuclear Zero?"

63. For coding details, see Prosser, "Nuclearization and Its Discontents."

64. For statistical and case study evidence in support of the article's theoretical arguments, see *ibid.*

65. David Albright and Andrea Stricker, "Iran's Nuclear Program," in *The Iran Primer: Power, Politics, and U.S. Policy*, ed. Robin Wright (Washington, DC: United States Institute of Peace, 2010), 77–81; IAEA, Research Reactor Database, <https://nucleus.iaea.org/RRDB/RR/ReactorSearch.aspx>.

66. Joseph Cirincione, Jon B. Wolfsthal, and Miriam Rajkumar, *Deadly Arsenal* (Washington, DC: Carnegie Endowment for International Peace, 2005), 298; Shyam Bhatia, *Nuclear Rivals in the Middle East* (New York: Routledge, 1988), 83. Iran placed orders with West German and French entities in the 1970s for the supply of nuclear energy technology, including the construction of two nuclear power reactors at Bushehr.

67. On the alleged secret nuclear arms project comprising weapons design and computer analyses, see Spector, *Going Nuclear*; and Bhatia, *Nuclear Rivals in the Middle East*, 82–85. The Shah reportedly stated to a French interviewer that Iran would one day possess nuclear arms "without a doubt and sooner than one would think," but this statement was later refuted; see John K. Cooley, "More Fingers on the Nuclear Trigger?," *Christian Science Monitor*, 25 June 1974, as quoted in Anne Hessing Cahn, "Determinants of the Nuclear Option: The Case of Iran," in *Nuclear Proliferation and the Near-Nuclear Countries*, ed. Onkar Marwah and Ann Schulz (Cambridge, MA: Ballinger, 1975), 199.

68. Zubeida Malik, "The Man Who Turned Iran Nuclear," *BBC News*, 28 March 2013, <http://www.bbc.com/news/world-middle-east-21938310>. Former Iranian Foreign Minister Ardeshir Zahedi has said that the Shah's strategy was to create a nuclear option consisting of "the know-how, the infrastructure and the personnel needed to develop a nuclear military capacity within a short time without actually doing so. . . . The assumption within the policy-making elite was that Iran should be in a position to develop and test a nuclear device within 18 months"; see Ray Takeyh, *Hidden Iran: Paradox and Power in the Islamic Republic* (New York: Times Books/Henry Holt, 2006), 136.

69. Rodney W. Jones, Mark G. McDonough, Toby F. Dalton, and Gregory D. Koblenz, *Tracking Nuclear Proliferation: A Guide in Maps and Charts, 1998* (Washington, DC: Carnegie Endowment for International Peace, 1998), 169.

70. Solingen, *Nuclear Logics*, 164; and Albright and Stricker, "Iran's Nuclear Program," 78.

71. David Rohde and David E. Sanger, "Key Pakistani Is Said to Admit Atom Transfers," *New York Times*, 2 February 2004: A1, <http://www.nytimes.com/2004/02/02/world/key-pakistani-is-said-to-admit-atom-transfers.html>.

72. The Bushehr reactor was later completed and was connected to the power grid in 2011, under IAEA safeguards and with nuclear fuel from Russia; see IAEA Power Reactor Information System (PRIS), <https://www.iaea.org/PRIS/CountryStatistics/ReactorDetails.aspx?current=310>; and Albright and Stricker, "Iran's Nuclear Program," 79.

73. See for example: IAEA, *Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran*, Report by the Director General, GOV/2003/75, 10 November 2003, 9–10; IAEA, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions 1737 (2006), 1747 (2007) and 1803 (2008) in the Islamic Republic of Iran*, Report by the Director General, GOV/2008/15, 26 May 2008, 3–5; and IAEA, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*, Report by the Director General, GOV/2011/65, 8 November 2011, 10, annex. In 2006, the IAEA transmitted its dossier on Iran to the UN Security Council, which expressed concern at the possibility of military nuclear activities in Iran; see United Nations Security Council, Resolution 1696, S/RES/1696, 31 July 2006, 1.

74. IAEA, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*, Report by the Director General, GOV/2013/6, 21 February 2013, 9.

75. IAEA, *Final Assessment*.

76. Ibid.; statement of James R. Clapper, director of National Intelligence, *Worldwide Threat Assessment of the US Intelligence Community*, to the US Senate Select Committee on Intelligence, 9 February 2016, 8, https://www.dni.gov/files/documents/SSCI_Unclassified_2016_ATA_SFR%20_FINAL.pdf; Risen and Mazzetti, "U.S. Agencies See No Move by Iran to Build a Bomb"; and ODNI, *Iran: Nuclear Intentions and Capabilities*. Page 15 of the IAEA's report states: "The Agency assesses that a range of activities relevant to the development of a nuclear explosive device were conducted in Iran prior to the end of 2003 as a coordinated effort, and some activities took place after 2003. The Agency also assesses that these activities did not advance beyond feasibility and scientific studies, and the acquisition of certain relevant technical competences and capabilities. The Agency has no credible indications of activities in Iran relevant to the development of a nuclear explosive device after 2009."

77. This period of nuclear pursuit is broadly compatible with recent IAEA assessments and it is in line with the November 2007 US National Intelligence Estimate that noted Iran pursued nuclear weapons "from at least the late 1980s to 2003."

78. As noted earlier, the data used here indicate the five-year moving average of the number of militarized interstate disputes per year for a given state.

79. It can also be noted that Britain's military presence in the region diminished as of the early 1970s.

80. Anthony H. Cordesman, *After the Storm: The Changing Military Balance in the Middle East* (London: Bloomsbury, 2016), 381. The Shah's purported aspirations towards regional primacy for Iran in the Gulf may also have been a factor driving this military buildup; see Roham Alvandi, "Nixon, Kissinger, and the Shah: the Origins of Iranian Primacy in the Persian Gulf," *Diplomatic History* 36, no. 2 (2012): 337–72, <http://doi.org/b2j5>.

81. For example, the United States attacked Iranian oil platforms and destroyed an Iranian frigate and other naval vessels in the Persian Gulf in 1987–1988 during Operation Nimble Archer and Operation Praying Mantis, in retaliation for Iran's attacks on Kuwaiti oil tankers and its use of sea mines; see Dan Lamothe, "A Brief History of Iran-U.S. Naval Altercations as Tensions Rise near Yemen," *Washington Post*, 21 April 2015, https://www.washingtonpost.com/news/checkpoint/wp/2015/04/21/a-brief-history-of-iran-u-s-naval-altercations-as-tensions-rise-near-yemen/?utm_term=.1ded074de23d; and "Operation Praying Mantis," GlobalSecurity.org, accessed 3 March 2017, http://www.globalsecurity.org/military/ops/praying_mantis.htm.

82. Specifically, Iran's interstate dispute average climbed to 9.6 in 1988.

83. Saddam Hussein after the 1991 Persian Gulf War "purposely gave an ambiguous impression about [Iraqi WMD] possession as a deterrent to Iran"; Iraq Survey Group (ISG), *Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD* (Duelfer Report), vol. I (Regime Strategy) (Washington, DC: United States Government Printing Office, 2004), 9, https://www.cia.gov/library/reports/general-reports-1/iraq_wmd_2004/transmittal.html.

84. "Bush Says all Options on Table on Iran," *Reuters*, 19 June 2007, <http://www.reuters.com/article/2007/06/19/us-usa-iran-idUSN1945300920070619>; and MacInnis, "Obama: No Options Off Table On Iran Nuclear Program."

85. Khamenei stated: "Regarding atomic energy, we need it now. . . . Our nation has always been threatened from outside. The least we can do to face this danger is to let our enemies know that we can defend ourselves. Therefore, every step you take here is in defense

of your country and your [r]evolution. With this in mind, you should work hard and at great speed." See "Nuclear Weapons – Iranian Statements," GlobalSecurity.org, <http://www.globalsecurity.org/wmd/world/iran/nuke2.htm>.

86. Quoted in *Dealing with Iran's Nuclear Program*, International Crisis Group Middle East Report no. 18 (Amman/Brussels: ICG, 2003), 12, <https://d2071andvip0wj.cloudfront.net/18-dealing-with-iran-s-nuclear-program.pdf>.

87. UN General Assembly, "Letter dated 17 March 2006 from the Permanent Representative of the Islamic Republic of Iran to the United Nations addressed to the Secretary-General," A/60/730, 22 March 2006, 2, http://repository.un.org/bitstream/handle/11176/18370/A_60_730%3bS_2006_178-EN.pdf?sequence=21&isAllowed=y.

88. Roy Gutman, "Poll Shows Iranians Support Uranium-enrichment Program," McClatchy Newspapers, 24 January 2007, <http://www.mcclatchydc.com/latest-news/article24461023.html>.

89. See Glenn Kessler, "In 2003, U.S. Spurned Iran's Offer of Dialogue," *Washington Post*, 18 June 2006: A16, <http://www.washingtonpost.com/wp-dyn/content/article/2006/06/17/AR2006061700727.html>; Government of Iran, "Proposal By Iran Presented to Political and Security Working Group Geneva – January 17, 2005," Proposal to the EU3/Iran Political and Security Working Group, 17 January 2005.

90. Ray Takeyh, "Iranian Options: Pragmatic Mullahs and America's Interests," *The National Interest* 73 (Fall 2003), 53, <http://www.jstor.org/stable/42895640>.

91. David Cortright and George A. Lopez, "Bombs, Carrots, and Sticks: The Use of Incentives and Sanctions," *Arms Control Today* 35 (March 2005): 19–24, <http://www.jstor.org/stable/23627336>.

92. Alireza Nader, "Influencing Iran's Decisions on the Nuclear Program," in *Sanctions, Statecraft, and Nuclear Proliferation*, ed. Etel Solingen (Cambridge, UK: Cambridge University Press, 2012), 211. The weight of Iran's external security environment upon its nuclear choices is echoed by T. V. Paul, who argues that Iran is interested in nuclear weapons as a means to deter aggression by regional adversaries; T. V. Paul, "Disarmament Revisited: Is Nuclear Abolition Possible?," *Journal of Strategic Studies* 35, no. 1 (2012): 149–69, <http://doi.org/b2jq>.

93. As noted above, our data reflect diplomatic recognition from neighboring states and the major powers.

94. Iran's diplomatic exclusion in the second half of the 1980s reached one-fifth of neighboring states and major powers not extending diplomatic relations, while this figure lessened in the 1990s. Symptomatic of Iran's isolation during the Iran-Iraq War was the fact that Iran was the target of an international arms embargo led by the United States whereas Iraq received conventional arms supplies from several states; see Geoffrey Kemp, "How to Stop the Iranian Bomb," *The National Interest* 72 (Summer 2003): 48–58, <http://www.jstor.org/stable/42897482>.

95. Iran often denounced the international sanctions imposed on it, which comprised travel bans on officials involved in the nuclear program, an arms embargo, financial sanctions, an oil embargo by the European Union, and other penalties. Iran sought sanctions relief in nuclear negotiations, proposals for which frequently did not meet Iran's expectations; see "History of Official Proposals on the Iranian Nuclear Issue," Arms Control Association, January 2014, http://www.armscontrol.org/factsheets/Iran_Nuclear_Proposals.

96. Notably, Iran and the United States have not maintained bilateral diplomatic relations with one another for decades. Admittedly, Iran has forestalled extreme isolation to an extent, having maintained or established diplomatic relations with states, for example, from Europe and the global South.

97. In fact, Iranian politicians often highlight in their speeches the great and unique nature of Iran's accomplishments and capacities as a nation and people.

98. Statement of George Perkovich, in "Iran: Weapons Proliferation, Terrorism and Democracy," testimony before the United States Senate Foreign Relations Committee, 19 May 2005, 8, <http://www.foreign.senate.gov/imo/media/doc/PerkovichTestimony050519.pdf>.

99. Craig Whitlock and Liz Sly, "For Iran and Saudi Arabia, Simmering Feud Is Rooted in History," *Washington Post*, 11 October 2011, https://www.washingtonpost.com/world/national-security/for-iran-and-saudi-arabia-simmering-feud-is-rooted-in-history/2011/10/11/gIQAh-YugdL_story.html.

100. On nuclear opacity, see Avner Cohen and Benjamin Frankel, "Opaque Nuclear Proliferation," *Journal of Strategic Studies* 13, no. 3 (1990): 14–44, <http://doi.org/fb4j7b>. For additional studies on South Africa's nuclear motivations, see Prosser, "Nuclearization and Its Discontents," chap. 9; Prosser, "The Road to Global Nuclear Zero?"; Peter Liberman, "The Rise and Fall of the South African Bomb," *International Security* 26, no. 2 (Fall 2001): 45–86, <http://www.jstor.org/stable/3092122>; and Waldo Stumpf, "South Africa's Nuclear Weapons Program: From Deterrence to Dismantlement," *Arms Control Today* 25, no. 10 (December 1995/January 1996): 3–8, https://www.armscontrol.org/system/files/ACT_South%20Africa_9601.pdf.

101. See for example, "Zarif: Iran Top Regional Power," *Iran Daily*, 30 October 2016, <http://www.iran-daily.com/News/171212.html>; and Luciano Zaccara, "Iran's Permanent Quest for Regional Power Status," in *Diplomatic Strategies of Nations in the Global South*, ed. Jacqueline Anne Braveboy-Wagner (New York: Palgrave Macmillan, 2016), 181–211.

102. Thomas Erdbrink, "A Deeply Polarized Iran Prepares to Choose a President," *Washington Post*, 12 June 2009, <http://www.washingtonpost.com/wp-dyn/content/article/2009/06/11/AR2009061104106.html>.

103. Thomas Juneau, *Squandered Opportunity: Neoclassical Realism and Iranian Foreign Policy* (Stanford, CA: Stanford University Press, 2015), 83.

104. For example, former IRGC commander Mohsen Rezai stated in 2007 that it is Iran's "principal and indisputable right to become a regional power"; as quoted in Mohsen M. Milani, "Tehran's Take: Understanding Iran's U.S. Policy," *Foreign Affairs* 88, no. 4 (July/August 2009): 46–62, <http://www.jstor.org/stable/20699621>.

105. Robert Lowe and Claire Spencer, eds., *Iran, its Neighbours and the Regional Crises* (London: Chatham House, 2006), 8.

106. Bahman Baktiari, "Seeking International Legitimacy: Understanding the Dynamics of Nuclear Nationalism in Iran," in *Nuclear Politics in Iran*, ed. Judith S. Yaphe (Washington, DC: Institute for National Strategic Studies, National Defense University, 2010), 23, <http://ndupress.ndu.edu/Portals/68/Documents/stratperspective/middle-east/middleEastPerspectives-1.pdf>.

107. Juneau, *Squandered Opportunity*, 83. In addition, Shahram Chubin points out that "Iranians believe that the United States . . . misses no opportunity to deny it its rightful role and to weaken it"; see Chubin, *Iran's Nuclear Ambitions* (Washington, DC: Carnegie Endowment for International Peace, 2006), 14. Also see Shashank Joshi, *The Permanent Crisis: Iran's Nuclear Trajectory* (New York: Routledge, 2012), 13.

108. Rahman Ghahremanpour, "Iran Looking West: Identity, Rationality and Iranian Foreign Policy," in *Iran and the West: Regional Interests and Global Controversies*, ed. Rouzbeh Parsi and John Rydqvist, FOI Special Report (Stockholm: FOI, 2011), 56.

109. Juneau, *Squandered Opportunity*, 84.

110. Joshi, *The Permanent Crisis*, 43. As Bahman Baktiari writes, "Shi'ite history reinforces this deep sense of victimization. . . . The relevance of this identity is not lost on Iranian politicians." Baktiari, "Seeking International Legitimacy," 23.

111. See “Iran Press: Rafsanjani’s Statement Outlines Reasons behind Candidacy Decision,” *Iran*, 11 May 2005, in BBC Monitoring, 14 May 2005, as quoted in Chubin, *Iran’s Nuclear Ambitions*, 152. On Iranian leaders’ desire for respect for Iran, see Baktiari, “Seeking International Legitimacy,” 23.

112. Clapper, *Worldwide Threat Assessment of the US Intelligence Community*.

113. Mark Fitzpatrick, “Lessons Learned from Iran’s Pursuit of Nuclear Weapons,” *The Nonproliferation Review* 13, no. 3 (2006): 527–37, <http://doi.org/dfqnhm>.

114. Chubin, *Iran’s Nuclear Ambitions*, 137.

115. Juneau, *Squandered Opportunity*, 81.

116. Chubin, *Iran’s Nuclear Ambitions*, 16.

117. Additionally, while not emphasized here as a primary explanation of Iranian nuclear aspirations, it is interesting to note that domestic military legitimacy and influence appears to broadly correspond with Iran’s nuclear ambitions in recent decades. Thus the military under the shah was lavished with expensive weapons systems and its budget grew enormously for much of the 1970s; see John P. Miglietta, *American Alliance Policy in the Middle East, 1945–1992* (Lanham, MD: Lexington Books, 2002), 95. Subsequently, the military gained legitimacy during the Iran-Iraq War and the Islamic Revolutionary Guard Corps’ (IRGC) influence in Iranian politics and society flourished especially as of the 1990s. See Nikola B. Schahgaldian, *The Iranian Military Under the Islamic Republic* (Santa Monica, CA: RAND, 1987), 36–38; Alireza Nader, “The Revolutionary Guards,” in *The Iran Primer: Power, Politics, and U.S. Policy*, ed. Robin Wright (Washington, DC: United States Institute of Peace, 2010), 59–61; and Greg Bruno and Jayshree Bajoria, “Iran’s Revolutionary Guards,” Council on Foreign Relations, 12 October 2011, <http://www.cfr.org/iran/irans-revolutionary-guards/p14324>. Military legitimacy within a state may reinforce power status seeking; the link between military legitimacy and status priorities is expounded below in the context of nuclear reversal.

118. See Ghahremanpour, “Iran Looking West”; and R. K. Ramazani, *Independence Without Freedom: Iran’s Foreign Policy* (Charlottesville, VA: University of Virginia Press, 2013).

119. See Zaccara, “Iran’s Permanent Quest for Regional Power Status”; and Ghahremanpour, “Iran Looking West,” 54. Iran’s autonomy status is interconnected as well with the crucial regime goal of achieving legitimacy, both internally and in Iran’s external affairs. On the official Iranian interest in gaining legitimacy for Iran, see Baktiari, “Seeking International Legitimacy.”

120. E’TEMAD-E MELLI, 7 October 2006, as paraphrased in Solingen, *Nuclear Logics*, 169.

121. Bruce W. Jentleson and Christopher A. Whytock, “Who ‘Won’ Libya? The Force-Diplomacy Debate and Its Implications for Theory and Policy,” *International Security* 30, no. 3 (Winter 2005/2006): 48, <http://www.jstor.org/stable/4137487>.

122. Rublee, *Nonproliferation Norms*, 161.

123. “President on Peaceful Use of Nuclear Power,” IRNA (Tehran), 2 January 1996, in FBIS Document FTS 19960102000270; as quoted in Nuclear Threat Initiative, “Iran Nuclear Chronology,” 2 January 1996, <http://www.nti.org>.

124. See Tom Miles, “Iran, Biggest Economy Outside WTO, Says It’s Ready to Join,” *Reuters*, 17 December 2015, <http://www.reuters.com/article/us-iran-wto-idUSKBN0U02NZ20151217>.

125. On status accommodation, see Paul, et al., *Status in World Politics*; and T. V. Paul, ed., *Accommodating Rising Powers: Past, Present, and Future* (Cambridge, UK: Cambridge University Press, 2016).

126. Iran has cooperated with the United States in the effort to secure Afghanistan against the Taliban; see Dina Esfandiary and Ariane Tabatabai, “Iran’s ISIS Policy,” *International Affairs* 91, no. 1 (2015): 1–15, <http://doi.org/b2hw>. Additionally the United States and Iran have held

joint talks to address Iraq security issues, for instance in 2007 and 2008 during the George W. Bush administration.

127. For example, in Iran these domestic actors may consist of hard-line clerics and so-called principlist conservative officials who define themselves and the regime's legitimacy based on opposition to the West and the current international order; others may be segments of the IRGC and perhaps the atomic research establishment.

128. Iran's diplomatic isolation and interstate dispute figures actually satisfied our formal threshold for nuclear reversal for some years in the 1990s. This is in line with our understanding that the reversal pathways are associated with an increased likelihood of reversal, rather than deterministic causation. Limited data coverage results in a less complete empirical picture more recently.

129. Although admittedly not Iran's regular military, the IRGC plays a role in both external and internal security in Iran and has land, sea, and air forces of up to 150,000 members; Nader, "The Revolutionary Guards." It is useful to point out that the IRGC plays a noteworthy role in Iran's nuclear and missile programs.

130. Shahram Chubin, "Iran: Domestic Politics and Nuclear Choices," in *Strategic Asia 2007-2008: Domestic Political Change and Grand Strategy*, ed. Ashley J. Tellis and Michael Wills (Seattle, WA: National Bureau of Asian Research, 2007), 315–16.

131. Chubin, "Iran: Domestic Politics and Nuclear Choices," 316; Judith S. Yaphe and Charles D. Lutes, *Reassessing the Implications of a Nuclear-Armed Iran*, McNair Paper no. 69 (Washington, DC: National Defense University, 2005), 6.

132. Juneau, *Squandered Opportunity*, 83.

133. Nader, "The Revolutionary Guards"; and Chubin, "Iran: Domestic Politics and Nuclear Choices," 315–16.

134. Redick, *Nuclear Illusions: Argentina and Brazil*, 44.

135. Maria Regina Soares de Lima and Mônica Hirst, "Brazil as an Intermediate State and Regional Power: Action, Choice and Responsibilities," *International Affairs* 82, no. 1 (2006): 21–40, <http://www.jstor.org/stable/3569128>; Ewen MacAskill, "Push to Enlarge Security Council Looks Doomed," *The Guardian*, 14 July 2005, <https://www.theguardian.com/world/2005/jul/15/unitednations>; and "India, G4 Partners Reaffirm 'Unwavering Commitment' to UNSC Reforms," *The Times of India*, 24 September 2016, <http://timesofindia.indiatimes.com/india/India-G4-partners-reaffirm-unwavering-commitment-to-UNSC-reforms/article-show/54493322.cms>.

136. See, for example, William Samii, "The Military-Mullah Complex: The Militarization of Iranian Politics," *The Weekly Standard*, 23 May 2005, <http://www.weeklystandard.com/article/6824>; and Yaphe and Lutes, *Reassessing the Implications of a Nuclear-Armed Iran*.

137. For instance, Ray Takeyh notes that "the Guards and the hardline clerics have a relationship of mutual dependence"; Takeyh, "How Powerful Is Iran's Revolutionary Guard Corps?," Council on Foreign Relations, 16 June 2016, <http://www.cfr.org/iran/powerful-irans-revolutionary-guard-corps/p38009>.

138. Nader, "The Revolutionary Guards."

139. Iran has previously satisfied the criteria for reversal pathway 3, notably for a brief period in the early 1990s when the data indicate a drop in military expenditures after the Iran-Iraq War ended. Again, the pathways do not represent deterministic causal paths but rather increase the likelihood of nuclear reversal. Data coverage is incomplete for the post-2000 era.

140. Only early nuclear reversers Germany and Italy did not experience a decline in interstate disputes as specified in the nuclear pathways described above.

141. Sagan, "Why Do States Build Nuclear Weapons?"; and Levite, "Never Say Never Again."
142. See Rublee, *Nonproliferation Norms*, 154–62.
143. Eric Arnett, "Norms and Nuclear Proliferation: Sweden's Lessons for Assessing Iran," *The Nonproliferation Review* 5, no. 2 (Winter 1998): 41, <https://www.nonproliferation.org/wp-content/uploads/npr/arnett52.pdf>.
144. Quoted in Andrew J. Pierre, *Nuclear Politics: The British Experience with an Independent Strategic Force 1939–1970* (London: Oxford University Press, 1972), 178.
145. British nuclear weapons were deemed necessary for new contingencies for which they would objectively seem to be of lesser strategic necessity, such as countering threats from terrorists and "uncertain future" scenarios; see United Kingdom Ministry of Defence, *The Strategic Defence Review: A New Chapter*, cm 5566, vol. I (London: Ministry of Defence, 2002), 12; and United Kingdom government, *The Future of the United Kingdom's Nuclear Deterrent*, Defence White Paper, cm 6994 (Norwich, UK: Crown Copyright, December 2006), 18–19, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/27378/DefenceWhitePaper2006_Cm6994.pdf.
146. Levite, "Never Say Never Again," 74.
147. Domestic bureaucracies may promote policies based on parochial priorities and conceptions of organizational mission; see Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Little, Brown and Company, 1971); and Morton H. Halperin, *Bureaucratic Politics and Foreign Policy* (Washington, DC: Brookings Institution, 1974).
148. Sagan, "Why Do States Build Nuclear Weapons?"; and Steven Flank, "Exploding the Black Box: The Historical Sociology of Nuclear Proliferation," *Security Studies* 3, no. 2 (Winter 1993/94): 259–94, <http://doi.org/dcjvck>.
149. Peter R. Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation," in Davis and Frankel, *The Proliferation Puzzle*, 199.
150. Michael Barletta, "Democratic Security and Diversionary Peace: Nuclear Confidence-building in Argentina and Brazil," *National Security Studies Quarterly* 5, no. 3 (1999): 19–38; and Singh and Way, "The Correlates of Nuclear Proliferation."
151. Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*, 17.
152. Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation"; and Lawrence Scheinman, *Atomic Energy Policy in France under the Fourth Republic* (Princeton, NJ: Princeton University Press, 1965).
153. Solingen, *Nuclear Logics*, 45.
154. See Chubin, "Iran: Domestic Politics and Nuclear Choices"; and Kevjn Lim, "National Security Decision-Making in Iran," *Comparative Strategy* 34, no. 2 (2015): 149–68, <http://doi.org/b2hn>.
155. For more on Iranian nuclear decision making and the actors involved, see Lim, "National Security Decision-Making in Iran"; Shahram Chubin, "Decisionmaking for National Security: The Nuclear Case," in *Understanding Iran*, ed. Jerrold D. Green, Frederic Wehrey, and Charles Wolf, Jr. (Santa Monica, CA: RAND, 2009), 52–65; Shahram Chubin, *Iran's Nuclear Ambitions*. Important national security matters are regularly decided within the Supreme National Security Council (SNSC), which consists of, among others: the President, the Defense Minister, the IRGC Commander, the Foreign Minister, and representatives of the Supreme Leader. Further Iranian domestic inputs into nuclear policy appear to emanate from, notably, the AEOI and informal and clerical networks linked to the Supreme Leader; see Chubin, "Decisionmaking for National Security: The Nuclear Case."
156. See Chubin, "Iran: Domestic Politics and Nuclear Choices," 318.

157. *Ibid.*, 314–17.

158. Shahram Chubin, “The Politics of Iran’s Nuclear Program,” *The Iran Primer*, United States Institute of Peace, August 2015, <http://iranprimer.usip.org/resource/politics-irans-nuclear-program>.

159. There are some further shortcomings to domestic politics arguments when applied to potential Iranian nuclear reversal. First, domestic accounts may not sufficiently allow for key individuals or bureaucracies to have a change of heart. This can exclude plausible outcomes such as pronuclear officials reversing their nuclear outlook, as Gadhafi did in Libya. In addition, amid Iran’s complex political scene composed of various actors and centers of influence, it is not evident that a domestic politics approach could disentangle these influences enough to offer unambiguous conclusions about how or when nuclear reversal may happen. Which actors are the most significant for a potential reversal? Which domestic institution(s) would trump the others?

160. Dick Cheney, Vice Presidential Debate, 5 October 2004, transcript, *Washington Post*, http://www.washingtonpost.com/wp-srv/politics/debatereferee/debate_1005.html; and Jentleson and Whytock, “Who ‘Won’ Libya?,” 48.

161. Jentleson and Whytock, “Who ‘Won’ Libya?,” 70–73.

162. Official discussions with the United States and Britain likewise appear to have highlighted for Gadhafi the diplomatic and economic advantages that could be gained from reining in Libya’s nuclear ambitions.

163. Reiss, *Bridled Ambition*, 32.

164. Redick, *Nuclear Illusions*, 48.

165. Reiss, *Bridled Ambition*, 70.

166. Russel J. Leng, “Escalation: Competing Perspectives and Empirical Evidence,” *International Studies Review* 6 (2004): 59, <http://www.jstor.org/stable/3699725>.

167. Celia L. Reynolds and Wilfred T. Wan, “Empirical Trends in Sanctions and Positive Inducements in Nonproliferation,” in Solingen, *Sanctions, Statecraft*, 80.

168. See Alireza Nader, “Influencing Iran’s Decisions,” in Solingen, *Sanctions, Statecraft*, 211–12.

169. Sarah Kreps and Zain Pasha, “Threats for Peace? The Domestic Distributional Effects of Military Threats,” in Solingen, *Sanctions, Statecraft*, 174–207.

170. It should also be noted that military strikes would likely elicit “blowback” effects. As Mohsen M. Milani explains, “the costs and unintended consequences of a preemptive strike would be exorbitant. Military or unconventional retaliation by Iran cannot be ruled out. . . . Tehran also has some leverage in Iraq, Lebanon, Afghanistan, and in the Persian Gulf that it could manipulate to complicate matters for the United States. . . . Any preemptive strike is likely to unify Iran, strengthen the conservatives, and generate anti-Americanism—and this in a country where the perception of the United States today is considerably more favorable than in most other Islamic countries.”; Milani, “Iran, the Status Quo Power,” *Current History* 104, no. 678 (2005): 36, <http://www.currenthistory.com/Article.php?ID=39>.

171. Another potential argument holds that Iran covets nuclear arms for regional dominance and coercion of other states, thus making Iranian nuclear reversal unlikely. While we have seen that Iran does seek to be recognized as a powerful state, the contention that it wants to dominate and coerce others is questionable. For instance, Mohsen M. Milani points out that Iran has largely transitioned to policies seeking to uphold the regional status quo; see Milani, “Iran, the Status Quo Power.”

172. We do not claim here to elaborate all determinants of status preferences or all ways status influences nuclear policy; rather we aim to identify some key status influences on nuclear

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reversal patterns. While we recognize status as generally entailing a combination of material achievements or actions and the concurrent belief that the accomplishments are important, additional conceptual elaboration of the material and ideational elements of status could be fruitful with regard to nuclear decision-making. In general, future research could usefully shed further light on how status impacts state behavior—in the nuclear domain as well as in other areas. For instance, examining the notion of status reference groups could help further clarify the relations between status and nuclear arms, notably in terms of the other state, regional, and/or international constituencies that are relevant in influencing status pursuits. On status reference groups, see Deborah Welch Larson and Alexei Shevchenko, “Status Seekers: Chinese and Russian Responses to U.S. Primacy,” *International Security* 34, no. 4 (2010): 63–95, <http://www.jstor.org/stable/40784562>.

Stalkers in Space: Defeating the Threat

Brian G. Chow

Abstract

Since 2008, China has been developing a new co-orbital antisatellite weapon (ASAT). These “space stalkers” could be placed on orbit in peacetime and maneuvered to tailgate US satellites during a crisis. At a moment’s notice, they could simultaneously attack multiple critical satellites from such close proximity that the United States would not have time to prevent damage. Current national security space strategy, existing and developing space defense capabilities, and current proposals for dealing with weapons in space cannot counter this new threat. Since space stalkers cannot be reliably distinguished from ordinary satellites, these ASATs cannot be banned outright. Instead, this article proposes to ban threatening positioning of space objects, whether satellites or space stalkers. As these positions can be observed by multiple countries, the United States should declare and work with the international community to agree that any country configuring and readying space stalkers for attack demonstrates hostile intent, which justifies preemptive self-defense as the last resort. In the case of space stalkers, self-defense is a justified action rather than a pretext for aggression. The proposed scheme would be effective in deterring and defending against space stalkers.

* * * * *

The United States has 554 operational satellites, the largest number of satellites among all countries and organizations in the world (see table 1).¹ While these space capabilities offer great advantages for the US military, they simultaneously create great vulnerabilities. The Department of Defense (DOD) is increasingly concerned, particularly about the space threat from China. In its annual reports to Congress, *Military*

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and Security Developments Involving the People's Republic of China for 2013,² 2014,³ 2015,⁴ and 2016,⁵ the DOD has warned repeatedly: "PLA [People's Liberation Army] writings emphasize the necessity of 'destroying, damaging, and interfering with the enemy's reconnaissance . . . and communications satellites,' suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to 'blind and deafen the enemy.'" Gen John Hyten, the former head of Air Force Space Command, said without space assets, the United States would be forced to revert to industrial age warfare: "It's Vietnam, Korea and World War II"—no more precision missiles and smart bombs.⁶ Hyten was also quoted as saying that "China will soon be able to threaten US satellites in every orbital regime, from low Earth orbit a few hundred miles above the Earth, to geosynchronous orbit more than 20,000 miles up—where some of the military's most important satellites circle the Earth. . . . Now we have to figure out how to defend those satellites."⁷

Table 1. Operational satellites of the United States, China, Russia, and others

Country of operator/owner	GEO ^a	MEO ^b	LEO ^c	Elliptical ^d	Total
USA	176	32	327	19	554
China	44	7	125	0	176
Russia	28	29	68	5	130
USA/Others ^e	4	0	20	0	24
China/Brazil	0	0	1	0	1
Russia/others ^f	1	0	0	0	1
Russia/USA	0	0	2	0	2
ESA ^g /USA/Russia	0	0	0	1	1
Other nations	240	24	216	12	492
Total	493	92	759	37	1,381

Source: Derived from Union of Concerned Scientists' satellite database; includes launches through 31 December 2015 (Cambridge, MA: Union of Concerned Scientists, <http://www.ucsusa.org/nuclear-weapons/space-weapons/satellite-database#.WlZauoWcFZU>.)

^aGeosynchronous Earth orbit

^bMedium Earth orbit

^cLow Earth orbit

^dElliptical Earth orbit

^eUSA and other operators/owners except China and Russia

^fRussia and other operators/owners except USA and China

^gEuropean Space Agency

As threats from ground-based ASATs (such as traditional threats from ballistic missiles, lasers, and jammers and the newer cyber attacks⁸) grow, it is easy to continue focusing on these much more well-known ASATs and ignore China's developing co-orbital ASAT—hereafter what

this article refers to as space stalkers. In November 2015, the U.S.-China Economic and Security Review Commission released its annual report to Congress stating that “since 2008, China has tested increasingly complex space proximity capabilities.”⁹ It confirmed what it and others have been suggesting, that “China’s recent space activities indicate it is developing co-orbital antisatellite systems to target US space assets. These systems consist of a satellite armed with a weapon such as an explosive charge, fragmentation device, kinetic energy weapon, laser, radio frequency weapon, jammer, or robotic arm.”¹⁰ Space objects capable of rendezvous proximity operations and particularly equipped with a robotic arm could pose a game-changing threat as these objects could be placed in orbit during peacetime. During a crisis, such as China seizing Taiwan or territorial disputes in the South China Sea, these space objects could be maneuvered to tailgate US satellites and become space stalkers. They could simultaneously attack multiple critical satellites from such a close proximity that the United States would not have time to react. The space stalkers could destroy enough critical satellites to force the United States back toward General Hyten’s warning of fighting primitive “industrial age warfare” with greatly increased collateral damage. On 29 November 2016, CNN broadcast the documentary “War in Space: The Next Battlefield,” based on interviews of more than 10 high-ranking military personnel of the entire chain of command for space warfare. These interviews described the concerns of senior space officials about the threat from “kamikaze and kidnapper satellites launched by Russia and China.”¹¹

Geosynchronous satellites have long been considered safe from attacks, especially simultaneous attacks, since direct-ascent ASAT ballistic missiles would typically take about four hours to reach geosynchronous satellites.¹² However, these satellites could soon be under serious threat. Setting up the space stalkers to be co-orbital with, and in close proximity to, their prey is the easiest way to coordinate simultaneous attacks. If China could place these highly maneuverable space stalkers in close proximity to multiple US critical satellites, simultaneous attacks would be possible with little advance warning, leaving the United States inadequate time to save the targeted satellites.

The space-stalking threat is unique and cannot be mitigated by focusing on and responding to traditional satellite threats. Even if the United States could perfectly deter and defend against all the traditional ASAT

threats and the newer cyber attacks, adversaries could still use multiple stalkers to mount a devastating first strike against critical US satellites. Thus, the United States must specifically deal with the emerging space-stalker threat. This article provides analysis and recommendations on how to develop an overarching strategy to deter and defend against space stalkers without ignoring other threats and while gaining international support for the new strategy.

One must first understand Chinese counterspace strategy to prescribe an effective US strategy and policy. The United States must also refocus its traditional space policies to address the emerging space-stalking threat—something neglected today. Additionally, the National Security Space Strategy must be updated to include a strategy to defend against and to deter space stalkers, including justified preemption as the last resort. Diplomacy alone with potential adversaries to lessen the space-stalking threat is important but not sufficient. Therefore, the new US strategy should include developing new international agreements on weapons in space and in particular space stalkers.

The space-stalker threat does not come from China alone. Russia has also been improving its close proximity operation capability, which is dual-use for non-ASAT and ASAT purposes. Its potential space-stalking capability would be more advanced than China's.¹³ However, this article uses only Chinese scenarios since concerns about the threat and suggested measures for US response are essentially the same for both China and Russia.

China's Coherent Counterspace Strategy

China's counterspace development in the last decade has been a mix of traditional and new threats. This mix is coherently and asymmetrically designed to counter a far more technologically advanced US space capability. Thus far, China has been rather successful in justifying its counterspace development to the world, and many countries might accept Chinese claims when US policies and actions are in conflict with China during a crisis, war, or even peacetime. A chronological review of China's counterspace activities illustrates its win-win strategy and its effective counterspace capability.

In 2007, China launched a missile that successfully destroyed one of its own satellites but generated an unacceptably large amount of debris. Merely a year after this ASAT test, two Russian scientists at the Institute for

Precision Instrument Engineering in Moscow reported that a small Russian satellite had been hit by debris from China's 2007 test. Analysis by T. S. Kelso at the Center for Space Standards & Innovation in the United States confirmed the same.¹⁴ Since then a new component of China's counterspace program is to conduct ASAT tests with little enduring space debris. The US State Department said that on 23 July 2014, China conducted a "non-destructive" test of an antisatellite weapon.¹⁵ Speaking at a conference in 2015, Lt Gen Jay Raymond, USAF, said, "We've known for some time that China conducted an antisatellite test July 23 last year [2014], but we learned today that that test was 'successful' even if it didn't destroy anything."¹⁶ Thus, DOD recognized that China is able to conduct successful ASAT tests without generating space debris. For its part, China claimed that the 23 July 2014 test was for missile defense. It routinely takes advantage of the fact that many space activities, including tests, are dual-use for non-ASAT and ASAT purposes and can be used to conceal its ASAT development.

In parallel with the "non-destructive" ASAT tests, China is conducting rendezvous proximity operations (RPO). In September 2008, China deployed a miniature imaging satellite. It "passed within 45 kilometers of the International Space Station, apparently without prior notification, suggesting it may have been simulating a co-orbital antisatellite attack."¹⁷ In June 2010, China launched the SJ-12 satellite. While maneuvering, this satellite "apparently bumped the Chinese SJ-6F satellite, causing it to drift slightly from its orbital regime. This activity suggests China also could have used the test to demonstrate the ability to move a target satellite out of its intended position by hitting it or attaching to it."¹⁸ On 20 July 2013, "China launched a rocket carrying the CX-3, SY-7, and SJ-15 satellites, one of which was equipped with a robotic arm for grabbing or capturing items in space. Once all three were in orbit, the satellite with the robotic arm grappled one of the other satellites, which was acting as a target satellite."¹⁹

Based on China's "non-destructive" ASAT tests and RPOs, one can see that a robotic arm could be used to disable a satellite while producing little space debris. Space stalkers might well be a key element of China's post-2007 ASAT development strategy in threatening multiple critical satellites of a potential adversary without generating enduring space debris during testing and actual execution of the space-stalker attack.

China's ASAT developments are comprehensive. In addition to the emerging space stalkers, it continues to develop jammers against communications satellites; powerful lasers to dazzle, blind, or damage space sensors; and cyber capabilities to hack or spoof the control and functioning of satellites. China has also been expanding its space diplomacy. Its space programs have included international cooperation with countries other than Russia. China and the European Space Agency (ESA) are cooperating on a space-weather observatory. ESA personnel have visited Chinese human spaceflight training facilities, with the long-term goal of flying a European astronaut aboard a Shenzhou spacecraft to a Chinese space station.²⁰ These activities help project China as a peaceful and friendly space power. Thus, under the current ambiguity about whether configuring multiple space stalkers or exercising preemptive self-defense is the first act of aggression, the international community might well be on China's side in a conflict.

Russia and China have been taking the lead to ban weapons in space. Their latest version of the draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Treaty or Use of Force against Outer Space Objects (PPWT) was issued 12 June 2014. The PPWT defines the term weapon in outer space as "any outer space object or its component produced or converted to eliminate, damage or disrupt normal functioning of objects in outer space, on the Earth's surface or in the air."²¹ Thus they have defined weapons in outer space both broadly and ambiguously to cover weapons that are based in space, as opposed to those based on Earth. While all space-based ASATs can be included, it is ambiguous—perhaps purposely so—whether space stalkers are included. Also included are space-based ballistic missile defense systems and space-based weapons that can damage terrestrial targets. The US analysis submitted to the Conference on Disarmament stated that "the draft PPWT (CD/1985) proposed by Russia and China, like the 2008 version, remains fundamentally flawed," including "lack of a verification regime, the risk of a Party developing and deploying a break-out capability, and the failure to address the threat of terrestrially-based antisatellite capabilities." It concluded that "the 2014 draft PPWT provides no basis for the U.S. to support establishing an ad hoc committee to negotiate any such Treaty."²²

China's proposed space weapons ban, whether it results in a treaty or not, is a win-win strategy for China. On the one hand, the ban allows

China to project itself as a champion for keeping peace in space. On the other hand, the “peaceful” proposal does not prevent China from continuing space-stalker development. In spite of their definition of “weapon in outer space” as discussed above, China would likely insist that it is not developing a space-stalker weapon but satellites that service its other satellites. Indeed, a space object equipped with a robotic arm can serve well as a space-stalking ASAT or as a satellite that performs civil and non-ASAT military tasks. It can perform maintenance on another satellite, such as refueling to extend service life or replacing a faulty component. It can also be used to inspect another satellite. It can even be used to capture and divert a piece of space debris so as to avoid its predicted collision with a functioning satellite. These developmental activities, even if non-ASAT originally, would yield a space-stalker capability. Further, it is much easier for China than the United States to switch satellites between performing civil and military functions, including ASATs, because, according to the U.S.-China Economic and Security Review Commission, “in China, the military runs the space program, and there is no separate, distinguishable civilian program.”²³ Furthermore, while China and the United States would need the capability to rendezvous with and manipulate another satellite for legitimate tasks, this dual-use capability including its manifestation as space stalkers cannot be banned.

A Neglected Focus

The most worrisome threat from space stalkers is their use for a surprise attack by simultaneously disabling critical satellites. As early as 2001, the Rumsfeld Commission worried that “the U.S. is an attractive candidate for a ‘Space Pearl Harbor,’ ” and space stalkers could be the instrument to turn that worry into a fateful reality.²⁴ The commission also issued a warning: “The question is whether the U.S. will be wise enough to act responsibly and soon enough to reduce its space vulnerability. Or whether, as in the past, a disabling attack against the country and its people—a ‘Space Pearl Harbor’—will be the only event able to galvanize the nation and cause the U.S. Government to act.”²⁵ The argument here aims to spur responsible US action—and soon.

Whether by design or luck, China’s ASAT developmental activities and space arms-control proposals since the 2007 test could make the United States and the international community continue to focus on

countering ground-based ASAT threats and neglect emerging space-based stalkers. For example, on 13 May 2013, China fired a ballistic missile reaching an altitude of “possibly over 20,000 miles,” whereas the geosynchronous Earth orbits (GEOs) are at 22,236 miles. In a paper requested by the U.S.-China Economic and Security Review Commission, Cray Murray, senior policy analyst at the commission, stated “available data suggests it was intended to test at least the launch vehicle component of a new high-altitude ASAT capability.”²⁶ Tests since 2007 made the United States consider the growing traditional ground-launched ASAT threats to be much more urgent than space stalkers and thus focused the US Strategic Portfolio Review,²⁷ space budget increase, and new programs on these traditional threats.

In congressional testimony on 15 March 2016, Douglas Loverro, deputy assistant secretary of defense for space policy, stated, “To deter space attack, would-be attackers need to understand or at least suspect that their attacks will likely be unsuccessful. . . . As we’ve worked through that calculus we arrive at the conclusion that of the three pathways we’ve outlined—reconstitution, defensive operations, and resilience—resilience is the best path for both understandable assurance and robust assurance. It’s also the area where we can best offset the advantages that adversaries seek to exploit with their offensive space control ambitions.”²⁸ Loverro provided no indication of how to deal with space stalkers or the level of resilience needed to deny the effectiveness of stalkers. His three pathways do not provide sufficient defense against space stalkers.

Reconstitution takes time, and the US fighting force cannot wait that long. Also, not knowing which types of critical satellites would be targeted and destroyed, the United States could not afford to fund a quick and adequate reconstitution on all critical types.

Defensive operations, whether passive or active, would require adequate warning time of the pending attack to initiate and execute actions to block the attack. If space stalkers are allowed to tailgate satellites closely, there would not be enough time to mount an effective defense.

In the same testimony, Loverro described better anti-jam and anti-spoof technologies, more resilient next-generation satellites, life extension of on-orbit legacy satellites, and partnerships with allied nations and commercial partners.²⁹ These resilience measures are aimed at the rapidly growing traditional space threats. Against space stalkers, these measures cannot meet his aforementioned requirement for deterrence by

providing “understandable assurance and robust assurance” that “their attacks will likely be unsuccessful.” There are two reasons that resilience is inadequate in countering the emerging space-stalking threat. First, passive defenses, such as anti-jamming and evasive maneuver, would be either irrelevant or ineffective against space stalkers even if the defenses were executed preemptively, because space stalkers could dedicate much of their on-board resources (such as fuel and propulsion) for the sole purpose of attack, including chasing down an escaping target satellite. Second, backups drawn from partners might have lower capability and take time to resume lost services, and partners might not be able to spare the full capacity requested by the United States.

More importantly, as stated in the 2011 *National Security Space Strategy*, the current strategy for “preventing and deterring aggression against space infrastructure”—including satellites—has been focusing on countering traditional ground-based ASAT weapons such as direct-ascent ballistic missiles, jammers, and lasers. The strategy has five elements:

1. “Support diplomatic efforts to promote norms of responsible behavior in space.”
2. “Pursue international partnerships that encourage potential adversary restraint.”
3. “Improve our ability to attribute attacks.”
4. “Strengthen the resilience of our architectures to deny the benefits of an attack.”
5. “Retain the right to respond, should deterrence fail.”³⁰

These five elements either have not been used to deal with the emerging space stalker threat or are far from adequate to counter it. The first two elements are important in establishing international norms to justifiably and fairly counter space stalkers, as these elements are the best way to develop mutual understanding and arrive at mutually beneficial compromise. Unfortunately, exchanges and measures developed thus far tend to focus on space activities during peacetime. As far as weapons in space and deterrence of space war are concerned, the diplomatic efforts and international partnerships have been focusing on either the unattainable goal of banning all weapons in space or the endless debate about the control of traditional Earth-based ASAT threats, but to the neglect of the emerging space-stalker threat. While the emphasis of the third

element has been on attributing traditional space attacks, it should have been stated explicitly to include the attribution of space stalkers not just after, but also before, the attack. The fourth element would provide far too little survivability to many of the critical satellites already on orbit, because they cannot be retrofitted on orbit to be resilient or reconstituted quickly and adequately enough to perform the same lost capability. Finally, after space-stalking attacks begin, the response according to the fifth element would be too late to save US-critical satellites. Retaliation would not deter Chinese space stalking, because destroying such critical satellites would benefit China far more than the cost of US punishment as a proportional response. China could deter US intervention without firing a terrestrial shot or even a shot from space stalkers, as merely being too close for comfort would suffice. This outcome may well be the ultimate goal of China's counterspace strategy. In sum, while current efforts to implement the National Security Space Strategy might protect satellites or their missions against traditional threats, these efforts alone cannot protect satellites against simultaneous space-stalker attacks, because these attacks do not provide adequate warning for defense.

As discussed in the previous section, a space weapons ban proposed by China and Russia cannot ban space stalkers. Can any other space proposal deal with the presence of space stalkers? Over the years, the most ambitious one that focused on peaceful and dangerous space activities was proposed by the Stimson Center. Michael Krepon and his colleagues posted the initial draft of "Model Code of Conduct for the Prevention of Incidents and Dangerous Military Practices in Outer Space" on the Stimson Center's website in 2004. Stimson's Code originally was intended to deal with all space activities, whether peaceful civil and military activities or dangerous military practices. The latter include ASATs and others agreed by party members as dangerous. However, this Code could not deal with space stalkers because their physical appearance and activities cannot be reliably distinguished from those of peaceful civil and military satellites.

The Stimson's Code and efforts did have a significant influence on the European Union's (EU) Space Code of Conduct. Its latest version, "Draft International Code of Conduct for Outer Space Activities," was released in 2014.³¹ It focuses on accidental collisions from space, as opposed to intentional collisions from ASATs, where space stalkers belong. Both the Stimson Center and the EU decided to focus on peaceful

activities, because such a focus would be relatively far more acceptable to the major spacefaring nations as well as a more diverse group of nations. Therefore, it is unlikely the EU Space Code would now go back to including dangerous military activities or practices. Moreover, since the EU Code merely relies on public shaming, it is suitable for managing peacetime space activities but not for deterring a space war. In a crisis, China could be willing to be shamed by breaking an agreement if it could significantly degrade US space mission capability for war-fighting support or, better yet, deter US intervention in the first place without firing a shot in space or on Earth.

Similar to government officials' statements, major reports from think tanks and other research organizations focus on how to deal with the rapidly growing traditional threats, not the emerging space-stalker threat from rendezvous-and-proximity operations (RPO). In his 2010 treatise *Deterrence and First-Strike Stability in Space: A Preliminary Assessment*, Forrest Morgan did not mention China's RPOs at all. He argued generally for "a national space policy that explicitly condemns the use of force in space and declares that the United States will severely punish any attacks on its space systems and those of friendly states in ways, times, and places of its choosing."³² His punishment or retaliation could not protect the satellites being attacked and, as discussed above, the benefits of such an attack to China could far exceed the punishment China might incur. In any case and as stated earlier, punishment does not meet Loverro's requirement for deterrence: "To deter space attack, would-be attackers need to understand or at least suspect that their attacks will likely be unsuccessful."³³ Therefore, regardless whether Morgan's policy could deter traditional space attacks, it could not induce would-be attackers to believe that "their attacks will likely be unsuccessful." On the contrary, China could be convinced that once enough critical satellites are disabled, the United States could either fight with inadequate space support or simply not intervene at all. Morgan is also a key author of the *U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power 1996–2017*, released in 2015. The focus is again exclusively on traditional threats without any mention of RPOs.³⁴

In January 2016, the Center for a New American Security released the report *U.S. Defense Strategy for Space*, by Elbridge Colby.³⁵ He focused on traditional space threats from missiles, jammers, and lasers and did not mention RPOs, including their potential threats.

In April 2016, the National Bureau of Asian Research released a special report, which contains an article by Brian Weeden and Xiao He on US-China strategic relations in space. They did discuss RPOs and stated that, “A more promising approach is to focus on transparency and confidence-building measures [TCBM] for both direct ascent and RPO. TCBMs are a means by which governments can share information to help create mutual understanding and trust and reduce misperceptions and miscalculations.”³⁶ They also described how space situational awareness (SSA) capability can detect and monitor close approaches.³⁷ However, while TCBMs and SSA are important, they are far from adequate to deter or protect satellites targeted by space stalkers and do not meet Loverro’s requirement for deterrence cited above.

In June 2016, Rebecca Heinrichs of the Hudson Institute released a report on “Space and the Right to Self Defense,” which did not mention RPOs.³⁸ The report focused on the desirability of space-based interceptors for ballistic missile defense. Also in June 2016, the Atlantic Council released a paper, *Toward a New National Security Space Strategy: Time for a Strategic Rebalancing*, by Theresa Hitchens and Joan Johnson-Freese. They asserted that “maneuverable satellites being developed in the United States and elsewhere for rendezvous-and-proximity operations (RPO) are often considered nefarious capabilities by potential adversaries, causing finger pointing in both directions.”³⁹ They did not offer a prescription to deal with RPOs or any other specific threat. Similar to other reports, the Hitchens–Johnson-Freese study is a high-level report and argues for a rebalancing, which “would require a continued emphasis on strategic restraint in the very near term, as well as a continued focus on diplomacy.”⁴⁰

Finally, in August 2016, the National Academies of Sciences, Engineering, and Medicine released a report titled *National Security Space Defense and Protection: Public Report*.⁴¹ It is also a high-level report and does not mention RPOs or their use for attack.

Preemptive Defense against Space Stalkers

A successful defense against space stalkers will benefit not only the United States but also other nations. Many nations rely on US satellites such as the Global Positioning System (GPS) and communications satellites for critical services. Also, a multilateral or international agreement based on the same concept and measures to protect US satellites

would protect other nations' satellites as well, including those of China and Russia.

On 15 November 2014, Secretary of Defense Chuck Hagel announced the Defense Innovation Initiative (DII), "a broad Department-wide initiative to pursue innovative ways to sustain and advance our military superiority for the 21st Century and improve business operations throughout the Department."⁴² He said that the DII is "an initiative that we expect to develop into a game-changing third 'offset' strategy." Subsequent Secretary of Defense Ashton Carter continued to pursue this third offset strategy. Hagel's pronouncements and Carter's actions provide the needed attention and resources to deal with the space-stalker threat, which calls for a new operational concept such as preemptive self-defense as the last resort.

Deterring and defending against space stalkers starts with two principles. First, once a space object is in orbit, one cannot reliably distinguish an ordinary satellite from a space stalker. Thus space stalkers cannot be banned without banning all satellites. This indistinguishability explains the difficulty in verifying violations in the joint proposal of PPWT by Russia and China for banning space weapons, which include space stalkers. An alternative to their proposal is that the international community instead bans dangerous positioning of space objects, which can be satellites and/or space stalkers. Banning dangerous configurations is observable and verifiable. Second, routine space operations could bring one or even a few space objects close to another nation's satellites at the same time. These occurrences cannot be prohibited and must be accommodated.

The above two principles are analogous to the Third United Nations Convention on the Law of the Sea (UNCLOS III), or simply the Law of the Sea, adopted in 1982. Unlike PPWT attempting to ban weapons in space, UNCLOS III does not ban warships or attack submarines at sea but, instead, allows states to exercise control over contiguous areas. Two concepts, if modified, can be applied to deal with space stalkers, with or without a space agreement.

First is contiguous zone, within which "the coastal State may exercise the control necessary to (a) prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea; [and] (b) punish infringement of the above laws and regulations committed within its territory or territorial sea."⁴³

The application to space is by having a self-defense zone around a nation's satellite and having the right to "punish infringement" as stated above.⁴⁴ Even with the self-defense zone, the owner of the satellite would continue to comply with Article II of the 1967 Outer Space Treaty that "outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."⁴⁵ While the owner of the satellite does not have sovereignty over the self-defense zone, the United States can propose, according to Article IX of the 1974 Convention on Registration of Objects Launched into Outer Space, that this Convention be amended to automatically include the self-defense zone in the registration of the satellite to be launched or, retroactively, already launched into space.⁴⁶

Second, Article 17 of UNCLOS III says "ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea."⁴⁷ Similarly in space, satellites of all states enjoy the right of passage through the self-defense zones of others, provided it is innocent and not part of a threatening configuration to multiple satellites.

Implementing Preemptive Self-Defense against Space Stalkers

The purpose of preemption is to prohibit the positioning of space objects to tailgate (or closely lead) more than an innocuous threshold number of another country's satellites. The Space Security and Defense Program already established by the DOD and the National Intelligence Office should decide whether the threshold is three, four, five, or some other number. Once the threshold is determined, the United States can plan to use preemption as the last resort against the threat of space stalkers with a number exceeding the threshold. At the same time, the United States can plan to use traditional, postattack self-defense to protect satellites or their missions or to deter satellite attacks. Since preemption eliminates the far more damaging attacks that result from a larger number of space stalkers, it makes the job of post-attack self-defense feasible. Moreover, since there is no peaceful reason to tailgate so many satellites at the same time, simultaneously stalking a large number of another nation's satellites is justifiably treated as hostile intent requiring a last-resort preemption to neutralize such a threat. This is equally justified as the proper use of self-defense. The ultimate purpose of last-resort preemptive self-defense is that it does not actually have to be executed.

Therefore, the adversary knowing its space-stalking attack to be futile would not pose a space-stalking threat in the first place. In any case, declaring, during peacetime, the US right of self-defense to prevent an imminent space-stalking attack can garner international condemnation of anyone setting up such a threat during a crisis and international support of US defensive actions. This declaration could also reduce incentives for an aggressor to pose the space-stalking threat.

One could define a geosynchronous satellite as tailgating if its longitude of the ascending or descending node or orbital plane's inclination is less than 0.2 degree from that of another country's satellite already occupying that orbit. If the United States wants to deter and defend against simultaneous space-stalking attacks against GEO satellites, it could declare that any country that positions its space objects within 0.2 degree in longitude (148 km in minimum separation) or inclination of more than a threshold number of another country's satellites is the aggressor and the defender has the right to exercise self-defense even before any actual attacks begin. The threshold number could be between three and five. However, the actual threshold, as well as the minimum separation, should be first determined by the DOD and then brought to the international community by the State Department for discussion and negotiation. It is feasible to arrive at both useful and practical thresholds. For example, both the United States and China need not reposition any of their operational satellites to observe the above suggested rule of 0.2-degree minimum satellite separation between any pair of US-China GEO satellites.⁴⁸

The rapidly growing number of small (less than 500 kg) satellites forces the need to observe guidelines on their orbital placements so their deployment would not appreciably enhance the space-stalking threat but would maintain much of their civil benefits. Space expert John Bradford reported 36 successful launches of microsatellites (typically defined as 10 kg to 50 kg) and nanosatellites (1 kg to 10 kg) in 2012; 92 in 2013 and 158 in 2014.⁴⁹ In January 2015, WorldVu Satellites Ltd. said it had secured Qualcomm Inc. and Virgin Group as investors in the One-Web satellite Internet network. The network is planned to have some 650 125-kg satellites operating at 1,200-km altitude.⁵⁰ In June 2015, SpaceX filed a proposal to test a very large fleet of 4,025 small satellites for high-speed Internet service to be launched over a period of 15 years to around 1,200-km altitude.⁵¹ Thus, thousands of small satellites will

populate low Earth orbits (LEO) in the near future. The concern is that China or Russia could make space stalkers in the form of small satellites and conceal them among other small satellites. This concern should be addressed now, not after more small satellites are planned or launched. Since all these satellites aim to be cheap for predominately communications and Earth observation, they are placed in LEOs. There should be an international understanding or agreement that they will not be placed in or travel to GEOs or medium Earth orbits (MEO). This restriction would not affect the utility of small satellites because there are few commercial reasons for them to be placed in those higher orbits.

The prohibition of positioning a space-stalking threat for simultaneous attacks can and should first be applied to GEOs as described in this article. For MEOs and elliptical Earth orbits (EEO), no country would need to change its current satellite orbits to meet the guidelines in this article to deal with the space-stalker threat, as their satellites in these orbits are already well separated from those of every other country's. As to LEO satellites, which will soon number in the thousands, close-proximity restrictions can still be established with an approach similar to that for GEOs. However, the design of the prohibition for LEOs should be discussed along with other issues including:

- how DOD's plan for disaggregating large LEO satellites for better mission survivability will work;
- how DOD's arrangements with commercial providers and other governments in using their space and other assets for backup will work;
- which types of LEO satellites DOD needs to protect against simultaneous attacks by multiple space stalkers;
- how transparent should be the function and capability of small satellites to the international community; and
- how several thousand small satellites launched into LEO can be made to avoid collisions and creating space debris.

Since GEOs host many critical satellites for space-faring nations, if the prohibition against threatening space stalkers were only enforced there, the chance of triggering a war in space that spreads to Earth could be reduced.

There are two ways to lighten the burden of monitoring space stalkers. First, there is no need to monitor space objects belonging to friends and

allies of the United States. Second, neither is there a need to monitor space objects from countries that do not possess a capability of carrying out multiple space-stalking attacks. Thus, Russia and China are the key countries to watch for this type of attack in the near term.

Because the Joint Space Operations Center (JSpOC) is already monitoring the movement of all operational satellites worldwide, monitoring any adversary's maneuvering and positioning of its space objects for multiple space-stalking attacks would be part of its responsibility. The sensors and process to alert satellite owners of potential collisions can also be used to alert the US military of potential space-stalking attacks, if JSpOC is provided with warning criteria for such imminent attacks. In addition to ground-based optical and radio telescopes and the space-based space surveillance constellation, the Geosynchronous Space Situational Awareness Program (GSSAP) can and should play a major role in the defense against space stalkers. Two GSSAP satellites were launched successfully into a near-geosynchronous orbit in July 2014. Gen William Shelton, former commander of Air Force Space Command, told reporters that "this neighborhood watch twosome will help protect our precious assets in GEO (high-altitude orbit), plus they will be on the lookout for nefarious capability other nations may try to place in that critical orbital regime."⁵² An Air Force fact sheet states,

GSSAP satellites will operate near the geosynchronous belt and will have the capability to perform rendezvous and proximity operations (RPO). RPO allows for the space vehicle to maneuver near a resident space object of interest, enabling characterization for anomaly resolution and enhanced surveillance, while maintaining flight safety. Data from GSSAP will uniquely contribute to timely and accurate orbital predictions, enhancing our knowledge of the geosynchronous orbit environment, and further enabling space flight safety to include satellite collision avoidance."⁵³

Just as with JSpOC, the GSSAP can be used for both avoiding accidental collision and alerting DOD of potential space stalkers and helping to defend against them. Also, since a GSSAP satellite can perform RPO, it can get extremely close to a space object for an inspection. Although the GSSAP satellite might not have a very high confidence of distinguishing a space stalker from a garden-variety satellite, a close-up inspection might still identify suspicious space objects and keep a close eye on them, especially those that can maneuver and move quickly. The Air Force launched another pair of GSSAP satellites in August 2016.

Since the civil use of the RPO capability is crucial to both countries, this dual-use capability is unlikely to be banned. On the other hand, in principle an RPO capability, such as one manifested in GSSAP satellites, could be tasked to attack Chinese satellites. The United States should declare that the prohibition of space stalkers in threatening their prey is a two-way street and would not so position multiple GSSAP satellites and other space-stalking-capable satellites to threaten Chinese satellites. Thus, China would benefit from this declaration or agreement as well. Also, the United States does not need to conduct multiple RPOs at the same time and would sacrifice little in not doing so.

Adopting a policy of using preemptive self-defense against space-stalker attacks must be based on satisfactory answers to four questions:

1. Under what situations is the threat of preemptive self-defense as a deterrent justified and stabilizing?
2. How can the policy of preemptive self-defense be structured to “strike the right balance between assurance efforts measurable by the adversary, and those that must remain more ambiguous?”⁵⁴
3. How does the United States assure that preemptive self-defense cannot be used as a pretext for aggression?
4. What development and acquisition programs are needed so preemptive self-defense is effective in deterring and defending against space stalkers?

Justification of Preemptive Self-Defense against Space Stalkers

In the 2016 Center for a New American Security report cited earlier, Colby stated that “a space defense strategy that relied excessively, let alone exclusively, on striking an adversary’s counterspace assets preemptively could thus put the nation in an impossible political-military position, one in which it would be required to strike early in a crisis to ensure it could attack a potential adversary’s counterspace architecture before they dispersed or readied their defenses. It seems clear that no American political leader would want to be forced into such a position, and with ample reason.”⁵⁵ His statement reflects well the concerns of those in the United States and abroad who are against preemption in space. Thus, any suggestion of preemption in space needs to answer Colby’s concerns. First, the use of preemption is reserved as the last

resort and only against a specific threat of space stalkers as opposed to other space threats. Second, Colby's preemption is not self-defense but first strike against "adversary's counterspace architecture before they dispersed or readied their defenses." His argument is drawn from classic nuclear deterrence theory that a first nuclear strike that can significantly, if not totally, disable an opponent's second nuclear strike capability is destabilizing and dangerous. But this is irrelevant to the case of deterring space-stalker attacks, because the US preemptive self-defense action is meant to disable space stalkers only and not to make a first strike against an adversary's counterspace architecture before it is dispersed or readied for defense. Preemptive action does not destroy adversary's counterspace capability. Most importantly, the United States' currently ambiguous self-defense posture could lead the international community to believe that the preemptive self-defense was indeed a "first strike" that Colby worried about as destabilizing. Indeed, an ambiguous self-defense is destabilizing, as it is unclear whether the country posing the stalking threat or the country firing the first shot in the course of self-defense is the aggressor. In contrast, the international community, in peacetime and well before crisis, should know that the aggressor is the nation readying the multiple space-stalking attacks and the preemption is not the first strike but part of the right of self-defense. With such an understanding well in advance of crisis, preemptive self-defense as the last resort enhances space stability.

Facing a new game-changing threat under development in China, the United States can no longer remain ambiguous about preemptive self-defense.⁵⁶ US self-defense doctrine and policies, as well as those in other nations, have long been strongly influenced by Article 51 of the United Nations Charter: "Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if armed attack occurs against a Member of the United Nations."⁵⁷ Georgetown University Prof. of Government and Foreign Service Anthony Arend stated, "Although the basic contours of Article 51 seem straightforward, its effect on the customary right of anticipatory self-defense is unclear."⁵⁸ There are two interpretations: restrictive and broad. Legal scholars who are proponents of a restrictive interpretation of "armed attack occurs" allow self-defense only after attack has started. Other legal scholars take a broad view that the Charter does not "impair the inherent right" embedded in the customary international laws, which allow anticipatory

or preemptive self-defense if certain conditions are met. Typical conditions were suggested as far back as 1842 by US Secretary of State Daniel Webster in the Caroline case.⁵⁹ Subsequently, jurists like Roberto Ago in 1980 came to a similar set of conditions: necessity, proportionality, and immediacy.⁶⁰

The attacks of 11 September 2001 confirmed the need for preemptive self-defense in specific situations and led to the 2002 *US National Security Strategy*: “For centuries, international law recognized that nations need not suffer an attack before they can lawfully take action to defend themselves against forces that present an imminent danger of attack.”⁶¹ This premise should apply to preemptive self-defense against space stalkers as well, provided that Ago’s three conditions are met. First, this preemption is necessary because the United States cannot defend with, as Ago stated, “measures not involving the use of armed force.”⁶² For example, the Stimson’s proposed Space Code Agreement recommends establishing “a system of consultation for the purpose of resolving expeditiously any incident, ambiguous development, or concern which may arise pertinent to the obligations contained in this Agreement.”⁶³

Unfortunately, no consultation and resolution can be expeditious enough when the space stalkers are set to attack at a moment’s notice. Preemptive self-defense might be the only option. If so, the best way forward is to limit the right of preemption against space stalkers to only justified situations and as the last resort. Second, the preemption is also proportional because, as proposed here, the preemption is not allowed to go beyond what is necessary to disable this attack. Third, self-defense must take place immediately, as the attack could happen at any moment with little warning and the outcome would be devastating. It is this immediacy that distinguishes a necessary preemptive war from the optional preventive war, which rightly could be considered as a pretext for aggression and should be avoided. Some analysts might argue that China’s close positioning of stalkers might not signal an imminent attack as its intent was merely to deter the United States from terrestrial intervention. Because intent is unobservable, this article proposes the use of a self-defense zone that observably determines that China had infringed into an area that justifies preemptive self-defense as the last resort, as China had gained the ability to mount successful attacks at any time of its choosing.

Preemption against space stalkers would comply with the broad view of Article 51, as it satisfies Ago's three conditions. However, for those insisting on its restrictive interpretation, the United States should respond that such an interpretation drafted in October 1945 understandably could not anticipate and counter the space-stalker threat seven decades later. Article 51 was designed against armed attack that takes time to prepare and gives warning by the massing of soldiers and weapon systems for an attack. The defender would have alternative responses, including the referral of the threat to the United Nations for peaceful resolution. However, in the case of space stalkers, there is no time for referral and no means other than preemption to neutralize the imminent threat.

Balancing Assurance and Ambiguity

How can the United States strike a balance between revealing capabilities and concealing capabilities, as both Loverro and Deputy Secretary of Defense Bob Work insisted,⁶⁴ in the application of self-defense to deter and defend against space stalkers? The analysis thus far indicates that preemptive self-defense can be effective to defend against and deter space-stalker attacks. Unfortunately, preemption is loaded with stigmas in the minds of many officials, experts, and the public domestically and internationally. Indeed, a policy of preemption against all space threats or even a specific threat under other than absolutely necessary situations is inadvisable and, fortunately, not needed. On the other hand, the space-stalker threat is so dangerous, and the technological and political environment has changed so much, that preemption as a last resort against space stalkers calls for an open-minded examination by all parties. Thus the United States should make its potential adversaries understand that configuring space stalkers for multiple attacks is an aggression that will draw self-defensive measures, including preemption as last resort. The United States should also demonstrate that it has the capability to defeat the space-stalking threat. On the other hand, the United States need not detail which and how specific self-defense measures would be used under various space-stalking situations.

Preemptive self-defense performed during a crisis without any forewarning in peacetime would surprise allies, friends, and others and limit their full understanding and support for US actions. It could even lead many of them to treat the United States as the instigator of a space war. Further, if the United States ruled out the use of preemptive self-defense

for any situation now, it would prevent developing and acquiring the best types of capabilities or even adequate capabilities for preemptive self-defense against space stalkers.

Allaying the Danger of Using Preemption as a Pretext for Aggression

Many governmental officials and space experts alike would not endorse preemptive self-defense for two reasons. First, they argue that if one needs to resort to self-defense, it is far better to exercise it after the attack, because it fits the transparent norm that the first mover is the attacker and the second mover is the defender and, thus, self-defense after an attack is far more justifiable. Second, they are concerned that preemptive self-defense can be used as a cover for aggression. Some are even concerned about self-defense whether before or after the attack. For example, it has been reported that countries across Latin America and a few African countries object to even the reference in the Space Code of Conduct to the right to self-defense under Article 51 of the UN Charter, because these countries fear accelerating “the process of space weaponization” and want to avoid “resorting to military solutions in space rather than diplomatic means.”⁶⁵

Indeed, exercising self-defense after an attack is far better than before an attack, provided the former is so effective that it can deter the attack in the first place. Unfortunately, self-defense after an attack cannot save many of the satellites attacked by space stalkers. Instead of deterring the space-stalker attack, ineffective self-defense after an attack emboldens the use of space stalkers as a threat that can deter US intervention. While the fear of using preemptive self-defense as a pretext for aggression is real, the restrictions outlined in this article should eliminate this fear. Simply put, once the threshold on the number of space stalkers is known and justified during peacetime, preemption against space stalkers exceeding the threshold should be considered self-defense and those not exceeding the threshold, an aggression. Since the number of space stalkers next to another nation’s satellites is observable at the time of preemption and verifiable afterward, there is little ambiguity whether the preemption is self-defense or aggression. In contrast, there would be far more ambiguity and instability under the current situation when the international community cannot even tell who is the aggressor or defender. The country positioning its space objects next to another

nation's satellites would say these space objects are ordinary satellites and not space stalkers, as no one can reliably distinguish one from the other. It would further claim that another nation's act is not preemptive self-defense but an attack to destroy its innocent satellites that just happen to be very near US satellites and flying in the same orbit. This country could point out that currently there is no agreement against any number of such nearby satellites. Thus, a well-designed policy of preemptive self-defense is far more stabilizing for space peace than the current situation full of ambiguity and instability.

Preemptive self-defense against space stalkers could be favored by proponents of an ASAT ban because preemption as a last resort would still be needed as insurance to guard against space objects that appeared as satellites but actually were ASATs. The sensitive issue of preemption in space should be deliberated and resolved, as it is a prerequisite for agreements, whether banning or allowing ASATs. The Committee on National Security Space Defense and Protection agreed with an earlier observation in a study by the Center for International and Security Studies that "a national discussion updating public awareness of the changing character of the space domain simply has not yet occurred."⁶⁶ Such a discussion would help the public better support US policy and programs for self-defense, when it is necessary—as in the case of space stalkers—and how preemptive self-defense as the last resort can be conducted without being construed as a pretext for aggression.

Developing Preemptive Self-Defense Capability against Space Stalkers

On 12 April 2016, Deputy Secretary of Defense Work said, "an advanced U.S. satellite can cost upwards of \$1 billion—even more when you factor in launch and operating costs."⁶⁷ Loverro said something similar: "An advanced U.S. satellite might cost upwards of \$1 billion; missiles that could destroy such a satellite cost a few percent of that sum; co-orbital microsattellites cost even less."⁶⁸ Space systems are expensive to develop and acquire. The cost to defend space systems or their backup systems is also high, especially when the United States is facing both growing traditional threats such as direct-ascent ballistic missiles, jammers, and lasers and emerging new threats such as cyber attacks and space stalkers. Fundamentally, a defender has to defend all critical space systems, but an attacker can focus its resources to attack only a few.

Therefore, the cost of defense is much higher than that of attack. This asymmetric penalty could be so high that the United States could not afford to protect the needed space missions against Chinese attack. On the other hand, preemptive self-defense makes effective defense much cheaper and more feasible. If positioning space stalkers for attack is considered by the international community as an aggression, the defender could now gain back some of the initiative by eliminating the threat before the attack.

The Defense Innovation Initiative discussed earlier can help develop a preemptive self-defense capability.⁶⁹ Clear goals will facilitate talented people from inside and outside government to assemble the right technologies to attain each goal most efficiently. Having specific, big goals can guide commercial innovation and technologies in dealing with current and future threats under tight defense budgets. Deterring a space Pearl Harbor can serve as such a goal. At the same time, DII can provide access to the commercial disruptive innovation and technologies that the defensive capability required for this deterrence needs. Therefore, connecting DII and space Pearl Harbor deterrence is mutually beneficial. Mounting attacks from close proximity provides only a short time for the United States to detect and defeat the attacks. The United States needs to monitor space objects and detect space stalkers in near real-time. Performing this monitoring task successfully would require the orchestration of advanced sensor technologies, visualization, advanced computing, big-data analytics, and artificial intelligence. The commercial sector excels in these technologies. After detection, the United States still needs to disable the space stalker quickly and without generating space debris. The disabling could be reversible so that the space stalkers are not harmed permanently. This disabling task would require the aforementioned technologies. Also, it would require robotics, autonomous operating guidance and control systems, and miniaturization. Some of these technologies, which Work has highlighted for defending against traditional space threats, would be useful against space stalkers as well.⁷⁰

A defensive capability is a prerequisite for a credible deterrence. The concept of self-defense zones and other ideas discussed in this article can turn the practically impossible job of protection into simply a difficult one. The following four development and acquisition programs for a stabilizing preemptive self-defense capability need the best efforts from DOD, including attracting commercial talents through DII and other venues.⁷¹

Real-time Awareness

Space situational-awareness programs should include the development of real-time monitoring of space objects in, or quickly maneuverable into, close proximity to important US satellites. This real-time awareness program would also be useful against other space-based ASATs as well as traditional ground-launched ASAT missiles.

Defensive Devices

The United States should coordinate the design of self-defense zones and that of defensive devices so space stalkers can be disabled in a timely manner and with minimal debris in the useful orbits. For example, the kill mechanism could paint a space stalker's sensors or bend or severely degrade its antennae and solar panels. As discussed above, commercial innovators are in a good position to combine advanced technologies in sensing, robotics, and miniaturization to physically protect satellites.

Defensive Cyber Measures

The United States also should develop capabilities such as jamming or spoofing the communications links used to command and/or control space stalkers' maneuvers and kill mechanism. Again, cyber capability in the private sector can play a key role in denying space stalkers' ability to navigate, target, or reach their prey. Using such temporary and reversible techniques, as opposed to physical destruction, could further reduce stigma against preemptive self-defense even if it is used as last resort. Reversibility could attract support from undecided nations, because they could better see that the purpose of these capabilities is to deny attacks as opposed to permanently damaging the space assets of other countries. The temporary disabling measures would be discontinued once the aggressor disassembled its threatening space-stalking configuration. A reversible capability is stabilizing as the prospect of escalation by either party is much reduced.

Combined Operations Center

A new Joint Interagency Combined Space Operations Center was created in October 2015 and renamed the National Space Defense Center (NSDC) in April 2017. With the center "meant to protect satellites from potential attack," the DOD has pointed to space systems as the first fruits of the

third offset strategy.⁷² The center “will have the capability to develop, test, validate and integrate new space system tactics, techniques and procedures in support of both DOD and Intelligence Community space operations. The increasing threat to space capabilities necessitates better operational integration of these two space communities, as well as civil, commercial, allied and international partners. The [NSDC] experimentation and test effort will boost the ability to detect, characterize, and attribute irresponsible or threatening space activity in a timely manner.”⁷³ The center can and should play an important role in developing effective concepts of operation and tactics to deal with the space-stalker threat and act as a key operator to direct defenses against this threat.

In sum, the United States as well as other nations should forewarn any party that positioning space stalkers for surprise attack would be treated as an aggressive act and the perpetrator considered an aggressor. Once this position is clearly defined in peacetime, existing and developing defense measures then will have the necessary warning time to defeat the space stalkers and protect the threatened satellites. On the other hand, specifically which actions and measures to undertake and in what sequence depend on the deliberation of the DOD in coordination with other departments.

Developing New Agreements on Weapons in Space

There is a silver lining in the emerging space-stalker threat if this threat finally convinces the international community that current proposals such as PPWT or no first placement of weapons in space have fundamental flaws. Many space weapons cannot be banned since they cannot be reliably distinguished from garden-variety satellites. Not resolving this flaw is a key reason no treaty on weapons in space exists in spite of repeated attempts since the dawn of the space age in 1957. Not only is the United States finding that the currently active proposals about weapons in space do not meet its national interests, but also it is losing international support on this matter. On 7 December 2015, the United Nations General Assembly adopted a Russian-led resolution, which initially was coauthored by Brazil and China, calling for a nonbinding restriction against the first placement of weapons in outer space. Only the United States, Ukraine, and Georgia voted against the resolution, while the states of the European Union, Australia, Japan, South Korea, and others totaled to 47 abstentions; 129 nations voted in

favor. The United States must now take the initiative to introduce the countering of space-stalking threats as an added focus into UN disarmament fora. For example, the United States should pursue agreements in space transparency and confidence-building measures and agreements on a principle declaring the party that configures and readies the space-stalker attack as the aggressor and the defending state has the right of self-defense, including preemption even before the imminent attack, to reversibly or irreversibly negate the space-stalker threat.⁷⁴ Against the emerging space-stalker threat, the United States must develop a policy concerning the conditions and timing under which self-defense could be used against a tailgating configuration threatening multiple satellites of another country. This new approach in dealing with weapons in space can address the US concerns about the draft PPWT and the proposal on no first placement of weapons in space without condemning the ideas. However, any proposal must explicitly resolve the concerns about space stalkers raised here. Specifically, the new approach should include these items:

- The definition of an aggressor must explicitly include one that poses a threatening configuration, and the defender must explicitly have the right of self-defense even before an imminent attack as the last resort.
- Because the word preemptive has the stigma of being used as a pretext for aggression, a new term should be developed and agreed upon to reflect the right to use self-defense before attack under necessary conditions as the last resort.
- The concept of self-defense zones against certain types of space weapons such as space stalkers is needed in conjunction with the outright ban of some other types of weapons in space. Self-defense zones can be used to prevent attacks from close quarters. The zonal concept and banning need not be mutually exclusive and can be used complementarily. For example, the United States can participate in both international efforts to develop a self-defense zone against some weapons and ban other weapons that can be distinguished from ordinary satellite even when they are in space. Someday, countries including the United States might even agree to intrusive inspection by a UN-sanctioned team on satellites before launch so as to assure they cannot be effectively used as ASATs.

- The United States should develop a new proposal or a modification to PPWT for effectively dealing with weapons in space as opposed to the current passive strategy of opposing others' proposals while losing international support.
- The US proposal must be able to deal with specific threats under specific situations. Being a defender, the United States cannot be satisfied with a general strategy and capability that deals with most of the threats but leaves holes for space stalkers.
- The United States should take advantage of the mechanism and offices already dealing actively with disarmament. For example, the definition of aggressor and the concept of a self-defense zone should be introduced into the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities under the United Nations. It should explicitly argue that effective defense is a prerequisite for effective deterrence. Also important are the international cooperation and coordination in space surveillance and agreement monitoring and verification.
- The US-proposed space measures and agreements, in conjunction with current US space defense capability, must be able to deal with contemporaneous threats, not just threats of the future. Even if future satellites could be equipped to be perfectly resilient, existing satellites will remain still critical and vulnerable.

The State Department should work closely with the DOD to propose, consult, and negotiate transparency and confidence-building measures and space agreements with the international community that account for the threat of space stalkers. Realistically, potential adversaries are far more likely to want the United Nations to adopt alternative space proposals, which ignore the space-stalking threat. If this occurs, the United States must be prepared to unilaterally declare a policy of preemptive defense and implement capabilities to deal with the space-stalker threat, supported by as many allies and friends as possible. Once potential adversaries recognize that the United States possesses an effective space deterrence and defense strategy including countering space stalkers, they may well reevaluate their own proposals and find themselves better off by joining the realistic approach of the United States and other nations in keeping the peace in space.

Conclusion

The emerging space-stalker threat being developed by China and Russia under the cover of dual-use technologies cannot be addressed by traditional measures including reconstitution, defensive operations after attack, or resilience. These nations could find space stalkers to be the perfect space system to present the United States with two bad choices. First, the United States could preemptively destroy the space stalkers to save the targeted satellites. However, without discussing the sensitive issue of preemption with its allies and friends in peacetime, the United States could be treated as the aggressor that started a war in space. Second, it could fight without the support of satellites. Facing these two bad choices might prevent US intervention. To avoid these poor choices, the United States should evaluate the emerging space-stalker threat and the defense and deterrence against it, including a reexamination of preemptive self-defense as the last resort. With the popular argument and sentiment against preemption, preemptive self-defense as a last resort must be clearly restricted to space stalkers under situations that are justified for its use and cannot be used as a pretext for aggression. It is time to go beyond the concerns of the space stalkers into ways to defeat and deter them. Avoiding a space Pearl Harbor is a critical issue for the Trump administration and requires thoughtful and open-minded deliberation among all interested parties domestically and internationally. ■■■

Notes

1. While many more satellites have been launched into Earth orbit, there are currently only 1,381 satellites still operational. These satellites are owned or operated by 82 countries and organizations. NASA defines three classes of Earth orbits: high, mid, and low. Holly Riebeck, "Catalog of Earth Satellite Orbits," NASA Earth Observatory, 4 September 2009, <http://earthobservatory.nasa.gov/Features/OrbitsCatalog/>. Those at or above the altitude of 35,780 km are called high Earth orbits. They include geosynchronous Earth orbits (GEO) at around 35,780 km. A GEO satellite has the same rotation period as that of the Earth in about 23 hours 56 minutes and 4 seconds or a sidereal day. Further, if a GEO satellite travels in the same orbital plane as that of the Earth's equator, it is stationary in the sky from an Earth observer and is in a geostationary Earth orbit (GSO). More typically, an Earth observer sees a typical GEO satellite tracing out a figure 8 in the sky over a sidereal day. Satellite orbits between altitudes of 2,000 km and 35,780 km are called mid Earth orbits, which include medium Earth orbits (MEO) and elliptical Earth orbits (EEO). While MEOs are more common as shown in table 1, EEOs such as the Molniya orbit have much higher eccentricity. Low Earth orbits (LEO) are those at altitudes between 180 km and 2,000 km. In GEOs, the United States has 176 satellites. It has 32 satellites in MEOs; 327 satellites in LEOs; and 19

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satellites in EEOs. China has 176 operational satellites and has overtaken Russia as having the second largest number of operational satellites. The total number of 1,381 satellites worldwide from the Union of Concerned Scientists satellite database matches well with “roughly 1,300 of those are active satellites. The rest are debris,” as stated by Lt Gen John W. Raymond at the Air Force Space Command symposium. See “The Battle Above,” CBS’s *60 Minutes*, 26 April 2015, <http://www.cbsnews.com/news/rare-look-at-space-command-satellite-defense-60-minutes-2/>.

2. Office of the Secretary of Defense (OSD), “Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2013,” 2013, 33, http://www.defense.gov/Portals/1/Documents/pubs/2013_China_Report_FINAL.pdf.

3. OSD, “Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2014,” 24 April 2014, 32, http://www.defense.gov/Portals/1/Documents/pubs/2014_DOD_China_Report.pdf.

4. OSD, “Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2015,” 7 April 2015, 14–15, http://www.defense.gov/Portals/1/Documents/pubs/2015_China_Military_Power_Report.pdf.

5. OSD, “Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2016,” 26 April 2016, 37, <http://www.defense.gov/Portals/1/Documents/pubs/2016%20China%20Military%20Power%20Report.pdf>.

6. Christian Davenport, “A Fight to Protect ‘the Most Valuable Real Estate in Space,’” *Washington Post*, 9 May 2016, 4–5, https://www.washingtonpost.com/business/economy/a-fight-to-protect-the-most-valuable-real-estate-in-space/2016/05/09/df590af2-1144-11e6-8967-7ac733c56f12_story.html.

7. CBS, “The Battle Above.”

8. Department of Defense (DOD), *The Department of Defense Cyber Strategy*, April 2015, 2, https://www.defense.gov/Portals/1/features/2015/0415_cyber-strategy/Final_2015_DoD_CYBER_STRATEGY_for_web.pdf. “During a conflict, the Defense Department assumes that a potential adversary will seek to target U.S. or allied critical infrastructure and military networks to gain a strategic advantage.” See also Jana Robinson, “Governance Challenges at the Intersection of Space and Cyber Security,” *The Space Review*, 15 February 2016, 2, <http://www.thespacereview.com/article/2923/1>. Robinson, space security program director at the Prague Security Studies Institute, provided a treatise on how “space operations are entirely cyberspace dependent.”

9. U.S.-China Economic and Security Review Commission (USCC), “2015 Report to Congress of the U.S.-China Economic and Security Review Commission,” November 2015, 295, https://www.uscc.gov/Annual_Reports/2015-annual-report-congress.

10. *Ibid.*, 294.

11. Jim Sciutto, “War in Space: The Next Battlefield,” CNN Special Report, 29 November 2016, https://www.youtube.com/watch?v=j-ZBLFhb_lg. Also, the highlight of kamikaze and kidnapper satellites is available from Jim Sciutto and Jennifer Rizzo, “War in Space: Kamikazes, Kidnapper Satellites and Lasers,” CNN, 29 November 2016, <http://www.cnn.com/2016/11/29/politics/space-war-lasers-satellites-russia-china/>.

12. David Wright, “How High Did China’s May 2013 Launch Go?,” Union of Concerned Scientists (website), 13 March 2014, <http://allthingsnuclear.org/dwright/how-high-did-chinas-may-2013-launch-go>. Wright used computer modeling to show that “a trajectory with an apogee at GEO would have a total flight time of about 7.9 hours.” The time to reach apogee is somewhat more than half of the flight time due to the extra time for acceleration to reach the highest initial speed. China’s direct ascent ballistic missile, which was launched in

May 2013 and interpreted by some US reports as a test of a rocket that could carry ASAT to GEO, would take about four hours to reach apogee or GEO. Of course, using a larger, more powerful and expensive rocket could reduce this time.

13. The Russian Luch satellite was launched 28 September 2014. A *SpaceNews* article stated that, "The satellite's movements were observed months after the Air Force said it was watching two other Russian military satellites, each with maneuvering capabilities that are consistent with, but not necessarily indicative of, an on-orbit antisatellite weapon." The article stated, "In a response to questions from *SpaceNews*, Air Force Capt. Nicholas Mercurio, a spokesman for U.S. Strategic Command's Joint Functional Component Command (JFCC) for Space, said in an Oct. 8 email that the Luch satellite has come within 5 kilometers of another satellite on three occasions since its launch. He did not identify the satellite," and that "five kilometers is extremely close for geosynchronous satellites and usually requires satellite operators to closely work together to minimize the chance of a collision. The Russian satellite was so close, Kay Sears, president of Intelsat General, said she believed 'the safety of flight' of the Intelsat satellites was at risk." Mike Gruss, "Russian Satellite Maneuvers, Silence Worry Intelsat," *SpaceNews*, 9 October 2015, <http://spaceneews.com/russian-satellite-maneuvers-silence-worry-intelsat/>. It is reasonable to conclude that Russia's maneuvering and positioning capability applicable to space stalkers is more advanced than China's.

14. Leonard David, "Russian Satellite Hit by Debris from Chinese Anti-Satellite Test," *Space.com*, 8 March 2013, 1, <http://www.space.com/20138-russian-satellite-chinese-space-junk.html>.

15. Mike Gruss, "U.S. State Department: China Tested Anti-satellite Weapon," *SpaceNews*, 28 July 2014, <http://spaceneews.com/41413us-state-department-china-tested-anti-satellite-weapon/>.

16. Colin Clark, "Chinese ASAT Was 'Successful:' Lt. Gen. Raymond," *BreakingDefense* (website), 14 April 2015, <http://breakingdefense.com/2015/04/chinese-asat-test-was-successful-lt-gen-raymond/>.

17. USCC, "2015 Report to Congress," 295.

18. *Ibid.*

19. *Ibid.*

20. Doug Messier, "Chinese Space Program Increases International Cooperation," *Parabolic Arc* (blog), 10 May 2016, <http://www.parabolicarc.com/2016/05/10/chinese-space-program-increases-international-cooperation/>.

21. Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT), draft, proposed by China and Russia, 12 June 2014, 2, <http://www.cfr.org/space/treaty-prevention-placement-weapons-outer-space-threat-use-force-against-outer-space-objects-ppwt/p26678>.

22. Delegation of the United States of America to the Conference on Disarmament, "Analysis of the 2014 Russian-Chinese Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects," Conference on Disarmament, CD/1998, 3 September 2014, 2, <http://daccess-ods.un.org/access.nsf/Get?OpenAgent&DS=CD/1998&Lang=E>.

23. USCC, "2008 Report to Congress of the U.S.-China Economic and Security Review Commission," November 2008, 8, http://www.uscc.gov/Annual_Reports/2008-annual-report-congress.

24. Commission to Assess United States National Security Space Management and Organization, "Report of the Commission to Assess United States National Security Space Management and Organization," 11 January 2001, 13, <http://www.DOD.mil/pubs/spaceintro.pdf>.

25. Ibid., 15.

26. Craig Murray, "China Missile Launch May Have Tested Part of a New Anti-Satellite Capability," USCC Staff Research Backgrounder, 22 May 2013, https://www.uscc.gov/sites/default/files/Research/China%20Missile%20Launch%20May%20Have%20Tested%20Part%20of%20a%20New%20Anti-Satellite%20Capability_.

27. Statement of Douglas Loverro, deputy assistant secretary of defense (Space Policy), before the House Committee on Armed Services and Subcommittee on Strategic Forces on Fiscal Year 2016 National Defense Authorization Budget Request for National Security Space Activities, 25 March 2015, 5, <http://docs.house.gov/meetings/AS/AS29/20150325/103106/HHRG-114-AS29-Wstate-LoverroD-20150325.pdf>.

28. Statement of Douglas Loverro, deputy assistant secretary of defense (Space Policy), before the Subcommittee on Strategic Forces, House Armed Services Committee on Fiscal Year 2017 National Defense Authorization Budget Request for National Security Space Activities, 15 March 2016, 6, <http://docs.house.gov/meetings/AS/AS29/20160315/104620/HHRG-114-AS29-Wstate-LoverroD-20160315.pdf>.

29. Ibid., 4, 7, and 9.

30. Secretary of Defense and Director of National Intelligence, *National Security Space Strategy*, Unclassified Summary, January 2011, 10, http://www.defense.gov/Portals/1/features/defenseReviews/NSSS/NationalSecuritySpaceStrategyUnclassifiedSummary_Jan2011.pdf.

31. European Union, *International Code of Conduct for Outer Space Activities*, 31 March 2014, https://eeas.europa.eu/headquarters/headquarters-homepage_en/14715/EU%20proposal%20for%20an%20international%20Space%20Code%20of%20Conduct,%20Draft.

32. Forrest Morgan, *Deterrence and First-Strike Stability in Space: A Preliminary Assessment*, RAND Report MG916 (Santa Monica, CA: RAND, 2010), xiv, http://www.rand.org/content/dam/rand/pubs/monographs/2010/RAND_MG916.pdf.

33. Loverro, statement, 2017 National Security Space Activities, 6.

34. Eric Heginbotham, Michael Nixon, Forrest E. Morgan, Jacob Heim, Jeff Hagan, Sheng Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady, and Lyle J. Morris, *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND Report RR-392-AF (Santa Monica, CA: RAND, 2015), http://www.rand.org/pubs/research_reports/RR392.html.

35. Elbridge Colby, *From Sanctuary to Battlefield: A Framework for a U.S. Defense and Deterrence Strategy for Space* (Washington, DC: Center for a New American Security, January 2016), https://s3.amazonaws.com/files.cnas.org/documents/CNAS-Space-Report_16107.pdf.

36. Brian Weeden and Xiao He, "U.S.-China Strategic Relations in Space," in *U.S.-China Relations in Strategic Domains*, ed. Travis Tanner and Wang Dong, NBR Special Report #57 (Seattle, WA: National Bureau of Asian Research, April 2016), 80, http://www.nbr.org/publications/specialreport/pdf/Free/06192016/SR57_US-China_April2016.pdf.

37. Ibid., 81. See also Brian Chow, "Avoiding Space War Needs a New Approach," *Defense News*, 16 September 2015, <http://www.defensenews.com/story/defense/commentary/2015/09/16/avoiding-space-war-needs-new-approach/32523905/>.

38. Rebecca Heinrichs, "Space and the Right to Self Defense" (Washington, DC: Hudson Institute, June 2016), <http://www.hudson.org/research/12593-space-and-the-right-to-self-defense>.

39. Theresa Hitchens and Joan Johnson-Freese, *Toward a New National Security Space Strategy: Time for a Strategic Rebalancing*, Atlantic Council Strategy Paper No. 5 (Washington, DC: Atlantic Council, June 2016), 21–22, http://www.atlanticcouncil.org/images/publications/AC_StrategyPapers_No5_Space_WEB1.pdf.

40. Ibid., 4.

41. National Academies of Sciences, Engineering, and Medicine, *National Security Space Defense and Protection: Public Report* (Washington, DC: The National Academies Press, August 2016), <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=08162016>.

42. Secretary of Defense, memorandum, subject: The Defense Innovation Initiative, 15 November 2014, 1, <http://www.defense.gov/Portals/1/Documents/pubs/OSD013411-14.pdf>.

43. United Nations, Convention on the Law of the Sea (CLOS), Article 33, accessed 8 March 2017, http://www.un.org/Depts/los/convention_agreements/texts/unclos/part2.htm.

44. Albert Wohlstetter and Brian G. Chow, "Arms Control That Could Work," Op-ed, *Wall Street Journal*, 17 July 1985, 28, <http://www.npolicy.org/userfiles/file/Nuclear%20Heuristics-Arms%20Control%20That%20Could%20Work.pdf>. While the concept of self-defense zones in space was first enunciated over three decades ago, the current article contains a practical and effective means of implementing the concept for defeating the emerging space stalker threat.

45. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, United Nations Office for Disarmament Affairs, 1, accessed 28 October 2016, http://disarmament.un.org/treaties/t/outer_space/text.

46. Convention on Registration of Objects Launched into Outer Space, accessed 30 October 2016, http://www.unoosa.org/pdf/gares/ARES_29_3235E.pdf.

47. United Nations, CLOS, Article 17, 24.

48. If the longitudes of the ascending or descending node of two GEO satellites are identical, there needs to be a slight difference in their perigees and/or apogees to avoid collision at their common longitude, even if they do not have the same inclination. This slight difference is routinely maintained for such a pair of satellites, whether from different countries or the same country. For example, of the eight US-China pairs with the same longitude (at zero degree) and one pair with a mere 0.03-degree difference in their longitudes (according to the Union of Concerned Scientists' satellite database of 31 December 2015), the smallest inclination difference in a pair is 0.2 degree. For this pair, the perigee of the Chinese satellite is 14 km larger than that of the US satellite, while the Chinese satellite's apogee is 4 km smaller, resulting in the closest separation of 5 km between the two satellites when both are at their common longitude of zero degree. Their separation grows to 148 km when they reach their apogees. Attacking a satellite from an orbit with a different inclination would need additional energy and fuel for plane change. Moreover, stationing a space stalker at a different inclination would result in varying separation distance with its prey and make coordination of simultaneous attacks with other space stalkers more difficult than mounting an attack from an orbit that is co-orbital with its prey (i.e. a space stalker and its prey are in the same orbit).

49. John Bradford, "2015 Small Satellite Market Observations" (Atlanta, GA: SpaceWorks Enterprises Inc., 2015), http://www.spaceworksforecast.com/docs/SpaceWorks_Small_Satellite_Market_Observations_2015.pdf.

50. Peter B. de Selding, "Virgin, Qualcomm Invest in OneWeb Satellite Internet Venture," *SpaceNews*, 15 January 2015, <http://spacenews.com/virgin-qualcomm-invest-in-global-satellite-internet-plan/>.

51. Jonathan O'Callaghan, "SpaceX Prepares to 'Build the Internet' in Space": Elon Musk Files Proposal to Test Vast Fleet of Satellites that Will Provide Cheap Global Web Coverage," *Daily Mail*, 10 June 2015, <http://www.dailymail.co.uk/sciencetech/article-3118142/SpaceX-prepares-build-internet-SPACE-Elon-Musk-files-proposal-test-vast-fleet-satellites-provide-cheap-global-web-coverage.html>.

52. Agence France-Presse, "US Air Force to Launch New Spy Satellites to Keep an Eye on What Other Nations Are Doing in Space," Raw Story, 23 July 2014, <http://www.rawstory.com>.

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53. Air Force Space Command, “Geosynchronous Space Situational Awareness Program (GSSAP),” US Air Force Fact Sheet, April 2015, <http://www.afspc.af.mil/About-Us/Fact-Sheets/Article/730802/geosynchronous-space-situational-awareness-program-gssap>.

54. Bob Work, deputy secretary of defense (remarks, Space Symposium, Colorado Springs, CO, 12 April 2016), 6, <http://www.defense.gov/News/Speeches/Speech-View/Article/723498/remarks-at-the-space-symposium>; and Loverro, *2017 National Security Space Activities*, 6.

55. Colby, *From Sanctuary to Battlefield*, 11.

56. Brian Chow, “China’s New Space Threat and the Justification of US Pre-Emptive Self-Defense,” *The Space Review*, 18 January 2016, <http://www.thespacereview.com/article/2903/1>.

57. United Nations, Article 51 of the Charter of the United Nations, 3, accessed 20 August 2016, <http://www.un.org/en/sections/un-charter/chapter-viii/index.html>.

58. Anthony Clark Arend, “International Law and the Preemptive Use of Military Force,” *Washington Quarterly*, Spring 2003, 92, http://www.cfr.org/content/publications/attachments/highlight/03spring_arend.pdf.

59. To learn more about this nineteenth-century encounter along the US-Canadian border, see “British-American Diplomacy: The Caroline Case,” The Avalon Project, Yale Law School, Lillian Goldman Law Library, accessed 8 March 2017, http://avalon.law.yale.edu/19th_century/br-1842d.asp.

60. Roberto Ago, *Addendum: Eighth Report on State Responsibility by Mr. Roberto Ago, Special Rapporteur—the Internationally Wrongful Act of the State, Source of International Responsibility (part 1)*, extract from the Yearbook of the International Law Commission, 1980, vol. II(1), Document:-A/CN.4/318/Add.5-7, United Nations, 69, http://legal.un.org/ilc/documentation/english/a_cn4_318_add5_7.pdf.

61. The White House, *The National Security Strategy of the United States of America*, September 2002, 15, <http://www.globalsecurity.org/military/library/policy/national/nss-020920.pdf>.

62. Ago, *Addendum*, 69.

63. Stimson Center, *Model Code of Conduct for the Prevention of Incidents and Dangerous Military Practices in Outer Space* (Washington, DC: Stimson Center, 19 May 2004), see Article XVIII, <http://www.acronym.org.uk/old/archive/dd/dd77/77mkmh.htm>.

64. Work, remarks, Space Symposium, 6; and Loverro, *2017 National Security Space Activities*, 6.

65. Rajeswari Pillai Rajagopalan and Daniel A. Porras, “EU Courts Support for Space Code of Conduct,” *SpaceNews*, 14 July 2014, 3, <http://spacenews.com/41254eu-courts-support-for-space-code-of-conduct/>.

66. Committee on National Security, *National Security Space Defense*, 30.

67. Work, remarks, Space Symposium, 5.

68. Loverro, *2017 National Security Space Activities*, 7.

69. Brian Chow, “How the Defense Innovation Initiative Can Help Deter a ‘Space Pearl Harbor,’” *The Space Review*, 4 April 2016, <http://www.thespacereview.com/article/2957/1>.

70. Bob Work, deputy secretary of defense (address, Center for a New American Security Inaugural Security Forum, Washington, DC, 14 December 2015), 9, 10, 12, and 13, <http://www.defense.gov/News/Speeches/Speech-View/Article/634214/cnas-defense-forum>.

71. Brian Chow, “Fund Pre-emptive Self-Defense in Space,” *DefenseNews*, 25 October 2015, <http://www.defensenews.com/story/defense/commentary/2015/10/20/fund-pre-emptive-self-defense-space/74263522/>.

72. Jared Serbu, “Space Systems Are First Fruits of DOD’s ‘Third Offset Strategy,’” *Federal News Radio*, 31 March 2016, 1, <http://federalnewsradio.com/defense/2016/03/space-systems-first-fruits-DODs-third-offset-strategy/>. Also see Colin Clark, “JICSPoC Morphs to

'National Space Defense Center,' What It Means," *Breaking Defense*, 4 April 2017, <http://breakingdefense.com/2017/04/jicspoc-morphs-to-national-space-defense-center-what-it-means/>.

73. US Strategic Command, "New Joint Interagency Combined Space Operations Center to Be Established," news release, 11 September 2015, 1, <http://www.defense.gov/News/News-Releases/News-Release-View/Article/616969/new-joint-interagency-combined-space-operations-center-to-be-established?source=GovDelivery>.

74. Brian Chow, "Avoiding Space War Needs a New Approach," *DefenseNews*, 16 September 2015, <http://www.defensenews.com/story/defense/commentary/2015/09/16/avoiding-space-war-needs-new-approach/32523905/>.

Toward Strategic Nuclear Funding: The USSOCOM Model

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Abstract

Though the nuclear mission “shapes” the strategic landscape in ways that are less obviously utilitarian, it remains necessary for US security and global leadership. Today the nuclear enterprise is in a situation similar to that of special operations in the 1980s—at risk of being unable to fulfill its mission. A root cause that currently challenges the nuclear mission is a reliance on the services for funding. The services tend to prioritize funding the more pressing and far more utilized conventional mission over strategic requirements. This bias contributes to underinvestment in the nuclear mission. As the United States struggles to improve its nuclear preparedness, granting the nuclear mission its own congressional funding line could restore capabilities and readiness to this strategic mission. A new funding mechanism could also reinvigorate and advance the strategic mission of nuclear deterrence.

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Since their conception, nuclear weapons have been a critically important part of US national security. Their sheer power and potential for widespread devastation demand the world’s highest levels of respect and caution. However, despite nuclear weapons’ incredible destructive capability, their relative importance and commensurate levels of funding have varied greatly along with the geostrategic landscape. Throughout the Cold War (1947–91), the relative importance of the nuclear mission helped it maintain its status as the ultimate guarantor of national security.

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After the dissolution of the Soviet Union in 1991, the world seemed to breathe a collective sigh of relief, allowing the specter of mutually assured destruction to somewhat fade from its collective consciousness. The relative importance of nuclear weapons continued to wane in the twenty-first century, when the global war on terrorism forced the United States to become more focused on employing conventional forces. This caused the nuclear mission to reach a relative low point regarding funding, credibility, and readiness. In recent years, a resurgent Russia, a nuclear-armed North Korea, an aspiring Iran, and the potential for regionalized nuclear arms races in the Middle East and Northeast Asia all have increased the relative importance of the nuclear mission.

However, contemporary nuclear forces, much like special operations in the 1980s, are in a degraded state and have a compromised ability to accomplish their strategic mission. Unfortunately, the price to simultaneously rebuild all three legs of the triad, nearly from scratch, is daunting.¹ But given that this mission underpins national security, failure to maintain a credible deterrent is not optional. As former US Strategic Command (USSTRATCOM) Commander Adm Cecil Haney stated, “Maintaining and modernizing the nation’s nuclear triad isn’t debatable even in times of tight budgets.”² And while maintaining a survivable capability to respond with at least one leg of the triad is certainly important, this article treats the overall neglect of nuclear forces rather than survivability. With this in mind, to reverse the effects of decades of underinvestment requires not only a realistic assessment of the mission’s current state but also a deliberate plan to return it to sound footing—regardless the force posture. One area deserving assessment is the current funding mechanism that, for decades, failed to sustain and modernize the nuclear mission. Given the services’ previous track record and the likely continued pressure to modernize the conventional capabilities, it is unrealistic to expect they would reliably fund the critical nuclear mission into the future.

Furthermore, geopolitical shifts coupled with a series of mishaps that exposed the precarious state of the nuclear mission forced the nation to assess the health of America’s nuclear enterprise and garner support for reform and modernization efforts. National leaders have placed a renewed emphasis on the nuclear mission and have begun efforts to improve its trajectory. One positive step toward revitalizing the nuclear triad (strategic bombers, intercontinental ballistic missiles, and submarine-launched

ballistic missiles) was former Secretary of Defense Ashton Carter's acknowledgment that the nuclear deterrent forms the "bedrock of U.S. defense strategy," citing it as the "highest priority mission" and pledging to lead efforts to invest, innovate, and rebuild the nation's nuclear mission.³ This renewed emphasis is also reflected in some of the fundamental documents that underpin national security, such as the president's *National Security Strategy*, the Pentagon's 2014 *Quadrennial Defense Review (QDR)*, and the chairman of the Joint Chiefs of Staff's *National Military Strategy*.⁴ All of these documents outline the critical role that the nuclear mission plays in the national security of the United States. In the case of the *QDR*, the nuclear deterrent was prioritized ahead of homeland defense as the nation's most important mission. The results of these assessments brought to light that decades of underinvestment and prioritization of other missions left the nuclear mission in a degraded state of preparedness. Revitalizing it will require significant measures.

Fundamental to restoring credibility of the nuclear mission is ensuring appropriate funding. The Pentagon recognized that the current funding construct, which in recent decades failed to adequately resource the nuclear enterprise, is likely ill-suited to fund this mission appropriately going forward. One concept presented to overcome this challenge is the development of a separate Department of Defense (DOD)-wide national nuclear modernization fund. Ostensibly, this fund would pay the expenses required to upgrade all three legs of the outdated nuclear triad by the mid-2020s.⁵ As the nation grapples with how to maintain a viable nuclear deterrent, it should implement a funding mechanism similar to that of US Special Operations Command (USSOCOM), which bypasses the services. In years past, the services neglected funding for the special operations mission with disastrous results. Similarly, since the Cold War, the services have revealed a preference for conventional programs at the expense of the nuclear mission. The result of these funding priorities is an outdated nuclear capability that requires a comprehensive overhaul in nearly all aspects. Given the massive costs associated with these upgrades, both the Air Force and Navy have expressed interest in unburdening their respective services from funding the expensive modernization initiatives. The Navy has already embraced a National Sea-Based Deterrence Fund to garner necessary funding for modernizing its submarines. Creating a service-specific fund to rectify

resourcing shortfalls prompted the Air Force to request equal treatment for its legs of the triad.⁶

As military officials and lawmakers assess how to appropriately fund the nuclear mission, especially after a decades-long funding hiatus leading to all the bills coming due at the same time, they should consider lessons learned from the Special Operations Command mechanism. Creating a new funding mechanism in which Congress awards USSTRATCOM its own congressional funding line for the nuclear mission could greatly advance the US nuclear deterrent in several ways.⁷ Adopting this USSOCOM-style funding mechanism could increase the likelihood of being adequately funded in times of volatility and limited resources, demand greater accountability from both military and national leaders for this important mission, improve strategic messaging for renewed importance of the nuclear mission, and create a more unified and coherent nuclear enterprise that is less prone to interservice rivalry—one better positioned to synchronize procurement requirements with the nuclear posture and mission.

Service Priorities and the Decline of the Nuclear Mission

The current state of the nuclear enterprise is a result of decades of prioritizing other mission sets at the expense of the nuclear mission. The evidence of this neglect is reflected in the degraded state of equipment, outdated delivery systems, and a lack of professionalism and readiness of the service members trusted to employ nuclear weapons. Instead of funding the nuclear mission, resources were diverted to support conventional forces. In the wake of the June 2014 report issued by retired Air Force Gen Larry D. Welch and Navy Adm John C. Harvey Jr.'s Nuclear Deterrent Enterprise Review Groups, then-Secretary of Defense Chuck Hagel cited insufficient resourcing as a root cause for the nuclear mission's decline, acknowledging, "A consistent lack of investment and support for our nuclear forces—over far too many years—has left us with too little margin to cope with mounting stresses. The reviews [the independent and internal Nuclear Enterprise Reviews] found evidence of systemic problems that, if not addressed, could undermine the safety, security and effectiveness of the elements of the force in the future."⁸

One of the most poignant examples highlighting inadequate resourcing and a lack of preparedness relates to the ground-based portion of the triad. The intercontinental ballistic missile (ICBM) system of record,

the LGM-30G Minuteman III, dates to the 1960s and has arrived at the end of its service life. The combination of advanced age and consistent underfunding for the past 20 years has left this mission in a precarious state. Blast doors in missile silos failed to seal shut. Critical certified tools required to perform maintenance on nuclear warheads were in short supply.⁹ Launch control centers faced repeated sustainment challenges, leaving equipment broken for months or years.¹⁰ The helicopter fleet—the UH-1N Huey—charged with protecting these nuclear assets and transporting key personnel is among the oldest in the Air Force’s inventory. The inability of these helicopters to fully accomplish their mission has long put the ground-based leg of the triad at risk.¹¹ These challenges represent a subset of numerous other challenges facing ICBMs. Yet, the most daunting and expensive task required to put the ground-based leg of the triad back on sound footing remains to be done: upgrading the missiles themselves or replacing them with the ground-based strategic deterrent (GBSD).

The sea-based leg of the triad also symbolizes years of the Navy prioritizing other mission sets at the nuclear mission’s expense. Like the ICBMs, the nuclear-equipped, Ohio-class ballistic missile submarines have also reached an advanced age and require upgrades or replacements. Budgeting and planning uncertainties have left the program to develop and field a replacement submarine (SSBN[X]) behind schedule, forcing the Navy to extend these craft beyond their planned 30-year service life. And while these submarines will be overhauled concurrently with the development and fielding of a replacement, projections suggest the Navy’s stock of nuclear-equipped submarines—either Ohio-class or its replacement—will drop to 10 or 11 between 2029 and 2040. These numbers are below the 12 required to keep sufficient numbers on nuclear deterrence patrols.¹²

The air-based leg, currently composed of nuclear-capable B-52 and B-2 bombers, has generally fared better than its triad counterparts. The B-21 long-range strike bomber (LRS-B) has benefited from an accelerated funding and development timeline and is slated to enter service by the mid-2020s.¹³ This new bomber will replace the venerable B-52 bomber, whose maiden flight occurred in the early 1950s. Yet despite the B-52’s advanced age, the airframe stayed relevant and capable over the past 60 years through routine and consistent upgrades. A key difference that explains the extra attention bombers received relative to their ground

and sea counterparts is that they have long maintained a conventional mission. In other words, dual-capable aircraft, such as B-52s, B-2s, and certain fighters, which are capable of delivering both nuclear and conventional weapons, benefited from the Air Force's need to execute the conventional mission in the post-Cold War environment. In contrast, funding for the Air Force's ICBMs, which always fulfilled a strictly nuclear mission, fell by the wayside.

The current degraded state of the nuclear enterprise is evidence that the funding mechanism in place since the Cold War, which allowed the services wide discretion to determine priorities, failed to sustain the nuclear mission. This is not to say the services did not face other challenges during these years. Since the fall of the Soviet Union, the United States has been in a state of near perpetual conflict, mostly conventional in nature. From the first Gulf War, to the Balkans, Afghanistan, Operation Iraqi Freedom, and now Syria and the Islamic State of Iraq and the Levant, the services have been compelled, time and again, to address these pressing conventional threats. Underfunding of the strategic nuclear mission was not likely a deliberate decision but rather a byproduct of the services reacting to the nearest threat to fund conflicts. In other words, investment in the nuclear mission was crowded out by the near-term conventional threats.

Moreover, the services' revealed preference to fund conventional over nuclear is consistent with observed behavior patterns studied in the social sciences. Numerous studies demonstrate that agents consistently exhibit a bias that favors near-term gratification rather than waiting for larger payoff in the future.¹⁴ When framed in the context of the post-Cold War environment, the services' myopic bias to fund the pressing conventional mission at the expense of longer-term strategic nuclear deterrence is understandable. Terrorism, not nuclear holocaust, was forefront in the minds of the military and society. America's children no longer hunkered under their desks to practice "duck and cover" drills in preparation for an inbound nuclear strike. Instead, the focus was squarely on terrorism, and schoolchildren now train to safeguard themselves against the more tangible terrorism threats, such as active shooters. Lawmakers and military leaders, along with the rest of the United States, became accustomed to onerous screening at airports and the sight of gas masks at subway stations. These ever-present symbols remind Americans of their conventional conflicts, making them feel safe and justifying expen-

ditures on the conventional mission. On the other hand, the bombers, ICBMs, and nuclear submarines of the nuclear triad failed to be as ubiquitous. And despite the ICBM force maintaining nonstop nuclear alert operations throughout this period, the nuclear mission was out of sight and out of mind for the American public and its military.

The context of the post–Cold War environment explains—but does not justify—the military’s spending priorities in these years. During this period, America’s strategic nuclear deterrent still underpinned national security. Despite the overarching importance of the nuclear mission, though, preparedness devolved into its current degraded state, such that the United States must develop a strategy to rebuild its nuclear triad nearly from scratch. In this sense, the services’ discounting the readiness of their most important strategic mission can be thought of as a system failure. And when systems fail to produce optimal outcomes, positive and deliberate interventions are often required. To overcome the inadequacies of the current funding mechanism, the USSOCOM model provides lessons on how deliberate intervention can ensure viability of certain strategic missions.

Lessons from the USSOCOM Model

In the 1980s, as special operations struggled to achieve its mission, Congress identified the services’ inability to appropriately prioritize and fund this mission as causal. In response Congress awarded the newly created US Special Operations Command its own checkbook, with funds appropriated directly by Congress rather than through the services. This change formed the foundation that enabled special operations to obtain the consistent resourcing required to reestablish credibility and return this mission to sound footing. Today’s nuclear mission finds itself at a crossroads similar to that of US special operations forces decades ago. When special operations forces remained distributed across all services and exclusively dependent on the services for funding, readiness suffered. Structural reforms were necessary to reinvigorate the special operations mission and ensure it remained prepared to accomplish its strategic mission. Some of the lessons learned from this period may provide insights to help the nuclear mission again achieve a high state of readiness.

USSOCOM was created in the 1980s, a decade removed from the conflict in Vietnam, during a period with little focus or enthusiasm for nontraditional forms of warfare. In this environment, when the Soviet

Union was still the major threat, other missions were viewed as a higher priority than developing the more nuanced capabilities of special operations. As such, the services incrementally minimized expenditures on this mission. The Air Force's AC-130 gunships transitioned to reserve status and were removed from the Air Force budget after 1979. The MC-130 Combat Talon, which provides infiltration, exfiltration, and resupply of special operations forces, no longer received updates or modifications. The Navy followed suit, decommissioning its only special operations-capable submarine. Overall, the services left special operations in a precarious state of readiness.¹⁵

In April 1980, when the US military launched a failed operation to rescue American hostages held in the US embassy in Iran, the weakness of special operations was brought to light. This joint operation, named Operation Eagle Claw, was supported by assets from every branch of service. The services' collective budget cuts from this mission left operators ill-prepared and without the specialized transportation and equipment needed to successfully conduct this operation. In addition to failing to rescue the hostages, eight Americans died during the mission.¹⁶

In response to Operation Eagle Claw, Adm James L. Holloway Jr., a retired former chief of naval operations, led an investigation to analyze the causes of failure. Holloway's report cited mission planning, command and control, and joint interoperability challenges as causal. He further assessed that if this operation had been launched against a more experienced and better-equipped adversary, the outcome would have been even worse.¹⁷ Holloway's findings did not go unnoticed on Capitol Hill, and the report proved a catalyst for DOD reform, eventually leading to the Goldwater-Nichols Act that, among several changes, mandated a higher degree of cooperation between the services.

Despite Goldwater-Nichols, Sen. Sam Nunn (D-GA), Sen. William Cohen (R-ME), and Rep. Dan Daniel (D-VA) remained unconvinced that the military would take the additional necessary measures required to adequately reform special operations and took it upon themselves to lead further reforms. In May 1986, the senators introduced the Nunn-Cohen Act, which called for a special operations forces (SOF) joint military organization with a designated special funding line and budget authority under major force program 11 (MFP-11). Then-Pres. Ronald Reagan approved the establishment of the new command and activated USSOCOM on 16 April 1987.¹⁸

MFP-11 was designed “to provide the incremental funding necessary for Special Operations Forces’ unique capabilities and items, rather than to supplement or supplant activities that are or should be provided by the military services.”¹⁹ USSOCOM’s budget covers specific SOF related items such as uniforms, specialized training, and equipment (to include air, land, and sea platforms). The DOD budget for the regular forces covers all non-SOF related services and equipment, even those services and equipment that are occasionally used by SOF. Ultimately, USSOCOM’s funding line allowed this new functional combatant command to achieve operational readiness un beholden to the services and to form the foundation for today’s force, capable and adequately prepared for future threats.

Operation Eagle Claw’s failure highlighted the importance of SOF and that conventional forces are not always sufficient to conduct specialized, strategic missions in denied areas. Nunn, Cohen, and Daniel recognized that the services’ decision-making bias toward near-term requirements jeopardized SOF’s long-run sustainability and took action to ensure this mission became adequately trained, integrated, and funded.

As with SOF in the 1980s, today’s nuclear mission finds itself in a similar position where the services’ focus on the near-term conventional mission crowded out alternative strategic missions. Already, the deficiencies found within the nuclear mission have caused many to rethink the compatibility of the current funding mechanism with revitalization efforts.²⁰ In today’s current funding mechanism, where the services have wide discretion to establish their funding priorities, the nuclear mission continues to risk losing out to the conventional mission in times of scarce budgets. With that in mind, creating a system that recognizes the nuclear deterrent as the true bedrock of national security may require a new generation of clairvoyant senators and congressmen to step forward and ensure the nuclear mission is funded appropriately.

A New Funding Mechanism: USSTRATCOM

Presently, the Department of Energy (DOE) and the services jointly fund the nuclear enterprise with the Air Force and Navy completely funding their respective legs of the triad. The Air Force assumes all the costs of the ICBMs and aircraft-delivered bombs and missile bodies, as well as all of the costs associated with fielding the B-21 (LRS-B). Likewise, the Navy assumes responsibility for funding the SLBM body and

100 percent of the acquisition fees associated with the Navy Ohio Class Replacement Submarine (SSBN[X]). This status quo funding model continues to require that the services consider tradeoffs between funding nuclear or conventional forces. In recent decades, for example, the Navy has consistently chosen to fund aircraft carriers rather than new nuclear weapon–equipped submarines, and the Air Force seemed to devote funds to a wide spectrum of conventional capabilities at the expense of its ICBMs. Given the services' revealed preference for funding conventional capabilities, under the present funding mechanism, there is increased risk that research and development (R&D) for nuclear assets will continue to be underfunded.

An alternative to the current funding mechanism for the nuclear mission is to use USSTRATCOM as the primary vehicle to fund the nuclear mission. Similar to special operations that used USSOCOM as its funding vehicle, the nuclear mission would likewise be funded by USSTRATCOM, directly from Congress. This change would relieve the services of budgetary oversight for the nuclear triad. Furthermore, consolidating funding under USSTRATCOM would improve unification within the nuclear enterprise and mitigate interservice funding rivalry generated by service-specific initiatives such as the National Sea-Based Deterrence Fund.²¹ USSTRATCOM, like USSOCOM, is a functional combatant command, which maintains the responsibility for executing strategic missions throughout the world. In many ways, the uniqueness of USSOCOM as a functional combatant command underpins the rationale for adopting a similar funding framework for USSTRATCOM.²² A failure to adequately fund these missions, which the geographic combatant commands have no organic capabilities to accomplish by themselves, generates global strategic risk. The following three funding options offer varying degrees of service oversight in funding the nuclear mission. In each case, the DOE would fund the nuclear warheads associated with Air Force ICBMs, Navy SLBMs, and aircraft-launched nuclear weapons.

The first funding option is an absolute model, in which USSTRATCOM's nuclear mission is fully funded by Congress to develop and maintain the entire nuclear triad. Under this option, USSTRATCOM would fund R&D, procurement, and maintenance costs for each air-delivered weapon and weapon system over its entire lifecycle. This option would include current and projected costs for SSBN(X), LRS-B, the proposed GBSD, and future

modernization of any nuclear-related system. Once the SSBN(X), LRS-B, and GBSD are delivered to the military, USSTRATCOM will continue to fund the maintenance and operational costs of these assets until they are retired from service or assigned a conventional-only mission. This option requires the greatest financial commitment to USSTRATCOM while providing the best strategic messaging regarding the nuclear triad. USSTRATCOM funds and maintains control of all three legs of the nuclear triad, while the Air Force and Navy are required to train service members. This option permits the conventional military to operate without diverting funding from established conventional programs.

The second option available to the government is the handoff model. Under this proposal, USSTRATCOM funds R&D, procurement, and modernization costs for all current and planned nuclear weapons systems as above. However, the individual services would fund maintenance on the nuclear triad and train all personnel in employment. The handoff option offers the advantage of proactive funding for the bulk of the nuclear mission outside most of the service budget competition. It represents a modest risk approach since the only service component funding requirement is training and maintenance.

The third alternative is a hybrid model. Under this plan, USSTRATCOM and the services would split the costs of R&D and procurement for the nuclear triad systems. However, once a system reached initial operational capability (IOC), the services assume the financial responsibility to maintain the system, modernize it, and train personnel until the assets are removed from service. The hybrid model allows the services to share the financial burden associated with fielding a new weapon system. However, because the R&D and acquisition are paid by both the services and USSTRATCOM, the Air Force and Navy would most likely have to cut funding to conventional programs to help fund nuclear acquisitions. By diverting funds from established and forecasted conventional programs, the services must assume additional risk in those areas until the SSBN(X), LRS-B, and GBSD have completed R&D.

The hybrid model represents the option with the least departure from the status quo funding model and thus represents the greatest risk to future sustainment efforts as it still allows services discretion to prioritize other missions over nuclear. Therefore, adopting either the absolute or hand-off option, which allows for funding and sustainment of the nuclear mission at least through IOC, may represent the best choice for funding

the nuclear mission. However, any of these options would require congressional support to change Title 10 of the US Code. While amending the US Code is difficult, it may be necessary to improve the nuclear deterrent.

Conclusion

As the nation considers how, or if, to implement a special nuclear fund, the USSOCOM model provides a useful template for consideration. Adopting a similar model to fund the nuclear mission could rejuvenate the nuclear mission by offering four clear benefits. First, utilizing USSTRATCOM as the vehicle to finance the nuclear mission improves the likelihood that it will remain funded, even in times of volatility and limited resources. Funding the nuclear mission as the default position, as opposed to requiring agents to opt-in, represents a powerful change to increase the probability it would receive adequate resourcing.²³ If lawmakers were required to take deliberate actions to divert funding from the sustainment and modernization efforts in the nuclear mission, they would be less inclined to do so. Furthermore, in this proposed construct the Navy and Air Force would no longer directly have to internally debate difficult funding decisions between competing conventional and nuclear missions. For example, the Navy would be spared a difficult decision to fund nuclear missile-capable submarines at the expense of aircraft carriers.

Second, this proposed funding mechanism shifts more of the accountability for this mission from the military to the national leaders, who, ultimately, should share greater responsibility for ensuring the viability and credibility of the strategic nuclear deterrent. Nonetheless, this change does not guarantee future funding for the nuclear mission as it would remain possible for Congress to under-resource it. However, holding lawmakers directly accountable for sustaining the mission may make them think twice before doing so. As the stewards trusted to execute the mission, the military would still maintain a crucial role to ensure readiness. However, by transferring resourcing decisions to Congress, the services would be somewhat relieved of the responsibility to ensure this unique and critical mission remained appropriately funded. In this sense, this change would more closely align the responsibility for this crucial mission at a more appropriate national and strategic level. Ultimately, national leaders, not the

services, would be held more accountable to citizens and the military for ensuring a viable deterrent.

A third advantage of this proposal is strategic messaging. Changing the funding process signals to American citizens, allies, and enemies the reemergence and preeminence of this strategic mission. In other words, it demonstrates that the nuclear deterrent actually does form the bedrock of US national security. America and its allies that depend on the US nuclear deterrent will correctly interpret that the nuclear mission has garnered the attention of the highest levels of government. Likewise, enemies that may have begun to question the health of America's nuclear force will construe that the nuclear mission has returned to become the top strategic priority.

The fourth benefit of funding the nuclear mission through USSTRATCOM is that this change would bring more structure and coherence to the nuclear enterprise. General Welch's and Admiral Harvey's 2014 Independent Review of the Department of Defense Nuclear Enterprise found little evidence of unity within the nuclear enterprise despite the office of the secretary of defense and the services referring to it as if it were a "coherent, integrated structure."²⁴ Funding the nuclear mission under one umbrella, rather than being dispersed across services, could help address this issue to simplify and consolidate the nuclear triad currently described as a "loose federation of separate nuclear activities."²⁵ A single broker, with a broader scope of responsibility for funding the nuclear mission, would be better equipped to match resourcing and procurement requirements with nuclear strategy, posture, and mission.

Overall, lessons learned from special operations provide a useful framework on how to restore credibility and improve readiness in today's nuclear mission. However, as the United States searches for ways to address these challenges it must bear in mind a key difference between today's degraded nuclear mission and the circumstances that led to the creation of a separately funded functional combatant command for special operations. In the 1980s, the services and the nation had the luxury to learn from its mistakes in Operation Eagle Claw and implement sensible and meaningful reforms. Unfortunately, given the incredibly high stakes associated with the nuclear mission, there is no margin for error. Conducting an after-action report for failed nuclear deterrence is not the answer. **SSO**

Notes

1. Kingston Reif, "Executive Summary," U.S. Nuclear Modernization Programs, Arms Control Association, under "Fact Sheets and Briefs," December 2015, <https://www.armscontrol.org/factsheets/USNuclearModernization>. The Department of Energy is responsible for the funding of nuclear warheads; the military is responsible for funding everything else for the nuclear triad.

2. John Grady, "U.S. USSTRATCOM Commander Haney Defends U.S. Nuclear Triad," *UNSI News*, 22 January 2016, <https://news.usni.org/2016/01/22/u-s-stratcom-commander-haney-defends-u-s-nuclear-triad>.

3. Jim Garamone, "Carter: DoD Will Rebuild, Sustain its Nuclear Deterrence Enterprise," *Defense.gov*, 26 September 2016, <http://www.defense.gov/News/Article/Article/956050/carter-dod-will-rebuild-sustain-its-nuclear-deterrence-enterprise>.

4. Pres. Barack Obama, *National Security Strategy* 2015 (Washington, DC: Office of the President, 6 February 2015), <http://nssarchive.us/national-security-strategy-2015/>; Obama, *National Security Strategy* 2010 (Washington, DC: Office of the President, 27 May 2010), <http://nssarchive.us/national-security-strategy-2010/>; Department of Defense, *Quadrennial Defense Review* 2014 (Washington, DC: Office of the Secretary of Defense, 4 March 2014), <https://www.defense.gov/News/Special-Reports/QDR>; and Michael G. Mullen, *The National Military Strategy of the United States of America 2011: Redefining America's Military Leadership* (Washington, DC: Joint Chiefs of Staff, 8 February 2011), <http://books.google.com/books?id=n035gVcjYawC>.

5. Aaron Mehta, "Carter Open to DoD-wide Nuclear Weapons Fund," *Defense News*, 18 March 2016, <http://www.defensenews.com/story/defense/policy-budget/budget/2016/03/18/carter-open-department-wide-nuclear-weapons-fund/81972126/>.

6. Ibid.

7. The proposal here deliberately excludes separate funding for the space or cyber mission within US Strategic Command (USSTRATCOM). Only USSTRATCOM's nuclear mission would be granted its own funding line, while the space and cyber missions would continue with their current funding mechanisms.

8. Secretary of Defense Chuck Hagel, "Nuclear Enterprise Review and Reforms" (statement, Pentagon Press Briefing Room, Washington, DC, 14 November 2014), <http://www.defense.gov/News/Speeches/Speech-View/Article/606634/statement-on-the-nuclear-enterprise-review-reforms>.

9. David E. Sanger and William J. Broad, "Pentagon Studies Reveal Major Nuclear Problems," *New York Times*, 13 November 2014, http://www.nytimes.com/2014/11/14/us/politics/pentagon-studies-reveal-major-nuclear-problems.html?_r=0.

10. John C. Harvey Jr. and Larry D. Welch, "Independent Review of the Department of Defense Nuclear Enterprise," 2 June 2014, <http://archive.defense.gov/pubs/Independent-Nuclear-Enterprise-Review-Report-30-June-2014.pdf>.

11. Marina Malenic, "USAF Issues RFI for Huey Replacement," *IHS Janes Defence Weekly*, 16 September 2016, <http://www.janes.com/article/63879/usaf-issues-rfi-for-huey-replacement>.

12. Erik Slavin, "Nuclear Missile Submarine Deploys as US Mulls Future of Replacement," *Stars and Stripes*, 16 March 2016, <http://www.military.com/daily-news/2016/03/16/nuclear-missile-submarine-deploys-as-us-mulls-future-replacement.html>.

13. Dave Majumdar, "Beyond the Ohio-Class: Inside America's Next-Generation Missile Submarine," *National Interest*, 19 May 2016, <http://nationalinterest.org/feature/beyond-the-ohio-class-inside-americas-next-generation-16270>.

14. See Ted O'Donoghue and Matthew Rabin, "Doing It Now or Later," *The American Economic Review* 89, no. 1 (March 1999): 103, <http://www.jstor.org/stable/116981>; and J. T. Warner and Saul Pleeter, "The Personal Discount Rate: Evidence from Military Downsizing Programs," *The American Economic Review* 91, no. 1 (March 2001): 32–33, <http://www.jstor.org/stable/2677897>.

15. William G. Boykin, "Special Operations and Low Intensity Conflict Legislation: Why Was it Passed and Have the Voids Been Filled?" (individual study project, US Army War College, 12 April 1991), 5, accessed 28 March 2017, <http://www.dtic.mil/dtic/tr/fulltext/u2/a235154.pdf>.

16. Ibid.

17. Dwight John Zimmerman, "From WW II to Nunn-Cohen," Defense Media Network, 25 August 2010, <http://www.defensemianetwork.com/stories/from-world-war-ii-to-nunn-cohen-socom-history-part-1/>.

18. Boykin, "Special Operations and Low Intensity Conflict Legislation," 29–30, 33, 36.

19. Andrew Feickert, "U.S. Special Operations Forces (SOF): Background and Issues for Congress," Congressional Research Service, 18 September 2013, 14, accessed 28 March 2017, www.dtic.mil/get-tr-doc/pdf?AD=ADA587142.

20. Mackenzie Eaglen, "Funding America's Nuclear Triad," *National Interest*, 13 May 2015, <http://nationalinterest.org/feature/funding-americas-nuclear-triad-12872>.

21. Megan Eckstein, "Congress Saves Ohio-Replacement Sub Fund for Second Time in 2 Months," USNI News, 11 June 2015, <https://news.usni.org/2015/06/11/congress-saves-ohio-replacement-sub-fund-for-second-time-in-2-months>. The National Sea-Based Deterrence Fund, which is modeled on the National Defense Sealift Fund, creates a special fund for the ballistic missile submarine replacement program. However, since this fund is tied directly to the nuclear mission, it encourages the Air Force to request equal treatment for its legs of the triad. Placing funding responsibilities within USSTRATCOM would encourage funding for all legs of the triad to be synchronized with national strategy, irrespective of the service.

22. Even though USSOCOM has a much smaller budget relative to the nuclear mission and USSTRATCOM, budget size does not underpin the rationale for a separate funding mechanism. Special operations and the nuclear mission are both strategic in nature and may require unique treatment to ensure funding exists for these important missions to remain capable and credible.

23. See Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus, and Giroux, 2011), 14; and R. H. Taylor and C. R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (New York: Penguin Books, 2009), 34, 112.

24. Harvey and Welch, "Independent Review." 5–6.

25. Ibid., 6, 18.

Book Reviews

The Political Ideology of Ayatollah Khamenei: Out of the Mouth of the Supreme Leader of Iran by Yvette Hovsepian-Bearce. Routledge, 2016, 382 pp.

Iran's Byzantine political structure has confounded analysts, diplomats, policy makers and US military and foreign service officers since the 1979 revolution. The nearly impenetrable dynamic between the Supreme Council—the seat of political power for Iran's theocratic clergy—and the democratically elected executive has offered unrealized hope to successive American administrations for a normalization of relations. Offering a close reading of the ayatollah's own words, author Yvette Hovsepian-Bearce concludes that Sayyed Ali Khamenei has succeeded as a strong conservative force continuing to espouse the anti-Western values of the Iranian Revolution. Given Iran's regional aspirations and the complexity of its active policies in Syria, Iraq, and Afghanistan—among other places—Iran's importance on the international stage continues to grow, and the ideology of Khamenei continues to resonate. Drawn from the ayatollah's own speeches and writing, *The Political Ideology of Ayatollah Khamenei* makes exemplary use of a historical methodology harnessed to deepen our understanding of current events. Since few in the West have facility in Farsi or access to the rich documentary sources Hovsepian-Bearce used, this book is an important contribution to the limited available literature.

The work's focus is on the influence of the Iranian Republic's second supreme leader, Ayatollah Khamenei, not to be confused with the Ayatollah Sayyid Ruhollah Khomeini, whose image was burned into Western consciousness with the Iranian hostage crisis. Khamenei was selected as Khomeini's ideological heir, and the author concludes that he has faithfully held to the revolutionary ideals of his mentor through principles expressed as *esteqlal* (independence), *āzādī* (freedom), *jomhūrī-ye Islāmī* (the idea of an Islamic Republic). Enshrined in the 1979 constitution, the principle of *vilāyat-i faqīh* (guidance by the clergy) gives the Supreme Council enormous power over both internal and external affairs of the country, especially given its control over the military and security forces (pp. 14–17).

The narrative Hovsepian-Bearce isolates is poignantly anti-Western, evocative of the dependency theorists of Latin America, and strives to position Iran as leader of the Islamic world. (The author does not treat challenges to such leadership from regional actors such as Egypt, Saudi Arabia, or Turkey, though that was not her purpose.) The result is a kind of nationalism blended with Islamism that has led Iran to pursue a policy of domestic economic development and continued regional leadership.

The book is particularly valuable in delving into the tensions between the conservative Supreme Council headed by Khamenei and the forces of reform headed by successive Iranian presidents. The author demonstrates that Khamenei's drive to maintain the principles of the revolution has prevailed in power struggles with successive democratically elected governments, suggesting that Khamenei has been able to overcome resistance over the long haul since he took power soon after the death of Ayatollah Khomeini in 1989. Hovsepian-Bearce clearly illuminates the shifting internal struggles and focuses in particular on how foreign policy is affected. Her conclusion is that at least during Khamenei's lifetime, the ideals of the revolution will continue to have a profound effect on Iran's policies (p. 350). In a post-Khamenei world, the continued influence of such pure "Khomeini-ism" is difficult to say, but for the present, the Supreme Council seems set to continue to steer Iranian policy along the same course charted in the aftermath of the revolution.

The author's work is broken into three unequal parts. The first is a history of Khamenei, pieced together from his autobiographical work and his writings. The second is a useful examination of

Khamenei's policy relationship with each president, from Akbar Hashemi Rafsanjani (1989–97), through Seyyed Mohammad Khatami (1997–2005), Mahmoud Ahmadinejad (2005–13), and Hassan Rouhani (2013–present), while the third offers a thematic distillation of Khamenei's foreign policy.

Hovsepian-Bearce concludes that Khamenei's early encounters with the regime of Mohammad Reza Pahlavi, the shah of Iran—including periods of incarceration and interrogation by SAVAK (the Organization of Intelligence and National Security, the shah's secret police)—contributed to his virulent anti-Western stance. Further, Iran's reliance on oil revenue and efforts to exploit Iran's oil wealth by British and American corporations were seen by Khomeini and are seen by Khamenei as pure colonialism, and like other dependency theorists, they see the American government as leading in a global effort to subjugate other regimes. This is hardly new material, but the steadfast repetition of the same themes throughout Khamenei's long career and his efforts to inculcate new generations of Iranian youth into this point of view underscore the importance of delicacy in proposing rapid integration of any post-Khamenei regime into the global system. Khamenei's efforts may well have succeeded culturally as they have politically to put segments of the Iranian population on guard against what they may see as exploitation, rather than integration and normalization. The author holds out a limited hope for a change in heart: "Nevertheless, it is possible that Ayatollah Khamenei may yet decide to act on a recognition that a majority of Iranians, including President Rouhani's administration, have moved beyond his divisive worldview and are ready to engage peaceably with the world, including the U.S." (p. 360). But there is scant evidence for such temperance in the sources included—indeed, the text suggests caution for would-be reformers from abroad.

The key takeaway from the book is the intense ideological dominance and coherence that Khamenei has successfully enforced on the Iranian regime during his tenure as supreme leader, from 1990 to the present. While popularly elected presidents have advocated a tempering of religious influence and normalization with the West, Hovsepian-Bearce demonstrates a remarkable strength and resilience for conservative Iranian clerics and their vision for Iranian society. Western hopes for a kind of "Arab Spring" in Iran must be tempered by the reality of a powerful clerical body that controls both the military and security establishments and that will likely continue to see engagement with the West as a multipronged cultural, economic, and political threat to their Islamic revolution.

Khamenei's image of Iran as leading the Islamic world may neither correlate with the reality nor resonate with other regional powers—such as Saudi Arabia, Egypt, or Turkey—but the author makes a strong case that it is crucial to understand Khamenei's active and powerful efforts to drive toward this goal. If she is correct, so long as Khamenei remains, he seems likely to maintain a powerfully anti-Western drive for Iranian independence, especially seeking to avoid cultural and economic advances. The control that the Supreme Council has over the Iranian military and security forces seems to ensure continued dominance against the popular drive for normalization and integration.

The book does have a few weaknesses. The narrative contains a number of unsupported summaries about Khamenei's motivations, including the following: "Khatami's presidency did not mean Khamenei was ready for change. . . . Khamenei had no alternative but to show a different image of Iran—a moderate and democratic state. Through Khatami, Khamenei pursued damage control and eliminated threats to the regime and to his power" (p. 131). In the text we do not find evidence that Khamenei worked *through* Khatami rather than against him, a potentially important distinction. Doubtless the author could provide support from the many available sources but does not, which is disappointing given the overwhelming strengths of the many originally translated passages. The text is also dense (as is the primary source material),

sometimes repetitive, and will likely put off less determined readers. More could also have been done with respect to the other regional powers, such as Saudi Arabia and Turkey. We also find nothing to explain the appeal of the Khomeini/Khamenei vision, apart from their engagement with youth on university campuses (p. 350), something that would have made this book still more valuable—though again, this may have been beyond the author’s purview.

Despite these minor issues, this is a useful contribution and an outstanding use of primary source collections. It distills the many available works and succeeds with a thematic analysis giving the reader a clear (if dark) picture of the political ideology of one of the world’s most politically influential religious leaders. We do not really gain a sense of his charismatic ability, but the reader can guess at these owing to the outcome of the political struggles, through which Khamenei has come through victorious time and time again. The book definitely has an American focus, distilling issues of interest to American policy makers, analysts, and foreign service/US military officers. It is a worthy effort, one that may be valuable to close observers of Iran’s political workings.

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Strategy: Context and Adaptation from Archidamus to Airpower edited and authored by Richard J. Bailey Jr., James W. Forsyth Jr., and Mark O. Yeisley. Naval Institute Press, 2016, 288 pp.

As one might expect of a book with the word “context” in its title, what *Strategy: Context and Adaptation from Archidamus to Airpower* gives its reader is heavily context dependent. This collection of essays by instructors at the School of Advanced Air and Space Studies (SAASS) is a must for past and future SAASS students seeking to appreciate and revisit the perspectives of that institution’s renowned faculty. For readers with recent experience anywhere on Maxwell Air Force Base’s Academic Circle, many of the essays will be useful amplifications of familiar themes from curricula that have been heavily influenced by proximity to SAASS. Readers interested in how the faculty of the American military’s most strategically oriented school approaches the task of training the nation’s future military strategists will find much to appreciate. In short, the context of *Strategy* is SAASS and its approach to making and teaching strategy. This is not to say that as a collection of essays about strategy, *Strategy* lacks but to say that these pieces by leading strategic thinkers provide a much clearer editorial position on the building of strategists than they do on the building of strategy.

Although the book’s subtext is consistent throughout, the topics covered are broad and the methods varied. As intimated in the title, the essays range from Socratic dialogue to meditations on the development of strategy in air, space, and cyberspace. The first four essays are essentially philosophical, trending respectively from theory toward practice. Everett Carl Dolman, who literally wrote the book on *Pure Strategy*, begins the series by contemplating the meaning of the word “strategy,” setting the pace for the remainder of the book by ruthlessly defining terms and questioning easy answers. Harold Winton’s exploration of the utility of military theory evokes Heisenberg and cites Jomini en route to describing the importance of theory and the flaws inherent in any theory about the conduct of war. Winton’s warning on theory sets the stage well for James Forsyth’s essay on application of the realist theory of geopolitics to the creation of strategy. Forsyth explains a theory that is famous for putting practical considerations above all others and then demonstrates the moral imperative necessary for its function. James Tucci follows with a fun Socratic dialogue that makes a strong case for the study of the classics, as well as for the Socratic method itself.

The second section of the book is arguably more focused on the practical application of theory to current problems. Stephen Chiabotti's discussion of the symbiotic and cyclic relationship between strategy and technology makes the historical case for strategic innovation informed by morality and context. Richard Muller's essay on airpower history for the education of strategists is the most overtly SAASS-focused essay, and its direct discussion of the pedagogy of strategy is a unique contribution of this book. Jeffrey Smith's insightful chapter on the relationship among theory, strategy, context, and technology in the development of future airpower strategy connects the dots between many of the other essays in the collection. Similarly, M. V. Smith's essay on space power and strategy demonstrates the importance of theory and context in application to a domain that will unquestionably grow in importance to military operations in the future. Richard Bailey's chapter on cyberspace reaches back to Dolman on the need for foundational definitions and struggles impressively with fundamental questions of liberty and interstate cooperation. Mark Yeisley considers the perspective of classical military theorists on irregular warfare and the effectiveness of airpower in what is a growing dimension of conflict, concluding that Airmen deserve greater education and training for the problems of irregular war. Finally, Stephen Wright examines the role of differences and inevitable disconnects between strategists and planners, laying out the differences in necessary mind-set and the problems of shepherding the right people through military careers to arrive intact as strategists. This chapter is a perfect bookend to the collection, as it struggles with the first problem of defining strategists relative to similar types and with the problem of making strategists.

Bailey, Forsyth, and Yeisley have created a book about strategy that explores the topic from its foundation to its frontiers with depth and precision. Importantly, it both describes and demonstrates a method of teaching strategists as it progresses from definition to theory and then application by alumni. By the end of the book, the reader has a much better understanding of how the world's foremost instructors of strategy see the topic and how they see that it should be taught.

Maj Andrew L. Brown, USAF

Soft Power on Hard Problems: Strategic Influence in Irregular Warfare edited by Ajit Maan and Amar Cheema. Hamilton Books. 2017, 133 pp.

Managing modern irregular conflicts requires blending strategic narrative with kinetic options to generate a desired end state. Maan and Cheema's *Soft Power on Hard Problems* combines several similarly focused articles to tease out common threads suggesting narrative structure options for counter-Islamic State of Iraq and the Levant (known as both ISIL and ISIS) campaigns. The text focuses on Middle-Eastern and Muslim cultural barriers which prevent Western cultures from adequately translating conflict resolution messages to broader populations. This problem is frequently referred to in the literature as complex, one which changes rapidly based on one's approach and which viewpoint is first addressed. In these six, short articles, the editors describe communication strategies, tools for building a bottom-up narrative, and narrative messaging examples as they appear in the current conflict. These are worthwhile articles in an easy to read covering a challenging problem.

Soft power emerges from persuasion, hard power from coercion, and the intersection between the two creates the narrative battle where irregular wars are fought and won. These conflicts, and their hearts and minds component, require soft power to change generational thinking rather than simple kinetic solutions. The text concentrates where soft power may be the driving factor to change local and leadership decision calculus. Hard power remains a key warfare

component, however, the text suggests proper soft power applications over the long term will increase overall efficiencies, decrease costs, and save lives.

Some common themes appear as the first and fourth chapters examine communication strategies. The first selection builds a soft power toolbox against ISIS efforts through using five lines of effort (LOE); diplomacy, resolve suffering, grievance resolution, capacity building, and kinetic targeting. LOEs are a common practice when developing planning options, and the author, Paul Cobaugh, explains how one uses them to approach a soft-power, counter-ISIS strategy. Additionally, Cobaugh describes critical soft power strategy elements such as; narrative, credibility, and relationships. The fourth article, by author Christopher Holshek, expands on the initial approach by exploring US civil-military narratives that coordinate international peace and security. This chapter builds an understanding of how military and civilian institutions work together to achieve soft power goals. Holshek's civilian military narrative continues common strategic themes through advocating thinking globally and acting locally. Both provide a framework which could be adapted to one's own soft power strategy.

The two middle chapters focus on how states build soft power frameworks through narrative to achieve counter-terror objectives. Author Amar Cheema specifically focuses on the Syria-Iraq problem and how both the US and Russian states have approached resolving the current crisis. The solution suggests using socioeconomic options to increase the difficulty for ISIS to achieve their financial ends. The biggest shortfall with this chapter was in concluding that US Middle-Eastern goals since Iraq's 2003 invasion seek continual regional chaos in order to lower crude oil prices. The intent was to affect Iranian and Russian income and further reduce their strategic influence by creating an arc of Middle-East instability ranging from Lebanon through Iran, to Afghanistan. This is an interesting theory although it lacks details or textual support from those advocating the policy or the ends. The third chapter, by Erini Patsea, also discusses narratives through how meta-narratives in the Muslim religion constrain regional peace-building efforts. However, the chapter provides excellent insight into how social violence justification through religious practices degrades the communal relationships essential to creating consistent narratives. This part points to the difficulty of blending different cultural perspectives across the geographic scope necessary for irregular warfare.

The final two chapters offer narrative building examples. The fifth chapter discusses how transitioning from a selfless service to committed service narrative in the US military would help create personnel more conducive to soft power approaches. The final chapter explores women's roles in ISIS narratives through demonstrating how, despite an outward terrorist narrative suggesting gender specific restraints, the organization still includes prominent women as recruitment figures. The author, Farhani Qazi, provides numerous examples stating how women may be convinced to advocate for ISIS due to a need for the following desires; revenge, respect, reassurance or recruitment. Women seek revenge for family members, respect for their sacrifices from the larger community, reassurance as equal partners in jihad, or to recruit other women to sustain the larger group. These motives also apply to the committed service narrative through defense or revenge for one in service, for external respect and reassurance, or to recruit towards a larger military whole. Although the motives are not expressed in the same manner, the underlying goals required to achieve a successful narrative do shine through.

The combined articles provide an interesting soft power approach but ironically lack the consistent messaging to achieve a common narrative thread. Each article mentions soft power before combining basic frameworks, building narratives, and creating message structures. A more tailored approach would have increased the reader's understanding of both how and where to apply soft power in the Middle East. The regional focus proved limiting and several

articles set in a different environment would have expanded one's understanding about other soft power applications.

Overall, Maan and Cheema's *Soft Power on Hard Problems* provides an interesting initial look to this challenging problem. The text lacks sufficient detail to be an authoritative source on ISIS, allow one to create a soft power methodology, or significantly change current narrative strategies. The work's strength lies in demonstrating where current narratives exist and how to incorporate opposing cultural perspectives. However, to understand soft power, I recommend Joseph Nye's *The Future of Power* for a general perspective, Sidney Tarrow's *War, States and Contention* to understand cultural contention or even David Galula's *Counterinsurgency: Theory and Practice* as a beginning in this field. Anyone working with nongovernmental approaches or counter-terrorist solutions should add this work to their reading list. The strong perspective from non-Western thinkers will broaden one's outlook through the proposed alternative solutions. Additionally, this short volume is an easy read and well referenced.

Lt Col Mark Peters, USAF

Islam in the Modern World edited by Jeffrey T. Kenny and Ebrahim Moosa. Routledge, Taylor and Francis Group, 2014. 460 pp.

Two distinguished scholars in Islamic studies, Jeffrey Kenny (professor of Religious Studies at DePauw University) and Ebrahim Moosa (professor of Religion and Islamic Studies at Duke University), collaborated to produce one of the most comprehensive and poignant textbooks on the contemporary issues of Islam with the help of leading academics in the field of comparative world religions. The editors organized this anthology of incisive essays around three general categories that lend both coherence and thematic unity to important topics that prove informative and relevant. Under the category of "traditions and transformations," scholars explore the motifs of scriptural hermeneutics, ethical decision-making, the relationship between Islam and political governance, to name only a few. Next, academics under the category of "themes and trends" examine the role of women and gender, the influence of social media especially in the Arab Spring of 2011, the cause and effect of militant movements, and more. Additionally, professors conclude the collection of essays with "case studies of tradition and change" that investigate the dynamics at work in a number of practical applications that range from the rise of Islamic advocacy organizations to the phenomenon of media preachers on the internet. The authors of this compendium have made noteworthy contributions in the area of religion, ethics, and international affairs that deserve our careful attention and promise to challenge our preconceived notions about Islam.

First, readers profit from the credible information provided by world-class academics about the history and the identity of Islam. As one of the leading world religions, Islam claims over 1.6 billion followers, comprising one fourth of the planet's population. Not only is Islam decisive for followers, but also the second largest world religion is significant for our understanding when it comes to international trade, human rights, and political win-wins in a day of increasing global interdependence. Typically, Islam is portrayed by the media as a monolithic whole against the rest of the world, and yet that presentation belies the genuine tension between three constitutive groups: Sunnis, Shias, and Sufis. Scholars help readers to understand the complexities of Islamic theology and the internal debate by Ulama (scholars) over the proper interpretations of the Quran (sacred text), Sunna (tradition), Hadiths (sermonic applications of the Quran), and Sharia (moral laws). Instead of discovering one primary tradition for Islam, readers find a number of competing traditions and values that make up the religion of Islam. A broadened knowledge of Islam from a fresh perspective of informed writers can only enhance

mutual understanding and help resolve international crises that are exacerbated by ignorance, stereotype, and caricature reinforced in the tabloid media.

Second, academics refute the distortions of headlines which reduce all of Islam to extremist minorities and *jihadist* plots. A meticulous study shows how Islam from the Middle Ages has enriched humanity through the philosophical, theological, and scientific works of Avicenna, Averroes, Ghazali, Alhazen, and many more. These Islamic scholars helped to recover the works of Aristotle and Plato in reclaiming the principal documents of Classical Antiquity. Their breakthroughs dramatically altered Medieval Christianity through the scholastic writings of Aquinas and the emergence of the Renaissance in Europe. Relatively contemporary Islamic thinkers like Chakralawi, Sidqui, Rayya and others esteem the importance of reason and the application of Quranic premises to the problems of modernity. Contesting the branding of Islam as backward, these forward thinkers not only display exceptional scholarship, but they also point out that the West's formulation of modernity is deeply influenced by biases of its own making and history that do not necessarily further the desired development of Islamic states. The secularization of the West as demonstrated in the Enlightenment has caused many Muslims to question the validity of Western modernization—and also caused leading Western theorists to re-evaluate some of the rationalistic and individualistic presuppositions of the Enlightenment.

Islam in the Modern World furnishes valuable insights worthy of our analysis, advocating iconoclastic concepts, not the least of which is the assertion that while Islam is an irreducible influence in numerous countries, Islam alone cannot account for the variations in wide-ranging political systems from the monarchy in Saudi Arabia to the liberal democracy in Tunisia, which in part depend on distinct geopolitical histories. An analysis of this compelling textbook invites not only a dialog of agreement and appreciation, but also questions and critical input as well. The first constructive critique is stylistic. Though each article incorporates immediate definitions of Islamic terminology in the text, it would be helpful to integrate in the textbook a glossary of common Islamic vocabulary and definitions for easy access. The second concern is more substantive in scope. Several authors warn that political establishments and media in the West suffer from an unquestioning Islamophobia, and consequently this textbook seeks to dismantle a political confluence of bigotry and prejudice that are blind to the positive contributions of Islam. Yet readers must decide whether some essays reflect an *Islamophilia* that minimizes the self-critical assessments of the Muslim community, such as overlooking the neutrality if not the complicity of some Islamic states in supporting or refusing to prosecute terrorists within their own borders. If more within the West and Islam would read and apply the overall balanced approach of *Islam in the Modern World*, the twenty-first century would enjoy the synergy that once depicted the golden age of tolerance in Medieval Spain where mutual acceptance and learning marked an era of peace and a paradigm of hope for modernity today. Though detractors write off the golden age of tolerance in Spain as mere legend, the ideal, whether fact or fiction, inspires a noble goal of global harmony and common respect, which behooves all who cherish peace to pursue it.

Lt Cmdr Edward Erwin, USN

Choosing War: Presidential Decisions in the Maine, Lusitania, and Panay Incidents
by Douglas Carl Peifer, Oxford University Press, 2016, 331 pp.

Occasionally a work of history is not only factually correct, it is also timely. *Choosing War: Presidential Decisions in the Maine, Lusitania, and Panay Incidents* is just such a book that readers of *Strategic Studies Quarterly* should find educational. While reading it during the weeks of transition after the 2016 presidential election, the reviewer could not help but think of the

South China Sea, the Persian Gulf, or the Red Sea as potential locations for incidents similar to those covered in this book. It does not take high-level predictive skills to be concerned over the inevitable challenges our new president will face. This book may be instructive for him should such an event occur.

The United States has experienced hundreds, perhaps thousands, of maritime incidents resulting in the destruction of ships or aircraft, along with a tragic loss of lives. Despite great anger among the citizenry and clamors for retribution few have directly led to war. Douglas Peifer, a professor of history and strategy at the Air War College, compares three incidents: the destruction of the USS *Maine* by persons unknown (or more likely by an accidental explosion) in 1898, the sinking of the *Lusitania* by a German U-boat in 1915, and the attack and sinking of the USS *Panay* by Japanese forces in 1937. He describes the different methods that Presidents McKinley, Wilson, and Roosevelt used in response to these incidents.

The choice of these three incidents was prudent. They are recent enough that most adult readers are aware of them, but enough time has passed that all information on the incidents is in the public domain. The shroud of classified information over more recent incidents, such as those involving the USS *Pueblo*, *Liberty*, *Stark*, and *Cole*, render those incidents currently unsuitable for a full analysis.

Since the beginning, the US Navy has been the military tool of coercive diplomacy in the hands of a president. Whether cruising just over the horizon outside a country's territorial waters, protecting freedom of navigation, gathering intelligence, or delivering humanitarian assistance, the Navy simultaneously serves many purposes. It is tangible evidence of our national ability and will to force decisions should they become necessary. In two of the cases studied here, *Maine* and *Panay*, the Navy was performing one or more of those functions. The *Lusitania* incident invoked the sinking of a civilian cruise ship under the flag of a belligerent, resulting in massive loss of American lives. The author addresses the theory that somehow our government was using civilians to test the limits of neutrality. The author takes on these crises in the complex contexts in which they erupted revealing a deeper understanding of the situations.

President William McKinley used the USS *Maine* as his tool to send a message to the Spanish government and to Cuban insurrectionists, hoping to force a peace between these two factions for the benefit of the United States. He dispatched the *Maine* to Cuba without consulting the US diplomat on the ground or gaining a formal invitation from Spanish authorities. The destruction of the ship as she lay at anchor in Havana harbor incensed the American public. McKinley did not personally want war, but his actions were shaped by the event and political environment. Personal opinion aside, the United States was soon at war with Spain. When it was over, Cuba, Puerto Rico, and the Philippines were no longer Spanish colonies.

The *Lusitania* crisis was a tragedy of massive proportion. It thrust the neutral-leaning President Woodrow Wilson between belligerents. It was a political minefield that could have pushed the United States into war against England, had Wilson fully bought into the German accusation that England manipulated the circumstances to the inevitable conclusion. The president's deft handling of the crisis kept the unprepared nation out of the war until it was ready. Peifer also addresses, in an enlightening and thought-provoking manner, the complex meaning of neutrality and how it applied in this case.

The attack on the USS *Panay*, three American flagged oil tankers, and some British ships on the Yangtze River in China by Japanese aircraft was another case of an attack on neutral shipping by a belligerent force. President Franklin Roosevelt dealt with the attack as a diplomatic crisis, thereby sparing the United States from premature entry into war with Japan. He skillfully treated the crises as a political matter despite the loss of lives and a US warship so as not to directly confront the Japanese military. Although still facing a severe disadvantage, the

United States was better prepared four years later when war came after the Japanese attack on Pearl Harbor.

These are not just three isolated incidents, nor are they carbon copies. There are enough similarities to make them appropriate for this study of presidential decision-making. The book breaks down the complexity of these incidents and illustrates the difficulties involved in responding to provocations. They may provide a template but they are not a roadmap. They are evidence that the United States exists in a turbulent world that requires constant vigilance and a robust military capability, combined with the flexibility to see and apply options short of war. *Choosing War: Presidential Decisions in the Maine, Lusitania, and Panay Incidents* not only explains the decisions of Presidents McKinley, Wilson, and Roosevelt; it gives rise to concern over contemporary responses in our modern world of resurging peer competitors, technological advances in missiles and communications, increased cyber threats, terrorism, not to mention a citizenry deeply divided over visions for America.

James H. Clifford
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Regional Missile Defense from a Global Perspective edited by Catherine McArdle Kelleher and Peter Dombrowski. Stanford Security Studies, 2015, 313 pp.

While missile defense has ebbed and flowed over the past 40 years, it is currently experiencing modest growth and is increasingly relevant to national security. With the 12 May 2016 announcement from the US Navy and Missile Defense Agency (MDA) that the first Aegis Ashore facility is active in Romania, missile defense has again entered public debate. The announcement was soon followed by protests from near-peer US competitors; Russian and, to a lesser extent, Chinese officials denounced the activation as a threat to global stability. The United States continues to counter that the missile defense site is only effective against Iranian or other limited threats.

In this context, *Regional Missile Defense from a Global Perspective* offers a unique look at the history and impact of American missile defense initiatives around the globe. It describes the influence of US missile defense initiatives on the United States and its allies, as well as their adversaries. It takes the reader from the origins of missile defense programs in the United States up to the time of publishing. Although it is necessarily broad, this book allows the reader to better understand the global implications of programs like Aegis Ashore and contextualize US and international responses. As Russia increasingly reasserts itself in European and global affairs, China seeks to expand its influence, and Iran and North Korea edge closer to possessing nuclear-capable ballistic weapons, it is important for US policy makers and war fighters to understand where missile defense started, how it evolved into its current state, and where missile defense sits in relation to other US defense programs.

The book has three main sections: "US Policies and Programs," "Regional Dynamics," and "Critical Global Analyses." The editors provide introductory and concluding chapters. Each intervening chapter was written by a different expert or group of experts in their area, providing an in-depth look at the specific regional situation the United States and its allies are responding to with different missile defense programs. The authors are experts who typically have worked in their field for significant amounts of time, in some cases since the Reagan administration. Many of them created or steered policy for American and allied missile defense and thus have first-hand knowledge of the topic.

Most of the chapters follow a typical pattern; they begin with a brief historical overview of missile defense in the given region (or perspective, for the first section covering US domestic

missile defense development), describe its state up to the time of writing (usually 2014), and give a short conclusion on what the activities mean for regional and even global international relations. The authors generally avoid prescribing a particular course of action, instead limiting themselves to descriptions and analysis. The chapter on Arabian Gulf missile defense activities (chapter 9: “Ballistic Missile Defense Cooperation in the Arabian Gulf”) and that on Japanese missile defense development (chapter 12: “Japan’s Ballistic Missile Defense and ‘Proactive Pacifism’”) are notable for recommending specific policy decisions. Despite their partisan nature, even those chapters succinctly represent the state of US and allied missile defense activities in those regions.

A recurrent theme in *Regional Missile Defense* is the fitful nature of missile defense development in the United States. As the contributors describe, US missile defense programs have been in various stages of development since the late 1960s. This theme is particularly important to consider in light of today’s uncertain budget realities. War fighters, leaders, and policy makers need to be aware of the history behind missile defense so they may avoid making the same mistakes as previous eras.

If there is a shortcoming in this work, it is the lack of operational perspective. Only two of the contributors note military service in their biographies. The remaining 17 made their way through government and academia. This lack of perspective is apparent in the strategic perspective of most articles; there is very little discussion of how to implement any of the ideas or technologies discussed. While this is appropriate for the level of this book, it would have helped if the authors had actually been involved with the work they are describing, rather than studying or funding it.

Regional Missile Defense is an important work for anyone involved in missile defense, national policy, or international cooperation. With the sensitivities by near-peer adversaries of the United States to any developments and the political nature of ballistic missile defense, it is useful for military personnel and leadership to understand how missile defense has developed and how it is likely to proceed. The Obama administration expanded missile defense programs, establishing new sites in Europe, and developed new weapons. Whatever future administrations choose to do, missile defense will continue to play a role in American security policies. This book will remain a snapshot in time of how US missile defense looked at the beginning of a new era.

Capt J. Alexander Ippoliti, ANG

A World in Disarray: American Foreign Policy and the Crisis of the Old Order by Richard Haass. Penguin Books, 2017, 339 pp.

As worldwide economic and informational integration seems to make borders less relevant, diplomats and strategists will have to consider the implications for the traditional view of sovereignty. Foreign policy expert Richard Haass takes an updated look at international relations in his latest book. With his prescriptions for policy makers, Haass offers analysis and insight into policy decisions, implementation, and outcomes. He proposes the concept of a “World Order 2.0” in a post-unipolar hierarchy as the United States slips from its position of global hegemon. According to Haass, to achieve this, the world must accept a new definition of sovereignty based on acknowledging the impact of globalization or otherwise face continued violent conflict.

Disarray is a quick-reading account of global politics since the end of World War II and provides the layman with an abridged account of the actions that created the modern world. Haass delivers special insight into the George H. W. Bush administration, 1989–1992, where he served as senior Middle East adviser and in the key position of director of policy planning

under Secretary of State Colin Powell. It could be argued that this experience biases his account, but he strives for fairness in the analysis both before and during his involvement in policy making.

The first two sections of *Disarray* deliver a succinct strategic analysis and are a review for those with knowledge of the science and history of international relations. It is the third section that is of interest to military professionals, when Haass introduces the concept of “sovereign obligation.”

His central premise is that the principal powers must develop a common approach to what constitutes legitimacy in the form of sovereign obligation. Haass claims that globalization has made domestic sovereignty inconsequential because the implications are not constrained by the borders of states. This leads to the crux of his perceived shift to World Order 2.0. He says states have obligations of behavior they must follow to maintain their international legitimacy. Haass does not make a neo-liberal or institutional assertion that states must cede sovereignty to supra-natural powers. His belief is that the implications of domestic policy in a globalized world must be addressed by modernizing the definition of legitimate sovereign behavior and the contract between nations.

Sovereign obligation resembles Henry Kissinger’s notion of states affirming “universal principles” described in his 2014 book *World Order*. Kissinger also says there must be a redefinition of legitimacy anytime cohesion is challenged. Today that challenge to cohesion comes in the form of globalization. To address traditional realist concerns about his new interpretation of legitimacy, Haass points to the transnational effects of globalization and implies this new definition modernizes realism. Haass redefines sovereignty by including domestic obligations, and this has implications for terrorism, climate change, nuclear proliferation, and myriad other concerns. These issues are no longer bounded by the formal borders established by the Treaty of Westphalia in 1648, which established the concept of national sovereignty central to the current world order.

Haass does not lightly dismiss the problems associated with sovereign obligation, however. One example is the implication for climate change. Due to global affects, he acknowledges that reaching a consensus on climate change is the major problem with this shift. Without consensus on the responsibility of states, there is likely to be little agreement. Without agreement on responsibility, any solution to such a borderless problem is incomplete.

True to his realist leanings, Haass insists that the state is still the primary actor on the world stage. His “sovereign obligation” concept intends to recalibrate the behavior of states to prevent conflicts created by the transcendence of borders due to globalization. Haass’s conclusions in *Disarray* offer possible resolutions to the problems created by the erosion of the Westphalian model of sovereignty. Some military leaders and strategic planners may take umbrage with the acceptance of sovereign obligation and international consensus as a weakening of their state’s domestic supremacy. It is unlikely that states that do not adhere to the modern liberal system would ever agree to this change.

This does not mean that redefining sovereignty is not worthy of study. It helps analyze the transnational impact of domestic policies. Haass’s insight into his expert policy-making philosophy promises to be valuable to military professionals interested in diplomatic history, international relations, and the future of American foreign policy.

Maj F. Bart Doyle, USAF

War, States, and Contention by Sidney Tarrow. Cornell University Press. 2015, 314 pp.

Sidney Tarrow’s *War, States, and Contention* addresses a challenging subject: how a state’s population reacts to external conflicts and how those contentious encounters shape later development. Examining societal power flows from the historical to the current-day conflicts

ravaging the Middle East frames the basis for Tarrow's exposition. He explores governmental emergency powers enhancing external success and limiting internal struggles through either hierarchical or infrastructural applications. The work provides three historical cases as a basis: revolutionary France, Civil War America, and pre-World War I Italy. It then focuses on US responses to contention in World War II and the Cold War. However, the main focus emphasizes how the US government contained contention following the 9/11 attacks by al-Qaeda and the resulting 2003 Iraq War. This text introduces a large subject matter and evaluates some difficult issues which are contentious on their own behalf.

The book's initial intention explores how contentious politics and social movements affect war-related processes and how contention entices states to wage war while managing internal disagreements. These processes and shifts are noted through the three historical cases and the emergency powers applied by each government. The conceptual framework and the book's thesis do not emerge until almost halfway through, when Tarrow shifts focus to how the United States reshaped liberal constitutionalism to support a global conflict based on countering a social movement, al-Qaeda (p. 117). Four areas are emphasized: the change from a rule of law to a rule by law, expanded media use to influence public support for war-making, a transition from a national industrial complex to a national intelligence complex, and the inability of traditional contention strategies to influence the state. However, before any elements are examined, the text cycles back to how the three historical cases dealt with contentious social movements.

The three cases are traditional conflicts viewed in an alternative lens. France appears as a state emerging from a movement, the French Revolution, only to confront continuing movements challenging the new state. The American Civil War example moves from contention over slavery from abolitionist movements to habeas corpus suspension during wartime as suppressive examples. The cases highlight Jim Crow laws as the government's hierarchical power example in reducing black contention. In the third historical example, Italy shows contentious groups using infrastructural power to obtain government positions only to use their new hierarchical power against emerging social movements. Each case shows hierarchical power use through an emergency script. Those societal limitations create the conditions for contentious movements to use infrastructural power to obtain governmental positions before restarting the cycle. Throughout the text, hierarchical power notes authoritarian states use despotic means to control the population while contentious movements primarily use infrastructural power to control civil society through internal pressures.

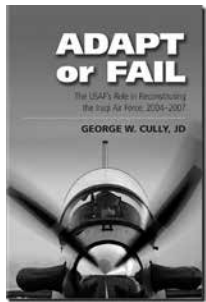
The text leaps from the pre-modern conflicts to what Tarrow calls, "composite conflicts" (p. 105) in illustrating early twentieth-century wars and then the Iraq War. These conflicts show states warring against movements with both sides employing irregular and asymmetric warfare forms. A typical conflict process is characterized as radicalization by a movement, encapsulation, state emergency measures combatting the movement, and then shifting to transnationalism to escape state limitations. This process allows a movement to expand, be fought back, expand, and be fought back again only to escape the state-control boundaries through fleeing into the global commons. Tarrow highlights several issues with this cycle; the growth of a national security state, the use of infrastructural power to support a national security state, and the US government's increased surveillance despite Church commission controls. In another excellent list, three contention strategies emerge: using official access to challenge government credibility (Snowden), counterintelligence practices to uncover information such as WikiLeaks, and second-generation movement growth from those who originally supported violent, anti-government movements including Students for a Democratic Society. All three strategies support the book's core argument, suggesting how the US government abused citizenry during the Iraq War to limit contention and shape future development.

The book's core explains how the American government achieved an attack on Iraq following the 9/11 attacks through implementing hierarchical and infrastructural power elements against the US population. Of course, from a historical perspective, the 9/11 attacks led directly to the war in Afghanistan, with the Iraq conflict as a secondary consequence—despite this work's assertions. Tarrow pictures the Bush-Cheney administration as subverting the media, creating military commissions, and driving a national change from a rule of law to a rule by law. This legal change is defined as when the government uses legal processes to shape opinion. Contradictorily, Tarrow states, "Using the law and the legislative process to protect rights is slow, frustrating, and reversible, and it provides the government with infinite opportunities for evasion, dissimulation, and stretching the use of permitted practices into shadowy areas of the law" (p. 198). He seems to argue for both the need to contention to implement infrastructural and legal controls against the government while being frustrated in how those laws may protect the populace. During the entire time the United States confronts terrorism from 2001 to 2013, the author sees no positive activity. He documents three contentious strategies to oppose government power: antiwar movements that oppose through protests, legal groups that uses courts, and civil activists who publicize government activities. Each approach is suggested as a legitimate approach to foster antigovernment contention and dilute hierarchical power.

The lists in *War, States, and Contention* are both strengths and weaknesses. Tarrow cannot pass more than a page or two without more lists. While these lists initially advance the case, at a certain point, they become overwhelming and occasionally contradictory. Each list thoroughly covers subject matter; the problem emerges when lists are compared. Even in concluding the study, the author adds seven new cases, each with new lists. The text also suffers from Tarrow's clear opposition to the US war on terror and frequent *ad hominem* attacks against the Bush-Cheney administration.

Overall, the text provides substantial references for how contentious movements influence wartime states. Tarrow does an excellent job showing contention affecting states in mobilizing for war, making war, and recovering from war. The book's early sections are more beneficial to develop one's theoretical grasp as later sections descend into the exhaustively argued but scantily supported argument against the Iraq conflict. Several sections documenting modern events fail to provide contention examples to emphasize perceived governmental power abuses. I think Tarrow's book is interesting theoretically while lacking a clear focus. Those who study movement politics or who work with counterterror analysis could benefit from adding it to their shelf, while the average reader should give it a pass.

Lt Col Mark Peters, USAF



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