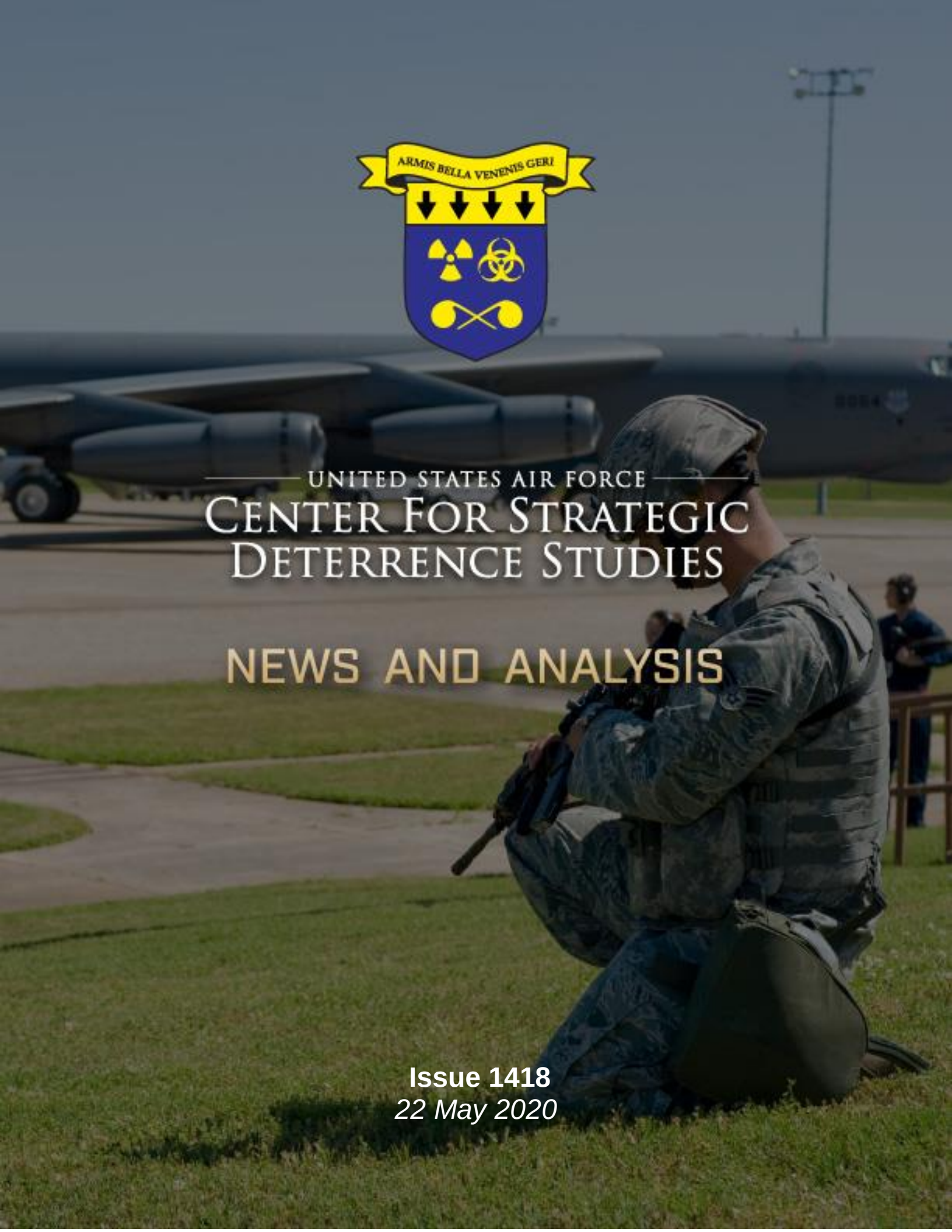

Issue 1418
22 May 2020

Feature Report

"*Towards Greater Nuclear Restraint: Raising the Threshold for Nuclear Weapon Use*".
Published by Stockholm International Peace Research Institute; May 2020

https://www.sipri.org/publications/2020/sipri-insights-peace-and-security/towards-greater-nuclear-restraint-raising-threshold-nuclear-weapon-use

This report focuses on the risks that a lack of nuclear restraint pose for international security. One the one hand, the problem has to do with uncertainty regarding the first use of nuclear weapons, which has increased in recent years as a result of technological developments, political tensions, and the deadlock in nuclear arms control. One the other hand, there is a longer-term trend of a lowering nuclear threshold in response to WMD proliferation threats by non-nuclear weapon states. After identifying some of the most problematic aspects of the current nuclear policies of the five nuclear weapon states (NWS), the report makes the case for greater restraint, including recommendations for reducing doctrinal ambiguity and more credible assurances that the threshold for nuclear weapon use remains high. The report also seeks to provide conceptual tools for a broad international dialogue on nuclear doctrines, based on a recent agreement by the NWS to pursue such dialogue in the 1968 Treaty on the NonProliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT) context.

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NUCLEAR WEAPONS AND DETERRENCE

Los Alamos Daily Post (Los Alamos, New Mexico)

Air Force Reviews Preliminary Design for Future ICBM

By Carol A. Clark

May 18, 2020

AFNWC News:

HILL AFB, Utah — The Air Force reviewed Northrop Grumman's preliminary design for the Ground Based Strategic Deterrent in late April, advancing the program toward its next milestone and acquisition phase.

The GBSD intercontinental ballistic missile (ICBM) will modernize or replace the current Minuteman III ICBM's systems for command and control, launch and flight.

Under the Defense Acquisition System, a PDR assesses the maturity of the preliminary design, as supported by requirement trades, prototyping, system reviews, etc.

"The PDR ensured Northrop Grumman's design is sufficiently mature and ready to proceed into detailed design with acceptable risk, and will meet performance requirements within budget and on schedule," said Col. Jason Bartolomei, GBSD system program manager.

From April 28-30, the Air Force hosted the PDR meetings in a secure virtual environment at 19 locations across the United States, connecting over 25 government organizations.

"Accomplishing this PDR is a huge success for the program, especially during the COVID-19 pandemic," Bartolomei said. "The GBSD team overcame many challenges to accomplish such a large, complex PDR for an Acquisition Category 1-D program. Our classified network and digital engineering capabilities were key to this milestone, but secondary to the hard-work and commitment of the entire organization. We have an amazing workforce."

"GBSD is the most cost-effective option for maintaining a safe, secure and effective ground-based leg of the nuclear triad," Bartolomei said. "It will address capability gaps to meet warfighter requirements, maintaining the preeminence of America's ground-based nuclear strategic deterrent."

The GBSD program is currently in its Technology and Maturation Risk Reduction phase. The Air Force anticipates receiving DoD approval to enter Milestone B later this year and awarding the contract for the Engineering and Manufacturing Development phase before the end of the fiscal year.

The EMD phase will conclude with the development, test and evaluation of the GBSD system, before it proceeds into the Production and Deployment phase. Deployment of the new ICBM is planned to begin in the late 2020s and span about nine years.

Located at Hill AFB, the GBSD program office is part of the Air Force Nuclear Weapons Center. The center is headquartered at Kirtland AFB, New Mexico, and is responsible for synchronizing all aspects of nuclear materiel management on behalf of Air Force Materiel Command, in direct support of Air Force Global Strike Command. The center has about 1,300 personnel, both military and civilian, assigned to 18 locations worldwide.

https://ladailypost.com/air-force-reviews-preliminary-design-for-future-icbm/

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Air Force Magazine (Arlington, Va.)

Breaking Down USAF's 70-Percent Overall Mission Capable Rate

By Brian W. Everstine

May 19, 2020

The Air Force's fleet in fiscal 2019 maintained an overall mission capable rate of 70.27 percent, a slight increase from the previous year. Although some key combat aircraft, such as the fifth-generation F-22 Raptor, sustained low capability rates, service officials say the numbers don't tell the whole story.

Air Force officials say the mission capable rate—a snapshot of how much of a certain fleet is ready to go at a given time—is an inaccurate portrayal of the service's overall health. Air Force Chief of Staff Gen. David Goldfein, in a September 2019 interview with Air Force Magazine, said the service instead wants to highlight how deployable a fleet is within a short period of time.

"How many force elements do we have—fighters, bombers, tankers—across all of the Air Force, and how are we doing relative to the time all of those forces need to be ready," Goldfein said.

For example, Goldfein pointed to the May 2019 deployment of a task force of B-52s to the Middle East. The bombers, from Barksdale Air Force Base, La., had two days to deploy, and immediately began flying combat missions, even though at the time the B-52 fleet had a mission capable rate of 65.73 percent.

The fleet of B-1Bs, long noted for anemic mission capable rates that at a point dwindled to the single digits, has recently improved, reaching a 46.42 percent mission capable rate in 2019. In recent months, USAF Lancers have deployed across the globe as part of bomber task forces, flying training missions in Guam, Estonia, and Japan. The service is addressing the health of the fleet through improved fleet management, increased maintenance, and a dedicated structural repair line at Tinker Air Force Base, Okla.

The B-2 stealth bomber in 2019 had a rate of 60.47 percent.

The mission capable rate of the service's fighters became a focal point in 2018, as then-Defense Secretary Jim Mattis ordered the Air Force and Navy to improve their rates to 80 percent. The order quickly fell by the wayside, as Air Force fighters never met the mark, and service leaders moved on to other methods to measure readiness. Gen. Charles Q. Brown Jr., the nominee to be the next Chief of Staff, told the Senate Armed Services Committee earlier this month the Air Force is instead letting commanders decide whether their aircraft are ready.

"The Air Force has made improvements in the readiness of its units. However, the continued high demand for Air Force capabilities continues to impact recovery," Brown wrote in answers to advance policy questions before his confirmation hearing. "If confirmed, I will continue the effort [Chief of Staff] Gen. [David] Goldfein has put on readiness recovery with a focus on recruiting, training, and retaining high-quality Airmen, driving down the average age of our aircraft fleets through modernization, and working with our combatant commanders on balancing current operations tempo with time for our Airmen to train for full-spectrum combat operations."

In fiscal 2019, the F-22 fleet was the least ready among fighters at a rate of 50.57 percent. The F-35A had a rate of 61.60 percent, F-15Cs at 70.05 percent, F-15Es at 71.29 percent, and F-16Cs at 72.97 percent. The A-10 attack jet had a rate of 71.20 percent.

In mobility, the C-17 strategic airlifter maintained a rate of 82.23 percent and the C-130J tactical airlifter had a rate of 77.02 percent. KC-10s came in at 79.37 percent, while KC-135Rs had a mission capable rate of 72.50 percent.

For helicopters, the HH-60 Pave Hawk maintained a rate of 66.2 percent, while the Vietnam-era UH-1N had a rate of 82.42 percent. The tiltrotor CV-22 Osprey had a rate of 53.45 percent in 2019.

Here's a breakdown of all of USAF's aircraft and their 2019 MC rates:

Mission System	2019 Mission Capable Rate
A-10C	71.2%
AC-130J	86.12%
AC-130U	85.62%
AC-130W	80.22%
AT-38B	74.62%
B-1B	46.42%
B-2A	60.47%
B-52H	65.73%
C-12C	99.05%
C-12D	100%
C-12F	92.4%
C-12J	100%
C-130H	65.51%
C-130J	77.02%
C-17A	82.23%
C-21A	100%
C-32A	90.24%
C-37A	93.85%
C-37B	86.47%
C-40B	89.48%
C-40C	85.9%
C-5M	63.16%
CV-22B	53.45%
E-3B	74.41%
E-3C	73.19%
E-3G	74.36%
E-4B	64.75%
E-8C	67.36%

EC-130H 73.19%
EC-130J 57.38%
F-15C 70.05%
F-15D 72.45%
F-15E 71.29%
F-16C 72.97%
F-16D 70.37%
F-22A 50.57%
F-35A 61.6%
HC-130J 79.81%
HC-130N 68.13%
HC-130P 61.52%
HH-60G 66.20%
KC-10A79.37%
KC-135R 72.5%
KC-135T 71.11%
KC-46A63.11%
LC-130H 40.28%
MC-12W 100%
MC-130H 68.65%
MC-130J 77.54%
MC-130P 28.07%
MQ-1B 99.52%
MQ-9A 89.32%
OC-135B 82.46%
RC-135S 90.39%
RC-135U 91.07%
RC-135V 74.1%
RC-135W 69.49%
RQ-4B 75.75%
T-1A 60.51%
T-38A 74.48%
T-38C 63.05%
T-6A 63.29%

TC-130H	26.32%
TC-135W	84.8%
TE-8A	73.42%
TH-1H	74.63%
TU-2S	74.96%
U-2S	78.39%
UH-1N	82.42%
VC-25A	92.86%
WC-130J	56.2%
WC-135C	63.05%
WC-135W	80.14%

Source: USAF

https://www.airforcemag.com/breaking-down-usafs-70-percent-overall-mission-capable-rate/

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Texas National Security Review

The Best of the Brightest? Ideas and Their Consequences

By Francis J. Gavin

Spring 2020

In his introductory essay to Volume 3 Issue 2 of TNSR, chair of the editorial board Francis J. Gavin considers how we should think about the role of ideas, expertise, and influence in the making of American foreign policy.

World politics is complicated, ever changing, and uncertain. Boiled down to its simplest elements, however, the basic goal of each actor within the international system — once empires and kingdoms, now largely nation-states — often centers upon getting others to do what you'd like and preventing those same actors from forcing you to do things you don't want to do. This excellent issue examines and assesses the tools available to leaders to try to achieve these goals, with a focus on strategies of coercion.

Hal Brands and Evan Braden Montgomery explore the traditional tool of strategy — military force — and ask whether the new national defense strategy and its emphasis on fighting one large war doesn't leave the United States vulnerable to a second, concurrent conflict. Erik Sand — in a paper I am proud to say first appeared in a class taught by Jim Steinberg and me at MIT — lays out a powerful case that economic warfare, and especially blockades, is more effective than we often think by driving the target state into riskier and ultimately losing strategies. Erik Lin-Greenberg examines perhaps the newest, most uncertain tool of strategy — artificial intelligence — and asks how this technology affects alliance behavior and interoperability. Tami Davis Biddle provides a fascinating deep dive into the intellectual origins of coercion theory, with the goal of helping policymakers and military officials better understand and apply the lessons of Thomas Schelling.

This thoughtful issue provokes three questions. What are the best instruments and strategies for achieving state interests in the world? What are those interests? And what role do ideas play in both framing and answering these questions?

As Biddle demonstrates, Schelling transformed the way we engage the first question. From the middle of the 20th century onward, scholars from Bernard Brodie to Robert Jervis and beyond recognized that the bomb made intentional great-power war between superpowers possessing thermonuclear weapons an absurdity.1 These strategists were not unconcerned about conflict, however. The very nature of nuclear weapons meant that an accident, misperception, or perverse incentives — such as the powerful logic of launching an attack first during a crisis — could generate a war nobody wanted. In 1961, Schelling and his co-author Mort Halperin, participating in a Harvard-MIT Faculty Seminar, laid out the intellectual origins of modern arms control in their classic, Strategy and Arms Control.2 Strategic stability and mutual vulnerability enshrined by nuclear arms control negotiated between the great powers would guarantee the peace.

This new world of mutual vulnerability, however, confronted statesmen with a dilemma. If launching a fully mobilized, great-power war was no longer a meaningful instrument of strategy, and if even threatening to intentionally unleash such a war was not credible, what tools were left to a state to achieve its ambitions in the world? Interestingly, Schelling provided his answer in another book written around the same time as Strategy and Arms Control, The Strategy of Conflict, and expanded upon these ideas in his 1966 book Arms and Influence.3 Policymakers had to embrace new kinds of strategies to achieve political ambitions in the world. In a nuclear environment, "military power is not so much exercised as threatened" to generate "bargaining power" or what he also called "the diplomacy of violence." Concepts such as "the threat that leaves something to chance," "the art of commitment," and "the manipulation of risk" provided policymakers with a different way of thinking about employing both the threat and use of force.4 The purpose of military power thus shifted from defeating an enemy's armies and navies, to conveying signals by imposing or withholding pain.

These were not simply theoretical considerations: At the same time that Schelling's ideas were laying the groundwork for strategic nuclear arms control between the superpowers, his other concepts were helping to shape the Johnson administration's strategy of coercive warfare against North Vietnam. Through the plans of Schelling's friend and protégé, John McNaughton, the Johnson administration employed his belief that measured, graduated bombing of the North Vietnamese could coerce them into changing their behavior — in this case, ending their support for the Viet Cong insurgency. The goal was not to defeat North Vietnam's armies, but rather to send signals and alter incentives.5Schelling, it should be noted, imagined such compellence might eventually be needed against a larger enemy, China, though with targeted tactical nuclear weapons instead of conventional ordnance used to convey the message. It is chilling, to say the least, to go back and read these passages in Arms and Influence.

The Best and the Brightest, the "Blob," and the Restaurant School

This leads to the insightful and timely historiographical essay by Daniel Bessner and Fredrik Logevall. That their piece generated an enormous Twitter controversy over a point that, for most intelligent observers, is common sense — that to understand international relations since 1945, it might be a good idea to understand how and why the most powerful player in world politics, the United States, made its decisions — says much about the strange state of academic history in the United States. To me, however, the article prompted a far more important, powerful set of questions: Do we actually know what the United States thought it was trying to achieve during the war in Southeast Asia? Do we fully understand why the United States chose strategies that led to over 50,000 American combat deaths and killed approximately 3 million people in that region?

What explains a tragic set of policies that wreaked unimaginable physical destruction while generating economic malaise, deep political and cultural polarization, and a loss of faith in governance within the United States?

Debates over America's foreign policy are often marked by the extremes of revolutionary, evangelical fervor to remake the world and an equally intense desire to withdraw from its corrupting influences.

The journalist David Halberstam thought he had an answer. In his 1972 classic, The Best and the Brightest, he argued that, in addition to domestic political expediency and an obsession with credibility, the hubris and lack of accountability of American policymakers and their advisers blinded them to their own mistakes and the limitations of American power.6 The Best and the Brightest became a classic, joining other explanations of the Vietnam War that dismissed the idea that the United States was a force for good in the world or that its decision-makers could overcome their own myopia or self-importance.7

A version of Halberstam's argument has made a comeback, as analysts try to make sense of America's grand strategy in recent years, only now "best and the brightest" has been replaced by "the blob." An odd coalition from the political left and right, including libertarians, paleo-conservatives, Bernie Bros, and defensive realists, has come together to skewer U.S. policy in the world since the end of the Cold War. This group goes by various names — they often refer to themselves as offshore balancers, whereas their critics label them neo-isolationists. I call them "the restaurant school." Why? Years ago, when my friend Barry Posen kindly gave me an autographed copy of his newest book, Restraint, a member of my family misread the title and asked, "Why is Barry writing about restaurants? Has he become a food critic?" To his credit, when I mentioned this to Barry, he responded, "Well, the members of the blob certainly enjoy fine food and junkets." Touché. I continue to use the appellation "restaurant school," if only to lower the temperature in what often seem to be heated and overly personal debates about American grand strategy.8 Similar to Halberstam's diagnosis almost 50 years ago, the restaurant school identifies the actions of a self-appointed, inner circle of arrogant officials and intellectuals, misled by their overreliance on military instruments and their mistaken belief that deep American engagement is good for either the United States or the world.

How far do these arguments get us? As Richard Hofstadter brilliantly pointed out in his seminal essay, "The Paranoid Style in American Politics," blaming a cabal of cosmopolitan, unaccountable elites — who are overly influenced by events abroad — for America's woes is a populist trope that goes back to the country's founding.9 Debates over America's foreign policy are often marked by the extremes of revolutionary, evangelical fervor to remake the world and an equally intense desire to withdraw from its corrupting influences. The historical sources of both impulses are closer to each other than adherents from either camp are willing to acknowledge. Blaming the blob for America's misadventures in the world is as old as the Republic, as the bitter debates over the 1795 Jay Treaty between the United States and Great Britain make clear.10

How then should we think about the role of expertise and influence in the making of American foreign policy? Consider again Schelling, a card-carrying member of the best and the brightest, or the so-called blob, if ever there was one.11 There is a remarkable but rarely commented upon tension between Strategy and Arms Control — which sought to minimize the danger of nuclear war by enshrining mutual vulnerability and arms control — and Schelling's other two works, which suggested employing strategies to exploit uncertainty, manipulate risk, and use targeted, graduated violence to signal credible commitment to achieving a particular political end. The first set of ideas — strategic stability and superpower arms control — laid the groundwork for the Antiballistic Missile Treaty and the series of Strategic Arms Limitation treaties, which may have prevented a

thermonuclear war and, if nothing else, limited arms racing and made international politics more stable and predictable. The second set of ideas provided inspiration for one of the worst, most tragic strategies in American history — the "strategic" bombing of North Vietnam. Would the world have been better off if Schelling had never published his ideas, or if government officials had not been open to his innovative insights into strategy? To put it bluntly — would you take a world without Rolling Thunder if it meant no ABM and SALT treaties?

Or consider the officials of the Johnson administration who crafted America's disastrous military policies in 1964 and 1965, as laid out in Logevall's masterful study Choosing War.12 Concurrent to their deliberations over Vietnam, many of these same officials confronted the aftermath of China's detonation of a nuclear device. Intelligence analysts expected the emergence of a dangerous world with dozens of nuclear weapons states in the near future if nothing was done. The same administration, even many of the same officials who blundered into war in Vietnam, crafted a nuclear nonproliferation policy that was a great success. Their policies, which included negotiating the Nuclear Nonproliferation Treaty, are largely responsible for the fact that the number of nuclear weapons states is in the single digits, the overall number of nuclear weapons is far lower than in 1965, and the danger of nuclear war has receded further into the background than anyone in the Johnson administration could ever have hoped for or imagined.13 Were these members of the blob, the so-called best and the brightest, arrogant, unaccountable, and myopic about America's power and purpose when meeting about Vietnam, only to become enlightened and visionary a few hours later when the deliberations turned to nuclear proliferation?

One can imagine similar considerations in more recent times. How does one balance, for example, between the Bush administration's disastrous policies in the Greater Middle East and the President's Emergency Plan for AIDS Relief, which has saved millions of lives? Both were driven by experienced experts who looked beyond narrow conceptions of the national interest and believed America's deep engagement benefited both the nation and the world. Obviously, in an ideal world, the United States would do only those things that are good and avoid those things that are bad. This desire, however well meant, is naïve. The necessary critiques of America's blunders should be accompanied by a recognition that it is much easier to dissect an outcome that has already unfolded than to provide guidance about an unknowable future. Furthermore, we need to imagine and evaluate the counterfactual world in which the United States embraced the ideas of the restaurant school after the end of the Cold War. What would Europe or East Asia look like today if the United States had gone home in 1989–91? The fact is, making foreign policy in a world of great danger and complexity, where the future is unknown, restraint comes at its own high and often unrecognized costs, and even the best, most well-meaning efforts can end in tragedy, is very hard.

Similar to Schelling's time, debates over how, in what ways, and for what purposes the United States should or should not engage the world carry more than academic interest. This introduction is written as COVID-19 and its consequences are devastating America and the world. The crisis has also generated deep worry and concern about the future of U.S. foreign policy and international relations. On the one hand, the restaurant crowd's argument about the inapplicability of old-fashioned military interventions to emerging global challenges is lucid. On the other hand, this hardly seems a time to dismiss the deep knowledge and expertise of public policy officials, nor does continuing America's retreat from the world seem wise. Perhaps a Trump administration better staffed with more members of the blob, actively engaged and advocating America's interests in the world, would have generated a more coherent, better coordinated global response that may have saved countless lives.

An urgent task before us — one this journal is deeply committed to — is how do we get the best from our brightest?

Which leads to the final essay in this issue, a beautiful tribute by Beatrice Heuser to her mentor, the great military historian Sir Michael Howard, who passed away late last year. Howard had fought in World War II and understood the tragedy of conflict. When asked by a student which was his favorite war, he replied, "Why, I hate them all!" Yet, having come of age in the 1930s, he understood that pacifism and simply withdrawing from the international system was not an option.

Howard was, in many ways, the opposite of Schelling in temperament, focusing on humility and the difficulty of understanding, to say nothing of shaping, a complicated world. To Howard, theories were at best "heuristic" and could "never be predictive." They should always be recognized as "tentative hypotheses to be critically re-examined as new data become available."14 History had no lessons, only patterns. Yet, like Schelling, Howard believed that intellectuals had a moral obligation to their societies to provide their best ideas to help decision-makers navigate the difficult questions of making policy in a confusing and dangerous world. His gentle style was not in accord with the sharp barbs and hot takes common in the age of social media. "Persuasion, rather than hostile confrontation, was to him a cardinal goal," Heuser writes. Howard's "wisdom was to contribute to a wider perspective, whether in a debate behind closed doors or in public, about any live issue, with an understanding of history that shed light on a topic from a different angle." An urgent task before us — one this journal is deeply committed to — is how do we get the best from our brightest? As we navigate the current national and global crisis, and confront great uncertainty about the future, let us be inspired by Howard's legacy, a combination of modesty, intense curiosity, and penetrating, searching intellect, oriented toward helping decision-makers — something that is increasingly needed today.

Francis J. Gavin is the chair of the editorial board of the Texas National Security Review. He is the Giovanni Agnelli Distinguished Professor and the inaugural director of the Henry A. Kissinger Center for Global Affairs at SAIS-Johns Hopkins University. His writings include Gold, Dollars, and Power: The Politics of International Monetary Relations, 1958–1971 (University of North Carolina Press, 2004) and Nuclear Statecraft: History and Strategy in America's Atomic Age (Cornell University Press, 2012). His latest book is Nuclear Weapons and American Grand Strategy (Brookings Institution Press, 2020).

https://tnsr.org/2020/03/the-best-of-the-brightest-ideas-and-their-consequences/

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Military.com

B-1 Bomber May Become the New Face of US Military Power in the Pacific

By Oriana Pawlyk

May 20, 2020

The Air Force's B-1B Lancer bomber is about to move front and center in the U.S. military's power-projection mission in the Pacific.

As part of its mission "reset" for the B-1 fleet, the Air Force is not only making its supersonic bombers more visible with multiple flights around the world, it's also getting back into the habit of having them practice stand-off precision strikes in the Pacific, a dramatic pivot following years of flying close-air support missions in the Middle East.

The "nice thing about the B-1 is it can carry [the Long-Range Anti-Ship Missile], and that's perfectly suited for the Pacific theater," Maj. Gen. Jim Dawkins Jr., commander of the Eighth Air Force and the

Joint-Global Strike Operations Center at Barksdale Air Force Base, Louisiana, said in an interview Tuesday.

"Not only are we resetting the airplane's mission-capability rates and the training done for the aircraft, we're also resetting how we employ the airplane to get more toward great power competition to align with the National Defense Strategy," added Dawkins, who supports the warfighting air component to U.S. Strategic Command, as well as operations within Air Force Global Strike Command.

According to the 2018 NDS, "China is a strategic competitor using predatory economics to intimidate its neighbors while militarizing features in the South China Sea."

Former Air Force Secretary Heather Wilson stated that China has become "a pacing threat for the U.S. Air Force because of the pace of their modernization" in the region.

The Pentagon's strategy prioritizes deterring adversaries by denying their use of force in the first place.

That's one reason four bombers from Dyess Air Force Base, Texas, have been launching from Andersen Air Force Base, Guam, for patrols across the East and South China Seas since May 1, according to Air Force social media posts. The bombers deployed to Andersen after the service suspended its continuous bomber presence mission in the Pacific for the first time in 16 years.

During a simulated strike, crews "will pick a notional target, and then they will do some mission planning and flying through an area that they are able to hold that target at risk, at range," Dawkins said.

Close-air support, the B-1's primary mission in recent years, is a much different skill set than "shooting standoff weapons like JASSM-ER and LRASM," he said, referring to the Long-Range Anti-Ship Missile and Joint Air to Surface Stand-Off Missiles-Extended Range.

While Dawkins wouldn't get into specifics of how crews are conducting the practice runs in the Pacific, the non-nuclear B-1s have been spotted recently carrying Joint Air to Surface Stand-Off Missiles.

Photos recently posted on DVIDS, the U.S. military's multimedia distribution website, show Dyess' 9th Expeditionary Bomb Squadron Aircraft Maintenance Unit weapons crew members loading a JASSM into the belly of a plane. The B-1 is capable of carrying 75,000 pounds -- 5,000 pounds more than the B-52 Stratofortress -- of both precision-guided and conventional bombs.

The JASSM's newer variant, JASSM-ER, has a higher survivability rate -- meaning it's less likely to be detected and shot down -- due to low-observable technology incorporated into the conventional air-to-ground precision-guided missile. It is said to have a range of roughly 600 miles, compared with the 230-mile reach of JASSM, according to The Drive.

The LRASM, a Navy missile integrated on both the B-1 and F/A-18 Super Hornet, is able to autonomously locate and track targets while avoiding friendly forces.

The precision-guided, anti-ship standoff missile was first tested on a B-1 in August 2017. A single B-1 can carry up to 24 LRASMs, or the same number of JASSM-ERs. The LRASM missile achieved early operational capability on the bomber in 2018.

The vast expanses of the Pacific are well-suited for training with these kinds of missiles, Dawkins explained. Stateside ranges, which may lack surface waters or enough distance between two points, depending on location, cannot always accommodate the needs of bomber crews training with these long-range weapons.

Also, "[when] we deploy, for instance to Guam, taking off from [the U.S.] and going to the Pacific, it allows us to do some integration with our allies, as well as exercise the command-and-control ... and also allows us to practice our long-duration flights and work with the tankers," he said.

Prior to the Dyess deployment, a B-1 from the 28th Bomb Wing at Ellsworth Air Force Base, South Dakota, flew a 30-hour round-trip flight to Japan in late April. There, it operated alongside six U.S. Air Force F-16 Fighting Falcons, seven Japan Air Self Defense Force F-2s and eight JASDF F-15s over Draughon Range near Misawa, Pacific Air Forces said in a release.

The flight was part of the Air Force's new unpredictable deployment experiment to test crews' agility when sending heavy aircraft forces around the world, since the need to improve the bombers' deployability rate is also crucial, Dawkins said.

Mission-capability rates refers to how many aircraft are deployable at a given time. The B-1 has been on a slow and steady track to improve its rate -- which hovers around 50% -- after being broken down by back-to-back missions in the desert, officials have said.

The B-1 could become the face of the Pacific for the foreseeable future, Dawkins said.

"We want ... to be the roving linebacker, if you will, particularly in the Pacific," he said, adding the mission could also pave the way for incorporating hypersonic weapons into the bomber's arsenal.

In August, the Air Force proved it can transform the Lancer to hold more ordnance, a first step toward it carrying hypersonic weapons payloads.

Gen. Tim Ray, head of Air Force Global Strike Command, has expressed support for the B-1 as a future hypersonic weapons platform.

"Basically, the configuration we're seeking is external hardpoints that can allow us to add six Air-Launched Rapid Response Weapons [ARRW, pronounced "Arrow"], and then you still have the bomb bay where you can carry the LRASM or the JASSM-ER," Ray told reporters last month. LRASM or JASSM-ER could also be carried externally, he added.

"They're not doing any testing with the hypersonic on the B-1, but that's definitely in the mix," Dawkins said.

If configured with that payload in the future, that would be "quite a bit of air power coming off that airplane, whether it's JASSMs, JASSM-ERs or some combination of those, and hypersonics," he said.

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https://www.military.com/daily-news/2020/05/20/b-1-bomber-may-become-new-face-us-military-power-pacific.html

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US COUNTER-WMD

NBC News (New York, N.Y.)

COVID-19 Has Shown U.S., U.K. are Vulnerable to Biological Terrorism, Experts Say

By Willem Marx

May 18, 2020

LONDON — The COVID-19 pandemic has exposed a structural vulnerability to biological attacks in the U.S. and Europe that requires urgent government action, multiple current and former national security and public health officials told NBC News.

Former officials in the U.S. and the U.K. warn that the devastating impact of the coronavirus on health care infrastructures and economies may act as a "neon light" for terrorist groups looking to unleash pathogens on Western nations.

The pandemic has shown that the West has trouble testing, tracking and treating a pandemic or sustaining a supply of protective equipment for health care workers. It has also raised questions about the security of pathogen research labs worldwide.

"Many of the very worst-case characteristics of an intentional event are also being seen in this naturally occurring pandemic," said Dr. Robert Kadlec, the assistant secretary for preparedness and response at the U.S. Department of Health and Human Services.

Kadlec, a retired Air Force colonel and surgeon who has spent much of the past two decades focused on biodefense policy and legislation inside the White House, the Defense Department and the Senate, helped the FBI with its investigation into the 2001 "Amerithrax" attacks. The perpetrator in the attacks, which killed five people and infected 17 others, used anthrax from a government lab. "We've come a long way in 20 years, and yet there is so much more that needs to be done," he said.

Are laboratories secure?

The Trump administration's repeated assertion that the virus may have escaped from a Chinese laboratory has placed the security measures at such facilities worldwide under a microscope.

Over the past century, only a couple of dozen countries have developed biological weapons programs. But security experts expressed concern about "dual use" laboratories — where scientists examine pathogens for research purposes and to develop vaccines.

Legislation signed by President Barack Obama obliged the incoming Trump administration to develop a national biodefense strategy, which was published in September 2018. It sought to centralize a federal response team to handle naturally occurring, accidental and deliberate biological threats and to build on previous experiences, including the 2001 anthrax attacks, a 2009 influenza pandemic, the 2014 Ebola epidemic and the more recent fallout from the Zika virus.

But it also highlighted the dangers of storing lethal pathogens in laboratories that might lack "appropriate biosecurity measures," which would mean that "actors who wish to do harm" could divert them. The number of these "biosafety level 4" labs, where scientists research easily transmitted pathogens, has multiplied rapidly in recent years. And to many security experts, the locations of some facilities and their insufficient safeguards represent a substantial threat.

"You've got to start thinking about the mind of the terrorist or the criminal," said Chris Phillips, the former head of the British government's National Counter Terrorism Security Office, a police unit

housed inside the country's domestic intelligence agency, MI5, with responsibility for safeguarding the facilities in the U.K.

"They do take security seriously," Phillips said. But referring to the damage COVID-19 has wrought, he added, "This has just shown you can never be secure enough." During his work at the terrorism office, he visited many of the U.K.'s university-operated or privately administered laboratories, and he said he was most troubled by the threat that an insider could walk out the door with a bioweapon. "If you were a hardened terrorist and had worked in a lab for years, you would know how to do it," he said.

When it comes to the impact of using a biological weapon, despite the vast death toll from the current pandemic, "the psychological damage is 100 times worse than the physical damage," said Hamish de Bretton-Gordon, the former commander of the U.K.'s joint chemical, biological, radiological and nuclear regiment, or CBRN, as well as NATO's CBRN battalion. He has recently worked closely with chemical attack victims in Syria and investigated an apparent Islamic State plot to introduce a form of plague into a Syrian refugee camp.

"The fact that this has created such a toxic shock around the world will be a neon advertisement to these people," he said.

New, affordable biotechnology means new risks

"We are also trying to make sure that this doesn't become a weapon of the future," the U.S. ambassador to NATO, Kay Bailey Hutchison, said of the potential for enemies to repurpose the coronavirus. "We need to deter and we need to be ready to defend, to save people's lives if there is such an attack," she told NBC News.

Multiple public health and security experts have expressed fears about new forms of biotechnology that allow a bacterium or a virus to be genetically sequenced, altered or weaponized more affordably and more rapidly.

Cutting-edge gene-editing technologies, which allow scientists and eager amateurs alike to tweak and reconstitute viruses at a microscopic level, have become widespread in recent years, and the industry remains poorly regulated in the U.S. and elsewhere.

"It should give us pause," said Dr. Alexander Garza, who oversaw biodefense efforts when he ran the Office of Health Affairs as the Department of Homeland Security's chief medical officer from 2009 to 2013.

"If this could happen in nature with a mutation of an RNA virus," he said, referring to the coronavirus, "there is potential, especially with ongoing genetic technology and all of these other things that are getting closer and closer every day, to where it will become possible to genetically modify the virus to make it more virulent and use that as a potential weapon."

The technology, including a type of gene editing known as CRISPR, provides fresh context for changing assumptions about what could be used as a biological weapon — changes that have been accelerated by COVID-19, according to Richard Pilch, who heads the biological weapons program at the Middlebury Institute's Center for Nonproliferation Studies, the world's largest nongovernmental non-proliferation research and education organization.

When it comes to budget dollars, however, Pilch cautioned against overemphasizing the possibility of attacks. "The right mix is to invest in strategies that get us both biodefense preparedness but, more importantly, broad global health preparedness to address things like COVID-19."

He said the key to preventing a natural outbreak is to end the kind of behavior or activities that lead to pathogen spillover from animals to humans, as Chinese authorities say occurred in Wuhan's wet

market. But he insisted that avoiding deliberate attacks calls for multilateral engagement and deterrence efforts on the global stage.

Existing detection systems 'insufficient'

The first line of defense against such pathogens, whether naturally occurring or tweaked in labs, is inadequate, according to experts.

Dr. Asha George, a public health specialist who heads up the Bipartisan Commission on Biodefense, said that the threat of a biological event continues to rise and that she remains worried about opponents who might wish to emulate the kind of damage currently felt by the U.S. and many of its allies.

"Now would be the time, or soon would be the time, because we're already drawing down on those resources that we would use to respond," said George, who highlighted the fragility of global supply chains for medical goods and health care infrastructures — staffing levels and hospital bed capacity — which remain under significant strain with COVID-19 admissions still so high.

George testified to Congress in October that the U.S. was unprepared for bioterrorism and biological warfare and that efforts to improve detection technology were "insufficient" and moving in the wrong direction. An environmental detection system known as BioWatch, developed after the 2001 anthrax attacks and overseen since then by the Department of Homeland Security, heavily relies on municipal and state authorities to test environmental samples for intentionally released airborne pathogens before passing on laboratory results to an integrated national registry.

Multiple experts told NBC News that the system has long been in need of a major upgrade and fails to provide the kind of detailed, real-time geographic information about infection spread that would be useful to prevent viral pandemics, intentional or otherwise. "That system is still not adequate to meet the threats that we are facing today," George said. "We need that early warning. We don't have it right now."

What else needs improvement?

To defend against a biological attack, Kadlec said, the U.S. needs to increase its testing capacity and improve the pipelines for treatment and vaccine production under a centralized national umbrella. To guard against future threats, he said, this "system of systems" must also encompass improved health surveillance of the population, as well as more effective detection techniques for viruses and bacteria, while public health authorities across the various levels of local, state and federal government must step up their readiness.

Juan Zarate, who was deputy national security adviser to President George W. Bush, said U.S. authorities must domestically rethink the communication between various government agencies and the private sector so the response to a biological event can be more consistent, rapid and aggressive.

COVID-19 has "brought home not only the realities of our vulnerabilities but the potential risk of this kind of a pandemic in man-made context, genetically modified, that is targeted in ways that are intended to undermine, attack our systems and our health," said Zarate, an NBC News contributor who oversaw the creation of infrastructure to combat terrorism financing in the wake of the terrorist attacks of Sept. 11, 2001. "Our homeland security posture and even our counterterrorism approach will be fundamentally altered by this crisis."

Willem Marx

Willem Marx is a London-based correspondent for NBC News.

Annabel Coleman, Lidz-Ama Appiah, Tesa Arcilla and Alex Holmes contributed.

https://www.nbcnews.com/politics/national-security/experts-covid-19-has-shown-u-s-u-k-are-n1207776

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C4ISRNET (Vienna, Va.)

Northrop Receives $2.4B Contract for Two Missile Defense Satellites

By Nathan Strout

May 19, 2020

The U.S. Space Force has awarded Northrop Grumman a $2.375 billion contract for two Next Generation Overhead Persistent Infrared satellites that will help provide ballistic missile warning for the military.

Next Gen OPIR is to replace the Space-Based Infrared System, a crucial part of the nation's missile defense architecture. Utilizing infrared sensors, the satellites will be able to detect and track ballistic missile threats while being more survivable than the legacy system.

The Space and Missile Systems Center plans to have five satellites in the constellation: three geosynchronous satellites built by Lockheed Martin, and two polar satellites being built by Northrop Grumman.

Northrop Grumman was initially awarded a $47 million contract for system and payload requirements analysis and risk reduction for the two polar vehicles in June 2018.

The $2.4 billion contract modification issued May 18 provides for Phase One design and development, the procurement of critical flight hardware, and risk-reduction efforts leading to critical design review. At this time, $70.5 million is being released. Work is expected to be completed by December 2025.

Meanwhile, Lockheed is developing the three geosynchronous Next Gen OPIR space vehicles. That company was awarded $2.9 billion in August 2018 to begin work on the satellites, leading to critical design review. In October 2019, the Space and Missile Systems Center announced the system had passed preliminary design review.

The Air Force has accelerated the timeline for Next Gen OPIR to get the first satellite delivered in 2025. That's required more money up front than initially expected, which was provided through a series of reprogramming requests in 2019. That became a source of tension between competing versions of the annual defense budgets in the House and Senate last year, but SMC credited that reprogramming with keeping Next Gen OPIR on track.

https://www.c4isrnet.com/battlefield-tech/space/2020/05/19/northrop-grumman-receives-24-billion-for-two-missile-defense-satellites/

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Defense One (Washington, D.C.)

DOD's Top Scientist Shoots Down Airborne Lasers for Missile Defense

By Patrick Tucker

May 20, 2020

Could lasers aboard aircraft like the F-35 shoot down enemy missiles as they launch? The Pentagon has batted around the idea for decades. But on Wednesday, its top scientists said he doesn't think it's practical, and said the Defense Department will put its research resources elsewhere.

"I want to put an end to that discussion. We're not investing in airborne platforms for shooting down adversary missiles" with directed energy, said Mike Griffin, defense undersecretary for research and engineering.

The idea of mounting a laser or other directed-energy weapon on a fighter jet or drone for missile defense has surfaced and disappeared various times. Early last year, it resurfaced in the 2019 Missile Defense Review, the bible for U.S. missile defense. "Developing scalable, efficient, and compact high energy laser technology, and integrating it onto an airborne platform holds the potential to provide a future cost-effective capability to destroy boosting missiles in the early part of the trajectory," reads the Review, the bible for U.S. missile defense. "Doing so would leverage technological advances made earlier in DoD's Airborne Laser Program, including for example advances in beam propagation and beam control. MDA is developing a Low-Power Laser Demonstrator to evaluate the technologies necessary for mounting a laser on an unmanned airborne platform to track and destroy missiles in their boost-phase."

But Griffin said at a Washington Space Business Roundtable digital event that while satellite-mounted lasers might eventually prove useful for missile defense, he was "extremely skeptical" about putting them on aircraft for that purpose. (He did not comment on the prospect of using them aboard aircraft to defend the plane itself or for air-to-air combat.)

"It can be and has been done as an experiment, but as a weapons system, to equip an airplane with the kinds of lasers we think are necessary in terms of their power level, all their support requirements, and then get the plane to altitudes where atmospheric turbulence can be mitigated appropriately, that combination of things does not go on one platform," he said. "So we're not spending money on that."

Recently, the Defense Department has shelved some of its most ambitious laser plans in order to focus on getting fiber lasers up to a power level where they will actually be useful. The Army is fielding a 250- to 300-kilowatt laser aboard a ground vehicle. Griffin said that that power level is "getting big enough to be worthy of consideration as a weapon in certain applications."

What's needed now, said Griffin, is more study of concepts of operation for lasers of different power levels in combat. "We have not invested enough in understanding lethality, different modes of lethality for directed energy. We've not invested enough in the operational studies of, If I gave a warfighter a weapon of x number of kilowatts, you know, how and in what circumstances could you use it? Where is it better than a kinetic weapon? Where is it not? The operational assessments have just not received as much attention as they should."

Patrick Tucker is technology editor for Defense One. He's also the author of The Naked Future: What Happens in a World That Anticipates Your Every Move? (Current, 2014). Previously, Tucker was deputy editor for The Futurist for nine years. Tucker has written about emerging technology in Slate, ... FULL BIO

https://www.defenseone.com/technology/2020/05/dods-top-scientist-shoots-down-airborne-lasers-missile-defense/165551/?oref=d-river

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US ARMS CONTROL

The Hill (Washington, D.C.)

Iran Says Its Ships Will Stay in Gulf despite US Warning

By Ellen Mitchell

May 20, 2020

The Iranian navy has rebuffed U.S. warnings from a day prior to stay away from U.S. warships, maintaining that it will continue its regular missions in the Gulf, an Iranian state-run news outlet reported Wednesday.

"The naval units of the Islamic Republic of Iran in the Persian Gulf and the Gulf of Oman will continue their regular missions in accordance with professional principles as in the past," according to an Iranian military official quoted by the Iranian Students' News Agency.

Reuters first reported that the U.S. military on Tuesday warned armed mariners in the Gulf to stay 100 meters away from its naval vessels in international waters and straits or risk being "interpreted as a threat and subject to lawful defensive measures."

That followed President Trump's April threat in which he said he had instructed the Navy to "shoot down and destroy" Iranian vessels that harass American ships at sea.

The tweeted warning came after a tense encounter in the Gulf in which 11 Iranian ships repeatedly approached Navy and Coast Guard ships in what the U.S. military called "dangerous and harassing" moves.

The U.S. military's Tuesday warning to Iran — which is likely to exacerbate tensions with the nation — was made "in order to enhance safety, minimize ambiguity, and reduce opportunities for miscalculation," according to the statement.

The already strained relationship between Tehran and Washington became significantly worse after Trump left the Obama-era Iran nuclear deal in 2018 and reimposed crippling economic sanctions on the country.

The tensions more recently nearly reached a boiling point after the U.S. conducted a drone strike in early January that killed Iranian Gen. Qassem Soleimani, the leader of the Islamic Revolutionary Guard Corps's Quds Force.

Days later, Iran launched a retaliatory missile strike on Iraqi bases housing U.S military personnel.

https://thehill.com/policy/defense/498789-iran-says-its-ships-will-stay-in-gulf-despite-us-warning

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Defense News (Washington, D.C.)

Trump Administration to Withdraw from Open Skies Treaty

By Aaron Mehta and Joe Gould

May 21, 2020

WASHINGTON — The Trump administration has made a final decision to withdraw from the Open Skies Treaty and may announce it as soon as this week, sources confirm to Defense News.

The administration has begun informing the other 34 members in the agreement, which allows mutual reconnaissance flights over the member nations, including Russia.

The move, first reported Thursday by The New York Times, is not unexpected, as administration officials signaled to European allies toward the end of last year that unless major changes were made to the overflight agreement, the U.S. would consider withdrawing. However, there had been little movement in the months since, giving advocates hope that a decision to exit the treaty had not been finalized.

"It was pretty clear from meetings that it was basically a done deal and it was just a matter of when," one European source said.

Allies generally argue the treaty is a valuable channel for transparency and dialogue between Russia and the United States, the world's top two nuclear superpowers.

Throughout its term, the Trump administration has been skeptical of arms control agreements. The U.S. and Russia walked away from the 1987 Intermediate-Range Nuclear Forces Treaty last August, and officials have expressed skepticism about renewing the New START nuclear agreement with Russia, which expires in 2021.

https://www.defensenews.com/global/europe/2020/05/21/trump-admin-to-withdraw-from-open-skies-treaty/

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Politico (Washington, D.C.)

White House Weighs Shorter Extension of Nuclear Arms Pact with Russia

By Bryan Bender

May 20, 2020

The Trump administration is weighing a face-saving strategy for keeping an Obama-era nuclear treaty from expiring while it pursues a more sweeping arms pact with both Russia and China, according to current and former administration officials with direct knowledge of the deliberations.

Under the plan, the White House would temporarily extend the New Strategic Arms Reduction Treaty while seeking a new agreement with Moscow that also tries to convince China to come to the table, they said.

The diplomatic formula is viewed at the State Department and National Security Council as a promising way to both prevent New START from expiring in February and getting Russia to agree — at least in principle — to more comprehensive limits on nuclear arms.

"Both approaches are available, or a mix thereof," said a State Department spokesperson who asked not to be named.

New START is one of the last remaining pacts aimed at keeping the world's largest atomic arsenals in check. But concerns have grown among Republicans and Democrats that President Donald Trump could walk away just as he has jettisoned the 1987 Intermediate-Range Nuclear Forces Treaty with Russia and the Obama-era nuclear pact with Iran.

The administration's potential approach has gained traction in recent weeks as the Trump administration faces growing criticism that Trump's goal of negotiating a broader nuclear treaty with both Moscow and Beijing before New START expires is unrealistic and, if it fails, risks igniting a full-blown nuclear arms race.

"There are a host of options or steps that could be taken to accomplish the president's direction, some of which could be done in fairly short order," said an administration official also involved in the deliberations. "There's not a one-size-fits-all model."

Arms control experts raised a number of questions and concerns, noting that the approach still poses a risk to New START with no guarantee that any follow-on pact would be as enforceable.

But it also has intriguing possibilities, said Jon Wolfsthal, who oversaw nuclear policy on the National Security Council in the Obama administration.

"A six-month extension to buy yourself some time to negotiate something new with the Russians — and call on the Chinese to join — inherently isn't bad," said Wolfsthal, who is now a senior adviser to Global Zero, a disarmament group. "It might be a way to square the circle — if you can also be sure that the next administration has the leeway to extend [New START] more."

New START, which was signed by President Barack Obama and Vladimir Putin in 2010 and ratified by the Senate, limits strategic nuclear arms on both sides to 1,550. It also includes detailed verification measures such as on-site inspections to ensure both sides are complying.

Russia said publicly late last year it is willing to extend the treaty the full five years without preconditions. So far, the Trump administration has insisted that the treaty is flawed because it doesn't cover a series of nuclear arms in the Russian arsenal such as tactical warheads.

The U.S. has not committed to an extension of the treaty and says Trump instead wants to replace it with a more comprehensive agreement that covers more classes of weapons to include stringent verification measures.

"This is crucial because we're talking about two countries with abysmal track records in terms of treaty compliance," Marshall Billingslea, Trump's special envoy for arms control, recently told the Washington Times. "Russia has violated nearly every single agreement we've ever had with them — and the Chinese stand in violation of a number of agreements that they've also signed."

Officials said the first element of the strategy now under serious consideration would be an extension of New START, but for a significantly shorter duration that the maximum five years permitted under the treaty.

Wolfsthal said one major issue is whether the treaty could legally be extended again if the U.S. and Russia — not to mention China — failed to reach any follow-on agreement before the New START extension ran out.

"Could you have multiple extensions as long as those multiple extensions don't exceed a five-year period?" he asked. "There is some concern that this administration, in order to kill New START, would say we are going to extend six months, but then you burn your bridge. Others are saying, 'No, you can extend for six months and then extend for four-and-a-half years or three years, as long as the extension periods don't total more than five years.'"

An even more controversial move would be to pursue a new agreement with Moscow that doesn't clearly spell out how compliance would be guaranteed.

A former government official who closely tracks nuclear policy described the administration's evolving thinking as reflecting a growing reality that this late in the president's term — and as relations with Russia and China continue to suffer — the administration is not likely to be able to achieve the kind of historic diplomatic breakthrough Trump has been promising.

"I don't think anybody ever thought they were going to get an official deal but they wanted at least [a] gentleman's agreement," the former official said. "I've heard that used many times in terms of what they want to get from the Russians."

The administration could seek a "one-year or two-year extension of the treaty while they get something — a gentleman's agreement is probably too light, I think they wanted something in writing," the former official explained. "But it wouldn't be a binding legal document. I think it would just be in principle."

Added the State Department spokesperson: "It doesn't necessarily need to look just like New START."

Some officials have held out the prospect of a follow-on agreement more akin to the 2002 Strategic Offensive Reductions Treaty, also known as the Moscow Treaty.

Signed by Putin and then-President George W. Bush, it called for further cuts to nuclear arms on both sides but was less prescriptive than similar treaties and included fewer constraints on how each side could carry out its commitments. Some critics used its acronym to call it the "sort of" treaty.

But a major element at the time was that START I, which predated New START, was still in place for seven more years, and the Moscow Treaty was able to piggyback on its verification measures.

"You still had inspectors on the ground in both countries," said Wolfsthal. "You still had a fence around their missile production facilities and X-rayed what went out. The intelligence community could certify that we have high confidence that Russia's was complying with the Treaty of Moscow because of the START verification provisions."

Without new verification procedures, a short extension of New START would unlikely offer such backup — and that gives arms control advocates pause.

"Gambling with the benefits that New START provides on a very low-odds-of-success bet that a short-term extension will convince the Russians and the Chinese to come to the table and meet our terms does not strike me as a smart or responsible approach," said Kingston Reif, director for disarmament and threat reduction policy at the Arms Control Association.

The State Department, however, says it hopes to restart talks with Russia as soon as possible and reiterated its invitation for China to join the discussions.

"Russia has stated that it has no preconditions to extension, which is a position that we will remember," said the spokesperson. "In December 2019 we separately formally invited China in good faith to begin a strategic security dialogue on nuclear risk reduction, arms control, and their future. We hope to begin this as soon as possible. We await Beijing's response."

But the biggest immediate question, says Wolfsthal, may be whether Trump can be convinced to take the first step.

"The central question is whether there is a way to convince Trump to extend an Obama treaty," he said. "There is a lot of doubt about that."

Lara Seligman and Nahal Toosi contributed to this report.

https://www.politico.com/news/2020/05/20/white-house-russia-nuclear-271729

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COMMENTARY

Arms Control Wonk

China's DF-26: A Hot-Swappable Missile?

By Joshua H. Pollack and Scott LaFoy

May 17, 2020

P.W. Singer and Ma Xiu have an important story in PopSci with a nifty find about China's DF-26 intermediate-range ballistic missile (IRBM), which carries either nuclear or conventional payloads. It goes some way toward resolving a debate among English-speaking analysts about how these missiles are operated.

Here, we flesh out the story with some additional textual and visual evidence.

(Also see Ankit Panda's discussion at The Diplomat, found here.)

A MULTI-PURPOSE MISSILE

First, some background on the debate. Unlike other Chinese missiles associated with more than one warhead type, the DF-26 lacks publicly declared sub-designations indicating which sort of warhead it is meant to carry. For example, the DF-21A is nuclear, the DF-21C is conventional, and the DF-21D carries a conventional anti-ship warhead. These designations are acknowledged by the PLA Rocket Forces and appear in U.S. government reports. But the DF-26 has only ever been identified as DF-26, without any suffixes, by either government.

(Undated pictures of debris from missile tests complicate that story somewhat by including suffixes and also prefixes. One American news story also claimed that there is a DF-26C. More about these puzzle pieces in a little.)

This terminological quirk raises a question: is the PLA Rocket Force deploying the DF-26 in the same manner as the DF-21, with separate, dedicated nuclear, conventional, and anti-ship brigades? Or is each and every DF-26 unit trained and equipped to launch any or all available payload types, as the lack of any "A," "C," or "D" suffixes seems to imply?

Singer and Ma have unearthed a fascinating CCTV feature from 2017 describing the training of a missile brigade, which they identify as the 646 Brigade. The CCTV report makes it abundantly clear that this unit's personnel train to operate both conventional and nuclear weapons, potentially within the span of a single operation: an exercise is described in which launch units fire conventionally armed missiles, then promptly relocate, reload, and prepare to conduct "nuclear counterstrikes." This may well be the common pattern for all current and planned DF-26 brigades, although there's not enough information in this story to be confident of that.

As it turns out, this isn't the first Chinese source to describe this feature, although it's probably the most explicit. An article by Wang Changqin and Fang Guangming of the PLA Academy of Military Science appeared in China Youth Daily in November 2015, and was helpfully translated by Andrew Erickson soon afterward.

Wang and Fang write (in Erickson's translation):

In contrast with the DF-21D is the DF-26's distinct characteristic of being nuclear and conventional all in one; that is, the one missile body can carry a nuclear warhead (singular or plural not indicated) for a nuclear strike against the enemy, or it can carry a conventional warhead (singular or plural not indicated) for a conventional firepower attack against the enemy. That "change the warhead, not the missile" feature provides a rapid switch between nuclear and conventional….

China has only a limited number of nuclear weapons, and as a medium range ballistic missile, by changing to a nuclear warhead at the last minute it (the DF-26) can as needed form up a nuclear deterrent and nuclear counterattack capability linking long and short ranges and strategic and campaign roles….

The DF-26 has numerous "fast" features such as fast switch between nuclear and conventional, fast road movement, fast launch preparation, and fast displacement and withdrawal….

[An] emphasis was put on improving reliability, maintainability, and supportability, with a modular design of the missile's structure. Significant is a carrier to which several types of warhead can be fitted, including two types of nuclear warhead [on this point, see the note below] and several types of conventional warhead which use different destructive mechanisms to attack specific targets. For example, penetration warheads would be used to damage area type targets such as airfields and ports, piercing and exploding warheads would be used to destroy hardened targets such as bunkers and cave depots, and fuel-air explosive warheads would be used against electromagnetic targets such as command organizations and computer centers. Such a "one carrier, many warheads" design enables the DF-26 to execute long and medium-range precise strikes against many kinds of targets.

[Note: Tong Zhao of the Carnegie-Tsinghua Center kindly offers a correction: the article quoted above says, "two types of warheads: nuclear and conventional," and not "two types of nuclear warhead." We've adjusted the following paragraph to reflect that understanding. Thanks for the assistance!]

This account of a fast-switch capability, along the slogan "change the warhead, not the missile," implies that a warhead could be replaced in the field, even after a missile has been loaded onto a launch vehicle. This impression is reinforced by the enumeration of at least four types of warhead (nuclear, conventional submunitions, conventional penetrator, and thermobaric), which probably means that alternative warheads are brought along in another vehicle or vehicles, rather than hauling a large number of differently preloaded missiles into the field. As Wang and Fang put it, "one carrier [i.e., booster], many warheads." Four warhead types may not even be a comprehensive listing, considering the anti-ship role that they mention elsewhere in the article.

This would mean that the DF-26 is not only dual- (or multi-) capable, but that each individual launcher and its crew are prepared to handle all warhead types, just as the 2017 CCTV feature suggests. Even more than that, it suggests that each individual missile could carry any of the available warhead types, which can be exchanged in the field.

Still, this article is subject to interpretation. Back in 2016, Jordan Wilson took a different view of Wang and Fang, writing in a USCC staff research report, "As China's launch brigades have in the past been dedicated to either nuclear or conventional missions, but not both, the 'modularity' of the design likely means these launch vehicles can be assigned to either nuclear or conventional brigades, rather than that an individual brigade could quickly switch between warhead types."

EVERYTHING HINGES ON… A HINGE

Now let's add a new, striking detail. When DF-26 launch vehicles first appeared in public, at a military parade in Beijing in September 2015, they looked like this:

DF-26 on parade, Beijing, 2015. Note how the nose of the missile container projects over the cab of the TEL. Source: PopSci

As we can see in the image above, each six-axle transporter-erector-launcher (TEL) carries a missile canister raised slightly for the parade display, with its business end lifted above the TEL's cab. There is precedent: DF-21C and DF-21D missile canisters are paraded at the same jaunty angle.

Photos from the 2015 parade have become the standard images of the new IRBM accompanying English-language publications.

Here's where it gets interesting. In all subsequent images of the DF-26 broadcast on Chinese television, its TEL is unlike the model that appeared in the 2015 parade. Instead, we see a slightly different vehicle. What catches the eye most of all: the canister isn't elevated at all, but is shown in its resting position. It's almost horizontal, and the nose of the canister is about halfway submerged into the cab of the TEL.

DF-26 on parade, Zhurihe, 2017. Note that the missile canister is partly submerged into the cab of the TEL. Source: CCTV4

Looking even more closely, there's another difference on the business end: The orientation of the seam on the warhead's clamshell-type cover has changed. In 2015, the seam was vertical, as is also seen on the DF-21C and DF-21D:

Closeup of DF-26, Beijing, 2015. Note the divot in the roof of the cab where the nose of the canister would normally rest. Source: SinoDefence Forum

In later imagery, the shape of the canister's nose is slightly different, and the seam is horizontal:

Closeup of DF-26, Zhurihe, 2017. Source: CCTV4

What is more, the new cover has a feature that is, to the best of our knowledge, unique within the PLARF: it's fixed in place. Instead of splitting and falling off the erected canister just before launch, the cover is built into the launch vehicle! Its top half rests on a hinge on top of the TEL. When it swings open, it exposes the warhead to view, like so:

DF-26s with hinged clamshell covers open, showing off the goods. Source: Beijing Television

As shown above, the cover is part of the TEL, and not part of the canister. Lest there be any doubt, here's a still from CCTV showing a DF-26 missile being loaded onto an empty TEL, with the hinged cover opened to receive the warhead. Notice how the warhead protrudes from the canister, unlike on any other canisterized missile we've seen in the PLARF.

By the same token, the cover has to flip open before the missile can erect into launch position. Here's how that looks:

Judging by its appearance, the hinged clamshell cover on the DF-26 TEL could be opened and closed as often as required. This feature permits the crew ready access to the warhead. Consistent with our understanding of the Wang and Fang article from 2015, this feature could enable rapid switching of warheads on a launch-ready missile, making it "hot-swappable."

What's less clear is whether the warhead swapping is supposed to happen right on top of the TEL. One possibility is that a loader vehicle removes the missile canister, holds it while crew members replace the warhead, and then puts it back on the TEL. This approach strikes us as perhaps more practical. But either way, it would involve just a single missile, which can carry any sort of available warhead and is never removed from its canister in the field.*

*Not counting, you know, launches.

(The only other large launchers in the PRC that are known to have anything resembling this sort of separate payload cover are the TELs for the KZ-1A and KZ-11 space launch vehicles, which are considered to be derived from, or heavily influenced by, PLARF missile systems.)

We don't know why this sort of TEL didn't appear on television until after the September 2015 parade. But that was before the November 2015 publication of the China Youth Daily article, so it's possible that the modularity of the design had not yet been cleared for public release, in a manner of speaking.

We also don't know why prefixes and suffixes appear on some post-test DF-26 debris in pictures and videos that have popped up online at different times. Judging by the paint job in one such instance, it was a developmental test, not involving production missiles. But another image shows what looks like a solid rocket motor painted green, which suggests a launch exercise. The circumstances that produced these images are somewhat murky.

WHAT YOU DON'T KNOW ACTUALLY CAN HURT YOU

There's a moral to this story. In his impressively rich and detailed paper on the problem of "pre-launch ambiguity," James Acton describes the risks that nuclear-armed countries run in a crisis or in wartime if they are mistaken or simply uncertain about the presence of enemy nuclear weapons. As Acton explains, this is a real-world phenomenon, not hypothetical, underscored by errors and gaps in knowledge during past episodes, including the Cuban Missile Crisis and the Yom Kippur War.

Does the PLA see the intensification of these risks as advantageous? One way of looking at it is that the PLARF is preparing to play a "shell game" with its relatively scarce nuclear warheads, making them harder to find and target by unobtrusively salting them into a large, mostly conventional missile force. But another way of looking at it is "Russian roulette," in which an attack on missiles, presumed to be conventionally armed, risks hitting a nuke. Whatever the idea was, any attempts by the U.S. to engage an alerted DF-26 will probably involve significant uncertainty about whether its forces might be about to strike at enemy nuclear weapons.

Here's a little parable about the risks associated with attacking the deployed missile forces of another nuclear-armed country. Slightly over a decade ago at a U.S.-Chinese "Track II" meeting in Beijing, American participants were reported to have pressed their Chinese counterparts about the limits of China's nuclear no-first-use (NFU) commitment. One of them raised the possibility of U.S. conventional strikes against Chinese nuclear forces: what would happen then? Would China adhere to NFU in the strictest sense, or would it use its remaining nuclear weapons to retaliate against a conventional counterforce attack? One of the Chinese participants, a retired senior military official, is said to have responded, "Try it and see."

Facing ambiguously armed missiles, the U.S. military could find itself running that sort of risk, even without any intention of attacking Chinese nuclear weapons. Whether that's by accident or by design, it raises the stakes of a shooting war. That's something that we hope defense planners and senior decision-makers will keep in mind.

https://www.armscontrolwonk.com/archive/1209405/chinas-df-26-a-hot-swappable-missile/

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Brookings (Washington, D.C.)

How COVID-19 Might Affect US Nuclear Weapons and Planning

By Steven Pifer

May 18, 2020

Editor's Note: As it examines the administration's proposed fiscal year 2021 defense budget, Congress should carefully consider the trade-offs and press the Pentagon to articulate how it weighed the trade-offs between nuclear and conventional forces, writes Steven Pifer. This piece original appeared in the National Interest.

The Department of Defense has begun to ratchet up spending to recapitalize the U.S. strategic nuclear triad and its supporting infrastructure, as several programs move from research and development into the procurement phase. The projected Pentagon expenditures are at least $167 billion from 2021-2025. This amount does not include the large nuclear warhead sustainment and modernization costs funded by the Department of Energy, projected to cost $81 billion over the next five years.

Nuclear forces require modernization, but that will entail opportunity costs. In a budget environment that offers little prospect of greater defense spending, especially in the COVID19 era, more money for nuclear forces will mean less funding for conventional capabilities.

That has potentially negative consequences for the security of the United States and its allies. While nuclear forces provide day-to-day deterrence, the Pentagon leadership spends most of its time thinking about how to employ conventional forces to manage security challenges around the world. The renewed focus on great power competition further elevates the importance of conventional forces. It is important to get the balance between nuclear and conventional forces right, particularly as the most likely path to use of nuclear arms would be an escalation of a conventional conflict. Having robust conventional forces to prevail in or deter a conventional conflict in the first place could avert a nuclear crisis or worse.

NUCLEAR WEAPONS AND BUDGETS

For the foreseeable future, the United States will continue to rely on nuclear deterrence for its security and that of its allies (whether we should be comfortable with that prospect is another question). Many U.S. nuclear weapons systems are aging, and replacing them will cost money, lots of money. The Pentagon's five-year plan for its nuclear weapons programs proposes $29 billion in fiscal year 2021, rising to $38 billion in fiscal year 2025, as programs move from research and development to procurement. The plan envisages a total of $167 billion over five years. And that total may be understated; weapons costs increase not just as they move to the procurement phase, but as cost overruns and other issues drive the costs up compared to earlier projections.

The Pentagon knew that the procurement "bow wave" of nuclear weapons spending would hit in the 2020s and that funding it would pose a challenge. In October 2015, the principal deputy undersecretary of defense said "We're looking at that big bow wave and wondering how the heck we're going to pay for it… and probably thanking our stars that we won't be here to have to answer the question."

The Pentagon's funding request for fiscal year 2021 includes $4.4 billion for the new Columbia-class ballistic missile submarine that will replace Ohio-class submarines, which will begin to be retired at the end of the decade; $1.2 billion for the life extension program for the Trident II submarine-launched ballistic missile (SLBM); $1.5 billion for the Ground Based Strategic Deterrent, an intercontinental ballistic missile (ICBM) to replace the Minuteman III ICBM; $2.8 billion for the B-21 stealth bomber that will replace the B-1 and B-2 bombers; $500 million for the Long-Range Standoff

Missile that will arm B-52 and B-21 bombers; and $7 billion for nuclear command, control and communications systems.

The Pentagon funds primarily go to delivery and command and control systems for nuclear weapons. The National Nuclear Security Administration at the Department of Energy bears the costs of the warheads themselves. It seeks $15.6 billion for five nuclear warhead life-extension and other infrastructure programs in fiscal year 2021, the first year of a five-year plan totaling $81 billion. The fiscal year 2021 request is nearly $3 billion more than the agency had earlier planned to ask, which suggests these programs are encountering significant cost growth.

Some look at these figures and the overall defense budget (the Pentagon wants a total of $740 billion for fiscal year 2021) and calculate that the cost of building and operating U.S. nuclear forces will amount to "only" 6-7 percent of the defense budget. That may be true, but how relevant is that figure?

By one estimate, the cost of building and operating the F-35 fighter program for the U.S. Air Force, U.S. Navy and U.S. Marines over the program's lifetime will be $1 trillion. Amortized over 50 years, that amounts to $20 billion per year or "only" 2.7 percent of the Defense Department's fiscal year 2021 budget request. The problem is that these percentages and lots of other "small" percentages add up. When one includes all of the programs, plus personnel and readiness costs as well as everything else that the Pentagon wants, the percentages will total to more than 100 percent of the figure that Congress is prepared to appropriate for defense.

OPPORTUNITY COSTS

The defense budget is unlikely to grow. Opportunity costs represent the things the Pentagon has to give up or forgo in order to fund its nuclear weapons programs. The military services gave an indication of these costs with their "unfunded priorities lists," which this year total $18 billion. These show what the services would like to buy if they had additional funds, and that includes a lot of conventional weapons.

The Air Force, for example, would like to procure an additional twelve F-35 fighters as well as fund advance procurement for an additional twelve F-35s in fiscal year 2022. It would also like to buy three more tanker aircraft than budgeted.

Constraining Iran's missile capabilities

The Army is reorienting from counter-insurgency operations in places such as Afghanistan and Iraq to facing off against major peer competitors, that is, Russia and China. Its wish list includes more long-range precision fires (artillery and short-range surface-to-surface missiles), a new combat vehicle, helicopters and more air and missile defense systems.

The Navy would like to add five F-35s to its aircraft buy, but its bigger desire is more attack submarines and warships, given its target of building up to a fleet of 355 ships. The Navy termed a second Virginia-class attack submarine its top unfunded priority in fiscal year 2021. It has set a requirement for 66 attack submarines and currently has about 50. However, as older Los Angeles-class submarines retire, that number could fall to 42. Forgoing construction of a Virginia-class submarine does not help to close that gap.

Moreover, the total number of Navy ships, now 293, will decline in the near term, widening the gap to get to 355. The Navy's five-year shipbuilding program cut five of twelve planned Arleigh Burke-class destroyers, and cost considerations have led the Navy to decide to retire ten older Burke-class destroyers rather than extend their service life for an additional ten years. This comes when China is rapidly expanding its navy, and Russian attack submarines are returning on a more regular cycle to the Atlantic Ocean.

The Navy has said that funding the first Columbia-class ballistic missile submarine forced a cut-back in the number of other ships in its fiscal 2021 shipbuilding request. The decision not to fund a second Virginia-class attack submarine appears to stem directly from the unexpected $3 billion plus-up in funding for the National Nuclear Security Administration's fiscal year 2021 programs.

These are the opportunity costs of more nuclear weapons: fewer dollars for aircraft, ships, attack submarines and ground combat equipment for conventional deterrence and defense.

NUCLEAR WAR AND DETERRING CONVENTIONAL CONFLICT

The principal driving factor behind the size of U.S. nuclear forces comes from Russian nuclear forces and doctrine. Diverse and effective U.S. nuclear forces that can deter a Russian nuclear attack should suffice to deter a nuclear attack by any third country. In contrast to the Cold War, the U.S. military no longer seems to worry much about a "bolt from the blue"—a sudden Soviet or Russian first strike involving a massive number of nuclear weapons designed to destroy the bulk of U.S. strategic forces before they could launch. That is because, under any conceivable scenario, sufficient U.S. strategic forces—principally on ballistic missile submarines at sea—would survive to inflict a devastating retaliatory response.

The most likely scenario for nuclear use between the United States and Russia is a regional conflict fought at the conventional level in which one side begins to lose and decides to escalate by employing a small number of low-yield nuclear weapons, seeking to reverse battlefield losses and signal the strength of its resolve. Questions thus have arisen about whether Russia has an "escalate-to-deescalate" doctrine and whether the 2018 U.S. nuclear posture review lowers the threshold for use of nuclear weapons.

If the United States and its allies have sufficiently robust conventional forces, they can prevail in a regional conflict at the conventional level and push any decision about first use of nuclear weapons onto the other side (Russia, or perhaps China or North Korea depending on the scenario). The other side would have to weigh carefully the likelihood that its first use of nuclear weapons would trigger a nuclear response, opening the decidedly grim prospect of further nuclear escalation and of things spinning out of control. The other side's leader might calculate that he/she could control the escalation, but that gamble would come with no guarantee. It would appear a poor bet given the enormous consequences if things go wrong. Happily, the test has never been run.

This is why the opportunity costs of nuclear weapons programs matter. If those programs strip too much funding from conventional forces, they weaken the ability of the United States and its allies to prevail in a conventional conflict—or to deter that conflict in the first place—and increase the possibility that the United States might have to employ nuclear weapons to avert defeat.

For the United States and NATO members, that could mean reemphasis on an aspect of NATO's Cold War defense policy. In the 1960s, 1970s and early 1980s, NATO allies faced Soviet and Warsaw Pact conventional forces that had large numerical advantages, and NATO leaders had doubts about their ability to defeat a Soviet/Warsaw Pact attack at the conventional level. NATO policy thus explicitly envisaged that, if direct defense with conventional means failed, the Alliance could deliberately escalate to nuclear weapons. That left many senior NATO political and military officials uneasy. Among other things, it raised uncomfortable questions about the willingness of an American president to risk Chicago for Bonn.

Russia found itself in a similar situation at the end of the 1990s. With a collapsing economy following the break-up of the Soviet Union, the Russian government had to cut defense spending dramatically. As its conventional capabilities atrophied, Moscow adopted a doctrine envisaging first use of nuclear weapons to compensate. (In the past fifteen years, as Russia's defense spending has increased, a significant amount has gone to modernizing conventional forces.)

The United States and NATO still retain the option of first use of nuclear weapons. If the U.S. president and NATO leaders were to consider resorting to that option, they then would be the ones to have to consider the dicey bet that the other side would not respond with nuclear arms or that, if it did, nuclear escalation somehow could be controlled.

Assuring NATO allies that the United States was prepared to risk Chicago for Bonn consumed a huge amount of time and fair amount of resources during the Cold War. At one point, the U.S. military deployed more than 7000 nuclear weapons in Europe to back up that assurance. Had NATO had sufficiently strong conventional forces, the Alliance would have been able to push that risky decision regarding nuclear first use onto Moscow—or even have been able to take comfort that the allies' conventional power would suffice to deter a Soviet/Warsaw Pact attack.

In modernizing, maintaining and operating a safe, secure and effective nuclear deterrent, the United States should avoid underfunding conventional forces in ways that increase the prospect of conventional defeat and/or that might tempt an adversary to launch a conventional attack. If Washington gets the balance wildly out of sync, it increases the possibility that the president might face the decision of whether to use nuclear weapons first—knowing that first use would open a Pandora's box of incalculable and potentially catastrophic consequences.

GETTING THE BALANCE RIGHT IN THE COVID19 ERA

This means that the Department of Defense and Congress should take a hard look at the balance. The Pentagon presumably has weighed the trade-offs, though it is not a unitary actor. "Nuclear weapons are our top priority" has been the view of the leadership. The trade-offs have been easier to manage in the past several years, when nuclear programs were in the research and development phase, and defense budgets in the first three years of the Trump administration grew. As nuclear programs move into the more expensive procurement phase and the fiscal year 2021 budget shows little increase, the challenge of getting the balance right between nuclear and conventional spending has become more acute. It is not apparent that the Pentagon has weighed the opportunity costs over the next ten-fifteen years under less optimistic budget scenarios.

As for Congress, which ultimately sets and approves the budget, no evidence suggests that the legislative branch has closely considered the nuclear vs. conventional trade-offs.

All that was before COVID19. The response to the virus and dealing with the economic disruption it has caused have generated a multi-trillion-dollar budget deficit in 2020 and likely will push up deficits in at least 2021. It would be wise now to consider the impact of COVID19.

Having added trillions of dollars to the federal deficit, and facing an array of pressing health and social needs, will Congress be prepared to continue to devote some 50 percent of discretionary funding to the Department of Defense's requirements? Quite possibly not. If defense budgets get cut, the Pentagon will face a choice: shift funds from nuclear to conventional force programs, or accept shrinkage of U.S. conventional force capabilities and—as the United States did in the 1950s and early 1960s—rely on nuclear deterrence to address a broader range of contingencies. In the latter case, that would mean accepting, at least implicitly, a greater prospect that the president would have to face the question of first use of nuclear weapons, i.e., a conventional conflict in which the United States was losing.

This is not to suggest that the U.S. military should forgo the strategic triad. Trident II SLBMs onboard ballistic missile submarines at sea remain the most survivable leg of the strategic deterrent. The bomber/air-breathing leg offers flexibility and can carry out conventional missions. The ICBM leg provides a hedge against a breakthrough in anti-submarine warfare. Moreover, if in a crisis or a conventional conflict, the Russian military were to develop the capability to attack U.S. ballistic missile submarines at sea, the Kremlin leadership might well calculate that it could do so

without risking a nuclear response. Attacking U.S. ICBMs, on the other hand, would necessitate pouring hundreds of nuclear warheads into the center of America. A Russian leader presumably would not be so foolish as to think there would be no nuclear retaliation.

While sustaining the ICBM leg, one can question whether maintaining 400 deployed ICBMs, as the current plan envisages, is necessary. Reducing that number for the Ground-Based Strategic Deterrent (GBSD) would achieve budget savings, albeit later in the production run. Another question is whether some way might be found to extend the service life of some portion of the current Minuteman III force that would allow delaying the GBSD program, which is projected to cost $100 billion, by ten-fifteen years and postponing those costs—freeing up funds in the near term for conventional force requirements.

Another issue concerns the Long-Range Standoff Missile (LRSO) and its cost, estimated at some $20 billion when including the nuclear warheads. The B-21 bomber will incorporate stealth and advanced electronic warfare capabilities allowing it to operate against and penetrate sophisticated air defenses. The LRSO, to be deployed beginning in 2030, is intended to replace older air-launched cruise missiles carried by the B-52 bomber and could later equip the B-21 if it loses its ability to penetrate.

An alternative plan would convert B-52s in 2030 to conventional-only missions and delay the LRSO to a future point if/when it appeared that the B-21's ability to penetrate could come into question. By 2030, the Air Force should have a significant number of B-21s (the B-21 is scheduled to make its first flight in 2021 and enter service in 2025). With at least 100 planned, the Air Force should have a sufficient number of B-21s for the 300 nuclear weapons it appears to maintain at airfields where nuclear-capable bombers are currently based.

These kinds of ideas would free up billions of dollars in the 2020s that could be reallocated to conventional weapons systems. Delaying the GBSD and LRSO and their associated warhead programs by just one year (fiscal year 2021) would make available some $3 billion—enough money for a Virginia-class attack submarine. Delaying those programs for ten-fifteen years would make tens of billions of dollars available for the military's conventional force needs.

All things being equal, it is smarter and more efficient to choose to make decisions to curtail or delay major programs rather than to continue them until the money runs out and forces program termination. As it examines the administration's proposed fiscal year 2021 defense budget, Congress should carefully consider the trade-offs and press the Pentagon to articulate how it weighed the trade-offs between nuclear and conventional forces. In the end, Congress should understand whether it is funding the force that is most likely to deter not just a nuclear attack, but to deter a conventional conflict that could entail the most likely path to nuclear war.

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https://www.brookings.edu/blog/order-from-chaos/2020/05/18/how-covid-19-might-affect-us-nuclear-weapons-and-planning/

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Nuclear Threat Initiative (Washington, D.C.)

Dismantle Bombs, Not Treaties

By NTI

May 20, 2020

In October 2012, David Johnson, a former nuclear weapons specialist at the U.S. Pantex Plant, witnessed the dismantlement of the last B53 nuclear bomb—at one point the most destructive weapon in the U.S. arsenal. Johnson, who had worked to develop the weapon, described the moment as "[coming] full circle" saying, "I consider myself privileged to work on [the bomb] and then help retire it." [1] The Clinton Administration retired the B53 in 1997, but dismantling the last B53 took fifteen years.

During the 1990s, the U.S. typically dismantled more than 1,000 nuclear weapons per year. But in recent decades, dismantlement rates have fallen. In January 2017, then-Vice President Joe Biden announced that there were still 2,800 nuclear weapons awaiting dismantlement—a backlog that, at current rates, would take until 2026 to clear. [2] Dismantlement rates have fallen, in part, because resources have shifted to maintenance and more comprehensive life-extension programs for existing warheads.

For example, while the Obama Administration had planned to retire several hundred B83 warheads in the 2020s – adding to the dismantlement queue – the Trump Administration, in its 2018 Nuclear Posture Review, reversed this decision and announced that the United States would sustain the B83 past its previously planned retirement date. [3]

You too can #DismantleBombsNotTreaties by taking a picture of yourself taking apart the below 3D bomb in augmented reality. Share your image on Twitter with @NTI_WMD using #DismantleBombsNotTreaties. Read how to access the augmented reality from your mobile device or watch the instructional video.

The 2018 Nuclear Posture Review reversed plans to retire the B83 gravity bomb. View the annotated assembled and disassembled B83 gravity bomb graphics.

Arms Control Ancestry

During the Cold War, in 1967, the U.S. nuclear arsenal peaked at 31,255 warheads and bombs while the Soviet arsenal peaked at 40,159 nuclear warheads and bombs in 1986. [4] These stockpiles started coming down as the United States and the Soviet Union began negotiating a series of arms control treaties – first, limitations aimed at capping the number of deployed nuclear weapons and delivery systems, and then agreements aimed at reducing them.

These treaties included the Intermediate-Range Nuclear Forces (INF) Treaty (1987), the 1991 Strategic Arms Reduction Treaty (START), and the 2011 New Strategic Arms Reduction Treaty (New START), which is set to expire in 2021. Along with voluntary measures such as the Presidential Nuclear Initiatives, these treaties have led to a large number of excess non-deployed nuclear warheads that Russia and the United States have chosen to dismantle.

According to declassified data, between 1994 and 2017 alone, the United States dismantled almost 11,000 nuclear weapons. [5] Additionally, under the Megatons to Megawatts program, which was implemented from 1993 to 2013, the United States purchased weapons-grade fissile material from Russia and converted it into fuel for civil nuclear power plants across the United States. Over the lifespan of Megatons to Megawatts, approximately 500 tons of weapons-grade highly enriched uranium (HEU) were removed from Soviet-era warheads and recycled into 14,000 tons of reactor fuel—ensuring that they could never be used for weapons. [6] The United States and Russia today

possess a fraction of their Cold War nuclear arsenals and fissile material. Today, Russia has approximately 4,490 warheads, while the United States has approximately 3,800. [7]

A Crumbling Arms Control Legacy

However, continued progress on nuclear arms limitation and reduction is at risk. On 2 August 2019, the United States officially withdrew from the INF Treaty, in response to Russia's violations of that Treaty. The INF Treaty was a Cold War-era agreement between the United States and Russia that eliminated land-based nuclear-capable ballistic and cruise missiles with a 500-5,500km range. [8] With the INF Treaty gone, New START is the only remaining agreement limiting U.S. and Russian nuclear arsenals. It will expire in February 2021, unless the United States and Russia agree to extend it for another five years. Formal discussions on extension have yet to begin. Additionally, due to complications from the Coronavirus pandemic, important discussions on the status of global arms control treaties, such as the 2020 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), have been postponed. [9] Similar delays could push New START extension discussions even closer to the treaty's 2021 expiration date.

If New START is not extended, there would be no legally binding restraints on U.S. and Russian nuclear forces. In that scenario, each side might be impelled to grow, rather than reduce, its nuclear arsenals.

A Step in the Right Direction

There is a safer course. The United States and Russia could end the uncertainty over the fate of New START and extend the treaty for an additional five years before it expires in 2021. [10] If the United States and Russia let New START expire in 2021, it will mark the first time since 1972 without legally binding limits on the two largest nuclear arsenals in the world. Those limits are backed with extensive verification measures that build confidence, predictability, and stability.

By the end of the Cold War, both countries had come to understand that arms control provided limits, verification, and security mechanisms necessary for a safer world. That remains as true today as it was then. Extending New START is a crucial step to maintain strategic stability and a necessary foundation for additional steps to further constrain nuclear competition. The United States and Russia must sustain their efforts to reduce nuclear arms and dismantle excess nuclear weapons. Like David Johnson, they too, can come full circle.

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Bulletin of the Atomic Scientists (Chicago, Illinois)

How to Reduce Both Nuclear and Pandemic Threats after COVID-19

By James E. Doyle

May 19, 2020

In the span of just a few short months, more than 300,000 innocent people worldwide have lost their lives to COVID-19. The rapidly spreading virus is infecting people in nearly every nation on Earth. The worst may be yet to come.

The virus reveals fundamental flaws in the strategies nations employ to provide security for their people. What will governments learn from this pandemic and what must they do differently in the future to safeguard their populations?

Success will require abandoning old concepts of national security and cooperatively allocating limited resources wisely to address the growing challenges of public health threats. This can be done only by coordinated international action.

A new international defense architecture against disease pandemics is needed that can be maintained at sufficient readiness and effectiveness and has flexible surge capability to defeat the next outbreak. The funding should be redirected from other areas of traditional defense spending, particularly nuclear weapons.

Nuclear weapons offer no protection from pandemics. Their use would create the perfect conditions for disease outbreaks while simultaneously decimating public health infrastructure. Recognizing these facts, nuclear-armed states should be willing to adopt a long-standing international goal by formally pledging never to use nuclear weapons first. They should also immediately divert some portion of their nuclear weapons spending toward cooperatively strengthening global preparedness for future pandemics.

Inadequate funding. Current defense strategies drastically underestimate the threat from naturally occurring disease pandemics and the resources needed to adequately defend against them.

To date, COVID-19 has killed more than 85,000 innocent Americans, far more than the number of servicemen and women who died in the Vietnam, Afghanistan, and Iraq wars combined. As the devastating health and economic consequences of the virus reverberate across the globe, human suffering will certainly increase and could reach levels approaching those caused by the world wars of the 20th century.

So the first vital lesson of COVID-19 is that the portion national defense spending devoted to pandemic preparedness in nearly every country is woefully insufficient. The national security forces of most nations remain focused on external military threats such as aggression by another

state or terrorist organization. For example, only a tiny fraction of the more than $700 billion spent each year by the US Defense Department is devoted to pandemic prevention and response. These meager capabilities played almost no role in mitigating the disease and economic consequences of COVID-19. By contrast, the annual budget for the US Centers for Disease Control and Prevention is less than $7 billion.

In short, COVID-19 highlights the dangerous imbalance in US strategic thinking and defense investment. In order for American citizens and citizens of most other nations to feel confident that their governments are providing effective security against coronavirus and other diseases, unprecedented levels of investment must be shifted to public health defense.

Inadequate capabilities. A direct consequence of inadequate funding is inadequate capacities. The current global pandemic defense architecture is too small in scale and lacks key capabilities.

Most experts believe that the new coronavirus is a natural spillover that jumped from animals to humans. Such outbreaks have happened in the past and will happen again. In addition, terrorist groups or even individuals distributed across the globe may have the capacity for developing a synthetic pathogen.

As a first step to improving preparedness, countries need to increase the ranks of public health officials, first responders, doctors, government planners, and data modelers.

Maintaining a network of strategic stockpiles of needed equipment, supplies, and medicines is also a key aspect. The availability of such stockpiles in a crisis can improve the response to an outbreak and save lives, but they must contain the needed items in good order and have a distribution plan that meets the needs of affected cities and states. This was not the case for the US Strategic National Stockpile during the COVID-19 emergency. In the future, stockpiles will need to include more personal protective equipment, ventilators, and even mobile hospitals. As these items are depleted during a crisis, reliable supply chains must be pre-established to replenish stockpiles or send items directly to the location of need.

Another critical capability for countering future pandemics includes the tools for rapidly identifying and isolating those infected and those with whom they have had contact. Research and development for innovative technical solutions to this challenge should be accelerated and adequately funded. When future pandemics strike, the necessary infrastructure for free and mandatory testing for infection and antibodies should be ready. Government-supported guaranteed paid sick leave must also be available during future pandemics to encourage the ill to quarantine at home.

All of the above will require financial support by national governments. The US government was fortunate to rapidly enact a pandemic relief package of more than $2 trillion in response to the emergency. The next goal should be to avoid the need to do so in the future through a sustained program of strategic reinvestment to strengthen public health capacity.

Inadequate international coordination. To be effective, however, national programs must be coordinated with as many other nations as possible. Current national strategies for pandemic defense are insufficiently coordinated and so cannot be effective against human disease outbreaks for which national borders are meaningless.

COVID-19 is a perfect example of an emerging category of threat that the global community will increasingly face in the 21st century and beyond. Due to the integration of the global economy, the constant movement of people across national borders, and humanity's common reliance on the Earth's environment for survival, the human species shares a vulnerability to multiple emerging threats. These include climate change, environmental degradation, disease pandemics, and global financial crises.

The nation-state is a poor unit of organization for countering these emergent, borderless threats because its ability to gather critical information and deploy resources is limited outside its national borders. It has long been realized that international organizations, multilateral and bilateral agreements, and regulated trade relationships are needed for effective response to global threats. This strategic philosophy must be taken to new levels.

Unfortunately, COVID-19 demonstrates without a doubt that the Trump administration's "America First" strategy puts humanity last. Over the two years prior to the initial outbreak of COVID-19 in China, the Trump administration reduced the staff at the Beijing office of the US Centers for Disease Control and Prevention by 70 percent, including withdrawing epidemiologists and other health professionals. The Beijing offices of the National Science Foundation and the United States Agency for International Development, which cooperated with China on monitoring and responding to pandemics, were also closed.

Even more bewildering is Trump's decision in April 2020 at the height of the contagion in the United States to suspend funding to the World Health Organization. The organization serves as the global coordinator of clinical trials to develop disease vaccines, diagnostic tests, and treatments, and provides training and protective gear for health workers worldwide. The United States has traditionally been the greatest contributor to the 194-nation agency's $4.8 billion budget. Prior to suspending funding, the Trump administration proposed slashing the annual US contribution to the agency by more than half.

These actions are the direct opposite of what the United States—and all countries for that matter—should be doing in seeking to improve the security of its citizens from pandemic threats. International organizations devoted to disease prevention and response must be dramatically expanded and adequately funded so that a network of linked outposts in countries and regions across the globe can provide early warning, detection, characterization, and response to public health threats. Such a network is needed to provide the critical biosurveillance data that can help prevent and counter public health emergencies.

Every country should create a national office for biosurveillance akin to the US National Biosurveillance Integration Center within the Department of Homeland Security, and these offices should network with one another to further enhance the capabilities of the World Health Organization and its member nations. In addition, the bureaucratic position of such organizations needs to be placed closer to the top of the national security decision-making hierarchy.

A focus on the wrong threats. The weakest feature of current strategic thinking is the continued imbalance of resources devoted to traditional external threats versus emerging global threats. Fortunately, this imbalance creates an opportunity to shift resources from one category of threats to the other without need to increase overall defense spending.

There is a contradiction between the ideologies of countering some traditional threats and the ideology of cooperative international efforts to safeguard against mutual threats shared by all nations.

This is particularly true with regard to the threat of nuclear weapons use. After all, the linchpin of nuclear deterrence theory—that it is necessary and acceptable for individual nations to seek security for their citizens by threatening to annihilate the populations of other nations and cause the suffering of millions of innocent people—is antithetical to the ethic of cooperation needed to counter global threats to humanity. The declaration of the willingness to use nuclear weapons, essential to deterrence, is an explicit rejection of the goal of protection of innocent life.

The coronavirus spotlights this contradiction. For example, despite its devastating consequences, COVID-19 would be a very poor weapon. This is because its effects cannot be localized for a military

mission. The chances that such a virus would severely damage the country that tried to employ it are simply too high.

The same is true for nuclear weapons. Their effects are too indiscriminate and unpredictable. The use of even a small number of nuclear weapons on populated areas anywhere in the world would cause human suffering more tragic than the coronavirus. Ironically, it would also create conditions for increased episodes of deadly disease outbreak while simultaneously decimating public health capabilities, creating a perfect storm of human misery.

This understanding alone should lead to new international efforts to reduce the chances of nuclear war and redirect resources away from expanding nuclear arsenals and toward strengthening defenses against future pandemics.

For example, the five nuclear-armed permanent members of the United Nations Security Council (the United States, Russia, China, France, and the United Kingdom) could adopt a treaty pledging never to be the first to use nuclear weapons. The COVID-19 experience shared by these countries provides impetus to finally achieve this long-sought goal of nuclear arms control that would reduce the chance of nuclear war. China already has a no-first-use policy, and there is strong public support for one in the United States.

A joint nuclear no-first-use pledge would acknowledge the critical necessity of preventing nuclear war and the ensuing global health emergency from the death and injury of hundreds of thousands and the simultaneous destruction of medical response capability. The four other states that possess nuclear weapons (India, Pakistan, Israel, and North Korea) should also join the treaty, and if they decline to do so, they should be politically and economically penalized.

Beyond this, all nuclear-armed states should pledge to divert 5 percent of their planned annual spending on nuclear weapons to the creation of a global disease surveillance system and to preparations for mitigating the public health consequences of future outbreaks.

Because the United States spends between $30 and $40 billion annually on nuclear weapons, its contribution to such an effort would be $1.5 to $2 billion per year. The remaining nuclear-armed countries combined spend roughly an additional $35 billion. This means that a total of approximately $3.5 billion could be spent on an international biosurveillance organization annually with contributions from nuclear-armed countries alone.

Ideally an international biosurveillance organization initially created in this manner would be joined by dozens of states that could both contribute resources and enjoy the security benefits of participation. One example of effective international cooperation to create a global monitoring system is the system established by the Comprehensive Nuclear Test Ban Treaty Organization. The organization's international monitoring system consists of 321 sensor stations and 16 laboratories worldwide. These 337 facilities monitor the planet for any sign of a nuclear explosion. The system is supported by a global communications infrastructure and international data center that rapidly distributes data on seismic and nuclear events to all member nations.

COVID-19 as a teachable moment. The coronavirus pandemic is a human tragedy. Adding to the pain is the fact that scientists and public health officials worldwide warned of this threat, but their warnings went largely unheeded. Humanity was caught unprepared. Future disease outbreaks are inevitable, but their consequences can be greatly reduced if governments learn to think differently about security in the age of emerging global threats.

Nationalistic thinking and unilateral actions cannot safeguard human populations from such threats. Nothing demonstrates this more clearly than the flawed ideology of nuclear deterrence. At its core, nuclear deterrence requires its practitioners to declare that they are willing to burn the

global village to save their individual nations. Such thinking cannibalizes the collective human spirit, energy, and creativity that must be tapped to meet the security challenges of the future.

Nations can emerge stronger and more secure if they learn from the COVID-19 experience that their defense postures are dangerously imbalanced toward traditional threats. New capacities to meet public health, environmental, and economic threats are essential. Of course, these can only be effective with increased international cooperation and coordination. The changes in nuclear strategy and the creation of a multinational fund for a global biosurveillance system are small, reachable steps in the right direction.

https://thebulletin.org/2020/05/how-to-reduce-both-nuclear-and-pandemic-threats-after-covid-19/#

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ABOUT THE USAF CSDS

The USAF Counterproliferation Center (CPC) was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University — while extending its reach far beyond — and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff's Director for Nuclear and Counterproliferation (then AF/XON) and Air War College commandant established the initial personnel and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation.

In 2008, the Secretary of Defense's Task Force on Nuclear Weapons Management recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." This led to the addition of three teaching positions to the CPC in 2011 to enhance nuclear PME efforts. At the same time, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide professional continuing education (PCE) through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the CPC in 2012, broadening its mandate to providing education and research on not just countering WMD but also nuclear operations issues. In April 2016, the nuclear PCE courses were transferred from the Air War College to the U.S. Air Force Institute for Technology.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies (CUWS) to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards. In May 2018, the name changed again to the Center for Strategic Deterrence Studies (CSDS) in recognition of senior Air Force interest in focusing on this vital national security topic.

The Center's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation — counterforce, active defense, passive defense, and consequence management. The Latin inscription "Armis Bella Venenis Geri" stands for "weapons of war involving poisons."