

Is the US nuclear strategic deterrent fully adequate to dissuade today's new threats, such as modernization and expansion of nonstrategic nuclear weapons, hybrid warfare, cyber and terrorist attacks, and other subversive, provocative, revisionist, and hegemonistic activities from China, Russia, and other adversaries?

Answering that question is not simple. Nevertheless, the fact that adversaries are aggressively and fearlessly implementing those threats can signal that America's nuclear forces, while still directed toward averting aggression and preserving peace, may no longer be the adequate deterrents of hostile behavior they once were.

The US and allied states are increasingly concerned about these emerging threats and the challenges they pose to US and international security. These apprehensions have reignited debates about the role of nuclear weapons in the US and NATO deterrent strategies. Many in the US have proposed modernizing the US nuclear triad, extending its life service, and modernizing nuclear-capable aircraft. Ground Based Strategic Deterrent (GBSD) missiles are under development to replace Minuteman III missiles. Still, whether these efforts will address and deter today's threats remains to be seen.

Tackling the question of the role of nuclear weapons in the nuclear deterrent strategy, articles in this edition take a hard, fresh look at the weaknesses in the US nuclear deterrent strategy and explore novel, concrete tactical and operational venues the US and allies could use to strengthen existing nuclear arsenals and address and confront today's threats.

In "The Technologies and International Politics of Genetic Warfare," Dr. Yelena Biberman discusses the eventuality of genetic warfare thanks to the weaponization, delivery, and precision of biological weapons made possible by innovations in synthetic biology, artificial intelligence, and nanotechnology. Since genetic weapons may have the same deterrent effects as nuclear weapons, they represent a viable deterrent source for nuclear states such as the United States that may now include them in their deterrent strategy and develop and use them covertly or openly as strategic, tactical, and psychological deterrents.

However, the list of nuclear states and terroristic, genocidal, and apocalyptic regimes and non-state actors that may use genetic and nuclear weapons is growing. Thus, there is an urgent need for the US to expand its arms control efforts beyond China and Russia and include all types of nuclear weapons. In "An Overlooked Aid to Arms Control: US Nuclear Modernization," Matthew R. Costlow proposes that the US modernize its nuclear programs to induce states to agree to come to the negotiating

table but also to provide US diplomacy with an additional viable option to incentivize states to comply with an arms control agreement. The idea of modernized nuclear weapons triggers fear of a counteraction threat should these states choose to violate the agreement.

To engage the adversaries meaningfully, the US must continue to value competition as a strategic tool. CAPT Michael P. Ferguson, USA, in “Strategic Imperative: A Competitive Framework for US-Sino Relations,” warns that renouncing the conceptual framework of competition can result in unfruitful policies shaping against rogue and revisionist powers like the Chinese Communist Party. That is, if the US does not stick to the conceptual framework of competition, it may not have a strategic imperative to prevent adversaries from achieving their strategic objectives at the expense of US values and national security interests.

Today’s security threats are multifaceted and evolving. In “The Remote Sensing Revolution Threat,” LTC Brad Townsend, USA, identifies remote sensing (using satellites to image objects on the ground) as a serious threat to US national security and assesses weaknesses in existing US approaches to its management. He proposes a comprehensive approach that includes novel diplomatic procedures and increased regulatory control measures to accompany future active military means of addressing this emerging, ubiquitous threat. Possessing this technology and managing it appropriately will guarantee an overwhelming military advantage for the US security strategy to leverage while denying that capability to adversaries.

Since adversaries’ threats pose challenges to the US and its allies, this fall issue includes a new section—*Par Avion* (by airmail)—featuring articles with international perspectives on US national security strategy. These articles offer international insights on how the US can strengthen its deterrent strategy while working collaboratively with allied states.

In “Arctic Space Strategy: The US and Norwegian Common Interest and Strategic Effort,” Lt Col Kjetil Bjørkum from the Norwegian Air Force discusses the increased significance of the Arctic in the context of strategic competition. He lays out the challenges of the Arctic and areas where the US and Norway could cooperate for mutual benefits and for deflecting the Chinese and Russian presence.

A worrisome and complex threat to the US and its allies is Russian hybrid warfare—the use of conventional military force supported by irregular and cyber warfare tactics. In “Comprehensive Security Approach in Response to Russian Hybrid Warfare,” Lt Col Tuuka Elonheimo from the Finnish Air Force explains the broader concept of Russian hybrid

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warfare. He argues that these Russian warfare methods are a serious threat to Western democracies, unity, and decision-making ability and provides preventive measures including increasing comprehensive security, cooperation, situational awareness, preparedness, and resilience.

We welcome your feedback on this issue and hope it promotes discussion and further exploration of these areas. You can comment at <https://www.airuniversity.af.edu/SSQ/> by clicking the “Comment on Article” button at the end of each article, on Facebook at <https://www.facebook.com/StrategicStudiesQuarterly>, and Twitter at <https://twitter.com/SSQJournal>. Contact the editor at StrategicStudiesQuarterly@au.af.edu.

Victor Mbodouma
Editor in Chief, *SSQ*

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