



# PROCEEDINGS

## DETERRENCE EDUCATION AND NATIONAL SECURITY

*The remarks below were delivered at a symposium on “Deterrence Education and National Security” hosted by National Institute for Public Policy on January 25, 2022. The symposium focused on how issues of deterrence and nuclear strategy are taught at colleges and universities and discussed the prospect for greater collaboration between academics and the official deterrence community, some of the impediments to such collaboration, and how they might be overcome.*

### **Keith B. Payne**

***Keith B. Payne is President of the National Institute for Public Policy and Professor Emeritus of Missouri State University’s Defense and Strategic Studies graduate program.***

Since the beginning of the nuclear age, there has been considerable de facto collaboration between the deterrence and academic communities. The broad outlines of U.S. nuclear deterrence policy have followed from the original work of a small number of brilliant scholars, including Herman Kahn, Thomas Schelling, Bernard Brodie, and Colin Gray.

More recently, an even smaller number of scholars has led the rethinking of Cold War approaches to deterrence to accommodate the great changes in the threat environment—although we are not yet far down that road of rethinking.

One could be forgiven for assuming that the engagement of the academic community and the deterrence policy community would require no deconfliction. After all, we work on the same general subject matter and typically speak the same language.

However, let me suggest that it is critical to recognize that these two communities work in very different contexts, have different professional cultures, different modes of operation, different measures of professional merit, different professional languages, different goals, and very different measures of success.

Ideally, academics educate each new generation of students and push the boundaries of conventional thinking, offering up hypotheses toward the further accumulation of knowledge. This is a never-settled process. It is, and should be, rough and tumble intellectually. Every nuance is open to question in a remarkably decentralized process. It is an intellectual free-for-all, governed by little more than generally shared, but occasionally discarded, norms of process integrity. Professional success for the academic often is determined by the prominence of one’s participation in this rough and tumble process, measured largely by the number of publications and conference appearances in academically-accepted venues.

The development of U.S. deterrence policy is a wholly different matter. It is not a forum for testing hypotheses and building knowledge, per se. The deterrence community’s goal is much more directed and the process much more structured: it is responsible for the policies and practices needed to deter external threats with available resources.



There is a well-defined hierarchy of executive authority that ends discussion by deciding what is the correct policy. Civilian political leaders, who typically are not highly knowledgeable about the subject, are responsible for deciding what the correct answers are. In contrast to much academic work, their decisions carry enormous potential real-world regrets for getting it wrong, while spectacular deterrence success is marked by nothing much appearing to happen. Academics often critique this process, but often are themselves ignorant of how it operates.

The academic searching for knowledge and the national security community seeking practical answers should be a natural match. But it is hard to imagine more different professional contexts. My 44 years of experience in each community tells me that if these differences are not seriously taken into account, collaboration will be mutually frustrating and even unhelpful for either.

Allow me to offer a personal, real-world example of the gulf separating these two communities. From 2005 until I retired in 2019, I served as department head for Missouri State University's graduate Defense and Strategic Studies (DSS) program. This program was founded by Prof. William Van Cleave at the University of Southern California in 1971. His explicitly expressed purpose was to provide a graduate curriculum that prepared students for the harsh realities of government service in the field of national security. When asked to comment on the DSS curriculum in 2011, the late Professor Robert Jervis, himself a true expert on deterrence theory and policy, said that the Department's curriculum was outside the academic mainstream, but well within the policy mainstream. I took that comment as a profound complement, but it was a devastating comment on the state of deterrence education. It reflected the truth that, in this subject area, the policy community and the academic communities are far apart.

This gulf has, if anything, widened since Bob Jervis' comment. Much academic and think-tank commentary on U.S. deterrence policy harkens back to the deterrence policy contours of the 1960s, i.e., notions of "Mutually Assured Destruction (MAD)," which the policy community, on a fully bipartisan basis, departed from in the mid-1970s, never to return. Whenever I start reading an article on deterrence in which the author claims, seemingly knowingly, that U.S. deterrence policy is based on MAD, I simply stop reading. The authors, usually academics or journalists who have talked to academics, clearly are ignorant of a half century of actual U.S. deterrence policy development.

There are numerous examples of how these two communities' mutual lack of understanding can lead to problematic engagement. An ongoing example revolves around their generally differing perspectives about the foreseeable feasibility of cooperative global nuclear disarmament.

Yale professor Paul Bracken observed about the campaign for nuclear disarmament: "All were on board to oppose nuclear arms... Academics, think tanks and intellectuals quickly jumped on the bandwagon. For a time, it really looked like there was going to be an antinuclear turn in U.S. strategy." Yet, many, probably most, with positions of serious deterrence responsibility, were deeply skeptical of the prospects for global nuclear disarmament. An Air Force general officer quipped that he so favored global nuclear

disarmament that he would throw a party when it occurred, but that he would advise guests not to feed hors d'oeuvres to his pet unicorn.

Why this divide? In a most insightful comment on this question, the late Oxford Professor Sir Michael Howard—a person with considerable experience in national security and academia—suggested that the different professional contexts of the academic and the policy maker can shape views on the subject of nuclear disarmament:

Nobody who has been brought into contact with that inner group of civil and military specialists who are responsible for the security of this country can fail to notice the almost physical pressure exerted on them by that responsibility, affecting their processes of thought (and often their manner of speech) in much the same way as the movements of a man are affected when he tries to walk in water....they share a common skepticism as to the possibility of disarmament, or indeed of the creation of any effective international authority to whom they can turn over any portion of their responsibilities.

Sir Michael then added his observation that, “the impatient onlookers, who have never themselves been plunged into that element, cannot understand why.”

This divide can be seen in deterrence education. Several years ago, I had an opportunity to examine course offering on deterrence in professional military education. Without going into any detail, I can tell you, at least as of a few years ago, that the gulf between the policy community and the academy is not limited to civilian universities. Indeed, it appeared that the very few military courses on the subject sought to mimic the discussion of deterrence generally presented in civilian universities. They were, to turn Professor Jervis' comment around, within the academic mainstream, but well outside the policy mainstream.

Based on my general survey of deterrence education, there were two different but related problems. First, there simply was very little offered on the subject of deterrence, particularly nuclear deterrence, which may have reflected the general view following the Cold War that the subject had become passé.

Second, what I found that was offered tended to present the subject from a particular point of view, i.e., that one side of the U.S. deterrence debate is in favor of stable deterrence, minimal nuclear capabilities, and arms control, and the other side of the debate is interested in war-fighting strategies opposed to deterrence, wants unlimited nuclear capabilities, and is inherently opposed to arms control. This characterization is as silly as it is prevalent. It conveys an underlying theme, apparent in much academic discourse on the subject, that there exists a clearly responsible way to think about deterrence that is juxtaposed to a clearly reckless way to think about it—the former generally following Thomas Schelling's deterrence narrative and the latter Herman Kahn's.

In fact, an honest presentation of the deterrence debate must give full recognition to the fact that each side is focused first on deterring war, each has thoughtful, responsible advocates, and that each is built on speculative assumptions regarding the opponent and the threat environment. Either may be more or less responsible or reckless, depending on the character of the opponents, the threat environment and U.S. deterrence goals. Yet, typically,

one side seemed consistently to be favored as the more responsible approach to deterrence, while the other was held up for implicit or explicit criticism. That approach to deterrence education is inadequate at best.

This was the state of play as I found it several years ago. There have since been notable efforts to do better and, I believe, notable improvement.

I look forward to the presentations of the panel—hopefully we will hear more about the improvement in the state of deterrence education from what I found a few years ago.

\* \* \* \* \*

### **Mark Mattox**

***Mark Mattox is Director of the Countering Weapons of Mass Destruction Graduate Fellowship Program and Senior Research Fellow at the National Defense University. The views expressed herein are those of the author and do not necessarily represent those of National Defense University or the U.S. Government.***

In the touchstone document for today's discussion, Professor Payne astutely and, I trust to this audience, uncontroversially, observes that "a consequence of limited shared experience is limited mutual understanding."<sup>1</sup> Nowhere in my experience has that been more evident than in what I have encountered through the semiannual exercise of recruiting federal personnel attending senior service college to undertake coursework in weapons of mass destruction- and nuclear deterrence-related topics.

The recruitment exercise to which I refer is necessary for two reasons:

First, these topics receive only superficial coverage, if at all, in the university's core curriculum. It is true that the students we succeed at recruiting are at least tacitly aware that the United States' principal adversaries either possess or seek to possess nuclear weapons, and the core university instruction they receive assumes that realization to be part of their background knowledge. However, little effort seems to be made to point out to these future strategic-level leaders that the principal adversaries of the United States are its principal adversaries largely, if not primarily, because they possess or seek to possess nuclear weapons. This is no inconsequential cognitive connection. While these students have many shared experiences, this connection is one that falls outside of those experiences and hence, true to Professor Payne's dictum, their mutual understanding of the problem is likewise limited.

The second reason appears to be the assumption that a general understanding of "deterrence" will suffice to ensure their appreciation of the special function deterrence plays vis-à-vis nuclear weapons. That perspective, born of a lack of shared experiences, leads many of them to conclude that deterrence is a monolithic concept; that if you can deter, for example, a drone strike, you can deter a nuclear strike; and that the events of the last three-

---

<sup>1</sup> Keith B. Payne, *Cultivating Intellectual Capital – Linking Deterrence Practitioner to Academician*, Information Series No. 506 (Fairfax, VA: National Institute Press, October 26, 2021), available at <https://nipp.org/wp-content/uploads/2021/10/IS-506.pdf>.

quarters of a century demonstrate that the real risk of their having a nuclear encounter is really very low; and that as long as, by some means, the state can ratchet up some combination of instruments of national power until an adversary considers the cost of action too high, the deterrence task has been accomplished, and there really isn't anything else to discuss. Unfortunately, the logic of that position parallels that of the equally ridiculous claim that if we were simply to move the sun farther from the earth, the problem of global warming could be held in check. Indeed, what clearly seems to be missing is an appreciation of the special sense—if for no other reason than that of the seriousness of the stakes involved—in which deterrence applies to the special case of nuclear weapons, as well as to WMD more broadly. No shared experience, no mutual understanding.

I am happy to report that some of what seem to me to be among the University's brightest, most thoughtful students, tend to gravitate toward courses offered in nuclear deterrence and other aspects of WMD. They seem to come from two distinct groups. The first group comprises those with operational experience generally associated with WMD: some from backgrounds in chemical or biological defense, others from consequence management, and still others from nuclear operations. One might be pardoned for thinking that these students do not need instruction in nuclear deterrence because the tactical-level experiences—in many cases, shared experiences—they bring to the classroom would render the topic all too familiar. Not so. The epiphany that awaits these students is the realization that their tactical-level experiences do almost nothing to prepare them to understand deterrence—especially nuclear deterrence—and related concepts at the strategic level. They have shared tactical experiences, alright; but this does not imply shared understanding of strategic-level concepts. They must be formally introduced to these, if they are not to learn them through the trial-and-error school of hard knocks—and no one should think that a trial-and-error education in nuclear deterrence is a good thing.

Then there is a second group of recruits, namely, those who come to this field of study without any experiential background but whose interest in our program has been piqued if for no other reason than out of morbid curiosity aroused by the creative recruitment efforts in which we take some pride and by which we seek to distinguish our courses from a plethora of other elective courses in the offing.

At the completion of our courses, several interesting outcomes are evident: First, students from both groups, virtually without exception, are glad they chose to take these courses, as evidenced by consistently praise-filled student feedback. Second, students from both groups, virtually without exception, are quite surprised at what they have learned about nuclear deterrence. And finally, students from both groups, again virtually without exception, find themselves asking the question, "Why are these topics not dealt with more substantively as part of the core curriculum? Why did we have to stumble upon them in the forest of elective course offerings?"

We can only respond by saying, "Those are some good questions. Why indeed are these topics not dealt with more substantively in the core curriculum?"

While the educational effort I described awards a master's level area of concentration to students graduating from the host institution, those completing the concentration typically

represent less than 10 percent of the graduating class of students, all of whom are bound for positions of strategic-level leadership in the Department of Defense and elsewhere in the federal government. That means two things: first, that most of those selected for in-resident senior service college instruction acquire little or no such shared understanding of the things we are talking about today and, hence, have no common vocabulary or conceptual framework with which to exchange ideas; and second, that the still larger number of persons continuing in their uniformed service or executive agency career that are not selected for in-residence instruction but who will go on to occupy responsible staff positions, have even less exposure to these topics.

While we are thankful for such small victories as our educational efforts yield, we are also aware that much work remains to be done. There are, of course, no switches that can be easily flipped to change the status quo, and the number of people entering the strategic-level ranks of federal service fortified with the education I have described remains quite low. At present, the best outcome we can hope for is that, the students having had a positive experience from their engagement with the subject matter, then leave our institution with a disposition to be interested in the topic and perhaps even to recognize important cognitive connections between what they encountered in their WMD- and deterrence-related classes and what they experience in the real world. This may seem like a rather thin thread to hang our hopes on for linking future deterrence practitioners to the academicians, and it is—especially, given the gravity of the subject matter.

In a similar vein, it is important for both sides—academicians and deterrence practitioners—to be aware of just how thin the thread really is. We who teach the subject can be lulled into persuading ourselves and each other that our effect on the larger machinery of government is more significant than it really is, and actual deterrence practitioners may suppose that there are more potential future deterrence practitioners in the pipeline than there really are.

In the period between the end of the Cold War and the fairly recent acknowledgment of “great power” or “strategic” competition—pick whichever branding you will, it may have been sufficient for some few at the strategic level of leadership to understand something about deterrence, especially as it manifests in the case of nuclear weapons. Be that as it may, surely the time has come, once again, for practically everyone at the strategic level of leadership to understand something about it. While shared experience does indeed yield shared understanding, this might be a case in which we might at least hope that shared understanding can result in avoidance of the worst imaginable kind of shared experience.

\*\*\*\*\*

**Brendan Melley**

***Brendan Melley is Director of the Center for the Study of Weapons of Mass Destruction at the National Defense University. The views expressed in this paper are those of the author and are not an official policy or position of the National Defense University, the Department of Defense, or the U.S. government.***

Thank you, Professor Trachtenberg, for the opportunity to join this distinguished panel, and I hope I can make half as good a contribution as they are making. It's good to see so many friends and colleagues attending.

Candidly, I was thrilled when David asked me to be part of this webinar to discuss "Deterrence Education and National Security," for education on WMD issues broadly has become a bit of a focus for me in the past few years.

I come at this with a somewhat parochial (no pun intended) perspective to emphasize the critical importance of improving the military education system with an integrated appreciation of both deterrence and countering WMD concepts to meet the demand for adaptive and agile leaders—across all functional areas—who can think critically in a complex strategic environment.

As all of us here recognize, strategic deterrence cannot be stovepiped within any education program, but must be integrated with an appropriate understanding of the broad contours of the security environment, history, and the role of all instruments of national power.

In my view DoD is challenged in appropriately integrating, within PME, the range of activities to address the "WMD problem," from deterrence to actions post-crisis or post-war. One aspect of this challenge is an underappreciated disagreement, or perhaps more kindly, a lack of agreement, on a common lexicon; this serves to separate DoD professionals into their own two cultures.

There are definitional differences of "weapons of mass destruction" within the Federal government, as Dr. Seth Carus wrote 10 years ago in his seminal occasional paper, "Defining 'Weapons of Mass Destruction.'"<sup>2</sup> These differences are generally not a problem outside of formal plans, but terminology does play a role to complicate how some leaders look at WMD challenges.

Especially in DoD, the term "countering WMD," or CWMD, is used to describe a broad range of strategies, policies and activities used to address WMD threats. Most other parts of the Federal government look at the "left of boom" WMD challenge through the lenses of counterproliferation and nonproliferation. For DoD, if it isn't deterrence, it likely is considered CWMD.

CWMD is a doctrinal term and not to be challenged lightly, but I do not believe it is consistently used or understood within DoD. One result is that strategic deterrence often is

---

<sup>2</sup> W. Seth Carus, *Defining "Weapons of Mass Destruction" (Revised)*, Occasional Paper 8 (Washington, D.C.: National Defense University, January 2012), available at [https://wmdcenter.ndu.edu/Portals/97/Documents/Publications/Occasional%20Papers/08\\_Defining%20Weapons%20of%20Mass%20Destruction.pdf](https://wmdcenter.ndu.edu/Portals/97/Documents/Publications/Occasional%20Papers/08_Defining%20Weapons%20of%20Mass%20Destruction.pdf).

not automatically incorporated into how most major elements of DoD go about planning, resourcing, or executing CWMD activities – and this includes how WMD is addressed in PME.

Stepping back to the perspective of broad WMD challenges, education and leader development are essential to prepare today's and tomorrow's leaders to be able to blend an understanding of the role of chemical, biological, radiological, and nuclear weapons in competition and conflict, into a strategic appreciation of geopolitical risk, whole of government responses, and military planning and operations.

While we do not know yet the details of the Biden Administration's security policy documents, it seems likely that an enduring objective will continue to be what the 2018 NDS stated, "Dissuading, preventing, or deterring state adversaries and non-state actors from acquiring, proliferating, or using weapons of mass destruction."

The demand for the development of adaptive and agile leaders was emphatically stressed in the 2018 National Defense Strategy. In 2020, the Joint Chiefs of Staff released a vision paper for PME that states, "The evolving and dynamic security environment, which includes disruptive changes in the character and conduct of warfare, demands immediate changes to the identification, education, preparation, and development of our joint warfighters."<sup>3</sup>

A subsequent implementation plan for this guidance states that "Gaining and sustaining an intellectual overmatch in the future will require joint warfighters who can conceive, design, and implement strategies and campaigns and can globally integrate U.S., Allied, and partner capabilities in conflicts that have not yet been imagined."<sup>4</sup> There is a high demand for trained, educated and informed planners, strategists, and leaders to be prepared to fight through and win after an adversary uses any WMD – should deterrence fail.

In meeting their responsibilities in a crisis, leaders and their staffs continually will be challenged to apply deterrence and countering WMD strategies and concepts to their plans and operations, and to organize and prioritize resources for an optimal balance of capabilities.

Any adversary employment of WMD would create compounding and cascading effects on friendly forces and plans, and likely lead to unforeseen operational and strategic challenges. The Joint Force must be cognitively prepared for adversary use of WMD across the full spectrum of competition and conflict, including:

- Use below the level of armed conflict by actors who believe that such use could be accomplished covertly and/or with plausible deniability;
- Early employment in conflict to prevent the joint force from gaining air supremacy, assembling offensive capabilities, supplying forces, or maintaining freedom of maneuver; and
- Threats of use to raise the risk of escalation to limit US strategic options.

---

<sup>3</sup> Joint Chiefs of Staff, *Developing Today's Joint Officers for Tomorrow's Ways of War*, May 1, 2020, p. 2, available at [https://www.jcs.mil/Portals/36/Documents/Doctrine/education/jcs\\_pme\\_tm\\_vision.pdf?ver=2020-05-15-102429-817](https://www.jcs.mil/Portals/36/Documents/Doctrine/education/jcs_pme_tm_vision.pdf?ver=2020-05-15-102429-817).

<sup>4</sup> *Implementation Plan for The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management*, July 11, 2020.



The preceding points were intended to describe “why” WMD education is important. “How” we can best deliver this education is a work in progress.

Task 20 of the 2018 Nuclear Posture Review’s Implementing Guidance tells us that is imperative that PME provide a “stronger common understanding of nuclear issues across the force, and stronger understanding among planners of how the conventional and nuclear dimensions of possible conflict must be integrated into planning.”<sup>5</sup>

This imperative was captured in the Chairman’s Officer Professional Military Education Policy (OPMEP) of 2020, which recognized that great power competition requires PME to address the risks of deterrence failure in the context of conventional conflict, and to assess various forms of escalation in an effort to achieve operational and strategic advantage.<sup>6</sup>

Strategic deterrence was identified in 2015 as a Special Area of Emphasis of the Chairman for PME, and since then, CSWMD has been providing each CAPSTONE class of new General and Flag officers and Senior Executives at NDU their primary module on deterrence.

Mindful of the next speaker but also true, I don’t want to suggest that there is no treatment of deterrence education in some JPME II programs and senior service schools, and that will certainly expand. However, I will assert that outside of the nuclear deterrence communities in the Air Force and Navy, military officers should not have to wait until they are Lieutenant Colonels to receive formal instruction on this.

In June 2021, two of my colleagues at CSWMD, Dr. Amy Nelson and Mr. Paul Bernstein, wrote an article in the online site Real Clear Defense entitled, “Toward Nuclear and WMD Fluency in Professional Military Education.”<sup>7</sup> I recommend that this article be on your reading list. It describes the path from the 2018 NPR to the 2020 OPMEP’s guidance to include “nuclear capabilities and concepts” in PME. An important contribution of the article is suggesting how DoD can improve the integration of broader WMD topics into education for the Joint Force.

The authors state, “This is an era in which nuclear deterrence and the potential nuclear dimension of conflict are not some distant rung on an escalation ladder but something that shadows the full spectrum of competition and conflict and therefore is foundational to how the joint force prepares for war.”

One of Nelson’s and Bernstein’s recommendations is to “Provide a progressive learning process that seeks to connect theory to practice, addressing historical experience; concepts, strategy and policy; capabilities; technical, operational and organizational factors; and partner and competitor approaches.”

---

<sup>5</sup> Joint Staff J-7, Joint Force Development, *Nuclear Posture Review Implementing Guidance Task 20 (Professional Military Education)*, September 4, 2018, p. 2, available at <https://wmdcenter.ndu.edu/Portals/97/NPR%20Implementing%20Guidance%20Task%2020%20%28PME%29.pdf>.

<sup>6</sup> Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 1800.01F, *Officer Professional Military Education Policy*, May 15, 2020, available at [https://www.jcs.mil/Portals/36/Documents/Doctrine/education/cjcsi\\_1800\\_01f.pdf?ver=2020-05-15-102430-580](https://www.jcs.mil/Portals/36/Documents/Doctrine/education/cjcsi_1800_01f.pdf?ver=2020-05-15-102430-580).

<sup>7</sup> Amy J. Nelson and Paul I. Bernstein, “Toward Nuclear and WMD Fluency in Professional Military Education,” *RealClear Defense*, June 26, 2021, available at [https://www.realcleardefense.com/articles/2021/06/26/toward\\_nuclear\\_and\\_wmd\\_fluency\\_in\\_professional\\_military\\_education\\_783078.html](https://www.realcleardefense.com/articles/2021/06/26/toward_nuclear_and_wmd_fluency_in_professional_military_education_783078.html).

This would produce in students what the authors termed “nuclear fluency,” which is “the acquisition of both foundational knowledge as well as sufficient specialized knowledge to contribute to the formulation and execution of strategic level concepts.” As with studying languages or complex topics, fluency “accumulates over time and requires continual maintenance.”

An important question for DoD PME institutions who will implement the 2020 OPMEP guidance is to understand how DoD’s Services and cultures connect with the joint concepts about nuclear topics: Do you want military leaders to comprehend and be able to apply the concepts, or just be able to say, “I graduated”? The same is true for PME on the range of WMD issues beyond deterrence.

To us, the answer is straightforward: the entire joint force and defense community—future strategists, planners, and commanders in all functional areas—requires WMD fluency. This can be understood as a common baseline knowledge of all aspects of WMD to be responsive to current and emerging WMD challenges, from deterrence to countering WMD activities. This fluency needs to be developed and maintained from post-Commissioning to senior JPME, and be supported by appropriate professional continuing education opportunities.

We need to bridge the frequent communications divide between those with strategy and policy responsibilities, and those with technical know-how and adversary-specific knowledge. We need to ensure that appropriate and consistent resources are available to support the development, delivery, and regular updates of learning outcomes and objectives to meet changing circumstances.

The NPR Task 20 plan reminds us that “As competition among nations intensifies, so does the risk of conflict, and as the United States has recognized for a number of years, the most likely path to a nuclear confrontation is a regional war that escalates.”

All military and civilian leaders must understand the dynamics of competition and conflict that could lead to regional confrontation. Even before the nation’s senior leadership invokes a policy or chooses a strategic course of action, operational commanders need to comprehend the possible strategic effects of WMD threats and use on military operations before it happens.

Dr. Keith Payne, in the NIPP information paper “Cultivating Intellectual Capital – Linking Deterrence Practitioner to Academician,” notes that often “change comes only after major threat developments compel new thinking.”<sup>8</sup> I tend to agree, unfortunately. But for military leaders, PME is an essential and cost-effective means to equip decision makers with an understanding of WMD risk and the range of actions to prevent or respond, as we cannot and should not rely on “on the job” training brought on by a crisis or catastrophe.

\*\*\*\*\*

---

<sup>8</sup> Keith B. Payne, *Cultivating Intellectual Capital – Linking Deterrence Practitioner to Academician*, Information Series No. 506 op. cit.

**Stephen J. Cimbala**

***Stephen Cimbala is Distinguished Professor of Political Science at Penn State University.***

I appreciate the opportunity provided by the National Institute to comment on this important and timely issue. If you have seen as many scholar-lifetimes as I have witnessed, you realize that there have been ups and downs in the relationship between academia and defense policy analysis. During the Cold War, there was a considerable amount of interchange between the academic and defense policy worlds. Nuclear deterrence and arms control were topics of interest among leading university political science and other departments, within a broader spectrum of courses devoted to national security policy. As a result, a number of the most important concepts about nuclear issues that were marinated in academia found their way into government documents and policy pronouncements.

After the Cold War, academic interest in security studies, including nuclear deterrence and arms control, became more of a fugitive enterprise. The decline of nuclear expertise in the government occurred in parallel with academic disinterest during the first two decades after the end of the Cold War. Studies on nonproliferation dominated whatever attention academia or leading think tanks devoted to nuclear issues. Deterrence studies in particular were under-serviced in both military and civilian higher education. In part, this declining interest in deterrence studies reflected changed priorities in the government: the “war on terror” and expeditionary wars of choice seemed to occupy most of the government and Beltway attention span, and apparently harmonious relationships with aspiring peer competitors (Russia and China) created an atmosphere of obsolescence for nuclear policy studies.

On the other hand, the second decade of the twenty-first century reminded policy makers and academics that nuclear weapons did not go away with the end of the Cold War. In addition to the enduring challenge of preventing nuclear weapons spread, a new assertiveness by Russia and China, and new controversies about their military doctrines for nuclear deterrence and war fighting, attracted additional interest in deterrence from the U.S. government and think tank community. Academia, however, remained largely indifferent to the issue of nuclear deterrence, for various reasons. Postmodern thinking in the social sciences and humanities regarded national security and defense studies as *passé*, or even dangerous, preoccupations for scholars. In my own case, one of my erstwhile supervisors who was not particularly hostile nevertheless acknowledged that she found my research “creepy.” There are exceptions to this generalization of academic indifference to deterrence studies, but not many. Therefore, the armed services and DOD were forced to develop their own islands of excellence on these topics, and some of those efforts have been successful.

Looking forward, we can identify at least five potential areas of interest where the subject of nuclear deterrence could be interrogated with useful impact by soldiers and scholars.

First, the topic of human-machine interaction and the larger evolution of information technology toward a “noosphere” that favors cognitive warfare, bio-engineered advanced brain and muscle development, and synergistic “system of system” configurations of decision making in real time, is getting academic and military attention. For nuclear deterrence, this

raises issues of “human in the loop” with regard to decisions for nuclear first use, first strike or retaliation. Even the use of nuclear weapons for coercive diplomacy might need recalibration as the speed of nuclear crisis management is boosted by complex networks of interaction. Designers of software for nuclear targeting plans will have to ensure that forces and C3 systems are adaptive, flexible, resilient and impenetrable by adversary-deposited malware. Offensive missile and future antimissile defensive systems based terrestrially and in space, will require synthesized and transitive software and command-control protocols.

Second, the evolving relationship between offensive missile and defensive antimissile technologies will require rethink of prior assumptions about nuclear deterrence stability. Cold War assumptions were to the effect that offensive missile technologies were predominant over defensive antimissile systems. Since the end of the Cold War, antimissile defenses have improved, especially with respect to theater and tactical systems. Strategic missile defenses against large scale attacks are still challenging, but advanced technologies in research and development are promising. Part of the reason for skepticism about antimissile defenses relates to the yardstick used for assessment. Strategic antimissile systems do not need to be perfect to be militarily useful or cost-effective at the margin. They need only operate with enough success to complicate the calculations of prospective attackers. In addition, defenses need not necessarily be tasked only for the defense of areas or populations. Ballistic missile defenses can also be designed to protect strategic retaliatory forces in order to improve their second-strike survivability. Beyond strategic antimissile defenses, theater and tactical BMD and air defense technologies are already a growth industry, and more are coming. The spread of medium and intermediate-range conventional missiles for precision strike will spur development and deployment of antimissile defenses, including some based on new physical principles. Drone swarms, for example, have been suggested for possible use in offensive and defensive nuclear-strategic roles. The preceding discussion also suggests we are overdue for a “reboot” of traditional approaches to nuclear arms control. Familiar experiences from the Cold War may be inadequate to take account of the complexity of future military modernization and its implications for nuclear-strategic stability. In addition, the looming dangers of regional wars among nuclear armed states with increasingly agile conventional military systems, especially in Asia, deserve further attention from academics and military experts.

The third area in which academic and defense communities might collaborate with respect to deterrence studies is nuclear command, control and communications (NC3). Since the days of the Cold War, the Nuclear Response Plan (formerly SIOP) has evolved in the direction of distributed networks and communications, tailored deterrence, additional kinds of selective options (including lower-yield warheads for some strategic launch systems), and discriminate targeting instead of overkill. In turn, combatant commanders can plan for a continuum of military responses that includes both conventional and nuclear options. All of this requires NC3 systems that can support decision makers and force commanders with a clear picture of what is happening and a matrix of realistic choices under exigent conditions of warning or attack.

NC3 systems will be under stress, not only in the event of an actual nuclear crisis or attack, but even earlier as, for example, in precursor cyberattacks on the NC3 system itself, or on force components and command centers. On the other hand, the U.S. nuclear C3 system is not as vulnerable to cyberattacks as some pessimists assume. Redundancies and backups exist, cyber defenses are improving, and experience in crisis and war gaming has contributed to greater awareness of NC3 potential vulnerabilities.

Another challenge for nuclear C3 is the human factor. During President Trump's administration, critics in Congress and elsewhere objected to the President's singular ability to authorize nuclear attacks. Critics' proposals included adding selected members of Congress or members of the President's cabinet for concurrence in any decision for nuclear use. The reality of the American political system is that, in practice, Presidents have the initiative over many decisions, but checks and balances exist against any Presidential decision that is arguably bizarre or unnecessarily dangerous. A President who insisted upon a nuclear first strike which made no sense in existing circumstances would face bureaucratic resistance within the chain of command, possible resort to the 25th Amendment by the Vice President and majority of the Cabinet, and-or resolutions for impeachment in the Congress. In addition, the protocols for delegation of authority and devolution of control over U.S. nuclear forces originated in the early Cold War years and assumed that the "Presidential center" was the safety catch that would hold back retaliation otherwise favored or authorized by military commanders. Therefore, a more likely scenario than a President gone amok would be a situation in which military advisors favored nuclear first use or retaliation and the President balked.

A fourth area of convergent interest as between academic and military professional analysts would be cyberwar. The relationship between nuclear deterrence and cyber is complicated. On the one hand, nuclear weapons are the most emblematic instruments of mass destruction. On the other hand, cyber attacks can theoretically create havoc without necessarily causing any significant physical destruction. Another difference between nuclear war and cyber attacks is that, in the former case, the identity of the attacker will almost always be immediately known. But in the case of cyber attacks, attribution is a major problem. Anyone with a modem and a laptop is a potential cyber attacker. The Casablanca doctrine ("round up the usual suspects") will not always yield proof of culpability in good time. Both Russia and China, among others, reportedly use "volunteer" or "patriotic" hackers for purposes of deniability, and Russian organizations such as the Internet Research Agency are masquerades for attacks planned by GRU and SVR operatives.

The most interesting question nowadays is whether cyber attacks will escalate from pinprick annoyances to major catastrophes, such as the paralysis of electric power systems, banks, and military C3 systems. U.S. military lawyers are already discussing the conditions under which a cyber attack would justify a kinetic response. This is one example of the disturbing fact that cyber technology is racing ahead of the thinking and analysis that are required to keep cyber developments within the boundaries of strategic effectiveness and military common sense. Some proposals have been put forward for international cyber arms

control, but states differ on their willingness to be transparent about their defense-related cyber activities.

The question of “cyberdeterrence” has sparked considerable debate among analysts and policy makers. Some feel that the concept of “deterrence” does not apply in the cyber realm; others, that deterrence, by means of denial or by retaliation in kind, can be made to work. Another difficulty for scholars and commanders would be to establish after the fact that an exercise in “cyberdeterrence” actually worked to deter certain behaviors that might have been avoided for other reasons.

A fifth domain for soldier-scholar collaboration would be military uses of space and the question of deterrence in space operations. U.S. policy documents now concede that space is a conflict domain and the establishment of U.S. Space Force is a marker in that regard. Like cyber, space is an enabling domain for other domains as well as an operational domain in its right. U.S. space control is necessary in order to protect assets for reconnaissance, surveillance, targeting, C3, warning and attack assessment, and other requirements. In this day and age, any nuclear attack against U.S. forces or territory would almost certainly be preceded by, or accompanied by, cyber attacks and strikes against American space-based assets. Satellites are complicated but light objects that can easily be destroyed by collision or by other means. Both Russia and China have tested RPO operations in space with highly maneuverable satellites that can shadow another satellite in low earth orbit or at higher orbital planes. Russia and China have also tested ground-based ASATs that have destroyed their own test satellites in space. War games have simulated conflicts in space between the United States and China, among other scenarios.

On the other hand, many states have a shared interest in the peaceful uses of space for commercial purposes, and the United States and Russia still have important collaborations for space exploration and scientific discovery. The possibility of space arms control has been advocated by various sources, but it is not clear whether and how this would be implemented by their respective governments. The possibility of getting space-related arms control “off the ground” in line with the growth of military space systems has a certain appeal, since there are some obvious common interests even among rival powers, e.g., not cluttering up space with dangerous debris.

### **Concluding Observations**

The preceding categories are neither mutually exclusive nor exhaustive—there are obvious overlaps, and other pertinent topics are certainly worthy of discussion. Some final points suggest themselves, as below.

First, deterrence is not only nuclear—indeed, deterrence is not only military. It requires a “whole of government” approach that includes diplomatic, informational, military, economic, and political-psychological approaches. (See, for example, David Kilcullen’s discussion of Russian approaches to “liminal warfare”) or China’s concept of Unrestricted Warfare.

Second, in the American case, the credibility of our deterrence also includes the state of our domestic politics: the coherence of our political institutions; the credibility of our historical narrative; our confidence in the uniqueness of the American experience; and, most important, our willingness to “cross the aisle” for political compromise as opposed to deadlocked extreme partisanship. Foreign adversaries not only “target” our military assets. They also aim at our belief systems and culture. Remember that one hallmark of authoritarian political systems is that they rewrite history to suit each generation of power holders. As former Soviet citizens used to joke: “predicting the future is difficult; predicting the past is even more difficult.”

\*\*\*\*\*

### **Curtis McGiffin**

***Curtis McGiffin is Professor and Associate Dean of the School of Strategic Force Studies at the Air Force Institute of Technology.***

Thank you, Prof. Trachtenberg. I very much appreciate the invitation to be here today. Let me first start with the standard Disclaimer. Anything I say today represents my own thoughts, ideas, and assessments and does not represent those of the United States Air Force, the Air Force Institute of Technology, or Missouri State University.

The former STRATCOM Commander, General Kevin Chilton (USAF, Ret.) wrote in a 2017 article: “The underlying principles and rationale for the deterrent have not gone away, but we have stopped educating, thinking, and debating, with informed underpinnings, the necessity and role of the US nuclear deterrent in today’s world. Even more concerning has been the lack of informed debate on the subject. We have raised three generations of Air Force officers who may not have been exposed to the most fundamental and yet relevant arguments surrounding deterrence from the late nuclear theorists Herman Kahn and Thomas Schelling.”

In my role as Associate Dean of the School of Strategic Force Studies at the Air Force Institute of Technology, I have made it my mission to address, if not correct General Chilton’s poignant observation. I have the privilege of overseeing the continuing education of thousands of Air Force nuclear mission professionals. What I have found is that every one of these nuclear mission professionals are starving for more education regarding their profession. They seek to understand the “why” of what they do with regard to nuclear deterrence operations and sustainment. What I have found is that due to the age of these professionals many of them know very little about the Cold War nor the roots of nuclear deterrence as it has matured to today’s posture and policy over time. Moreover, they know little of the great deterrence theorists and in some cases suffer from the misguided pop culture regarding U.S. nuclear disarmament, U.S. induced arms racing, and the mythical high cost of nuclear modernization.

This should not surprise anyone. In 2016, when many of our young Airmen were in college, a global literacy survey by The Council on Foreign Relations and National Geographic

illustrated that most college-age Americans at that time had extremely limited understanding of deterrence, only 9 percent of respondents learned about deterrence in college, 49 percent could correctly select the definition of “nuclear deterrence” in a multiple-choice test and only 28 percent of respondents knew that the United States was bound by a treaty to protect Japan.

As most of these Airmen grew up in the era of the Global War on Terror, they are now just becoming acculturated to this new era of Great Power Competition, or what the DoD now refers to as Strategic Competition. I have also found that these students are extremely interested in understanding why our adversaries are doing what they do or have the perspectives that they have. Moreover, our nuclear Airmen are very in tune to the cyber threat, the space threat, and the potential for misinformation and disinformation across the media spectrum. But when it comes to nuclear deterrence, they still lack the fundamental understanding of concepts and theory. The problem with this, of course, is that when the thinking nuclear workforce lacks the understanding of concepts and theory it becomes that much more difficult either to properly employ those concepts or advocate for that theory during budgetary decisions.

In my opinion, in order to cultivate intellectual capital through professional continuing education one must convince the practitioner Airmen to open their minds. And when I say that I mean that it is imperative that government employees, whether they are in or out of uniform, be willing and able to confront the controversies and politics that are integrated within any meaningful nuclear deterrence or nuclear weapon policy discussion. And to their credit...they are! This requires a lot of assurance and confidence that the government student is in some sort of non-attributional “safe space” when discussing this kind of subject matter in the classroom. I think it’s important to remind Airmen that they will spend much of their career studying the operational and logistical arts of warfighting and weapons employment in the pursuit of political goals; how we wage war. But when students attend lessons or courses on or relating to nuclear deterrence, it is that rare opportunity for Airmen to spend a few hours studying about how to wage peace while still pursuing political goals.

Finally, I’d like to make a comment or two on the amount of education offered and provided to the deterrence practitioner. Frankly there’s not enough. Despite pleas for more nuclear deterrence education from the commander of USSTRATCOM, or the previous administration’s *Nuclear Posture Review*, it appears that education below the level of PME is often the first to be either cut from or reduced in any fiscal year budget and this year is no different. Education is a key component of force modernization. Investing a trillion dollars in nuclear deterrence modernization will mean much less if we fail to modernize our nuclear workforce along the way. We cannot afford both in time and in cost to send every nuclear deterrence artisan or practitioner to a year-long PME program in order to grasp the basic concepts and theory of how to employ policy and force structure to create the desired deterrence effect. So, innovation will be key. One way to close the gap is thru Distance Learning scholarship programs focused on graduate level courses steeped in national security and nuclear deterrence-related areas of study. Other methods include focused online short-courses, micro-certifications and even synchronous remote learning. Any one



of these methods can increase the education pipeline at pennies on the dollar when compared to traditional PME costs.

There remains much work to be done if we are to ready the next generation of deterrence thinkers and advocates. In a crawl-walk- run success metric, I assess that we are just now beginning to “stagger”—as we transition from the crawl to walk status.

