Maintaining Flexible and Resilient Capabilities for Nuclear Deterrence

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Is NUCLEAR DETERRENCE an important element in US and allied security? If so, how many and what types of nuclear weapons are adequate for this purpose? These questions get to the heart of contemporary and decades-old nuclear policy debates, because most US nuclear policy initiatives are justified or criticized according to judgments regarding their potential effects on the US capacity to deter opponents. Most recently, the capability of our forces to help assure allies via extended deterrence, including the "nuclear umbrella," has been emphasized as a metric for US forces.[1] Using deterrence, extended deterrence, and assurance as a basis for judging the adequacy of US nuclear forces is appropriate because they are primary national security goals.

Attempts to render judgments about the adequacy of US nuclear forces usually proceed as if confident, enduring answers exist for a key set of questions, such as:

- Are nuclear weapons necessary for US deterrence and assurance strategies?
- If so, how many and what types are adequate for deterrence and assurance of whom against what?
- Are certain types or numbers of forces predictably "stabilizing" or "destabilizing"?
- What makes US deterrence strategies credible, and how important is the credibility of US threats?

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At the risk of shattering widespread illusions, it is important to understand an inconvenient truth: there is no basis for confident, definitive answers to any of these fundamental questions. All attempts to answer these questions involve considerable speculation. And no answer, however insightful for the moment, can be considered pertinent across time and place.

Why? Because deterrence is not a physical science; it is an arcane psychological art involving a shifting mosaic of adversary decision makers, circumstances, uncertainty, and error. There is considerable inherent uncertainty and unavoidable ambiguity in the functioning of deterrence, because predicting foreign decision making—particularly under stressful conditions—is an inherently uncertain business. As the Obama administration's director of central intelligence Leon Panetta recently observed, "Our biggest problem is always how do we get into the head of somebody . . . Those are the kinds of things that are obviously very tough for intelligence to predict."[2] James Clapper, the director of national intelligence, similarly observed, "We are not clairvoyant."[3]

Humility—not hubris—should govern all our discussions, claims, and expectations of deterrence, because it fundamentally is about getting "into the head" of foreign decision makers. We may have some confidence in our capability to know how many weapons of varying types are required to hold different sets of opponents' targets at risk (although even here there are uncertainties). Despite the fact that opponent vulnerability has historically been the focus of confidence regarding deterrence,[4] the character of forces and related calculations about the vulnerability of opponents' targets do not tell us whether or how deterrence will function. The capability to threaten targets is only one in a very long list of factors contributing to this psychological art.

For example, the number of our weapons and our related capability to threaten specific target sets will mean little or nothing for deterrence unless the opponent also

- understands US threats and communications;
- values greatly the types of targets the US can threaten;
- links the US threat to some specific act it must not undertake;
- makes decisions per an informed calculation of estimated costs and benefits;
- is not driven by some internal or external imperative to act despite the US threat;

- believes, to some degree, that the US threat would be executed if it does not comply and would not be executed if it does comply;
- fears the US threat more than it fears conciliation over the issue in question;
- deems conciliation to be a tolerable act; and
- has positive control over its own actions and forces.

Note that these and many other factors determining the process of deterrence have as much to do with an opponent's unique perceptions, values, culture, and decision-making process as with the numbers and types of forces we may have. Opponents' internal characteristics and circumstances vary widely and can literally determine the functioning of deterrence—whatever the nature of US capabilities and warnings. Thus, on any given occasion, the deterrence value or effect of a particular type of US threat can range from zero to all-important, and the correlation between deterrence effect and numbers and types of forces can vary greatly and unpredictably. Consequently, there can be no confident generalizations that a specific deterrence effect will follow from some given number of nuclear weapons or force structure.

Nevertheless, noted commentators frequently offer heroically confident claims that deterrence will function reliably and predictably and will do so at some general or specific low number of nuclear weapons. These claims typically come without reference to the particular action to be deterred or any apparent examination of the context, the stakes, or the opponents' circumstances or unique decision-making character.[5] To wit:

- "A total stockpile on the order of 500 warheads would satisfy the principle objectives of strategic nuclear deterrence in 'rational' scenarios where strategic deterrence is a useful concept."[6]
- "Deterring Russia, as well as China and other states that have acquired nuclear weapons, remains a justifiable function of U.S. nuclear weapons policy. But several thousand U.S. nuclear warheads are not needed to discharge that mission; a few hundred would suffice."[7]
- "The United States needs relatively few warheads to deter China. A limited and highly accurate U.S. attack on China's 20 long-range ballistic missiles would result in as many as 11 million casualties."[8]

- " . . . a few hundred warheads, are more than adequate to serve as a deterrent against anyone unwise enough to attack the United States with nuclear weapons."[9]
- "We estimate that a U.S. strategic force of some 500 operationally deployed warheads would be more than adequate for deterrence."[10]
- "Deterrence would remain robust with far smaller arsenals on far lower levels of alert. The United States and Russia should aim to cut the numbers of their nuclear weapons to the low hundreds."[11]
- "No sane adversary would believe that any political or military advantage would be worth a significant risk of the destruction of his own society . . . Thus ten to one hundred survivable warheads should be more than enough to deter any rational leader from ordering an attack on the cities of the United States or its allies."[12]
- "Having 100 nuclear warheads . . . will deter others from using nuclear, biological, or chemical weapons or from even engaging in conventional attacks."[13]
- "From a practical perspective, several second-strike nuclear weapons are more than enough to keep the most aggressive adversary at bay."[14]
- "'Extended deterrence' does not have to mean 'extended nuclear deterrence.' United States conventional capability, when combined with that of each of the allies in question, constitutes a deterrent to any conceivable aggressor at least as credible as that posed by its nuclear weapons."[15]

There is a near-endless supply of such promises that relatively few US nuclear weapons surely will be adequate to deter or that nonnuclear deterrence will be adequate. These promises typically are offered up as if the precise functioning of deterrence follows a predictable formula: the stakes involved in future crises already are well-known, and all future opponents have the necessary perceptions, goals, motivations, values, determination, culture, governing worldview, and mode of communication and decision making. On the basis of this presumption regarding context, opponent perceptions, and decision making, confident promises are made that some specific level or type of US force surely will deter or that some types of forces predictably will be "stabilizing" or "destabilizing."

The attractiveness of this type of thinking is its convenience and comfort. It avoids the truly hard work of trying to understand opponents and how they may perceive and react to US deterrence strategies and, thus,

how those strategies might actually work. It also facilitates the deceptively comforting conclusion that nearly all severe threats can be deterred reliably and predictably with minimal effort because all rational opponents surely will perceive our deterrence pronouncements properly, calculate their own interests predictably, and respond as necessary for our deterrence strategies to work. In other words, they will not dare strike us: "No regime, no matter how aggressive and risk-inclined, would be so foolish as to attack the United States, a move that would yield little advantage, and thereby incur an attack's clear consequence—utter destruction."[16] Seemingly everybody knows that opponents will think and behave in this fashion, and thus deterrence will work predictably and universally: "One advantage of deterrence is that it induces responsible behavior by enemies as a matter of their own self-interest. Even dictators tend to put certain basic interests above all else—preeminently their survival in power . . . Aggression becomes unattractive if the price is devastation at home and possible removal from power . . . *The logic of deterrence transcends any particular era or enemy*"[17] (emphasis added).

The problem with this convenient, comforting narrative is that American observers neither control nor often understand how opponents will perceive deterrence threats or what will constitute "rational" decision making and behavior according to their Weltanschauung. While the presumed decision making and behavior might take place on a given occasion, on other occasions a very different set of principles may govern opponent perceptions and decision making—hence, the great uncertainties surrounding the functioning of deterrence. In short, the world is made up of polities with dramatically varying worldviews, sources of inspiration and information, and modes of decision making. That variation can affect decisively whether and how deterrence functions and whether some particular force could be adequate for deterrence, stabilizing or destabilizing.

Numerous historical cases exist of regimes whose crisis decision making and behaviors strayed well beyond the bounds of rationality assumed by those offering precise, convenient, and comforting claims that deterrence will function predictably. Prime examples include:

- Hitler in his bunker in 1945 willfully contributing to the destruction of Germany;
- Mao Zedong in 1958 ordering the shelling of Quemoy island for the purpose of eliciting US nuclear threats;

- Cuba's leaders in 1962 demanding that their Soviet patrons launch a nuclear war against the United States;
- Nikita Khrushchev in1962 moving missiles to Cuba with the comment, "They can attack us and we shall respond. This may end in a big war";[18]
- Arab state leaders in 1973 launching a massive armored attack on Israel, a putative nuclear power; and,
- Saddam Hussein in 1991 raining missile attacks on Israel, even reportedly against the Dimona nuclear reactor, in the hope of provoking war with Israel.

There are, of course, explanations of sorts for all of these choices, but these explanations move quickly beyond the model of prudent, informed, and self-interested calculations assumed by those making confident promises about the functioning of deterrence. Prospectively, one may add to this list Iranian president Mahmoud Ahmadinejad, who claims confidence in divine protection and that he was "surrounded by a halo of light" when he addressed the UN in 2005.[19]

Former director of central intelligence George Tenet captured the point here with his observation, "What we believe to be implausible often has nothing to do with how a foreign culture might act."[20] The repeated confident claims that all opponents are sure to perceive and calculate predictably—as is necessary for deterrence to work at some specified low force level—typically either ignore, or deny, the importance of the profound variation in worldviews and decision making. As such, these claims are worse than empty; they are misleading and thus potentially dangerous.

These types of claims are a legacy of the fact that deterrence theory in the United States has been highly abstract for decades. Politically attractive promises that deterrence is sure to work at some specific, much lower, nuclear force level are derived from supposedly universal principles that govern all rational leadership decision making: they will calculate and conciliate predictably because their rationality and our threat will leave them no other option. Armed with this presumption of what constitutes rational behavior, confident claims are made, such as those noted above, that deterrence will function, with little apparent recognition or knowledge of the unique factors that can govern opponents' decision making. If these universal principles apply to all rational decision making, then deterrence

can be expected to function according to predictable rules, and there is little need to understand the specific opponent in detail.

In fact, however, the meaning of *rational* underlying these deterrence claims typically consists of those behaviors and modes of decision making that seem reasonable or sensible to those making the claims.[21] Deterrence is supposed to work reliably because even small numbers of nuclear weapons can pose a fearsome threat, and leaders will be rational qua reasonable in response. Thus, they will surely perceive and count costs, as necessary for deterrence to work: "In a nuclear world any state will be deterred by another state's second-strike [retaliatory] forces. One need not become preoccupied with the characteristics of the state that is to be deterred or scrutinize its leaders."[22] And, "Not much is required to deter. . . . Because the use of nuclear weapons could lead to catastrophe for all of the parties involved, nuclear weapons create their own credibility."[23]

Such confident and near-universal claims that we should expect deterrence to function predictably at relatively low numbers of US nuclear forces—whether 300, 500, or 1,000—seemingly know how opponents will perceive US deterrence threats, value the stakes at risk, calculate costs and benefits, and make and implement decisions. Yet, these comforting promises should not be taken seriously; they reflect hubris and the appearance of, rather than the reality of, such knowledge. It simply is not possible in practice, as opposed to a Gedanken experiment, to identify and understand the interaction of the factors that can drive opponents' deterrence decision making so precisely. The fact that such predictions cannot be made with confidence obviously does not prevent the widespread practice.

Lawrence Freedman makes this point with his wry comment that deterrence theory is a "gift to strategists in that its nature and workings remain so elusive and so imperfectly understood as to permit endless speculation with little danger of empirical refutation."[24] There is, however, a severe downside to this "gift." The lack of accountability and discipline gives license to an abundance of confident assertions from within and outside government that US deterrence strategies will be effective with ever fewer or no US nuclear weapons. These comforting claims usually come with trappings of precision and analytical rigor, when in fact they cannot be other than extremely speculative. Unless the unique decision-making parameters of opponents are considered in context, there is little basis for claims for any particular occasion about what is likely to prove adequate for deterrence or what will be stabilizing or destabilizing.

With that fundamental caveat firmly in mind, we can examine with appropriate humility the question of whether or not nuclear deterrence is an important element in US and allied security. And, if so, how many and what types of nuclear weapons are adequate for this purpose?

To the extent that an informed, reasoned answer to the lead question is possible, my necessarily nuanced answer is yes—at this particular time, nuclear deterrence should be deemed critical for US and allied security. For some plausible threats, to paraphrase Frederick the Great, deterrence without nuclear weapons is like an orchestra without instruments. It can produce noise but probably not the desired music.

In offering this answer I am not claiming to know that in all or any future occasions, deterring attack will require credible nuclear deterrence or that deterrence will even be possible. As noted above, many factors go into the functioning of deterrence. And, there are other potentially important tools for deterrence, including nonnuclear and nonmilitary. By the same token, however, no one can claim with any honesty to know that nonnuclear deterrence will be adequate on some future occasions, possibly including an existential threat to the United States and its allies.

Fortunately, by introducing some evidence into this discussion, we can move beyond competing speculation that nuclear weapons will or will not be important for deterrence. My conclusion that credible nuclear deterrence is important for the United States follows from three basic empirical reference points:

1. Nuclear deterrence appears to have been key to deterrence functioning on critical occasions during the Cold War and since. Further, I see zero evidence to suggest that nuclear deterrence could not again be key to deterrence working on some critical future occasions. As Mark Twain said, "The past may not repeat itself, but it sure does rhyme."
2. In the contemporary era, the consequences of a single significant failure of deterrence are potentially so catastrophic for society that we need deterrence strategies that are as effective as possible; nuclear deterrence cannot ensure their functioning, but we should avoid the risk of their failing for the lack of credible nuclear deterrence.
3. Our great need for credible deterrence corresponds directly to our general societal vulnerability to WMD attacks. We should ever seek effective deterrence strategies, but they are particularly needed when we are so ill prepared to protect civil society against even relatively

> limited WMD strikes. As William Perry, Ashton Carter, and Michael May observed with regard to the detonation of a single nuclear weapon in a US city, "The scale of disaster would quickly overwhelm even the most prepared city and state governments."[25] The unfortunate level of US vulnerability could change, but until then our deterrence strategies must be as effective as possible, and if the past is precedent, credible nuclear deterrence will have an essential role to play.

Conventional deterrence has been manifestly effective on occasion, but it also has an unfortunate 2,000-year record of periodically failing catastrophically: most recently, there were no nuclear weapons to deter war in 1914 and 1939. What followed were approximately 110 million casualties in fewer than 10 combined years of warfare. The subsequent 6-1/2 nuclear decades compare very favorably to that horrific prenuclear record. Nobel laureate Thomas Schelling makes the material point simply: "One might hope that major war could not happen in a world without nuclear weapons, but it always did."[26] Indeed, we have already been to the "nuclear zero mountaintop."

Nuclear deterrence has helped to prevent a repeat of such horrors. In a comprehensive examination of the US–Soviet historical record, Ned Lebow and Janice Stein conclude: "The reality of nuclear deterrence had a restraining effect on both Kennedy and Khrushchev in 1962 and on Brezhnev in 1973. When Superpower leaders believed that they were approaching the brink of war, fear of war pulled them back."[27] And, "The history of the Cold War suggests that nuclear deterrence should be viewed as a powerful but very dangerous medicine . . . As with any medicine, the key to successful deterrence is to administer correctly the proper dosage."[28] Yes, indeed.

There is similar evidence from the post–Cold War era. In 2009, for example, former Indian army chief Gen Shankar Roychowdhury asked: "Do nuclear weapons deter?" He then answered his own question based on the empirical evidence, "Of course, they do. Pakistan's nuclear weapons deterred India from attacking that country after the Mumbai strikes. . . . It was due to Pakistan's possession of nuclear weapons that India stopped short of a military retaliation following the attack on Parliament in 2001."[29] Here we have India's army chief explaining precisely what deterred India on two occasions—Pakistan's nuclear deterrent.

The first Gulf War also offers evidence of the value of nuclear deterrence. It appears that the US nuclear deterrence strategy was key to deterring the Iraqi use of WMD in the war. In August 1995, the former Iraqi foreign minister, Tariq Aziz, said that Iraq was deterred from using its

WMD because the Iraqi leadership had interpreted Washington's threats of grievous retaliation as meaning nuclear retaliation.[30]

In January 1996, former head of Iraqi military intelligence Gen Wafic al Sammarai said: "Some of the Scud missiles were loaded with chemical warheads, but they were not used . . . the warning was quite severe, and quite effective. The allied troops were certain to use nuclear arms, and the price will be too dear and too high."[31]

Gen Hussein Kamal, Iraqi minister of military industry and Saddam Hussein's son-in-law, said in 1995: "During the Gulf War . . . there was no decision to use chemical weapons for fear of retaliation. They realized that if chemical weapons were used, retaliation would be nuclear."[32]

These few references do not close this case—historical studies rarely are settled definitively. Saddam Hussein himself once said that "Iraq did not use WMD during the 1991 Gulf War as its sovereignty was not threatened."[33] This explanation is not necessarily inconsistent with the deterrence explanation, and discerning the truth in his various statements undoubtedly poses a challenge—during these same interrogations he also said that he invaded Kuwait because the Kuwaiti leader had told a crude joke about Iraqi women.[34]

At this point, the most informed, unclassified analyses of the first Gulf War conclude that Saddam Hussein was indeed deterred from chemical and biological weapons (CBW) employment by his fear of US nuclear retaliation. For example, Charles Duelfer, executive deputy chairman of the UN Special Commission on Iraq, has testified that "The Iraqis did not use these weapons even when they were losing, and I asked them why, and the long and the short of it was that Saddam thought that he would not survive. So the [deterrence] message worked. Saddam was deterred."[35] Equally important, well-informed analyses also conclude that other possible nonnuclear deterrence threats, such as regime change, were not sufficiently credible to deter Saddam Hussein.

In short, while conventional deterrence may well be adequate on some or many future occasions, there is sufficient historical evidence available to demonstrate that nuclear deterrence has helped to prevent conflict or escalation in the past. It also suggests that, in the absence of some significant transformation, the absence of credible nuclear threats would increase the risk of deterrence failure in some future cases.

This deterrent value of nuclear threats may be of increasing importance as chemical and biological weapons become potentially more lethal and

more easily acquired; the undeterred use of CBW could destroy the fabric of society, without nuclear use. This is why the elimination of nuclear weapons would not eliminate catastrophic threats to civilization, but would preclude nuclear deterrence from helping to counter such threats. The "mountaintop" vision of "nuclear zero" may well include the dark potential of leaving unprotected civilians more vulnerable to CBW attack.

One reason why nuclear threats contribute to the functioning of deterrence appears to be because they can help to reduce the chances that opponents will be so optimistic about their circumstances, so committed to their goals, or so cost-tolerant that they will accept or ignore the risks of defying our deterrence threats. There is a deeply ingrained human cognitive drive to believe and interpret information in ways consistent with one's established desires and preferred facts, despite contrary evidence. This can cause opponents to discount or deny deterrent threats that we believe should be sufficient and credible. On this basis, they undertake high-risk gambits that defy our sense of reason, and deterrence can fail unexpectedly as a result. This is not necessarily a matter of an opponent's rationality but the fragility of perceptions, judgments, and imprudence. The self-serving hope, of course, is that no opposing leader will be so optimistic, committed, cost-tolerant, or imprudent, and, thus, all opponents will be predictably deterred. Unfortunately, history does not warrant such a hope.[36]

While US nuclear deterrence cannot close down these well-traveled avenues to deterrence uncertainty, we do know that it can moderate an adversary's otherwise unduly sanguine perceptions, expectations, and calculations and thereby strengthen US deterrence strategies. As Alexander George and Richard Smoke concluded in 1974 based on their case studies, an opponent's belief that the risks of provocation are incalculable or uncontrollable can provide the basis for deterrence success.[37] The cases I have cited appear to illustrate this deterring effect of nuclear weapons.

Can we be certain that nuclear deterrence always will perform as we hope? Of course not. But, do we want to run the potential risk of degrading deterrence by taking our credible nuclear threats off the table? Again, my answer is, of course not. The bipartisan Congressional Strategic Posture Commission reached the same answer and specifically endorsed the maintenance of credible US nuclear escalation threats, as did the Obama administration's generally commendable 2010 Nuclear Posture Review.

I would like to comment on the key word *credible* in discussions of deterrence. The importance of deterrence credibility and how threats may be

made credibly have been questions at the heart of our nuclear debates for decades. Different nuclear policy positions often have their origin in different presumptions about credibility.

For example, in the 1960s Herman Kahn insisted that a high level of credibility is essential for US deterrence strategies and that the US capability to defend society against nuclear attack is necessary for credible US extended deterrence. He reasoned that if we ourselves are vulnerable to destruction, then our deterrence threats on behalf of others are unlikely to be credible. This is why he advocated so strongly for US missile defense and civil defense, even when doing so was extremely unfashionable.

In contrast, Thomas Schelling insisted that Kahn overstated the need for logical deterrence credibility and that defending US society against attack is unnecessary for extended deterrence. In fact, he suggested that thick missile defense could undercut deterrence.[38]

Which position was correct? The answer is that both probably were correct under different circumstances. In some plausible contexts and cases, deterrence credibility would likely benefit greatly from US defensive capabilities; in other plausible cases, deterrence likely will function as we hope, even in the absence of US societal defenses. In still other cases, moreover, US defenses may be wholly irrelevant to the credibility of deterrence, but they may be essential for the protection of society when deterrence fails—and if history is any guide, it periodically will fail.

My point here is that the level of credibility necessary for deterrence to work can vary by opponent and context, as can the measures necessary to make threats credible. In each contingency, the details of leadership, personality, time, place, stakes, culture, ideology, religion, and communication can shape the credibility opponents attribute to US deterrence threats and the steps we might take to strengthen that credibility and, thus, deterrence.

Consequently, because we care about credible deterrence, there is no substitute for understanding opponents to the extent possible so that we can adapt our deterrence strategies to the unique requirements of each contingency. With enough serious analysis and smart policy choices, we can and must establish deterrence strategies and related force requirements that can be adapted to diverse opponents and contexts. Otherwise, our deterrence strategies will rely to a large extent on good fortune. And, as many have noted in the past, luck is not good strategy.

Given the great variation possible in the requirements for credible deterrence, the most obviously important US force structure characteristic

for deterrence is not the size of our forces, per se, but their flexibility and resilience—*flexibility* meaning US possession of a spectrum of possible threat options suitable for a wide range of opponents and contingencies, and *resilience* meaning the capability to adapt deterrence to changes in threats and contexts, including rapid and unanticipated changes.

The bipartisan Congressional Strategic Posture Commission did not try to identify "the" minimum number of nuclear weapons necessary for deterrence and assurance.[39] This deliberate omission recognized the fact that these force requirements can change rapidly because they are driven by many fluid factors, including unpredictable developments in the threats we and our allies face.[40] Any specific number of weapons we might have identified as "just right" at the time for deterrence and assurance could have become wholly inappropriate shortly thereafter.

Rather than selecting an inherently uncertain and transient "right" number of nuclear weapons for deterrence, the commission highlighted the need for a flexible and resilient force posture to support deterrence and assurance across a fluid and shifting landscape of threats and contexts.[41] The basic logic is that US capabilities and strategies for deterrence and assurance must be able to adapt rapidly to changing threats.

The commission's emphasis on the need for flexibility in our force posture was not new; it harkens back to the Schlesinger Doctrine of 1974 and to the 1980 "Countervailing Strategy" of the Carter administration.[42] The US Strategic Command's 2006 *Deterrence Operations Joint Operating Concept* similarly emphasizes the need for flexibility in the US force posture for credible deterrence, as did the 1994 and 2001 Nuclear Posture Reviews.[43] Indeed, the requirement for these force characteristics is one of the long-standing continuities of US strategic policy.[44] The commission noted in particular that the importance of flexibility and resilience will increase as US forces decline in numbers.[45]

This emphasis on the value of flexibility and resilience for deterrence is the primary reason the commission recommended that the administration maintain the strategic triad of bombers, ICBMs, and sea-based missiles. Each of the three separate triad "legs" can contribute significantly to the overall flexibility and resilience of our forces.[46] In recognition of the fact that deterrence is uncertain and may prove unreliable, the commission also rightly concluded that the United States must design its strategic forces to help defend against attack if deterrence fails and that missile defense be considered an integral part of the US strategic force posture.[47]

There is no basis for identifying "the" right number of nuclear weapons for the purposes of deterrence, but there is a correlation between an arsenal's numbers and the deterrence advantages provided by force flexibility and resilience. As nineteenth-century German philosopher George Hegel observed, quantity becomes quality. In this case, a large, diverse strategic arsenal should provide greater flexibility and resilience than a smaller arsenal, and a diverse strategic triad of forces should be superior in this regard to a dyad or monad.

The disadvantage of a small, less-diverse force structure is that it may be too inflexible and limited to contribute as needed to some US deterrence goals. For example, a small force is likely to offer fewer choices among warheads and delivery modes, thereby limiting US threat options. And, it is less likely to compensate for weaknesses in one area by strengths in another area. That is why the bipartisan Strategic Posture Commission endorsed US maintenance of a diverse US strategic triad for deterrence, as did the 2010 Nuclear Posture Review—they got it right.

A relatively small, inflexible US force would also ease the technical/strategic challenges for opponents who might seek to counter or otherwise get around our deterrence strategies in the future. It could thereby actually encourage opponents to compete and challenge our deterrence strategies. If so, the lack of flexibility and resilience could provide us with too little capacity to respond as necessary to maintain credible deterrence strategies in the face of surprises and dangerous political and/or technical developments.

This potential lack of a safety margin at low force levels is, perhaps, why proponents of a "glide path" to deep reductions in US nuclear capabilities typically assume the existence and continuation of a relatively benign threat environment.[48] This is an unwarranted, overly optimistic planning assumption: international political relations can deteriorate rapidly, and severe threats can wax much more rapidly than our capability to adapt—particularly if our forces and infrastructure lack flexibility and resilience.

As we move forward for arms control purposes to reduced numbers of nuclear launchers and warheads, our priority for credible deterrence should be to preserve as much flexibility and resilience as is possible given the reductions mandated. As numbers decline, the force structure allowed needs to be optimized for flexibility and resilience to avoid the degradation of deterrence that a smaller force may otherwise cause. Indeed, we should be keen to avoid numeric reductions that could degrade credible deterrence by overly constraining the flexibility and resilience of our forces and related defense infrastructure.

Recognition of this guideline should help us to focus less on the mechanistic quest for parity with Russia at ever-lower numbers as the priority goal of US nuclear policy and to focus more on the deterrence value of force structure flexibility and resilience. These are the force attributes to maintain, given their potential contribution to credible deterrence and our continuing great need for deterrence.

Will adequate flexibility and resilience ensure deterrence? Of course not; nothing can do that. But it should reduce the risk that deterrence will fail because we do not have the threat options suitable for the occasion. Correspondingly, it can help to assure allies who rely on the US nuclear umbrella and may otherwise fear that the degradation of US deterrent capabilities endangers their own security. These fears could lead some allies and friends to reconsider their own need for nuclear weapons and thereby promote nuclear proliferation. We already see this dynamic in play among some allies.[49]

It is useful to close with the observation that our preferred force numbers and types should follow the demands of strategy, not the reverse. This is no less true when that strategy is deterrence. Credible deterrence is a precious product that defies easy or precise prediction. But, we do know that in the past, nuclear deterrence contributed to preventing conflict or escalation, and it may be necessary to do so again when we face severe risks. Consequently, the maintenance of credible nuclear deterrence should continue to be a national priority.

In addition, the requirements for credible deterrence are many and will vary more or less for each different opponent and contingency. Given this variation, the risks of a small and inflexible force structure may be severe when US deterrence needs and goals are wide ranging. Instead, we should maintain a force structure, including a nuclear arsenal of the size and diversity necessary for flexibility and resilience. Why? Because these characteristics are likely to be advantageous for deterrence on at least some occasions, and effective deterrence at those times may be essential to US and allied survival. SSQ

Notes

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23. Kenneth N. Waltz, "More May Be Better," in *The Spread of Nuclear Weapons*, eds. Scott D. Sagan and Kenneth N. Waltz (New York: W. W. Norton, 2003), 22, 26.

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25. William J. Perry, Ashton B. Carter, and Michael M. May, "After the Bomb," *New York Times*, 12 June 2007. See also Jerry Seper, "Justice Department lacking a WMD response," *Washington Times*, 1 June 2010, http://www.washingtontimes.com/News/2010/jun/1/justice-department-lacking-a-wmd-response/?page=2.

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28. Ibid., 368.

29. Quoted in "Pak's N-bomb Prevented India from Attacking it after 26/11," Department of State, *ISN News*, 10 March 2009.

30. As discussed in R. Jeffrey Smith, "U.N. Says Iraqis Prepared Germ Weapons," *Washington Post*, 26 August 1995, A-1.

31. Statement by Gen Wafic al Sammarai in "Frontline no. 1407: The Gulf War, Part I," 9 January 1996, transcript, 12. See also the statements by General al Sammarai in "Frontline: The Gulf War, Parts

I and II," 9–10 January 1996. Comprehensive background interviews are available at www.wgbh.org. See also Tim Trevan, "Inside Saddam's Death Lab," *Sunday Times* (London), 14 February 1999, www .sunday-times.co.uk/news/pages/sti/99/02/4; and Tim Trevan, *Saddam's Secrets: The Hunt for Iraq's Hidden Weapons* (North Pomfret, VT: HarperCollins, 1999), 45.

32. Quoted in Gen Hussein Kamal UNSCOM/IAEA briefing, 22 August 1995, Amman, Jordan.

33. Casual conversation between Saddam Hussein and George L. Piro, Baghdad Operations Center, 13 May 2004, FBI memo, 2, http://foia2.fbi.gov/husseinsaddam/written_interviews.pdf.

34. Saddam Hussein to US interrogator George Piro. See "Interrogator Shares Saddam's Confessions: Tells 60 Minutes Former Iraqi Dictator Didn't Expect U.S. Invasion," *CBS News*, 27 January 2008, http://www.cbsnews.com/stories/2008/01/24/60minutes/mains37494.shtml.

35. Charles A. Duelfer, testimony, Senate Armed Services Committee, Subcommittee on Emerging Threats and Capabilities: "The Weapons of Mass Destruction Program of Iraq," S. Hrg. 107-573, 107th Cong., 2d sess. (Washington: GPO, 2002), 92–93, http://frwebgate.access.gpo.gov/cgi-bin /getdoc.cgi?dbname=107_senate_hearings&docid=f:80791.pdf. See also the work by Kevin Woods, task leader of the Iraqi Perspectives Project at the Institute for Defense Analysis, and David Palkki, deputy director of National Defense University's Conflict Records Research Center. They presented their respective views on this subject at a policy forum luncheon by the Washington Institute for Near East Policy, "Knowing the Enemy: Iraqi Decision Making under Saddam Hussein," 20 September 2010. This forum can be found at http://www.c-spanarchives.org/program/id/233237.

36. See Keith B. Payne, *The Fallacies of Cold War Deterrence and a New Direction* (Lexington: University Press of Kentucky, 2001), 1–15, 39–77. Barry Wolf's *When the Weak Attack the Strong: Failures of Deterrence* (RAND, 1991) chronicles numerous examples of high-risk actions by leaders who—based on any reasonable standard—should have been deterred.

37. As Alexander George and Richard Smoke observed in 1974 based on their case studies, an opponent's belief that the risks of provocation are not calculable or controllable "is usually a sufficient condition for deterrence success." George and Smoke, *Deterrence in American Foreign Policy* (New York: Columbia University Press, 1974), 529.

38 See the discussion in Payne, *Great American Gamble*, chaps. 1 and 2.

39. Perry et al., *America's Strategic Posture*, 17.

40. Ibid., 23–24.

41. Ibid., 22–23, 29.

42. See the discussion in Payne, *Great American Gamble*, chap. 5.

43. US Strategic Command, *Deterrence Operations Joint Operating Concept*, version 2.0, December 2006, 3, 8, 17, 40. See also "Nuclear Posture Review" from the 1995 Secretary of Defense Annual Report to Congress, http://www.dod.mil/execsec/adr95/npr_.html.

44. See Kurt Guthe, *Ten Continuities in U.S. Nuclear Weapons Policy, Strategy, Plans, and Forces* (Fairfax, VA: National Institute for Public Policy, 2008), http://nipp.org/Publication /Downloads/Publication%20Archive%20PDF/N-Continuities%20Draft_Rev%202.1.pdf.

45. Perry et al., *America's Strategic Posture*, 26.

46. Ibid., 25–26, 29.

47. Ibid., 23.

48. For example, "The analysis of the effect of deep reductions on international security is built upon three main assumptions. Firstly, it is assumed that international relations (both between Russia and the US and with their potential adversaries) will not get significantly better or worse than they are today." James Acton, *Deterrence During Disarmament: Deep Nuclear Reductions and International Security*, Adelphi Papers 417 (London: Routledge Online Publication, March 2011), 22.

49. See, for example, Tom Scheber and Kurt Guthe, *U.S. Extended Deterrence and Assurance for Allies in Northeast Asia* (Fairfax, VA: National Institute Press, 2010).