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A Realistic Approach to Nuclear Disarmament

In *Abolishing Nuclear Weapons*, George Perkovich and James Acton engage in a fascinating "thought experiment"—a "*Gedankenexperiment*" in the parlance of the German philosophers and scientists, most notably Albert Einstein, who employed and popularized this useful technique. According to the Stanford Encyclopedia of Philosophy, thought experiments are a "device of the imagination used to investigate the nature of things."[1] Here we are challenged to investigate how nuclear weapons could be prohibited in ways that would leave the world more secure, that is to say, what would be the implications if states were to seek to implement the nuclear disarmament obligation contained in Article VI of the Non-Proliferation Treaty (NPT)? The authors fear, with reason, that failure to demonstrate progress toward the fulfillment of this legally binding obligation will continue to undermine the nonproliferation regime.

They are to be commended for challenging the assumption that nuclear disarmament is futile because nuclear weapons "cannot be disinvented." It is the knowledge necessary to manufacture such weapons that may never disappear. Mankind is constantly learning how to manage knowledge, and it could make a conscious decision not to use it to manufacture certain categories of weapons. As Perkovich and Acton point out, "mass-scale gas chambers" also cannot be "disinvented"—but neither can they be tolerated. As we acquire technologies that could be even more destructive—to make genetically enhanced biological weapons, for instance—we will

The views expressed in this chapter are exclusively the author's personal views and do not necessarily reflect the positions of the Brazilian government.

have to dedicate a proportional effort, in the political, ethical, and juridical realms, to set boundaries on the use of such knowledge.

Revisiting the NPT Bargain?

Perkovich and Acton admit they cannot answer every possible objection or foresee every contingency that could arise over the desirability and feasibility of abolishing nuclear weapons. Their intention is, rather, to mobilize international expertise, both in "nuclear-armed states" (their terminology, which encompasses the five NPT-sanctioned nuclear-weapon states plus Israel, India, and Pakistan) and non–nuclear-weapon states, with a view to exploring the major technical, political, economic, and strategic conditions necessary to make a prohibition of nuclear weapons effective. In a draft of the Adelphi Paper they suggested that this expertise could gather in a forum—an Intergovernmental Panel on Nuclear Disarmament—that would play a role similar to that of the Intergovernmental Panel on Climate Change in mobilizing expertise to understand global warming and options to abate it. The final version assumes governments will be reluctant to create such a panel, in part because nuclear disarmament challenges are explicitly more political than those involving climate change. The authors less ambitiously urge governments and "private foundations to initiate an … international collaboration of government-affiliated and independent think tanks to explore the conditions necessary for the secure prohibition of nuclear weapons." Governments, the authors suggest, "could then invite participants in such a collaboration to present their conclusions to NPT review meetings, national governments, the Conference on Disarmament and the UN General Assembly."

It is useful to reflect on the implications of the challenge presented by Perkovich and Acton both to states that have nuclear weapons and those that do not.

In law and diplomacy, as in warfare, one is often loath to concede terrain that has been arduously gained. This becomes a problem in sections of the paper in which the authors call on non–nuclear-weapon states to support policies that would increase monitoring and perhaps limitations on their access to nuclear technology in order to motivate the nuclear-weapon states to genuinely move to abolish their nuclear arsenals. The authors could be read as if they were inviting the non–nuclear-weapon states to renegotiate what they have already achieved in the context of the NPT: an acknowledgment by the five NPT-sanctioned states of their obligation in principle to get rid of nuclear weapons. Without this commitment, the discrimination embedded in the NPT regime would be intolerable, and the

world today might be dealing with many more nuclear-armed countries than is the case.

In the past, there was an argument about whether the obligation to negotiate nuclear disarmament is valid in itself—if it is a "stand-alone" obligation—or if it is somehow contingent on a second obligation contained in Article VI, "a treaty on general and complete disarmament." This debate was decided by the Advisory Opinion of the International Court of Justice on July 8, 1996, in an important decision that deserved analysis in the paper. The court determined—by unanimous vote, including the vote of the judges from the five NPT nuclear-weapon states—that "there exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control."[2]

The argument that the nuclear disarmament obligation is somehow conditioned on hard-to-imagine improvements in conventional weapons control has been, therefore, laid to rest, with the concurrence of the highest juridical experts of the nuclear-weapon states themselves. At the political level, again with the concurrence of the nuclear-weapon states, the 2000 NPT Conference acknowledged, in the famous "13 Steps" toward implementing Article VI of the NPT, "an unequivocal undertaking by the nuclear-weapon states to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament."

So Perkovich and Acton would certainly understand if non–nuclear-weapon states were cautious in accepting an invitation to engage in a panel or other forum that could result in an open-ended investigation of the feasibility of abolition. The nuclear-weapon establishments of the states possessing such weapons are nothing if not technically competent and ingenious in devising arguments against abolition. They have been successfully blocking a treaty banning nuclear-weapon tests since the 1950s. Such an investigation of the abolition challenge, of course, would have to bring in technical people from the nuclear-weapon establishments.

If the panel were to become bogged down by clever objections to the several contingencies of abolition in an uncertain future, the nuclear-armed states could then claim that the issue had been debated in a competent panel, that there was no consensus, and that, therefore, there should be no nuclear disarmament until all objections are solved. This could be seen as backtracking from the commitment in principle to nuclear disarmament, a dangerous development for the credibility of the nonproliferation regime.

Skepticism about the uses to which some people in nuclear-weapon states might put an international panel on nuclear disarmament should

not detract from the merit of the Adelphi Paper itself. It is important, indeed crucial, that specialists and academics debate the requirements for a nuclear-weapon–free world. When the discussion moves to the political level, however, and engages the representatives of states, it is necessary to frame it properly—so as not to transform a debate on how to achieve nuclear disarmament into an argument on whether that would be a worthy goal.

Alternative Nuclear Futures

While debating nuclear disarmament, we should not seek to compare the world as it is today—in which no nuclear weapons have been used in warfare for 63 years—with a *Gedankenexperiment* in which we try to imagine all the possible directions world security could take for several decades or longer. Of course, in some of the possible scenarios we envisage for a nuclear-weapon–free world, there could be breakouts, security crises, wars among major powers, even surprise attacks by countries or terrorists using nuclear weapons that were reconstituted in secret. The goal of a guarantee of absolute security forever—the end of history—is, alas, a chimera.

We should rather compare *Gedankenexperiment* with *Gedankenexperiment*. An alternative experiment would be to suppose a "business as usual" scenario for the next several decades, in which:

- There is no serious progress toward nuclear disarmament.

- Nuclear-weapon states keep a high profile for their weapons, asserting that they are necessary to destroy "targets able to withstand non-nuclear attack," or "to retaliate against chemical and biological weapons," or to have "in the event of surprise military developments," or "to protect vital national interests," or "to safeguard the security of allies," or as a "hedge against unforeseen contingencies," or any other creative mission statements devised by the nuclear-weapon establishments.

- High-profile nuclear arsenals seem to confer not only deterrence capability but also great-power status and influence to the countries that retain them, with perks such as permanent membership in the UN Security Council.

- Given "n" nuclear powers that benefit from an enhanced status and greater ability to deter, there is at any given time an "n+1" state

that seeks and eventually acquires nuclear weapons for the same reasons, prompting another state to become the next nuclear candidate (this assumption has held true since 1945).

- The legally binding obligations and the solemn promises of the nuclear-weapon states, such as entry into force of a Comprehensive Test Ban Treaty (CTBT), implementation of Article VI of the NPT, the Advisory Opinion of the ICJ and the decisions of the 1995 and 2000 NPT Conferences, are not acted upon, thereby weakening the credibility of the regime.

In other words, under this "business as usual" scenario, the nonproliferation regime muddles through, managing crisis after crisis as each emerges.

I cannot prove it, but I would assert as self-evident, along with the Canberra Commission Report—a document that contains a comprehensive analysis of the dilemmas of nuclear abolition—that, in such a world, "the proposition that large numbers of nuclear weapons can be retained in perpetuity and never used—accidentally or by decision—defies credibility."[3]

Which *Gedankenexperiment* predicts the lowest risks and costs, and the highest benefits: the "path to nuclear abolition" or "muddling through"? As much as I, with Perkovich and Acton, would prefer the former, it is likely that, in the presence of high uncertainty, the "status quo bias"[4] of the latter would prevail.

Fortunately, we do not have to make this perilous choice. Perkovich and Acton suggest a way out when they note that the challenges of going from one hundred weapons to zero (the nuclear abolition scenario) would be considerably greater than the challenges of going from, say, tens of thousands to one hundred. If combined with a firm political commitment toward the implementation of Article VI of the NPT, moving first from thousands of nuclear weapons with high profile (today) to a few hundred with low profile (an intermediate step toward abolition, if we so decide) would present many of the benefits and none of the alleged dangers and risks of the abolition scenario.

Committing to this agenda of reducing the total number of nuclear weapons globally to the hundreds and taking them out of the foreground of international politics would represent positive change in the direction of the NPT's ultimate objective. In fact, the change would be so enormous that its consequences would ripple throughout the international system, without the risks that some fear from the tidal wave of going to absolute zero. It would, moreover, provide the international community with a

"to-do list" that would take at least a decade—a decade in which the loss of credibility of the nonproliferation regime could be reversed.

If one models the situation as a trade-off between the implementation of commitments and perceived risks, it is easy to see that the current situation is not Pareto-optimal, that is to say, it is possible under any reasonable assessment to improve implementation, short of total abolition, without increasing risks, and arguably reducing them. Proponents of nuclear abolition and of nuclear deterrence could march together, reaching outcomes that are best for both and leaving their differences for a later stage, closer to, but short of, abolition, when the debate would have to be renewed.

Practical Steps Toward Abolition

One could start with ratification of the CTBT—a no-brainer except for the weapons labs and possible proliferating countries—and firm statements by nuclear-weapon states, with no "ifs," "ands," or "buts," to the effect that they retain nuclear weapons only to deter the use of nuclear weapons by others. This entails, again, a firm no-first-use commitment by all the nuclear-armed states. The next step would probably be a Fissile Material Cut-Off Treaty (FMCT), which could place a cap on the nuclear arsenals, in exchange, probably, for stricter controls on nuclear materials worldwide.

An FMCT with a strong verification regime—any other kind would not be worth the paper it is written on—would also introduce nuclear-weapon states to the pain and costs of nuclear safeguards, thereby rendering the nonproliferation regime more equitable. The experience of negotiating and implementing an FMCT would greatly help pave the way for a future nuclear abolition treaty. Many of the problems of such a treaty are probably impossible to imagine, let alone solve without taking this intermediate step and learning from it.

The universal acceptance of the premise that nuclear weapons are only for deterrence against nuclear attack would greatly simplify the current political debate. As the political salience of these weapons is reduced, we could gradually decouple the nuclear disarmament debate from the global balance of power. Doing that could be signaled, for instance, by opening up permanent membership on the UN Security Council to states that do not possess nuclear weapons.

An objection sometimes is made from inside nuclear-weapon establishments to the effect that "the nuclear policies of the nuclear-weapon states have no impact on the decision-making process of the non–nuclear-weapon states," in particular in their decision to abide by or evade the norms of the nonproliferation regime. We could answer by proposing

yet another *Gedankenexperiment*. Imagine that nuclear weapons had been acquired by several rival Eurasian powers but that the United States had none. Would the strategic calculus of the United States be affected by the nuclear policies of the nuclear-armed countries in Europe and Asia? The question provides its own answer.

Reduction of arsenals to a "minimal deterrence" posture—with all of the arsenals in the low hundreds (and some maybe down to a few dozen) and, most importantly, with a lower political salience—would lead us to a different stage, in which, as the Canberra Commission acknowledges, a "political judgment will be needed on whether the level of assurance possible from the verification regime is sufficient" to take the next steps toward abolition. The leadership and public opinion of nuclear-weapon states would have to be convinced, then, that "a nuclear-weapon–free world would be, fundamentally, a safer place."[5]

The abolition debate has already been won, as a matter of principle, in the NPT and the ICJ decision; but as a matter of implementation, it cannot be won today. Non–nuclear-weapon states will be reluctant to renegotiate the disarmament commitment, much less make additional "concessions"—in the form of restrictions to their "inalienable right to develop research, production, and use of nuclear energy for peaceful purposes without discrimination" (Article IV of the NPT)—in exchange for commitments they already received. But it is a debate that may be won, as a matter of implementation, if and when we achieve and become used to a "minimal deterrence/low salience" stage. As the saying goes: "We will cross that bridge when we come to it."

I will now comment on some of the specific points made in the paper.

Verification Challenges

Perkovich and Acton set the bar quite high: They decide to explore the natural desire that perfect verification be created for a prohibition of nuclear weapons. The issue, as they acknowledge, is hard to fathom from today's perspective.

We don't know, for instance, if in twenty to thirty years' time the long-foreseen civilian "nuclear renaissance" will have panned out or fizzled; whether an FMCT will have been negotiated and implemented, providing us with fresh questions and answers about safeguarding the fuel cycle in today's nuclear-weapon states; and whether reprocessing will become commonplace, exceedingly rare, or even forbidden.

Warhead authentication, tagging, and dismantlement are discussed in the paper in some detail. The authors go on to the vexing issue of verifying

past production of nuclear materials—something that, if we desire "perfect" verification, would entail checking production records and inventories from the past several decades. Even then, it would be impossible to attain absolute exactness, as the authors point out: There is "material unaccounted for" sufficient for hundreds of weapons; tons of fissile material were evaporated during nuclear testing; other tons were transformed into civilian fuel and burned in reactors. A complete historical record of the nuclear fuel produced and used by the nuclear-weapon states may never be possible to compile, even for the nuclear-weapon establishments themselves.

The solution to this quandary may lie in the conjunction of three factors. The first is the "signature" of a clandestine nuclear arsenal or of hidden stocks of weapons-grade material, both in human terms (whistleblowers, financing, procurement networks) and environmental terms (the presence of detectable isotopes in the atmosphere and in nuclear installations). The second is the experience and access that would be gained inside nuclear-weapon states as they apply safeguards to their nuclear fuel-cycle facilities to comply with an FMCT. And the third, as the authors point out, is the experience of South African disarmament. Through a combination of access to records, inspections, and interviews with technical staff, it was possible to gain sufficient judgment that South Africa was and is in compliance with its nonproliferation commitments.

What is needed is not a complete historical record—although understanding the history of the programs is certainly important—but methods to verify the correctness and completeness of the "initial declaration" of nuclear facilities and materials. This initial declaration has been made by all non–nuclear-weapon states with significant programs that are parties to the NPT, and in all but one case it has been verified by the International Atomic Energy Agency (IAEA).

The exception, of course, is North Korea, where the IAEA detected discrepancies while checking the declaration. The system, in other words, proved robust and capable.

Keep it simple, sir: with inspectors, no nuclear weapons; without inspectors, there may be nuclear weapons. As the authors point out, "there appear to have been no instances of a state managing to build and operate a secret fuel-cycle facility of any significance without at least arousing the strong suspicions of a state with advanced intelligence assets."

Yet in the end, as Perkovich and Acton suggest, it may be that "technical means of verification alone cannot provide sufficient assurance in a prohibition of nuclear weapons; … societal verification is required to fill the gaps." They suggest using national laws that would allow or even require

citizens to denounce treaty violations, or prosecute anyone who engages in the illicit manufacture and research of nuclear weapons. The existence of a free press, an independent judiciary, and opposition parties could enhance confidence.

The Brazilian experience is illustrative. The Constitution approved in 1988—a full decade before Brazil became a member of the NPT—forbids the manufacture or possession of nuclear weapons. Budget funds cannot be allocated to such activities, and a president who secretly orders a nuclear-weapon program could even be impeached. In the transition to a nuclear-weapon–free world, similar amendments to the constitution of each nuclear-weapon state could be envisaged.

Implications for the Civilian Nuclear Industry

Perkovich and Acton choose to address in this section what they define as a "circular problem": Non–nuclear-weapon states are reluctant "to consider any new rules if the nuclear-weapons states do not undertake a yet-to-be-defined plan for nuclear disarmament," while nuclear-weapon states "will not agree to eliminate their nuclear arsenals if they are not confident that proliferation will be prevented through the enforcement of stronger nonproliferation rules." In a context of nuclear renaissance, they argue, it has become even more necessary to break this circle.

This is the way, indeed, in which the problem has been defined by many analysts, particularly in the English-speaking world. However, this description of the issue does not ring true to outside observers. Both nuclear disarmament and improvements in safeguards implementation are endeavors that stand on their own merits. Each presents specific challenges, but it is hard to imagine a quid pro quo between them. The pros and cons of nuclear disarmament relate to security issues; the pros and cons of nuclear safeguards relate to issues of expense, confidentiality, and technological secrets.

Arguments must be won, I would argue, in the specific confines of the NPT, the Conference on Disarmament, and the like, in the case of disarmament; and inside the IAEA, in the case of safeguards. Of course, positive momentum on one side could create a positive climate on the other; but the elements of a grand bargain do not seem to be present.

When some analysts address this "circular problem," their proposals are more ambitious than a mere increase in the efficacy of IAEA safeguards. They go back to one of the holy grails of the nonproliferation debate: the multinationalization (joint ownership by several countries) or even the internationalization (ownership or management by an international

organization) of the nuclear fuel-cycle. Perkovich and Acton correctly point out that multinationalization, while difficult to implement, would not address many of the problems of denuclearization. Multilateralization is probably impossible for the foreseeable future, as the nuclear-armed states as well as the non–nuclear-weapon states that already control the fuel-cycle would not accept it for their own facilities. These are, as someone said, "impossible solutions in search of a problem."

By challenging Article IV of the NPT—which, according to the unanimous doctrine and practice of states, acknowledges the preexisting national right of non–nuclear-weapon states to develop the nuclear fuel-cycle for peaceful purposes—such proposals could undermine the nonproliferation regime.

That is not the same as saying it would be a good idea if all 191 states had fuel-cycle facilities. But the less one challenges the right to peaceful use, the less one forces states on the threshold of fuel capability to decide in favor of acquisition. It is much better to make nuclear fuel commercially available under safeguards, free of political considerations, and let states make their own choices. Given the technological and financial challenges involved in the fuel-cycle, the vast majority will continue to buy fuel in the market. Moreover, each new fuel provider will crowd the market even more.

Perkovich and Acton briefly address the issue of naval reactors, which, they assert, could make nuclear disarmament impossible. This is not evidently the case: IAEA safeguards agreements foresee "special procedures" through which well-defined amounts of nuclear fuel may be withdrawn from safeguards for a well-defined period of time. Making these procedures tamper-proof, by using seals and containment measures, seems like less a major political issue than a technical problem that could be solved by specialists.

Enforcement Challenges

The question of what the Security Council or other enforcement body might do in the event of a nuclear breakout, or of a major power war in a nuclear-weapons–free world, is the political equivalent of an elephant cemetery, where great debates come to die after an exhausting march. Perkovich and Acton correctly refuse to fall into this trap.

Making the world free of nuclear weapons does not mean eternal safety from all risks. It means eliminating some risks, such as the ones described above in the "business-as-usual" scenario, while accepting other risks. The risk of a nuclear breakout is addressed by the hedging of deterrence options in the form of virtual arsenals, which would restore deterrence (more about hedging later).

The risk of "making the world safe for World War III," as some say, requires, again, political judgment. How likely is it that major powers, in the absence of a nuclear deterrent, might slip again into a conflagration similar to or worse than that of 1939–1945? Perkovich and Acton think that before taking the last step toward nuclear abolition, it is necessary to achieve a permanent settlement of the issues involving Taiwan, Kashmir, Palestine, and perhaps a few others ("the Russian periphery"). These flash points, they argue, could inflame the world.

Solving these issues in a manner satisfactory to all parties is certainly excellent advice. But by conditioning nuclear abolition on the solution of a specific list of issues, we will probably be faced with moving goalposts. Let us suppose that we have solved conflicts and tensions in the Taiwan Strait, Kashmir, the greater Middle East, and the Caucasus, as well as in the Korean Peninsula and a few other flashpoints that Perkovich and Acton do not mention. In the most wildly optimistic scenario, that would take several decades. Are we to believe that, by then, no new tensions will have arisen?

Another question is whether certain states that rely on nuclear weapons (or would like to) as the "great equalizer" against invasion and regime change would not consider that nuclear abolition would bring too much of an advantage to great conventional powers, in particular the United States. Perkovich and Acton suggest that, "There is a tension between the US interest in and obligation to use its power to defend international norms and its allies and friends, and concerns that other states have about US military power projection and interventionism. Reassurance from the US that a world without nuclear weapons would not increase the threat of US interventions need not be a precondition for taking many steps towards nuclear disarmament, but Russia and China would be more halting participants to the degree that such reassurance was not provided."

They are quite right. Nuclear deterrence, real or virtual, plays certain roles—positive or negative—in the contemporary world order. Eliminating this role once and for all would require a rebalancing of the world order, a debate that transcends the technical discussions of the nonproliferation regime. The world might become more cooperative, rules-based, multilateral, and predictable; or it could become more confrontational, hierarchical, unilateral, and uncertain. If the former is true, nuclear elimination might be feasible; if the latter, we might have to stop for a while on the threshold of nuclear abolition, without quite taking the last step.

In both cases, at least the norms of the nuclear nonproliferation regime will be essential for our safety and survival, which makes the ideological rejection of the NPT, the IAEA, and the UN, which are detectable in some quarters, even more self-destructive.

Perkovich and Acton are also to be commended for not using the *deus ex machina* of Security Council action to make their preferred ideas mandatory to all states. Too many recent proposals have relied on the fiat of the Security Council to evade the obstacle of political and practical unfeasibility.

The Security Council is not a world legislator; it is the political body empowered by the Charter of the United Nations to take action in case of specific threats to international peace and security. It is seen by many as overloaded and overworked as it is; seeking to charge the Council with overriding negotiations among sovereign states is to pay it a disservice. Proposals that cannot be implemented may exhaust political energy that could otherwise be available to negotiate and implement practical measures.

The authors do touch quickly on the question of the role of the Security Council in a nuclear-weapon–free world. They think that nuclear disarmament would require the major powers to achieve a "significant reconciliation of their interests and approaches to regional and global security." These interests, however, are not static; they will certainly evolve with time, as issues of energy, food, climate, technology, and even political, cultural, and religious tension evolve in currently unpredictable ways.

In the absence of nuclear deterrence, what may prevent major power wars is not the absence of tensions. It would be, rather, the strength and legitimacy of international order and the functioning of rules and mechanisms that allow major states to settle their differences by peaceful means. That, in turn, is conditioned on a variety of factors, among which are economic integration, mutually shared values, and strong institutions for diplomacy and problem-solving—in short, the whole set of norms that distinguish a Hobbesian state of nature from what Hedley Bull calls the "anarchical society," the society of nations.

A strong United Nations, a strong Security Council, and a strong IAEA should certainly be part of this set of institutions if a nuclear-weapon–free world is to function well. They would have, however, to be evolving institutions, adapted to current and future circumstances, and to distributions of power that are quite unlike those that prevailed in 1945 (when the UN was established), 1957 (IAEA), or 1968 (NPT).

Hedging

By addressing the issue of "hedging"—the capacity "to reconstitute nuclear arsenals" that would be enjoyed by states that have eliminated their nuclear weapons and that would allow them to answer to a nuclear breakout—Perkovich and Acton make a valuable contribution to the

abolition debate. They recall Jonathan Schell's proposal for "weaponless deterrence," under which states that had given up their nuclear weapons would retain the ability to rebuild their arsenals from scratch in a matter of weeks.

Nuclear abolition, in this framework, is not a movement toward an ideal world in which nuclear weapons are inconceivable. It could, rather, be viewed as a transition from physical to virtual nuclear arsenals. The authors quote Christopher Ford, the then-U.S. nonproliferation official, on the "potential availability of countervailing reconstitution" as "part of deterring 'breakout' from a zero-weapons regime." At the same time, they argue that such a situation might be more "instable" and "inequitable" and therefore unacceptable for non–nuclear-weapon states.

This issue certainly merits further discussion, if not now, then after the "minimal deterrence/low salience" stage is reached. At that point, "'virtual' arsenals" could be seen as preferable to the status quo.

In fact, virtual arsenals would be inevitable if we were to embark on this road. Unless societies revert to an agropastoral mode of production, every advanced industrial nation will retain, in the future as today, at least a theoretical capability to build nuclear weapons. Virtual arsenals, in this sense, exist today in many non–nuclear-weapon states, and "technological deterrence" may have played a role in nipping some regional nuclear races in the bud.

After abolition, such capability would as a matter of course be more advanced in the states that currently possess nuclear weapons. By virtue of the experience acquired by their physicists and engineers and transmitted to students, they would continue to enjoy a certain advantage over states that never had nuclear weapons. Yet this advantage, I believe, is smaller than the authors seem to think. Nuclear weapons, at least in their Hiroshima–Nagasaki state of the art—destructive enough for most conceivable purposes—are old technology. Pakistan can build them. North Korea can build them. Dozens of other countries can, too. The reason they do not is not for lack of technological ability, but because of the vitality and strength—such as they are—of the nonproliferation regime, broadly understood.

As generations succeed each other, "tacit knowledge" of nuclear weapon-making would begin to fade, as the authors point out. And with it, so would the inequity of the nuclear order. History, however, would not stop; an eventual nuclear breakout would probably be answered by other breakouts and the restoration of deterrence.

But history's path would be less dangerous than today's slippery slope toward a proliferated world. As Perkovich and Acton remind us, "So long as a few continue to place great value on and derive power and status from nuclear weapons, others will want their own share in this currency…. [P]rohibition of nuclear weapons must be pursued today to prevent nuclear competition tomorrow."

Notes

[1] http://plato.stanford.edu/entries/thought-experiment, accessed May 12, 2008.

[2] In a separate 7 to 7 vote, decided by the president of the court, the International Court of Justice also determined that "the threat or use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict," but that "the court cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defense, in which the very survival of a state would be at stake." Three of the seven dissenting judges asserted that the use of nuclear weapons would be unlawful under any circumstances, while four asserted that it could be lawful under certain extreme circumstances. "Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion," ICJ Reports, 1996, p. 226.

[3] *Report of the Canberra Commission on the Elimination of Nuclear Weapons*, August 1996, p. 22.

[4] William Samuelson and Richard Zeckhauser, "Status Quo Bias in Decision Making," *Journal of Risk and Uncertainty*, vol. 1, no. 1, March 1988, pp. 7–59.

[5] *Report of the Canberra Commission*, p. 61.