

# CURRENT HISTORY

April 2005

*"Sixty years into the atomic era, much has changed in the global security environment, but the peril of nuclear holocaust remains."*

## Sixty Years After Hiroshima, A New Nuclear Era

THOMAS GRAHAM JR.

**A**t the start of a beautiful summer day on August 6, 1945, an atomic bomb nicknamed "Little Boy" exploded over Hiroshima. The bomb was detonated at 1,900 feet above the center of the city, 43 seconds after it left the B-29 bomber that had carried it from the American base on the island of Tinian some 1,000 miles away. "Where we had seen a clear city two minutes before, we could no longer see the city," a crew member later recalled. "We could see smoke and fire creeping up the sides of the mountains." In the words of another crew member, Hiroshima looked like "a pot of boiling black oil." Still another recalled that the mushroom cloud created by the explosion "was a spectacular sight, a bubbling mass of purple-gray smoke, and you could see that it had a red core in it and everything was burning inside."

Richard Rhodes, who compiled these recollections in his Pulitzer Prize-winning book, *The Making of the Atomic Bomb*, noted that the temperature at the explosion site reached 5,400 degrees; people within half a mile who had been exposed were burned to bundles of black char in a fraction of a second. A study years later found that not only human beings died at Hiroshima: "In the case of an atomic bombing . . . a community does not merely receive an impact: the community itself is destroyed. Within two kilometers of the atomic bomb's hypocenter, all life and property were shattered, burned, and buried under ashes. The visible forms of the city where people once carried on their daily lives vanished without a trace."

In August 1945, Hiroshima's resident population numbered some 280,000 to 290,000 civilians and about 43,000 soldiers. The bomb immediately killed an estimated 140,000 people. By 1950, as radiation-related illnesses took their toll, the total number of dead rose to 200,000, or more than 60 percent of the city's population. All this devastation and death were caused by a 10-foot-long, four-ton device that unleashed an explosion equivalent to 12,500 tons of TNT.

Sixty years into the atomic era, much has changed in the global security environment, but the peril of nuclear holocaust remains. To avoid the kind of nightmare visited on Hiroshima—or even worse—new responses must be fashioned to emerging threats in the nuclear weapons landscape. The responses likeliest to improve security do not, however, include those much-discussed in Washington today: ballistic missile defense or preemptive military strikes. Far more effective would be US-led efforts to strengthen a nuclear Non-Proliferation Treaty (NPT) in serious danger of unraveling.

### BIGGER BOMBS, CHANGING THREATS

The atomic bomb dropped over Hiroshima was based on a design so simple that it did not need to be tested at full yield. A so-called gun bomb, it fired one piece of nuclear material up the barrel of a small cannon to mate with a second piece fixed to the cannon's muzzle, forming a supercritical assembly and starting an explosive nuclear chain reaction. This type of device, because of its simplicity, would lie today within the reach of many governments as well as international terrorist organizations if the nuclear explosive material, of which there is an overabundance in the world, can be acquired.

As the cold war began, escalated, and intensified, atomic bomb yields began to climb from the

---

*Ambassador THOMAS GRAHAM JR., senior counsel with Morgan, Lewis, and Bockius, is a former US special representative for arms control, nonproliferation, and disarmament and the author, most recently, of Common Sense on Weapons of Mass Destruction (Seattle: University of Washington Press, 2004).*

Hiroshima bomb's 12.5 kilotons to hundreds of kilotons. With the advent of thermonuclear weapons (based on the hydrogen atom rather than uranium), the explosive yields reached into the megatons—1 megaton being equivalent to 1 million tons of TNT, roughly equal to a freight train loaded with TNT that extends from New York to Los Angeles. During the 1960s the United States deployed bombers with several weapons of 25-megaton yields; the Soviet Union deployed a missile warhead with a comparable explosive potential. At the cold war's peak, the United States fielded some 32,000 nuclear weapons, while the Soviet Union deployed some 45,000. Many thousands of these nuclear warheads were maintained on hair-trigger alert, carried by long-range ballistic missiles able to strike the other country in 30 minutes.

The United States and the Soviet Union came close to thermonuclear war several times during the cold war, with the Cuban Missile Crisis of 1962 being the prime example. As America and the Soviet Union deployed ever more powerful nuclear warheads on long-range missiles on high alert, the cold war became increasingly dangerous. To attempt to manage this situation the concept of mutual deterrence, or mutual assured destruction, was developed. The objective was to assure that each party would remain vulnerable to an unacceptable retaliatory strike in the event of a nuclear attack. Thus, striking first in a crisis not only would fail to create an advantage, it would also invite the complete destruction of your own country. The 1972 Anti-Ballistic Missile (ABM) Treaty institutionalized this concept by prohibiting large-scale missile defenses that would have upset this balance of forces. As a result of mutual assured destruction (MAD to its detractors), mutual deterrence was able to keep the nuclear peace through the long 45 years of the cold war.

With the collapse of the Soviet Union and the end of the cold war, this doctrine is perhaps less relevant. Russia and China—the only two states with nuclear missile forces even somewhat comparable to those of

the United States—are no longer America's adversaries. Today the primary threat is the potential proliferation of nuclear weapons to unstable countries, sometimes referred to as rogue states, and the possibility that international terrorist organizations may come into possession of nuclear arms.

### DOES DETERRENCE DETER?

Does nuclear deterrence still matter in today's world of nuclear proliferation, rogue states, and international terrorist organizations? The Bush administration, with the publication of its September 2002 *National Security Strategy*, announced that the United States has moved past the days when it

could rely on deterrence to safeguard the nation's security. Some have argued that so-called rogue states might not be deterrable. In fact, they do have home addresses, and their leaderships have always preferred to survive. More than likely, a rogue state—unlike the Soviet Union—if it ever decided to use nuclear weapons, would try to deliver them by stealth. A plan to use them overtly against the United States would likely be detected and result in a preemptive attack by the United States. Delivering nuclear weapons overtly would also leave a “calling card.”

Ballistic missile defenses, moreover, are virtually irrelevant

to this situation, since no rogue states would risk the long and easily detectable development process (including nuclear weapon tests and ballistic missile tests) required to acquire the capability to deliver nuclear arms by long-range ballistic missile and thereby invite a preemptive attack. A state, even a rogue state, is governed by a regime that has a built-in incentive to survive. States normally would be deterred from using nuclear weapons, even by stealth, by the risk of nuclear or massive conventional retaliation.

Terrorist groups that have no return address, on the other hand, are probably not deterrable. While it might be more difficult for a terrorist organization to acquire a nuclear weapon—even a gun-design



Hiroshima, August 6, 1945.

weapon—it likely would believe itself much freer to actually use such a weapon. Again, ballistic missile defenses would not be useful here either, since no terrorist organization would be able or would want to try to deliver nuclear weapons by means of a long-range ballistic missile.

As the number of states that possess nuclear weapons increases—and certainly possible additions would include rogue states—the number of nuclear weapons will also grow, and the weapons themselves will become more widespread. It will thus become progressively more difficult to keep these weapons out of the hands of terrorist organizations. The leaderships of North Korea and Iran are unlikely to decide to commit national suicide; the offensive use of nuclear weapons by them would simply be too risky. But working with international terrorist organizations, as both North Korea and Iran are capable of doing, is another matter. Of course, if a nuclear weapon used somewhere in stealth by a terrorist group could be traced to a rogue state, the state would be subject to retaliation. Even so, nuclear terrorism is the greater threat because a terrorist organization in possession of a nuclear weapon would use it and not be deterrable.

States can be deterred from using and probably from transferring nuclear weapons. However, it must be recognized that there is always a risk that a state might decide to take a chance and secretly sell or give a nuclear weapon to a terrorist group. If this is done with plausible deniability, retaliation for the transfer might be politically difficult, particularly if the state in question threatened the use of its own nuclear arsenal against its potential attackers or its neighbors. Nuclear deterrence does have a role in today's world, but its role is limited.

## GOING NUCLEAR

In a 1958 television interview, British Prime Minister Harold Macmillan made clear the reason for the United Kingdom's acquisition of nuclear weapons. It "puts us," he said, "where we ought to be in the position of a great power." Likewise, in a 1961 speech, French President Charles de Gaulle said that "a great state" that does not have nuclear weapons when others do "does not command its own destiny." And after India's May 8, 1998, nuclear tests, Indian Prime Minister Atal Bihari Vajpayee announced with pride that "we have a big bomb

now; India is a nuclear weapons state." While nuclear weapons feed nationalist esteem, giving them up—or the right to acquire them—is not a natural action for sovereign states.

When President John F. Kennedy was about to take office he asked which nations would be next to acquire nuclear weapons. The outgoing secretary of state, Christian Herter, replied that Israel and India would be next. Kennedy tried especially hard to prevent the Israeli bomb (writing several letters directly to the Israeli prime minister), reasoning that if the United States could not restrain its ally Israel, how could it say no to Germany? And a German bomb would have opened the door to very dangerous consequences, including a possible Soviet attack on Germany.

President Kennedy truly feared that nuclear weapons would sweep all over the world. In the early 1960s some studies predicted there would be from 25 to 30 nuclear weapon states, with nuclear arms integrated into their arsenals by the end of the 1970s. Even as late as September 2004, International Atomic Energy Agency Director General

---

*A military attack on Iran would open wide the door of nuclear proliferation, which would never be closed again.*

---

Mohamed ElBaradei noted that "40 countries or more now have the know-how to produce nuclear weapons." In a world with nuclear weapons widespread, every conflict would run the risk of going nuclear and it would be impossible to keep nuclear arms out of the hands of terrorist organizations.

Fortunately, most of the countries that have the capability have not chosen to pursue a nuclear weapons program. In 1960, after the first French nuclear weapon test in the Sahara, banner headlines in French newspapers declared "Vive La France" and "Vive de Gaulle." Yet, by the time of the first Indian explosion in 1974, the test was performed in secret, India received worldwide condemnation, and New Delhi hastened to explain that this had been a "peaceful test." What had intervened were the negotiation in 1968 and the entry into force in 1970 of the nuclear Non-Proliferation Treaty. The NPT converted a state's acquisition of nuclear weapons from an act of national pride in 1960 to an act contrary to the practices of the civilized world in 1970.

There has been very little actual nuclear weapons proliferation since the NPT's entry into force in 1970, far from what Kennedy had feared. Beyond the five nuclear states recognized by the NPT (the United States, Britain, France, Russia, and China), Israel

and India were already far along in their programs by 1970. The only additional states to acquire and maintain nuclear weapons since that time have been Pakistan and probably North Korea. Central to this situation is the international norm of behavior against nuclear weapons proliferation established by the NPT.

### THE NONPROLIFERATION BULWARK

Certainly since the end of the cold war the NPT—because of the broad international cooperation it requires and the controls that it places on the spread and numbers of nuclear weapons—has been and remains the principal bulwark against nuclear proliferation and nuclear terrorism, given the now limited effect of nuclear deterrence. However, it is important to understand that the NPT rests on a central bargain: no more nuclear weapons proliferation in exchange for commitments by the five NPT nuclear weapon states to share peaceful nuclear technology and to engage in disarmament negotiations aimed at the eventual elimination of their nuclear arsenals.

The NPT nonnuclear weapon states—now 182 nations—have agreed never to acquire nuclear weapons in exchange for peaceful nuclear technology cooperation and a commitment to nuclear disarmament by the recognized nuclear weapon states. The NPT was not designed to establish “nuclear apartheid,” to use the words of a former Indian foreign minister, permanently authorizing great-power status and nuclear arms for a small group of states and assigning the rest of the world to permanent second-class status.

For understandable political reasons, maintaining both ends of this central bargain is vitally important to the long-term viability of the NPT. If most of the world is to remain committed to eschewing nuclear weapons, those states that are allowed to have them under the NPT—at least for the foreseeable future—must take seriously their nuclear disarmament commitments to preserve the political balance underlying the treaty.

It was clear in 1968 when the NPT was signed, as it was in 1970 and every five years afterward at the five-year review conferences mandated by the NPT, what the NPT nonnuclear states took to be the essence of this nuclear disarmament commitment. It entails a treaty prohibiting nuclear weapon tests (a Comprehensive Test Ban Treaty, or CTBT); a legal

commitment by the NPT nuclear weapon states never to attack NPT nonnuclear states with nuclear weapons (called a “negative security assurance,” or NSA); a treaty prohibiting the further production of nuclear explosive or fissionable material (a Fissile Material Cutoff Treaty, or FMCT); and drastic reductions in the numbers of nuclear weapons in existence worldwide so that nuclear weapons become downgraded in political value and no longer serve as the distinguishing factor between “great powers” and other states.

At the 1995 Review and Extension Conference, which voted to make the NPT permanent, these nuclear disarmament commitments were recorded in a document agreed to by all NPT parties, including the five nuclear weapon states. This agreement, the “Statement of Principles and Objectives of Nuclear Non-Proliferation and Disarmament,” was the political condition for making the treaty’s non-proliferation obligations permanent. It called for a

---

*The NPT has never seemed weaker or its future less certain. And if the treaty should fail, it is too complex to be resuscitated.*

---

Comprehensive Test Ban Treaty by 1996, repeated the other disarmament obligations mentioned above, and added several objectives, including universality of NPT membership (primarily aimed at

Israel), more nuclear weapons-free-zone agreements, and improved NPT verification.

The NPT nuclear weapon states also formally expressed commitments to “negative security assurances,” but these were not made legally binding as many parties had urged. The nonnuclear states’ idea in 1995 was that if they were going to accept a legal commitment never to have nuclear weapons, the effect of making the treaty permanent, the NPT nuclear weapon states should legally commit not to attack them with such weapons.

At the review conference in 2000, in the final document agreed to by all NPT parties, the provisions of the Statement of Principles were essentially repeated and several new nuclear disarmament commitments added. Among the added items were a commitment to a Fissile Material Cutoff Treaty by the time of the 2005 review conference (thereby emphasizing the urgency of preventing the addition of more nuclear bomb material to the vast amount already existing), a moratorium on nuclear tests until the CTBT has entered into force, support for the Anti-Ballistic Missile Treaty, and an “unequivocal undertaking” by the nuclear weapon states to pursue eventual nuclear disarmament.

## THE NPT AT RISK

Implementation of the 1995 Statement of Principles by the nuclear weapon states, particularly the United States, since then has not been exemplary, and implementation of the additional steps approved in 2000 has been nonexistent.

The Comprehensive Test Ban Treaty was signed in 1996, but the US Senate rejected it in 1999, and the current administration has stated that it does not support its ratification. The United Kingdom, France, and Russia have ratified the CTBT. But the treaty's entry into force will only be possible with US ratification, both because the treaty requires it and because the United States must take the lead for entry into force to happen. Negotiations on a Fissile Material Cutoff Treaty have not even begun and will obviously not be completed by the May 2005 review conference. There have been no new commitments to actual nuclear weapons reductions since 1994. The United States, the United Kingdom, France, and Russia all maintain national policies reserving the right to use nuclear weapons first even against NPT nonnuclear weapon states, contrary to the 1995 negative security assurances. The United States has withdrawn from the ABM Treaty. In 1998, India and Pakistan conducted a series of nuclear weapons tests, undermining the NPT from the outside.

The political value of nuclear weapons, meanwhile, remains as high as ever. North Korea has withdrawn from the NPT and, according to press reports, has built six to eight nuclear weapons. Iran is likely pursuing a nuclear weapons program from within the NPT, to which it remains for now a signatory. Japan and, to a lesser extent, South Korea could become nuclear weapon states in response to a clear demonstration of North Korean nuclear weapon capability.

In short, the NPT has never seemed weaker or its future less certain. And if the treaty should fail, it is too complex to be resuscitated. The nuclear nightmare world that President Kennedy feared would become a reality.

## AN AMERICAN RESPONSE

What should be done about this? The 2005 five-year review conference scheduled for May is fast approaching, and the worldwide nuclear proliferation situation gradually but steadily grows more grave. There are several steps the United States should take in the near future that, combined with tough enforcement policies toward Iran and others and a serious attempt to deal with North Korea, could turn this ever more dangerous situation around. The United

States could announce its intention to take these steps at the May review conference, producing a highly positive outcome there. In addition, there is one step the United States should not take.

First, the president should announce that his administration will seek Senate advice and consent to ratify the CTBT. If President Bush decided to support the comprehensive test ban and call for its ratification, it would surely pass the Senate, since almost all the votes against the treaty in 1999 were cast by Republican senators. US ratification would open the door to the CTBT's entry into force in the not-too-distant future. The ban on testing is fully verifiable and the American nuclear stockpile is and will remain reliable without tests. Senators could assure themselves of this by an extensive review during ratification hearings. Nothing would do more to strengthen the NPT and thereby advance American security than a decision by the United States to join the CTBT. Indeed, a CTBT has been considered the *sine qua non* evidence of NPT nuclear weapon states' observance of their NPT disarmament obligations. It is also an important nonproliferation tool since it would prevent any further development or acquisition of sophisticated modern nuclear weapons.

News reports on February 7, 2005, disclosed that US scientists have begun designing a new generation of nuclear weapons meant to be sturdier and more reliable and durable. Arms control advocates attacked the program as unnecessary and dangerous in that it could start a new arms race if it led to a revival of nuclear testing. The United States has been living with a moratorium on nuclear weapons tests since 1992; none of the five NPT nuclear weapon states has conducted testing since 1996. Administration officials responded to the criticisms by insisting that the program's purpose is to be able to readily certify nuclear weapons as safe and reliable for the indefinite future and to do so without nuclear testing. Officials said President Bush's policy is to maintain the moratorium. Assuming the officials meant what they said, then it is contrary to US security interests not to ratify the CTBT. If the policy is to support the moratorium, then the United States can protect itself much better with the full CTBT international monitoring system entirely operational. That can only happen when the treaty enters into force.

The second step the United States should take is to declare that it is prepared to sign a legally binding protocol to the NPT containing the negative security assurance. This would have the effect of changing US national policy, which currently reserves the right to introduce nuclear weapons into

a conflict even against NPT nonnuclear weapon states. It is important to bring US, British, French, and Russian national policies into line with this commitment made to support the NPT. The nuclear weapon states should legally bind themselves never to use nuclear arms against NPT nonnuclear weapon states, whose obligation not to acquire nuclear arms already is legally binding.

Third, the United States should announce that it is prepared to vigorously pursue a verifiable Fissile Material Cutoff Treaty. The US proposal for a FMCT now on the table in Geneva has no verification provisions. As a result, other NPT parties do not consider it a serious gesture.

Fourth, the United States should announce that it will propose to restart the Strategic Arms Reduction Talks (START), which were initiated by President Reagan in 1981 but have been shut down for several years now. The START I Treaty, which was signed in 1991 and entered into force in 1994, reduced the nuclear weapons of the United States and Russia by 50 percent (and eliminated weapons left on the territories of Ukraine, Belarus, and Kazakhstan after the collapse of the Soviet Union). The START II Treaty, which was signed in 1993 but did not enter into force, would have carried the US-Russia reductions to the two-thirds level. A START III Framework that the United States and Russia agreed to in 1997 was never implemented. The 2002 Treaty of Moscow does not call for any reduction in nuclear weapons, much to the dissatisfaction of the Russians, and in effect the START process was terminated.

Finally, while the United States continues diplomatic efforts to promote other nations' NPT compliance, it should remove from the table the option of military action against Iran. To conduct military strikes against Iran for the purpose of enforcing the NPT and terminating the Iranian nuclear weapons program would cause a fatal blow to the NPT. Iran would, of course, immediately withdraw from the treaty, and so would a number of other states. If having NPT obligations risks a US military attack some day, at least in theory, why would any state wish to remain a party—especially when the United States does not observe its own NPT obligations? A military attack on Iran would open wide the door of nuclear proliferation, which would never be closed again. And it should be noted that after the current administration's failure to negotiate with North Korea in 2001 and 2002, after the inclusion of that state in the "axis of evil" declaration along with Iran and Iraq in early 2002, and more or less

contemporaneously with the invasion of Iraq, North Korea withdrew from the NPT and recommenced its shut-down nuclear weapons program. Military action against North Korea is highly impractical in that North Korean conventional forces arrayed along the border essentially hold hostage the 14 million people of Seoul, less than 20 miles distant. Both rewards and punishments must accompany an effective NPT regime, but threatening military action is almost always counterproductive in enforcing nonproliferation.

## RENEWING THE BARGAIN

If the United States took these positive steps, the result would be a greatly invigorated NPT and considerably enhanced American security. One of the important near-term steps necessary to prevent the NPT's undermining from within—as Iran appears to be contemplating—is to restrict access to the nuclear fuel cycle (uranium enrichment and the chemical reprocessing of spent nuclear fuel for plutonium) through some multilateral arrangement. These fuel processes are important for nuclear power production but they can also be used in nuclear arms production. President Bush has proposed that the multinational Nuclear Suppliers Group withhold nuclear fuel from countries that do not currently possess nuclear fuel cycle technologies unless they agree to forswear their right to this technology; IAEA Director General ElBaradei has proposed multilateral ownership of fuel cycle technologies to supply such nations. Under both concepts cooperating nations would be supplied with nuclear fuel at guaranteed low rates.

If the nuclear weapon states appear to be living up to their end of the NPT's central bargain, they will have a much better chance of persuading non-nuclear weapon states to restrict access to the fuel cycle, which until now has been guaranteed under the treaty. If the NPT's central bargain can be reinvigorated in this review year, the treaty could be more than stabilized: it could be made stronger. It could become the instrument of international security that it was designed to be, thereby helping immeasurably to address the threat of nuclear weapons in the hands of rogue states and terrorist groups by effectively mobilizing the entire world behind the principle of nonproliferation. Ultimately, a truly strong and effective NPT regime could banish President Kennedy's nightmare forever and dramatically reduce the risk that the horrors of Hiroshima will ever be repeated. ■