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Surveying Atomic Threats

Graham Allison

THE GLOBAL nuclear order today could be as fragile as the global financial order was two years ago, when conventional wisdom declared it to be sound, stable, and resilient. In the aftermath of the 1962 Cuban missile crisis, a confrontation that he thought had one chance in three of ending in nuclear war, U.S. President John F. Kennedy concluded that the nuclear order of the time posed unacceptable risks to mankind. "I see the possibility in the 1970s of the president of the United States having to face a world in which 15 or 20 or 25 nations may have these weapons," he forecast. "I regard that as the greatest possible danger." Kennedy's estimate reflected the general expectation that as nations acquired the advanced technological capability to build nuclear weapons, they would do so. Although history did not proceed along that trajectory, Kennedy's warning helped awaken the world to the intolerable dangers of unconstrained nuclear proliferation.

His conviction spurred a surge of diplomatic initiatives: a hot line between Washington and Moscow, a unilateral moratorium on nuclear testing, a ban on nuclear weapons in outer space. Refusing to accept the future Kennedy had spotlighted, the international community instead negotiated various international constraints, the centerpiece

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of which was the 1968 Nuclear Nonproliferation Treaty (NPT). Thanks to the nonproliferation regime, 184 nations, including more than 40 that have the technical ability to build nuclear arsenals, have renounced nuclear weapons. Four decades since the NPT was signed, there are only nine nuclear states. Moreover, for more than 60 years, no nuclear weapon has been used in an attack.

In 2004, the secretary-general of the UN created a panel to review future threats to international peace and security. It identified nuclear Armageddon as the prime threat, warning, "We are approaching a point at which the erosion of the nonproliferation regime could become irreversible and result in a cascade of proliferation." Developments since 2004 have only magnified the risks of an irreversible cascade.

The current global nuclear order is extremely fragile, and the three most urgent challenges to it are North Korea, Iran, and Pakistan. If North Korea and Iran become established nuclear weapons states over the next several years, the nonproliferation regime will have been hollowed out. If Pakistan were to lose control of even one nuclear weapon that was ultimately used by terrorists, that would change the world. It would transform life in cities, shrink what are now regarded as essential civil liberties, and alter conceptions of a viable nuclear order.

Henry Kissinger has noted that the defining challenge for statesmen is to recognize "a change in the international environment so likely to undermine a nation's security that it must be resisted no matter what form the threat takes or how ostensibly legitimate it appears." The collapse of the existing nuclear order would constitute just such a change—and the consequences would make nuclear terrorism and nuclear war so imminent that prudent statesmen must do everything feasible to prevent it.

THE NUCLEAR CASCADE

SEVEN STORY LINES are advancing along crooked paths, each undermining the existing nuclear order. These comprise North Korea's expanding nuclear weapons program, Iran's continuing nuclear ambitions, Pakistan's increasing instability, al Qaeda's enduring remnant, growing cynicism about the nonproliferation regime, nuclear energy's renaissance, and the recent learning of new lessons about the utility of nuclear weapons in international affairs.

Most of the foreign policy community has still not absorbed the facts about North Korean developments over the past eight years. One of the poorest and most isolated states on earth, North Korea had at most two bombs' worth of plutonium in 2001. Today, it has an arsenal of ten bombs and has conducted two nuclear weapons tests. It is currently harvesting the plutonium for an 11th bomb and restoring its reactor in Yongbyon, which has the capacity to produce a further two bombs' worth of plutonium a year. In addition, Pyongyang has repeatedly tested long-range missiles that are increasingly reliable, has proliferated nuclear technology (including the sale of a Yongbyon-style reactor to Syria), and may be developing a second path to nuclear weapons by building a facility to enrich uranium.

From the perspective of the nuclear nonproliferation regime, two questions jump off the page. First, does Kim Jong Il imagine that he could get away with selling a nuclear weapon to Osama bin Laden or Iran? The fact that he sold Syria a plutonium-producing reactor suggests that he does. Second, what are the consequences for the NPT if one of the world's weakest states can violate the rules of the regime with impunity and defy the demands of the strongest states, which are those that are charged with its enforcement?

Already, North Korea's nuclear advances have triggered reflections in Seoul, Tokyo, and other regional capitals about options that were previously considered taboo. Although Japan's political culture is unambiguously against nuclear weapons, in 2002 then Prime Minister Junichiro Koizumi demonstrated how quickly that could change when he observed publicly, "It is significant that although we could have them, we don't." And because Japan has a ready stockpile of nearly 2,000 kilograms of highly enriched uranium and a well-developed missile program (for launching satellites), if Tokyo were to conclude that it required a credible nuclear deterrent of its own, it could adopt a serious nuclear weapons posture virtually overnight.

Meanwhile, Iran's nuclear odyssey is a moving target. Developments in the current negotiations may offer glimmers of hope. But it is unlikely that Iran will prove less obstinate and devious than North Korea has been. All the evidence suggests that Iran is methodically building up a widely dispersed array of mining, uranium-conversion, and uranium-enrichment facilities that could provide the infrastructure for nuclear

Weapons. At this point, it has mastered the technologies to indigenously manufacture, build, and operate its own centrifuges. Already, Iran is spinning 4,500 centrifuges, which produce an average of six pounds of low-enriched uranium per day, and has installed an additional 3,700 centrifuges that are ready to begin operation. The country now has a stockpile of over 3,000 pounds of low-enriched uranium—enough, after further enrichment, to make two Hiroshima-type nuclear bombs. Moreover, as the outing of a previously secret enrichment facility at Qom makes evident, Iran has thought carefully about the threat of a military strike on its declared facility at Natanz. To hedge against that risk, it has likely constructed more than one covert enrichment plant—facilities that would also provide a potential sneak-out option.

If Iran conducts a nuclear weapons test sometime in the next several years, it is probable that over the decade that follows, it will not be the only new nuclear weapons state in the Middle East. Saudi Arabia, for example, has insisted that it will not accept a future in which Iran—its Shiite, Persian rival—has nuclear weapons and it does not. Given the technical prerequisites, Saudi Arabia would much more likely be a buyer than a maker. Indeed, some in the U.S. intelligence community suspect that there have already been conversations between Saudi and Pakistani national security officials about the sale or transfer of an “Islamic bomb.” In the 1980s, Saudi Arabia secretly purchased from China 36 CSS-2 missiles, which have a range of 1,500 miles and no plausible military use other than to carry nuclear warheads.

Egypt and Turkey could also follow in Iran’s nuclear footsteps. As former U.S. National Security Adviser Brent Scowcroft testified to the Senate Foreign Relations Committee in March 2009, “We’re on the cusp of an explosion of proliferation, and Iran is now the poster child. If Iran is allowed to go forward, in self-defense or for a variety of reasons, we could have half a dozen countries in the region and 20 or 30 more around the world doing the same thing just in case.”

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THE NUCLEAR TERRORIST

AS MOHAMED ELBARADEI, director general of the International Atomic Energy Agency (IAEA), has noted, nuclear terrorism is “the most serious danger the world is facing.” In 2007, the U.S. Congress established the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism. The commission, of which I am a member, issued its report to Congress and the new administration in December 2008. It included two provocative judgments: first, that if the world continued on its current trajectory, the odds of a successful nuclear or biological terrorist attack somewhere in the world in the next five years were greater than even, and second, “Were one to map terrorism and weapons of mass destruction today, all roads would intersect in Pakistan.”

Over the past eight years, as its stability and authority have become increasingly uncertain, the Pakistani government has tripled its arsenal of nuclear weapons and nuclear weapons material. During this same period, the leadership of al Qaeda has moved from Afghanistan to ungoverned areas inside the Pakistani border, the Taliban have become a much more effective insurgent force within Pakistan, and the military leader who ruled Pakistan, Pervez Musharraf, has been replaced by a fragile, fledgling, splintered democracy.

Pakistan’s military has grown increasingly reliant on its nuclear arsenal to deter India’s overwhelming superiority in conventional arms. This strategy requires the dispersal of nuclear weapons (to prevent Indian preemption) and, especially in crises, looser command and control. In 2002, India and Pakistan went to the brink of war—a war that both governments thought might go nuclear. After Lashkar-e-Taiba terrorists with links to Pakistani intelligence services killed 173 people in a dramatic attack in Mumbai in November 2008, Indian Prime Minister Manmohan Singh displayed exquisite restraint. But he has warned unambiguously that the next major terrorist attack supported or sponsored by Pakistan will trigger a sharp military response.

In October 2009, Taliban extremists wearing Pakistani army uniforms occupied the government’s military headquarters in Rawalpindi. Had they instead penetrated a nuclear weapons storage facility, they could have stolen the fissile core of a nuclear bomb. More troubling is

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the question of what would happen to Pakistan's estimated 100 nuclear bombs, and even larger amount of nuclear material, if the government itself were to fall. When asked about this, U.S. officials suggest that Pakistan's arsenal is secure: Secretary of Defense Robert Gates recently stated, "I'm quite comfortable that the security arrangements for the Pakistani nuclear capabilities are sufficient and adequate." History offers a compelling counter to these claims. In 2004, the father of Pakistan's nuclear bomb, A. Q. Khan, was arrested for selling nuclear weapons technology and even bomb designs to Iran, Libya, and North Korea. Khan created what the head of the IAEA called the "Wal-Mart of private-sector proliferation." Khan was enabled by an extended period of instability in Pakistan. Could uncertainty and instability in Pakistan today provide similarly propitious opportunities for mini-Khans to proliferate nuclear technology?

That al Qaeda has been significantly weakened by the U.S. military's focused Predator and Special Forces attacks on its leadership in the ungoverned regions of Pakistan is good news. The bad news is that bin Laden and his deputy, Ayman al-Zawahiri, remain alive, active, and desperate. On 9/11, al Qaeda demonstrated the capacity to organize and execute a large-scale terrorist attack more operationally challenging than detonating a nuclear weapon. As the 9/11 Commission documented, al Qaeda has been seriously seeking nuclear weapons since the early 1990s. The commission's report provides evidence about two Pakistani scientists who met with bin Laden and Zawahiri in Afghanistan to discuss nuclear weapons. These scientists were founding members of Ummah Tameer-e-Nau, which is ostensibly a charitable agency that was created to support projects in Afghanistan. But the foundation's board included a fellow scientist knowledgeable about nuclear weapons construction, two Pakistani air force generals, one Pakistani army general, and an industrialist who owned Pakistan's largest foundry.

Bin Laden has called the acquisition of nuclear weapons al Qaeda's "religious duty" and has announced the movement's aspiration to "kill four million Americans." As former CIA Director George Tenet wrote in his memoir, "The most senior leaders of al Qaeda are still singularly focused on acquiring WMD [weapons of mass destruction]." "The main threat," he argued, "is the nuclear one. I am convinced that this is where [Osama bin Laden] and his operatives desperately want to go."

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As the noose tightens around al Qaeda's neck, its motivation to mount a spectacular attack to demonstrate its prowess and rally its supporters grows. Bin Laden has challenged his followers to "trump 9/11." Nothing could realize that aspiration so successfully as a mushroom cloud over a U.S. city.

REGIME FATIGUE

GROWING CYNICISM about the nonproliferation regime also threatens to undercut the global nuclear order. It is easy to see why non-nuclear-weapons states view the regime as an instrument for the haves to deny the have-nots. At the NPT Review Conference in 2000, the United States and other nuclear weapons states promised to take 13 "practical steps" toward meeting their NPT commitments, but later, at the Review Conference in 2005, John Bolton, then the U.S. ambassador to the UN, declared those 2000 undertakings inoperable and subsequently banned any use of the word "disarmament" from the "outcome document" of the UN's 60th anniversary summit. In preparation for the 2010 Review Conference, which will convene in May, diplomats at the IAEA have been joined by prime ministers and presidents in displaying considerable suspicion about a regime that permits nuclear weapons states to keep their arsenals but prevents others from joining the nuclear club. Those suspicions are reflected in governments' unwillingness to accept additional constraints that would reduce the risks of proliferation, such as by ratifying the enhanced safeguards agreement known as the Additional Protocol or approving an IAEA-managed multinational fuel bank to ensure states access to fuel for nuclear energy plants.

At the same time, rising concerns about greenhouse gas emissions have stimulated a growing demand for nuclear energy as a clean-energy alternative. There are currently 50 nuclear energy plants under construction, most of them in China and India, and 130 more might soon be built globally. Concern arises not from the nuclear reactors themselves but from the facilities that produce nuclear fuel and dispose of its waste product.

The hardest part of making nuclear weapons is producing fissile material: enriched uranium or plutonium. The same setup of centrifuges

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that enriches uranium ore to four percent to make fuel for nuclear power plants can enrich uranium to 90 percent for nuclear bombs. A nuclear regime that allows any state with a nuclear energy plant to build and operate its own enrichment facility invites proliferation. The thorny question is how to honor the right of non-nuclear-weapons states, granted by the NPT, to the "benefits of peaceful nuclear technology" without such a consequence. The answer is to provide an IAEA-governed international fuel bank that would guarantee a supply of nuclear fuel for states that would agree not to pursue enrichment and reprocessing activities. But persuading countries to forgo something others have for the greater good remains a stumbling block.

THE NUCLEAR WEAPONS STATES

FINALLY, RECENT lessons about the utility of nuclear weapons in international affairs have also eroded the global nuclear order. U.S. President Barack Obama has endorsed President Ronald Reagan's vision of a world free of nuclear weapons and has enlisted the endorsement of many other leaders, including Russian President Dmitry Medvedev. Most realists in the international security community, however, regard such thinking as a hazy, long-term, and probably unachievable aspiration.

In the meantime, France is modernizing its nuclear arsenal, which President Nicolas Sarkozy has called "the nation's life insurance policy." China continues the modernization and expansion of its limited nuclear arsenal. With the collapse of its conventional forces, Russia has renewed its reliance on nuclear weapons. In the United States, the release of this year's Nuclear Posture Review, these reviews being a process meant to assess whether the U.S. nuclear arsenal is "reliable," will spark debates about whether the United States is building a stealth version of the earlier proposed "reliable replacement warhead."

Even more important than proposals for future programs are lessons learned from recent actions. The George W. Bush administration designated Iran, Iraq, and North Korea as "an axis of evil" and then proceeded to attack the one state that demonstrably had no nuclear weapons and give a pass to the state that had two bombs' worth of plutonium. The British strategist Lawrence Freedman summarized

the lessons drawn by national security analysts around the world this way: "The only apparently credible way to deter the armed force of the US is to own your own nuclear arsenal." Many Iranians, and even a few Iraqis, have wondered whether the United States would have invaded Iraq in 2003 had Iraq been armed with a nuclear arsenal as large as North Korea's current one.

THE GEORGE MARSHALL QUESTION

AFTER LISTENING to a compelling briefing for a proposal or even in summarizing an argument presented by himself, Secretary of State George Marshall was known to pause and ask, "But how could we be wrong?" In that spirit, it is important to examine the reasons why the nonproliferation regime might actually be more robust than it appears.

Start with the bottom line. There are no more nuclear weapons states now than there were at the end of the Cold War. Since then, one undeclared and largely unrecognized nuclear weapons state, South Africa, eliminated its arsenal, and one new state, North Korea, emerged as the sole self-declared but unrecognized nuclear weapons state.

One hundred and eighty-four nations have forsworn the acquisition of nuclear weapons and signed the NPT. At least 13 countries began down the path to developing nuclear weapons with serious intent, and were technologically capable of completing the journey, but stopped short of the finish line: Argentina, Australia, Brazil, Canada, Egypt, Iraq, Italy, Libya, Romania, South Korea, Sweden, Taiwan, and Yugoslavia. Four countries had nuclear weapons but eliminated them: South Africa completed six nuclear weapons in the 1980s and then, prior to the transfer of power to the postapartheid government, dismantled them. Belarus, Kazakhstan, and Ukraine together inherited more than 4,000 strategic nuclear weapons when the Soviet Union dissolved in December 1991. As a result of negotiated agreements among Russia, the United States, and each of these states, all of these weapons were returned to Russia for dismantlement. Ukraine's 1,640 strategic nuclear warheads were dismantled, and the highly enriched uranium was blended down to produce low-enriched uranium, which was sold to the United States to fuel its nuclear power plants. Few Americans are aware that, thanks to the Megatons to

legawatts Program, half of all the electricity produced by nuclear power plants in the United States over the past decade has been fueled by enriched uranium blended down from the cores of nuclear warheads originally designed to destroy American cities.

Although they do not minimize the consequences of North Korea's or Iran's becoming a nuclear weapons state, those confident in the stability of the nuclear order are dubious about the prospects of a cascade of proliferation occurring in Asia, the Middle East, or elsewhere. In Japan, nuclear neuralgia has deep roots. The Japanese people suffered the consequences of the only two nuclear weapons ever exploded in war. Despite their differences, successive Japanese governments have remained confident in the U.S. nuclear umbrella and in the cornerstone of the United States' national security strategy in Asia, the U.S.-Japanese security alliance. The South Koreans fear a nuclear-armed

North Korea, but they are even more fearful of life without the U.S. nuclear umbrella and U.S. troops on the peninsula. Taiwan is so penetrated and seduced by China that the terror of getting caught creating makes it a poor candidate to go nuclear. And although rumors of the purchase by Myanmar (also called Burma) of a Yongbyon-style nuclear reactor from North Korea cannot be ignored, questions have arisen about whether the country would be able to successfully operate it.

In the Middle East, it is important to separate abstract aspirations from realistic plans. Few countries in the region have the scientific and technical infrastructure to support a nuclear weapons program. Saudi Arabia is a plausible buyer, although the United States would certainly make a vigorous effort to persuade it that it would be more secure under a U.S. nuclear umbrella than with its own arsenal. Egypt's determination to acquire nuclear weapons, meanwhile, is limited by its weak scientific and technical infrastructure, unless it were able to rent foreign expertise. And a Turkish nuclear bomb would not only jeopardize Turkey's role in NATO but also undercut whatever chances the country has for acceding to the EU.

Looking elsewhere, Brazil is now operating an enrichment facility but has signed the Treaty of Tlatelolco, which outlaws nuclear weapons

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in Latin America and the Caribbean, and has accepted robust legal constraints, including those of the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials. Other than South Africa, which retains the stockpile of 30 bombs' worth of highly enriched uranium that was once part of its nuclear program, it is difficult to identify other countries that might realistically become nuclear weapons states in the foreseeable future.

Such arguments for skepticism have a certain plausibility. The burden of evidence and analysis, however, supports the view that current trends pose unacceptable risks. As the bipartisan Congressional Commission on the Strategic Posture of the United States, which was led by former Secretaries of Defense William Perry and James Schlesinger, concluded in 2009, "The risks of a proliferation 'tipping point' and of nuclear terrorism underscore the urgency of acting now."

THE FIERCE URGENCY OF NOW

OBAMA HAS put the danger of nuclear proliferation and nuclear terrorism at the top of his national security agenda. He has called it "a threat that rises above all others in urgency" and warned that if the international community fails to act, "we will invite nuclear arms races in every region and the prospect of wars and acts of terror on a scale that we can hardly imagine." Consider the consequences, he continued, of an attack with even a single nuclear bomb: "Just one nuclear weapon exploded in a city—be it New York or Moscow, Tokyo or Beijing, London or Paris—could kill hundreds of thousands of people. And it would badly destabilize our security, our economies, and our very way of life."

Obama's mission is to bend the trend lines currently pointing toward catastrophe. Most of the actions required to achieve this mission must be taken not by Washington but by other governments around the world, which will act on the basis of their own assessments of their interests. But in an effort to encourage them to act and to demonstrate U.S. leadership, Obama has pledged to reduce the role of nuclear weapons in the United States' national security strategy, negotiate a follow-on arms control agreement with Russia to decrease U.S. and Russian nuclear armaments, ratify the Comprehensive Nuclear

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Test Ban Treaty, endeavor to ban the production of fissile material worldwide, and provide additional authority and resources to the IAEA. In the hope of rolling back North Korea's arsenal and stopping Iran short of building a nuclear bomb, he has opened negotiations with both countries, signaling a willingness to live with their regimes, however ugly, if they forgo nuclear weapons.

These steps mark the most substantial effort to revitalize the nuclear order since Kennedy. From his first major address abroad, when he spoke to the EU's 27 heads of state in Prague, to his chairmanship of the UN Security Council in September, Obama has been attempting to transform conceptions of the challenge.

This is an extraordinarily ambitious agenda—easy to say, hard to do. And this important work will encounter serious obstacles and stubborn adversaries. As Obama noted at the UN, "The next 12 months could be pivotal in determining whether [the nonproliferation regime] will be strengthened or will slowly dissolve." Indeed, the year ahead is crowded with dates and events that will move this agenda forward or leave it floundering. Optimists can take heart from the much more positive attitudes toward the United States evident in capitals around the world recently. Skeptics, however, can point to the objective forces propelling dangers along, as well as the disconnect between the aspirations and the daily actions of the president and of the cabinet officers charged with realizing these goals.

The international community has crucial choices to make, and the stakes could not be higher. Having failed to heed repeated warning signs of rot in the U.S.-led global financial system, the world dare not wait for a catastrophic collapse of the nonproliferation regime. From the consequences of such an event, there is no feasible bailout. ●