Weapons of Mass Destruction

Opposing Viewpoints®

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>
> *First Amendment to the U.S. Constitution*

The basic foundation of our democracy is the First Amendment guarantee of freedom of expression. The Opposing Viewpoints Series is dedicated to the concept of this basic freedom and the idea that it is more important to practice it than to enshrine it.

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Why Consider Opposing Viewpoints?

"The only way in which a human being can make some approach to knowing the whole of a subject is by hearing what can be said about it by persons of every variety of opinion and studying all modes in which it can be looked at by every character of mind. No wise man ever acquired his wisdom in any mode but this."

John Stuart Mill

In our media-intensive culture it is not difficult to find differing opinions. Thousands of newspapers and magazines and dozens of radio and television talk shows resound with differing points of view. The difficulty lies in deciding which opinion to agree with and which "experts" seem the most credible. The more inundated we become with differing opinions and claims, the more essential it is to hone critical reading and thinking skills to evaluate these ideas. Opposing Viewpoints books address this problem directly by presenting stimulating debates that can be used to enhance and teach these skills. The varied opinions contained in each book examine many different aspects of a single issue. While examining these conveniently edited opposing views, readers can develop critical thinking skills such as the ability to compare and contrast authors' credibility, facts, argumentation styles, use of persuasive techniques, and other stylistic tools. In short, the Opposing Viewpoints Series is an ideal way to attain the higher-level thinking and reading skills so essential in a culture of diverse and contradictory opinions.

In addition to providing a tool for critical thinking, Opposing Viewpoints books challenge readers to question their own strongly held opinions and assumptions. Most people form their opinions on the basis of upbringing, peer pressure, and personal, cultural, or professional bias. By reading carefully balanced opposing views, readers must directly confront new ideas as well as the opinions of those with whom they disagree. This is not to simplistically argue that

everyone who reads opposing views will—or should—change his or her opinion. Instead, the series enhances readers' understanding of their own views by encouraging confrontation with opposing ideas. Careful examination of others' views can lead to the readers' understanding of the logical inconsistencies in their own opinions, perspective on why they hold an opinion, and the consideration of the possibility that their opinion requires further evaluation.

Evaluating Other Opinions

To ensure that this type of examination occurs, Opposing Viewpoints books present all types of opinions. Prominent spokespeople on different sides of each issue as well as well-known professionals from many disciplines challenge the reader. An additional goal of the series is to provide a forum for other, less known, or even unpopular viewpoints. The opinion of an ordinary person who has had to make the decision to cut off life support from a terminally ill relative, for example, may be just as valuable and provide just as much insight as a medical ethicist's professional opinion. The editors have two additional purposes in including these less known views. One, the editors encourage readers to respect others' opinions—even when not enhanced by professional credibility. It is only by reading or listening to and objectively evaluating others' ideas that one can determine whether they are worthy of consideration. Two, the inclusion of such viewpoints encourages the important critical thinking skill of objectively evaluating an author's credentials and bias. This evaluation will illuminate an author's reasons for taking a particular stance on an issue and will aid in readers' evaluation of the author's ideas.

It is our hope that these books will give readers a deeper understanding of the issues debated and an appreciation of the complexity of even seemingly simple issues when good and honest people disagree. This awareness is particularly important in a democratic society such as ours in which people enter into public debate to determine the common good. Those with whom one disagrees should not be regarded as enemies but rather as people whose views deserve careful examination and may shed light on one's own.

Thomas Jefferson once said that "difference of opinion leads to inquiry, and inquiry to truth." Jefferson, a broadly educated man, argued that "if a nation expects to be ignorant and free . . . it expects what never was and never will be." As individuals and as a nation, it is imperative that we consider the opinions of others and examine them with skill and discernment. The Opposing Viewpoints Series is intended to help readers achieve this goal.

David L. Bender and Bruno Leone,
Founders

Greenhaven Press anthologies primarily consist of previously published material taken from a variety of sources, including periodicals, books, scholarly journals, newspapers, government documents, and position papers from private and public organizations. These original sources are often edited for length and to ensure their accessibility for a young adult audience. The anthology editors also change the original titles of these works in order to clearly present the main thesis of each viewpoint and to explicitly indicate the opinion presented in the viewpoint. These alterations are made in consideration of both the reading and comprehension levels of a young adult audience. Every effort is made to ensure that Greenhaven Press accurately reflects the original intent of the authors included in this anthology.

Introduction

"Weapons of mass destruction (WMD)—nuclear, biological, and chemical—in the possession of hostile states and terrorists represent one of the greatest security challenges facing the United States."

—President George W. Bush

The term *weapons of mass destruction* has two connotations. In its broader, literal sense, it is used to refer to weapons whose destructive power far surpasses that of guns or conventional explosives. However, the term is more often used in a narrower sense, to refer specifically to nuclear, biological, and chemical (NBC) weapons. Since the September 11, 2001, terrorist attacks, which raised awareness of America's vulnerability, the United States has greatly intensified its efforts to stop the spread of nuclear, biological, and chemical weapons. When the president and other officials refer to "weapons of mass destruction," they usually mean NBC weaponry.

In fact, while September 11 awakened America to the threat of terrorism perpetrated by groups such as al Qaeda, U.S. foreign policy since September 11 has been dominated by concerns about the development of NBC weapons by countries such as North Korea and Iran. President Bush linked the two concerns in his January 29, 2002, State of the Union address: "[We must] prevent regimes that sponsor terror from threatening America or our friends and allies with weapons of mass destruction." He warned:

> North Korea is a regime arming with missiles and weapons of mass destruction, while starving its citizens. Iran aggressively pursues these weapons and exports terror, while an unelected few repress the Iranian people's hope for freedom. Iraq continues to flaunt its hostility toward America and to support terror. . . . States like these, and their terrorist allies, constitute an axis of evil, arming to threaten the peace of the world. By seeking weapons of mass destruction, these regimes pose a grave and growing danger. They could provide these arms to terrorists, giving them the means to match their hatred. . . . The United States will not permit the world's most dangerous regimes to threaten us with the world's most destructive weapons.

In the months that followed, President Bush elaborated on the U.S. strategy to prevent the proliferation of weapons of mass destruction (WMD). *The National Strategy to Combat Weapons of Mass Destruction*, released by the White House in December 2003, formally summarizes three pillars of U.S. policy: 1) WMD consequence management; 2) nonproliferation; and, 3) counterproliferation.

According to the *National Strategy*, consequence management refers to homeland security efforts to "reduce to the extent possible the potentially horrific consequences of WMD attacks at home and abroad." Such efforts include WMD-response training programs for firefighters, medical workers, and other first responders, and stockpiling of vaccines for smallpox and other diseases that might be used as bioweapons. However, because a WMD attack would be so devastating, U.S. strategy places a higher priority on preventing a WMD attack than on reacting to one.

Nonproliferation refers primarily to diplomatic efforts to encourage states with WMD programs to end them, and to dissuade states without WMD programs from starting them. The principal nonproliferation agreement is the Nuclear Nonproliferation Treaty (NPT). Originally signed in 1968 by the United States, the United Kingdom, the Soviet Union, and fifty-nine other countries, the NPT currently includes every member of the United Nations except India, Israel, and Pakistan. The NPT obligates states with nuclear weapons not to transfer their weapons, or the technology to build them, to nonnuclear states, and it obligates nonnuclear states not to acquire or produce nuclear weapons. A similar treaty for chemical weapons, the Chemical Weapons Convention, was ratified by the United States in 1997, while a proposed Biological Weapons Convention is being developed by international committees.

Counterproliferation is the most complicated and most controversial part of *The National Strategy to Combat Weapons of Mass Destruction.* One of the main aspects of counterproliferation is deterrence. Essentially, deterrence is based on the idea that the power of the U.S. military—including both conventional forces and nuclear weapons—will discourage other countries from using WMD. As the *National Strategy*

states, "The United States will continue to make clear that it reserves the right to respond with overwhelming force—including through resort to all of our options—to the use of WMD against the United States, our forces abroad, and friends and allies."

Another controversial part of counterproliferation is the United States' declaration that it will preemptively attack nations that threaten to use or develop WMD. The debate over preemption first entered the national mainstream when, in a June 2002 speech, President Bush spoke of the need to strike first against terrorist threats: "If we wait for threats to materialize, we will have waited too long. . . . We must take the battle to the enemy, disrupt his plans and confront the worst threats before they emerge." The *National Strategy* describes preemption as a supplement to deterrence:

> Because deterrence may not succeed, and because of the potentially devastating consequences of WMD use against our forces and civilian population, U.S. military forces and appropriate civilian agencies must have the capability to defend against WMD-armed adversaries, including in appropriate cases through preemptive measures. This requires capabilities to detect and destroy an adversary's WMD assets before these weapons are used.

Preemption is more controversial than deterrence because it means that the United States may use military force against another nation, even if that nation has not used WMD against the United States or its allies.

This was the case with the spring 2003 U.S. invasion of Iraq. In September 2002, President Bush addressed the United Nations, arguing that Iraqi leader Saddam Hussein was not complying with UN resolutions to allow weapons inspectors to determine whether Iraq was building WMD. Bush warned that a military invasion of Iraq might be necessary. The United States maintained throughout 2002 that Iraq was secretly building chemical and biological weapons, as well as slowly expanding its nuclear program. Finally, after several failed attempts to gain UN approval for an invasion of Iraq, the United States and the United Kingdom invaded the nation in March 2003 to bring down the regime of Saddam Hussein. The invasion was successful, but the United States found no actual weapons of mass destruction

in Iraq, and unearthed only limited evidence that Iraq was pursuing WMD programs, leading many critics to question whether the invasion was justified.

The controversy over the invasion of Iraq is part of a broader debate about how to deal with other nations believed to be developing WMD. Critics of deterrence maintain that the United States should not threaten war in order to maintain peace, and that by maintaining a large nuclear arsenal, the United States undermines international nonproliferation efforts. Critics of preemption charge that the policy may actually lead other nations to develop WMD in order to deter the United States from invading. The authors in *Opposing Viewpoints: Weapons of Mass Destruction* examine these policies and other issues in the following chapters: How Likely Is an Attack Involving Weapons of Mass Destruction? How Should the United States Deal with Countries That Threaten to Develop Weapons of Mass Destruction? What Policies Should the United States Adopt Toward Nuclear Weapons? How Can the United States Defend Itself Against Weapons of Mass Destruction? Although there is plenty of disagreement about how the United States should deal with weapons of mass destruction, all sides in the debate agree on the need for strategies to prevent their use.

CHAPTER 1

How Likely Is an Attack Involving Weapons of Mass Destruction?

Chapter Preface

Most experts believe that the likelihood of a terrorist attack involving weapons of mass destruction (WMD) is low—at least, lower than the likelihood of a conventional attack. Nuclear, biological, and chemical (NBC) weapons are simply harder to build and use than conventional arms and explosives. There have historically been very few terrorist incidents involving chemical or biological weapons and none involving nuclear weapons, in contrast to scores of bombings, aircraft hijackings, and hostage-takings since the 1970s.

However, while the likelihood of a WMD terrorist attack may be low, if one were to occur, it could be devastating. As a report from the Executive Session on Domestic Preparedness, a task force on homeland security sponsored by Harvard University, puts it,

> The consequences of a successful [WMD] attack would be severe. . . . Relatively small amounts of some chemical and biological agents can create mass casualties, potentially causing large numbers of fatalities and an overwhelming number of injuries. The consequences of a WMD incident could also include economic damage, environmental contamination, international repercussions, increased internal police powers, and deleterious psychological effects on citizens.

Therefore, the task force concludes, "Terrorism with weapons of mass destruction should . . . be seen as a *low-probability* but *high-consequence* threat." Although terrorism with conventional weapons is considered much more likely than a WMD attack, the enormous dangers associated with a major WMD strike are a driving force in U.S. homeland security efforts. The authors in the following chapter examine what types of WMD attack are most likely, and whether the threat from NBC weapons has been exaggerated.

"The United States finds itself at greater risk of an attack by nuclear-based weaponry today than at the height of the Cold War."

The Likelihood of a Nuclear Missile Attack Is Greater than Ever Before

John J. Stanton

John J. Stanton is a member of the professional staff at the National Defense Industrial Association, a trade organization representing America's defense industries. In the following viewpoint he maintains that the threat of terrorists building or stealing a nuclear weapon is serious and growing. He contends that the materials needed to make nuclear weapons are regularly bought and sold on black markets around the world. Stanton discusses some of the measures in place to deal with nuclear threats but argues that much more funding is needed for both homeland security efforts and international initiatives to monitor nuclear trafficking.

As you read, consider the following questions:

1. What is the purpose of U.S. nuclear weapons labs' "Nth Country Experiments," according to Stanton?
2. About how many tactical nuclear weapons are estimated to be in the Russian nuclear arsenal, including those stored or slated for dismantlement, according to the author?
3. What field exercise did DTRA run in Salt Lake City prior to the 2002 Olympics, as described by Stanton?

John J. Stanton, "Is the U.S. Prepared for Nuclear Terrorism?" *Security Management*, vol. 46, March 2002, p. 156.

In October 2001, in Philadelphia, Pennsylvania, two portable moisture density gauges containing sealed sources of radioactive material were reported stolen off the back of a pickup truck at a worksite, despite being properly chained and locked. The event was disturbing, but not unusual. There are approximately "150,000 licensees for radioactive materials in the U.S. and 2 million devices containing radioactive material in use in the U.S. today," according to Richard Meserve, chairman of the U.S. Nuclear Regulatory Commission (NRC). From these, "an average of approximately 375 sources or devices of all kinds are reported lost or stolen each year in the U.S., that is, roughly one per day," says Meserve.

That chilling statistic illustrates why, in a run of events worthy of Stanley Kubrick's *Dr. Strangelove*, the United States finds itself at greater risk of an attack by nuclear-based weaponry today than at the height of the Cold War. Analysts say that this new nuclear threat will never be eliminated, only minimized. They point to the quantities of lost or stolen (called "orphaned") radioactive waste in the United States and around the world that would be easy for terrorist groups to obtain. They also point to the arsenal of loosely guarded Russian tactical nuclear weapons (TNWs), some of which are also already missing. As Michael Levi of the Nuclear Project at the Federation of American Scientists in Washington, D.C., puts it: "Orphans tend to find parents real fast."

Indeed, there is a lucrative international market for nuclear equipment and radioactive material. Between 1993 and 2001, the Illicit Trafficking Database Programme of the International Atomic Energy Association (IAEA), in which 70 nations participate, recorded instances of trafficking, of which about half involved radioactive sources. The IAEA reports that the number of incidents of trafficking has increased in recent years, mainly involving radioactive sources, such as highly enriched uranium. As recently as December 2001, Russian authorities arrested a group attempting to sell two pounds of weapons-grade uranium.

Bombs and RDDs

Levi suggests that threat assessors think creatively when trying to determine how terrorists might irradiate a population.

"We tend to associate terrorists with things that blow up. The prevailing view is that a radiological dispersion device (RDD) or nuclear bomb will be the preferred method of delivery, but it's equally likely that terrorists will buy radioactive waste and manually disperse it in terminals, subways, or other crowded places," although that might not compare to the psychological damage inflicted by the explosion of an RDD or the detonation of a low-yield nuclear weapon in a U.S. city.

Of course, the successful detonation of a low-yield nuclear device or RDD would far surpass the aftermath of the terrorist attacks on September 11, 2001.

But can an RDD or nuclear device be built? The evidence from the IAEA's Illicit Trafficking Database Programme and the NRC's "orphaned" U.S. materials list indicates that radioactive material could easily find its way into the wrong hands. And although an RDD is likely to emit deadly radiation to its attacker, September 11th proved that the willingness of terrorists to sacrifice their own lives should not be underestimated.

"The Russians believe very strongly that a sophisticated substate group with 30–50 people using off-the-shelf equipment could actually create the bomb-grade materials from low-grade uranium and make several bombs a year," says Dr. Bruce Blair, President of the Center for Defense Information.

It's no secret that a few good physicists can get together and do the math for a rudimentary nuclear weapon. In fact, physicists on track to be employed by U.S. nuclear weapons labs bide their time engaging in "Nth Country Experiments," while awaiting security clearances.

"The labs routinely conduct break-in assignments like Nth Country where they have the new employees do their best to design a nuclear weapon on the cheap. The labs like it because sometimes the results are new and innovative," says Blair.

Tactical Nuclear Weapons

Another concern is that the risk of tactical nuclear weapons [TNWs] is being overlooked in the discussion of new nuclear threats to the United States. "Tactical nuclear weapons pose unique dangers as weapons of terror," says Allistair Millar, vice president and director of the Fourth Freedom

Preventing Nuclear Terrorism: Top Eight Gaps in Defenses

Top 8 gaps	Remarks
Uninspected shipping containers	97%–98% Maritime containers uninspected. "Container security initiative" grossly inadequate. Terrorists have exploited container freight in past.
Flawed ID verification at borders	Antiquated credentials verification easily fooled. Undercover agents demonstrated easy access with fake ID.
Poor terrorist intelligence	U.S. terrorist cells still not identified & located. Global & domestic intelligence sharing highly deficient.
Unsecured nuclear storage facilities	"Loose nukes" are still unsecured. Only 17% of Russian N-sites are known to have comprehensive security. Global situation less defined & possibly worse.
Weakly protected nuclear reactors	Nuclear power industry resists stronger security. Mock attack drills reveal high failure rate of security systems. Little or no protection from airborne attacks.
Unresolved North Korea crisis	North Korea postured to produce fissile materials and nuclear bombs. Sales to rogue states or terrorists feared. Economic sanctions; maritime interdiction; and military strikes not reliable prevention measures.
Flawed export control regime	WMD programs in Iraq. Iran, and North Korea exploited flaws in export control regimes. Terrorists could pursue similar strategy (in addition to black market purchases, theft & smuggling).
Unratified comprehensive test ban treaty (CTBT)	CTBT urgently needed to bolster nuclear nonproliferation treaty (NPT) and halt new warhead development. NPT is the cornerstone of nonproliferation regime and CTBT ratification is essential to assuring continued participation of all NPT signers.

Third Millennium Foundation, July 2003.

Forum's office in Washington, D.C. "Their often-smaller size increases their portability and vulnerability to theft by non-nuclear states and potential nuclear terrorists," he says. "Characteristics of command unique to TNWs, such as pre-delegated launch authorization, and often inadequate safeguards, such as ineffective permissive action links, add to their potential unauthorized, accidental, or illicit use," continues Millar. Yet, he notes, "we don't have a system for accounting for TNWs, which are not monitored or controlled by any existing treaties or formal agreements."

Millar recently authored a report with his colleague Brian Alexander titled "Uncovered Nukes: A fact sheet on tactical nuclear weapons." In it, he noted that the U.S. TNW arsenal is estimated at 1,670 warheads. These are stored mainly in the U.S. mainland, but 150–200 U.S. TNWs are deployed across eight bases in Europe.

Estimating the Russian arsenal is more complicated. There are numerous conflicting accounts and serious doubts about whether the Russians themselves even know the total number of TNWs they have. The most recent estimate of the Russian TNW arsenal is around 3,590 deployed weapons, but when estimates of warheads stored or slated for dismantlement are taken into account, these estimates grow to as high as 15,000.

"This is a very serious problem particularly as it relates to Russia," says Millar. There is no real evidence that TNW demilitarization took place, because the Russian 12th Main Directorate of the Ministry of Defense [responsible for nuclear munitions deployment, testing, security] and Minatom [oversees deactivation of nuclear weapons and stockpiles of plutonium] don't talk to each other and have poor record-keeping capability."

DTRA and NEST

"How do we talk to America about these types of problems?" asks Defense Threat Reduction Agency (DTRA) spokesperson Captain Robert Bennett (USA). "Our Consequence Management Advisory Team has been looking at ways to improve how we support the civilian sector's response to the detonation of an RDD or other nuclear device. We've held human

behavior workshops and have done modeling and simulation to determine blast impact and radioactive fallout. And we've learned a heck of a lot from the response to September 11th."

One of DTRA's signature services is the Hazard Prediction Assessment Capability (HPAC) computer program designed to help first responders predict where a radioactive cloud will move, thereby helping them allocate resources appropriately. "Time delayed effects come into play here, and this particular program considers weather conditions along with the radiological factors. It can show you what will happen in 20 minutes, then 40 minutes, and so on. We provide this to first responders when they ask for it. It was configured to track asbestos particles released from the structures destroyed on September 11th."

DTRA has held many field radiological response exercises [in 2001]. One held [in spring 2001] was Olympic Response IT in Salt Lake City, Utah. In that scenario, radioactive waste was encased and strapped with TNT and detonated, dispersing a deadly cloud. There, says Bennett, DTRA helped the Salt Lake City Olympic Committee "to understand the dangers and how best to deal with them."

Bennett takes pains to point out that there is "the realization that we can't be there first." He notes that when DTRA arrives on the state or local scene, "we [DTRA] work for the mayor or governor."

But the real nuclear gumshoes are the Nuclear Emergency Search Team (NEST), which draws talent from the nation's nuclear weapons labs and volunteers from the Department of Energy. Since 1975, NEST has examined no terrorist nuclear threats. That's according to *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons Since 1940* (published by the Brookings Institution). NEST also maintains a massive database that "contains everything publicly available about making a nuclear weapon."

More Needs to Be Done

According to Blair, while these groups are doing useful work, the overall government effort falls short. For example, even though federal funding levels have increased . . . they still do not adequately address homeland defense. In Blair's

view, funding priorities are still heavily tilted toward procuring machinery for distant wars rather than funding domestic measures to protect and defend the American populace right here at home. "There's tremendous misallocation. Security and protection of the U.S. mainland has been underfunded and not thought through," he says.

Millar believes that U.S. civilian political leadership is encouraging policies that increase risk to the military. He states that military thinkers in war colleges around the land are a step ahead of their civilian counterparts in pushing for aggressive, codified nonproliferation treaties that include TNWs, for example. They recognize that military action alone cannot minimize these new nuclear threats.

International initiatives to monitor illicit trafficking through the IAEA need further funding by the U.S. government as well. In addition, U.S. government regulators, such as the NRC, must be more aggressive in monitoring the private sector's use, transport, and disposal of radioactive materials. Finally, federal agencies must provide state and local governments with support to manage the consequences of a worst-case nuclear attack.

"The ballistic missile threat today is confined, limited and changing relatively slowly."

The Likelihood of a Nuclear Missile Attack Has Been Exaggerated

Joseph Cirincione

Joseph Cirincione is the director of the Non-Proliferation Project at the Carnegie Endowment for International Peace. In the following viewpoint he argues that government officials have placed too much emphasis on the threat posed to the United States by nuclear ballistic missiles. Cirincione contends that although ballistic missiles are the most dangerous weapons in the world, they pose much less of a threat than they have in the past. The author notes most countries' missiles do not have the range to reach the United States. Many experts worry that Iran or North Korea might develop long-range ballistic missiles in the future, but Cirincione argues that even if they do, in the worst-case scenario a nuclear attack from one of these nations would not be as bad as the catastrophic nuclear threat the Soviet Union posed during the Cold War.

As you read, consider the following questions:

1. What two nations have ballistic missiles capable of reaching the United States, according to the author?
2. What does the author believe is the "most significant proliferation threat"?
3. Why does Cirincione believe that other nations would be deterred from using ballistic missiles against the United States?

Joseph Cirincione, "A Much Less Explosive Trend," *Washington Post*, March 10, 2002, p. B03.

The president says the ballistic missile threat is growing and warns us how much more terrible [the September 11, 2001, terrorist attacks] could have been if the terrorists had missiles. The CIA director says the proliferation of missile designs and technology has "raised the threat to the U.S. . . . to a critical threshold." Congress appropriates $8 billion a year to research missile defense systems—the largest weapons program in the budget. The prevailing wisdom in Washington is that missile threats are mushrooming.

But are they? Ballistic missiles with nuclear warheads are the most dangerous weapons ever invented. Within minutes of launch they can destroy a distant city the size of Washington. However, the threat they pose now is less than in the past and is steadily declining. Today there are many fewer ballistic missiles in the world than 15 years ago, fewer nations trying to develop them, and only four potentially hostile nations trying to develop long-range versions. Moreover, the limited attack we most fear now from a rogue state would be much smaller than the nuclear holocaust we feared during the Cold War.

Of the more than 190 nations in the world, 35 of them, including the United States, have ballistic missiles. These are missiles that, like the V-2s first used by Nazi Germany, have a brief period of powered flight, then coast through space or the upper atmosphere on a ballistic trajectory that brings them back to Earth. Although the number of states with such missiles grew steadily during the Cold War, it is now decreasing. [Since March 2001], for example, Hungary, Poland and the Czech Republic have destroyed their small arsenals of Soviet-supplied Scud missiles; only Bahrain has joined the missile club with the purchase of some short-range missiles from the United States.

The existence of three dozen countries with ballistic missiles would still seem very dangerous but for two factors: Almost all these nations are friends of the United States, and almost all have only short-range missiles that threaten only their neighbors.

Distance Provides Security

The United States is protected from most missile threats by the oceans. Almost any nation wishing to attack America from

its own territory must build a missile capable of traveling thousands of miles. Fortunately, it is very difficult and expensive to do that. This is why 21 of the 35 nations possessing missiles have been able to deploy only short-range missiles, much like the V-2s, that can't go farther than 200 miles. Three others have short-range missiles capable of traveling 600 miles. Many of the missiles are old, poorly maintained and unreliable.

Of the other 10 nations besides the United States that have ballistic missiles, most only have medium-range systems that travel about 600 to 1,800 miles. That is far enough for Israel and Iran to hit each other, but not far enough for either to strike the United States.

Only China and Russia are able to attack the United States with nuclear warheads on long-range, land-based intercontinental missiles. This has not changed since Russia and China deployed their first ICBMs in 1959 and 1981, respectively. Even this threat is dwindling. Over the past 15 years, arms control agreements have cut arsenals capable of hitting the United States by 57 percent. The size of the Russian force, because of financial constraints, is expected to shrink further, from 1,022 to about 400 long-range missiles by the end of this decade; China might modernize and add to its 20 long-range missiles, but will probably deploy fewer than 40.

Not only is the American homeland less threatened by ballistic weapons; so are U.S. allies and troops in Europe. Arms control treaties with Moscow eliminated the entire class of intermediate-range ballistic missiles from the arsenal that once threatened Europe. Only three percent of the 680 missiles once in this class remain worldwide: China, with about 20 missiles, is the only nation that still possesses them.

Newly Emerging Nuclear Powers

What about the prevailing anxiety over newly emerging missile powers? The number of countries trying to develop ballistic missiles also has decreased and the nations still attempting to do so are poorer and less technologically advanced than were those trying 15 years ago. In the 1980s, we worried about missile programs in Argentina, Brazil, China, Egypt, Libya, India, Israel, Iraq, Pakistan, the Soviet

Union and South Africa. In 2002, the Soviet Union is long gone; former Soviet republics Ukraine, Belarus and Kazakhstan have given up their missiles. Brazil, Argentina, Egypt and South Africa have abandoned their programs, Libya's is defunct, and Iraq's has been largely shut down. Only North Korea and Iran have started new programs.

Rogue States: Nuclear Red Herrings

The United States and Russia currently possess 96 percent of the world's total inventory of 30,000 nuclear weapons. Most of the rest belong to U.S. allies and friends—Britain, France and Israel. The combined arsenals of Pakistan and India, with whom the United States enjoys reasonable relations, represent a small fraction of 1 percent. That leaves China, hardly an enemy, whose 1 percent of the world total includes 20 long-range missiles that could hit the United States (compared to 6,000-plus U.S. nuclear weapons that could reach China today). Then there is North Korea, which maybe has a couple of weapons but no missiles or planes capable of dropping them on U.S. targets. The other proliferant states of concern—notably Iran—do not yet possess a single nuclear bomb.

Bruce Blair, *CDI Defense Monitor*, January/February 2004.

The most significant proliferation threat today comes from the slow but steady increase in the number of states testing medium-range ballistic missiles. This development is often cited as evidence of a larger proliferation threat. Seven nations—China, India, Iran, Israel, Pakistan, North Korea and Saudi Arabia—now have missiles in this range. Of these, three potentially could come into conflict with the United States—China, Iran and North Korea.

But China is the only potentially hostile nation with both ballistic missiles that can reach the United States and the nuclear warheads to put on them. North Korea might in the next 10 years develop a missile with a nuclear warhead that could reach the United States, but it does not have that capability now. Iran has neither long-range missiles nor nuclear warheads. Iran's effort to import and duplicate North Korean missiles appears in disarray after its Shahab-3 missiles blew up in two of the three tests it conducted in 1998

and 2000. . . . While theoretically possible, it appears unlikely that . . . Iran . . . will have a nuclear-armed long-range missile within the next 10 to 15 years.

Still, even if there are fewer missiles and fewer nations with missiles, if one of these three nations deployed a long-range missile by 2010, wouldn't that mean the missile threat was more acute? Not necessarily. Capability does not necessitate use. Each of these countries would almost surely be deterred from attacking the United States by the certainty that swift retaliation would follow even a failed or thwarted attack. It is also likely that the United States would preemptively destroy a missile as it was being assembled for launch.

Even our worst-case scenarios aren't as bad as they once were. If deterrence or preventive defense failed, the damage that countries such as North Korea, Iran or Iraq could inflict with one or two warheads would be a major catastrophe. But compare that to the nuclear exchange we feared 15 years ago—in which thousands of Soviet warheads would have destroyed our country, or even the planet. The United States and NATO [North Atlantic Treaty Organization] spent hundreds of billions of dollars, fielded dozens of military systems and endured numerous diplomatic crises precisely because we feared those missiles. We lived through decades of anxiety, from civil defense drills in classrooms to dueling deployments of Soviet SS-20s in Eastern Europe and U.S. Pershing and cruise missiles in Western Europe. In no sense can the missile threat today be considered more imminent or lethal than the threat 15, 20 or 40 years ago.

Then why do so many people feel it is?

An Exaggerated Threat

It may be the psychology of threat assessments. Proliferation experts invariably see the future as more threatening than the past. It is, after all, the unknown. In addition, historical revisionism has transformed the Soviet Union to an almost benign, predictable and deterrable foe, in contrast to today's supposedly unpredictable, less easily deterred rogues. This was not how the Soviet threat was viewed at the time, however.

More concretely, the estimates of the ballistic missile threat prepared by the intelligence community over the past

few years have focused on Iran, Iraq and North Korea, rather than assessing the entire global picture. This approach distorts the threat. Like a fun-house mirror, it makes objects appear larger than they really are.

This is not primarily the fault of the agencies, which, in fact, have sophisticated and varied opinions on the threat. After the Republican Party won control of Congress in 1994, congressional leaders relentlessly attacked government analysts who presented balanced assessments for understating the missile threat. Congress mandated its own assessment by a hand-picked commission chaired by Donald Rumsfeld. His 1998 report warned that a ballistic missile attack could come from a hostile state "with little or no warning." This fit with preconceived positions for increased defense budgets and a crash program to field a national missile defense system. U.S. intelligence agency analysts fell in line, giving Congress the worst-case scenarios some lawmakers sought. As Richard Perle said at the beginning of the Reagan presidency, "Democracies will not sacrifice to protect their security in the absence of a sense of danger." Exaggerated views of the missile threat provided that sense of danger.

September 11 showed us real danger. And it had nothing to do with missiles. The ballistic missile threat today is confined, limited and changing relatively slowly. There is every reason to believe that it can be addressed through diplomacy and measured military preparedness. If missile defenses prove feasible, particularly those designed to counter the more prevalent short-range missiles, they can be an important part of these efforts. But they should never dominate our policy. The sooner we restore balance to our assessments, budgets and diplomacy, the better prepared the country will be for the genuine threats we face.

"Several factors have come together to increase the likelihood of [biological weapon] acquisition and use by sub-national groups."

Biological Terrorism Poses a Serious Threat

Amy Sands

In the following viewpoint, originally given as testimony before the U.S. Senate Foreign Relations Committee on March 19, 2002, Amy Sands argues that terrorist use of biological weapons against the United States could result in an outbreak of disease, with casualties many times those that resulted from the September 11, 2001, terrorist attacks. Moreover, Sands questions many of the reasons experts cite to argue that a bioterror attack is unlikely. For example, Sands argues against the conventional wisdom that rogue states are unlikely to provide terrorists with bioweapons, and she disputes the widespread belief that terrorists do not have the means to build their own bioweapons. Sands concludes that the United States should reevaluate the bioterror threat and take new steps to counter it. Amy Sands is deputy director of the Monterey Institute's Center for Nonproliferation Studies in Washington, D.C.

As you read, consider the following questions:

1. In the author's view, what particular advantage might terrorists seek to gain from using bioweapons?
2. According to the author, why is the technical workforce needed to manufacture bioweapons more available and inexpensive than it was during the Cold War?

Amy Sands, testimony before the U.S. Senate Foreign Relations Committee, Washington, DC, March 19, 2002.

Since the end of the Cold War, the acquisition and potential use of chemical and biological technologies and materials by state and sub-state actors have become increasingly real threats. The recent trend towards chemical and biological weapons (CBW) terrorism—most notably the 1995 sarin nerve agent attack in the Tokyo subway and the actual use of anthrax against individuals in the United States, coupled with the state-level proliferation of offensive CBW programs, have created a security environment in which defending against chemical and biological attacks by states as well as sub-national groups must be the top priority.

The anthrax letter attacks that occurred [in fall 2001] only hint at the potential for casualties and widespread panic associated with a BW event. The [September 11, 2001] terrorists were able to plot and train secretly over several years to massacre thousands of people and die in the effort. It is conceivable that terrorists with similar dedication could deliberately obtain, weaponize, and disseminate a contagious pathogen such as smallpox or plague, and the results could make September 11th pale in comparison. In an era where people can literally move anywhere around the world within 36 hours—far less than the incubation period of many diseases of concern—all nations could be affected. In addition, advances in biotechnology, and the proliferation of BW know-how and dual-use equipment, might make it possible for terrorists to engineer highly virulent, antibiotic-resistant "designer" pathogens to suit their needs. . . .

Worrisome Trends

Several factors have come together to increase the likelihood of CBW acquisition and use by sub-national groups. First, terrorists may see CBW as giving them a new advantage. They know we are incredibly worried about such a possibility and may believe such an attack will not only kill many Americans, but also could psychologically "freeze" the United States.

Second, chem-bio materials are available and there is clear evidence of terrorists being interested in obtaining these materials. This supply-demand dynamic could easily be played out at biological research institutions in the FSU

[former Soviet Union]. If security is poor or lacking (as many suspect) at these institutions, they would be vulnerable to theft of pathogens, toxins, and other material of potential use by criminals, other countries, or terrorists. Most important, after theft, it would be easy for the perpetrator to hide and transport seed cultures of organisms that could be directly used in biological weapons or to produce toxins.

Third, some terrorist groups exist that are clearly capable of organizing and operationalizing the type of complex long-term effort that would be needed to develop and effectively deliver CBW agents. The planning effort behind the September 11th events was both long term and complex, and it surprised many that terrorists could sustain such an effort. It clearly signaled a level of commitment and operational thoroughness thought to be beyond most terrorist groups.

Fourth, cooperation between groups and with states possessing CBW capabilities may be growing. An example of such cooperation is reflected in Iran's relationship with three terrorist groups, Hamas, Hizbollah, and Islamic Jihad. In April 2001, Iran reiterated its unflinching support for those terrorist groups working against Israel by hosting the International Conference on the Palestinian Intifada in Tehran, which was convened by the Iranian parliament. Those invited included leaders from Hamas, Hizbollah, and Islamic Jihad, presumably to encourage greater cooperation between these groups in their campaigns against Israel. At the conference, Iran's religious leader Ayatollah Khamenei repeated his description of Israel as a "cancerous tumor" ripe for removal.

Finally, the technical workforce needed to develop effective CBW is available and "cheap." This concern about workforce availability deserves more attention. As is well known by now, the Soviet Union established a powerful, well-funded secret program to acquire biological weapons. In 1992, President B. Yeltsin acknowledged the BW program's existence and decreed that it be discontinued and dismantled in Russia. The decree's effect, when combined with the general decrease in public support by the Russian government for science, led to drastic funding cuts for the BW program. Although we do not know the full consequences of these measures, some dedicated BW facilities (such as

Stepnogorsk) were closed down and many others downsized (including Obolensk and Vektor). Hundreds, perhaps thousands, of scientists, engineers, and technicians were fired or had their wages cut. . . .

A CBW Threat Reality Check

Too often we comfortably reiterate the same threat mantra without examining more closely certain underlying assumptions. Discussed below are several traditionally accepted statements often found in threat assessments that deserve to be challenged.

Assumption: Terrorists don't have physical locations to make/store materials. It is often argued that terrorists may have safe havens, but will still lack a physical infrastructure to develop CBW. Also, it has been assumed that it will be virtually impossible to detect terrorists hunkering down in caves and basements and working on CB agents. However, an often overlooked point is that terrorist groups can and have actually possessed recognizable (and targetable) CBW facilities. While this possibility is not a new concern, the extent of it occurring and its implications may not be fully recognized.

The US government has viewed the subject of terrorist facilities with concern, but little public discussion has developed about terrorists having CBW facilities within their safe havens as well as within established western states. An early, but well publicized, example was the Clinton administration's controversial cruise missile attack on the Al-Shifa pharmaceutical plant in Sudan on August 20, 1998. It argued that the plant was linked to [terrorist Osama] Bin Laden and that it was not a pharmaceutical plant, but a chemical weapons manufacturing complex that was engaged in the production of the nerve agent VX.

At the other extreme of public exposure are the facilities in the former Yugoslavia. On July 8, 1999, the Italian newspaper *Corriere della Serra* indicated that members of the World Islamic Front Against Jews and Crusaders, which was founded by Bin Laden, had purchased three chemical and biological agent production facilities in the former Yugoslavia in early May 1998. According to the article, one such facility was erected in the Bosnian village of Zenica.

The Threat of Smallpox

What is smallpox?
It's a virus. (The scientific name of the most common and deadly form of the disease is *variola major*.) Smallpox is ancient; descriptions of the disease have been found dating from as far back as the 4th century A.D. in China, and less reliable evidence even points to cases as far back as 1200 B.C. . . .

How dangerous is smallpox?
Historically, smallpox killed about 30 percent of those infected. The mortality rate varied with age (with small children and the elderly proving the most vulnerable) and with the strength of a person's immune system (with preexisting illness or malnutrition making one more susceptible). Less frequently, complications such as encephalitis (an inflammation of the brain) and blindness also resulted. Smallpox is one of the most devastating diseases known to humankind, having killed between 300 and 500 million people in the twentieth century alone. . . .

How would a terrorist "weaponize" smallpox?
Smallpox is small enough to be inhaled, so it could be spread in an aerosol. The virus is very stable, which means it isn't easy to destroy, and it retains its potency for days outside a human host. According to the *New York Times* reporters Judith Miller, Stephen Engelberg, and William Broad, smallpox can be freeze-dried and stored at room temperature for months or years, and remain potent when revived with water. American scientists in the 1960s were able to turn dried smallpox into a fine powder and to create tiny aerosol generators that could disseminate the virus.

Could al-Qaeda or other terrorist groups obtain supplies of smallpox?
Smallpox is less readily available than many other agents, such as anthrax or the bacterium that causes plague, and special skills are required to grow the virus in large quantities and to preserve it for dispersion as an aerosol. Thus smallpox would seem an unlikely weapon for small, technically unsophisticated groups of fanatics, bioterrorism experts say—not least because the virus could kill anyone trying to use it. But because it is so dangerous, smallpox may still appeal to ambitious terrorists.

Council on Foreign Relations, Terrorism Questions & Answers Web site, www.terrorismanswers.org/weapons/smallpox.html.

The report also stated that another factory was built near Kandahar, Afghanistan, There was no open investigation or diplomacy, and certainly no cruise missile, directed against

these facilities at that time. Allegedly, members of the World Islamic Front for Fighting Jews and Crusaders hired Ukrainian scientists to manufacture unspecified poisons and train Bin Laden's activists in the use of these substances as weapons. The activists would be trained to insert the chemical agents and toxins into explosive devices. Bin Laden planned to send the chemically-trained warriors back to their home countries or to cells in Europe.

During the [2001] war in Afghanistan, US intelligence officials pinpointed two sites that may have been used by al-Qa'ida to produce chemical weapons. The United States believes cyanide was produced at a crude chemical facility in the small village of Derunta (Darunta), near the city of Jalalabad in eastern Afghanistan. The secret laboratory contained bottles of cyanide poison and bomb instruction manuals, and was allegedly run by a man named Abu Khabab. A fertilizer plant in the northern town of Mazar-e-Sharif is also suspected of playing a role in possible chemical weapons production.

Beyond al-Qa'ida there is Aum Shinrikyo, who, through substantial contributions from wealthy members, purchased a wide variety of businesses and facilities including a medical clinic, computer stores, and trading companies. Also, the cult purchased land in Japan, on which they built a compound where they were able to pursue research and development of various dangerous and potentially lethal materials. Using its businesses as a front, the cult could claim some legitimacy for its pursuit of certain chemicals and technology. Although most of the chemicals were obtained from within Japan, Aum purchased some materials from the United States and attempted to buy weapons and technology from Russia. In addition, the cult bought a ranch in a remote area of Australia to carry out testing of nerve agents.

As all these cases demonstrate, terrorists have had access to or possession of facilities. Some of these may even be located outside of safe havens and may appear legitimate, making the task of detecting and identifying them accurately much more difficult. . . .

Assumption: States won't provide terrorists with CBW. Compounding the threat to US national security is the possibil-

ity that states with CBW programs or related dual-use technologies could provide sub-national actors with these deadly tools. The issue of state sponsorship of terrorism has been a problem commonly associated with rogue states in the Middle East. States such as Iran, Iraq, Libya, Syria, and Sudan have been linked to numerous terror organizations, providing them with a wide variety of assistance, including financial support, weapons and other equipment and materials, and even specialized training bases. Even though there has been little evidence to indicate that any of these states have transferred CBW material, technology or know-how to such terrorist organizations, the possibility cannot be ruled out. The more states that proliferate and pursue chemical and biological weapons programs, the greater the possibility that sub-national actors will acquire them, either from direct assistance or through other covert means, including theft.

Many of the same states identified as terrorist sponsors are also those accused of attempting to acquire CBW capabilities. Under certain circumstances the leaders of these countries may decide the only practical utility they can derive from their CBW arsenals is by deploying them covertly, using sub-national actors as means of delivery.

Even if a state may not be willing to transfer CBW-related technologies to a sub-national actor, one cannot discount the possibility of rogue elements within a government—such as an extremist clique within the Iranian intelligence apparatus—being prepared to take more risks than the government as a whole. Within national CBW programs, disgruntled or underpaid scientists, or individuals sympathetic to terrorist causes may also be willing to illicitly transfer CBW-related technologies and know-how to terrorist groups. In summary, the threat that a state actor may indirectly or directly transfer CBW-related technologies, equipment and scientific know-how to a sub-national actor is a threat the US government cannot ignore.

Terrorists' Willingness to Resort to Bioweapons

Assumption: Terrorists won't use CBW except in extreme cases. With the exception of the terrorist group Aum Shinrikyo, the long-held assumption has been that sub-national groups

and terrorists will not use CBW except as a last resort. Many state players perceive a threshold created by international norms that prevents them from openly using CBW. However, non-state players, especially terrorists, do not act under the same restraints as sovereign states. It is possible that these organizations do not perceive such a threshold. Moreover, their assessment of the costs and benefits of using CBW cannot be measured on the same scale as that of nations. Terrorist organizations and religious fanatical groups are not under the same political restrictions as sovereign states. In fact, if the motivation of an organization is to infuse terror, then use of CBW even on a small scale, might be seen as furthering their cause. Omar Bakri Mohammed, an Islamic cleric with ties to Islamic Jihad (and Hamas), advocated the use of biological weapons against "western" forces, saying "if any Muslims are under occupation by a western force, they can use any weapon to survive and that includes biological weapons."

The disparity between Israeli and Palestinian forces may lead to the use of CBW in an effort to balance the scales. This thought was expressed in the Palestinian weekly "Al-Manar":

> While the human-bombs [meaning, suicide bombers] may be followed [and may be stopped by] preventive measures . . . serious thinking has begun for a while about developing a Palestinian weapon of deterrence. This weapon terrifies the Israeli security apparatuses, from time to time, mainly because obtaining its primary components, whether biological or chemical, is possible without too much effort, let alone the fact that there are hundreds of experts who are capable of handling them and use them as weapons of deterrence, thus creating a balance of horror in the equation of the Palestinian-Israeli conflict. A few bombs or death-carrying devices will be enough, once they are deployed in secluded areas and directed at the Israeli water resources or the Israeli beaches, let alone the markets and the residential centers. [This will be carried out] without explosions, noise, blood, or pictures that are used to serve the Israeli propaganda. Anyone who is capable, with complete self-control, of turning his body into shrapnel and scattered organs, is also capable of carrying a small device that cannot be traced and throw it in the targeted location.

Thus, an asymmetric conflict, even where the imbalance

is not so great, can be used as justification for turning to CBW. It would be folly not to recognize and respond to all the trends pointing to the CBW option as one increasingly attractive to terrorists.

Assumption: US must focus efforts on homeland security and defense. While this assumption is not wrong, it may lead to neglecting other venues in which US interests or allies are at risk. A good case in point is US Central Command in the Middle East. It is very much at risk given its location in the heart of some of the most anti-American groups. It would be a mistake to pour so much into enhancing US domestic security when equal attention should be given to those Americans mobilized and deployed to protect us. In addition, planning for responding to CBW terrorism must consider providing assistance to allies. What if Italy is the site of a smallpox attack—we had better have planned some way to have adequate resources available to contain the consequences of such an attack. This means having vaccine available in some international organization or stockpile above and beyond what is needed for the US population.

Reassessing the Bioterror Threat

We have to be prepared to respond to chem-bio events and to do everything we can to prevent them from ever occurring. But, that will require new ways of approaching old, evolving, and emerging perils.

First, what is required is innovative thinking and a reconceptualization of threats in the 21st century. In past years, when terrorists were unlikely to have the capability to cause or even seek mass casualties, US foreign policy could focus on the more critical and traditional problem of state threats. Even in the aftermath of the collapse of the Soviet Union and subsequent re-making of the world order, it was clear who the enemies were (Iraq, North Korea), and these enemies were defined not only by their antagonism towards the United States and its values, but also by the fact that they were seeking weapons of mass destruction.

Addressing even the "old" threats will require more than just military power. It requires a long term dedication to a multi-dimensional and multi-faceted approach that seeks

to prevent WMD acquisition and use, strengthens anti-proliferation norms, develops adequate defenses here and elsewhere, and prepares for effective consequent mitigation and management in the advent of a WMD attack. Specifically, this means not only putting significant money into US military and intelligence capabilities, but also into international organizations and collaborations. It involves finding ways to bridge gaps within the US government as well as between states, communities, and even tribes. It also means forging new partnerships and helping to build trust and cooperation in areas where these have been scarce commodities.

Second, the United States, while recognizing the ongoing threat from proliferant states, also faces a threat from a new type of terrorist. The US appears to be approaching the problem of mass-casualty transnational terrorism, and the possibility of terrorist use of WMD, in a manner consistent with deeply entrenched Cold War assumptions about warfare and deterrence. The terrorists of today do not, by and large, behave like states, nor are they part of the international "system." Addressing those terrorists who seek and obtain WMD will require much of the same effort that has been expended on states in the past, plus a strategy that addresses the root causes and nature of terrorism. Long-term approaches that go beyond the next election must be incorporated into the national counterterrorism strategy. These approaches include investing in states that are in danger of collapse in order to prevent the spiral into statelessness that creates a haven for terrorism; involving allies and partners in regional confidence-building measures that are designed to validate US policy to the publics of other nations rather than just the governments; and creating an international safety net to ensure that the rule of law and social infrastructures remain intact even through conflict.

4
VIEWPOINT

"The probability of a major biological attack by either a state or a sophisticated terrorist group seems remote."

The Threat of Biological Terrorism Has Been Exaggerated

John Parachini

John Parachini is a policy analyst for RAND, a nonprofit research institution that specializes in national security issues. The following viewpoint is based on testimony that Parachini gave before Congress in October 2001. In it, he argues that the prospect of bioterrorism has garnered more attention from the government and generated more fear among the public than is warranted. Biological weapons are very difficult to develop, Parachini argues; terrorists would likely need the resources of a government to develop bioweapons, and even anti-American governments would be unlikely to provide such dangerous weapons to terrorist groups they cannot fully control. In addition, Parachini believes that there are major disincentives to using biological weapons, including the fact that terrorists can already cause serious damage with conventional explosives.

As you read, consider the following questions:

1. How many significant bioterror attacks have there been since 1983, according to Parachini?
2. In the author's view, what is the major disincentive to state use of biological weapons?
3. In Parachini's opinion, what is the greatest disincentive to terrorist use of biological weapons?

John Parachini, testimony before the House Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform, Washington, DC, October 12, 2001.

Since the [September 11, 2001, terrorist attacks], many Americans have become concerned about the prospect of biological terrorism. After all, it seems plausible that hijackers willing to kill themselves, those aboard commercial airliners, and thousands more in the World Trade Center and the Pentagon might be willing to use biological agents to kill indiscriminately. . . .

Exaggerated Fears

The fear over biological terrorism is greater than the fear inspired by more conventional forms of terrorism. Some of this fear is justified and some of it is exaggerated. Some agents are highly contagious and lethal. Indeed, some biological agents if used in certain ways have the potential to deliver a strategic strike with casualty results similar to nuclear weapons. In fact, simply the fear they evoke imbues them with power. And perhaps the most frightening aspect of biological weapons is how they invade the body without notice. We fear threats we cannot see, hear, or feel.

However, in these uncertain times, it is important to maintain some perspective of the relative dangers. The twentieth-century history of warfare, terrorism, and crime involving biological agents is much less deadly than that of the history with conventional explosives. While history is not a perfect guide to the future, it does provide a context for our thinking about the future. Dramatic advances in the biological sciences could create previously unimaginable opportunities for terrorists bent on using the life sciences for their pernicious purposes. At the same time, biotechnology may provide tools that lessen these dangers. Remedies for enhanced or improvised conventional explosives, such as those used on September 11th, may be equally difficult to handle if not more so. Since the future is impossible to see clearly, we must anticipate a number of possible scenarios. We need to take account of history and hedge against the seeming imponderables of the future.

Given these heightened (and even exaggerated) public fears and given reports that law enforcement and intelligence officials believe that another terrorist attack of some kind is highly likely . . . there is a real need to conduct a thorough

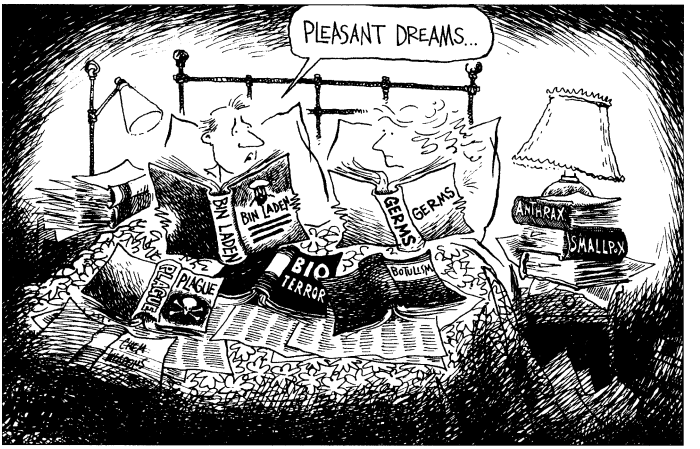
and sober assessment of biological terrorism. Such an assessment entails answering two interrelated questions. First, how feasible is it for terrorists groups to use biological and chemical weapons? And second, given the question of feasibility, how likely is it that terrorist groups would conduct attacks using biological or chemical weapons? The answers to both of these questions vary in terms of the actors involved, that is whether the biological is state-sponsored or whether it is the effort of sub-national groups or individuals acting in concert or independently of a state. . . .

How Feasible Is It for Terrorist Groups to Use Biological Weapons?

When it comes to the feasibility of using biological or chemical weapons, states are more likely to have the resources, technical capabilities, and organizational capacity to assemble the people, know-how, material, and equipment to produce such weapons and to be able to clandestinely deliver them to valued targets. Nonetheless, mustering the resources and capabilities to inflict a devastating blow with biological agents has proven to be a formidable task even for states. The United States and the former Soviet Union dedicated considerable national defense resources to their biological weapons programs, and both countries encountered significant difficulties along the way. Iraq also dedicated considerable resources to its biological weapons program; although Iraq's effort was more successful than most experts imagined possible, it still encountered a number of significant challenges. Some of these difficulties are unique and inevitable for state programs that aim to achieve a militarily significant capacity with military-grade agents. Lower standards of achievement are certainly possible. On balance, then, a state's ability to command resources and organize them for certain priority scientific and industrial objectives presents the potential for the greatest threat of bioterrorism.

When it comes to the feasibility of biological terrorism perpetrated by sub-national groups and individuals, the range of capability (and level of consequence) depends on whether the groups or individuals are state-sponsored or not. High-consequence biological attacks would require the

assistance of a state sponsor or considerable resources. However, even these conditions do not ensure high-consequence attacks by sub-national groups or individuals. There are no widely agreed upon historical examples in the open source literature of states providing sub-national groups with biological weapons for overt or covert use. Money, arms, logistical support, training, and even training on how to operate in a chemically contaminated environment are all forms of assistance states have provided to terrorists. But historically they have not crossed the threshold and provided biological weapons materials to insurgency groups or terrorist organizations. Even if states sought to perpetrate biological attacks for their own purposes, they would probably not trust such an operation to groups or individuals that they do not completely control. . . .



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What is more likely than a conscious decision by a country's command authority is that an unauthorized faction within a state might take it upon itself to use a sub-national group to do its dirty work. The alleged involvement of the Iranian government security services in the attack on American military personnel in Khobar Towers seems to be an example of this

type of involvement. Thus, while the probability of states using sub-national groups or individuals to perpetrate a biological warfare attack on its behalf seems low, it is not zero. In these times of dramatic change, American and allied intelligence services should be attentive to this possibility, even though it is without historical precedent and seems unlikely.

Sub-national groups or individuals can develop or acquire their own biological weapon capabilities for clandestine use, but it is not easy. Terrorist groups and individuals have historically not employed biological weapons because of a combination of formidable barriers to acquisition and use and comparatively readily available alternatives and disincentives. Procurement of materials and recruitment of people with skills and know-how are formidable barriers. Even if some of the materials and production equipment are procurable for legitimate scientific or industrial purposes, handling virulent biological materials and fashioning them into weapons capable of producing mass casualties is beyond the reach of most sub-national groups or individuals.

Few Real-Life Instances of Bioterrorism

In the last twenty years, there are only two significant cases of sub-national groups using or attempting to use biological weapons and a few cases where groups or individuals made efforts to acquire biological materials. In the first of those cases, the Rajneeshees, a religious cult group located in Oregon, sought to win a local election in 1984 by running its own candidates and sickening local townspeople who they expected would vote against them. Using their medical clinics, cult members ordered a variety of bacterial cultures from the American Type Culture Collection located in Maryland. They intentionally and indiscriminately contaminated ten salad bars with a strain of salmonella, sickening at least 751 people. They used commercially available biological agents to incapacitate people clandestinely, because it was important for them to avoid attracting attention. Indeed, the intentional character of the outbreak was not recognized for over a year, when members of the cult revealed details about the attacks to authorities in exchange for lighter sentences stemming from other charges.

The other case occurred more than ten years later, when another religious cult, a Japanese group called the Aum Shinrikyo, sought to develop and deliver biological agents against a number of targets. The Aum's unsuccessful attempts at biological terrorism came to light after it released liquid sarin on the Tokyo subway. While this attack was heralded as a sign that sub-national groups would begin breaking the taboo on use of unconventional weapons, six years have passed since the attack and no other group has done so.

The clearest explanation for this extremely small historical data set is the difficulty of acquiring and delivering biological weapons, as well as a number of disincentives to doing so.

How Likely Is It That Terrorist Groups Would Use Biological Weapons?

The probability of a major biological attack by either a state or a sophisticated terrorist group seems remote. In contrast, smaller acts of biocriminality, such as the [2001] anthrax case in Florida, are much more likely biological terrorist attacks. While states can amass the resources and capabilities to wage biological terrorism, considerable disincentives keep them from doing so. A state that undertook a clandestine attack using biological weapons risks the prospect of the attack being traced back to them. The response to an attack with biological weapons could be devastating, which gives states reason for caution. While different U.S. administrations have articulated American policy on responding to known biological attacks in different ways, the basic position is that the United States reserves the right to respond with the full range of capabilities in the arsenal. Strategic ambiguity provides maximum flexibility while leaving no uncertainty about the potential magnitude of the response—devastating. The threat of retaliation is believed to deter states from using biological weapons clandestinely against other states.

However, there are three circumstances when a state might clandestinely wage biological terrorism. First, a state struggling for its existence might be willing to use biological weapons clandestinely as a means to forestall or to prevent a seemingly imminent defeat. There is no historical example

of a state responding with a biological weapon in a moment of desperate struggle for its existence, but it is conceivable.

Second, if a state felt it could attack with biological weapons and be undetected, it might do so. In the twentieth century, there are a few examples of states using biological agents clandestinely except during times of war. For example, in the First World War, Germany sought to disrupt allied logistical capabilities by infecting horses with glanders—a contagious and destructive disease caused by a bacterium. There are a few other alleged wartime cases, but none in times of peace.

The third situation when a state might engage in biological terrorism would be when it sought to perpetrate an attack against its own citizens. In the 1980s, both the Bulgarian and the South African governments used biological materials to kill domestic political opponents. South Africa had a significant clandestine chemical and biological program that supported a major effort against regime opponents. Little is known about the Bulgarian program. Bulgarian operatives are believed to have assassinated a Bulgarian dissident in London with the toxin ricin, which they received from the Soviet KGB. Aside from state assassinations of perceived regime opponents, historically states have been extremely reluctant to use biological weapons overtly or covertly.

Thus, state biological terrorism is a low probability threat, albeit one with potentially catastrophic consequences. During times of war, this threat increases in probability and is highest when a command authority perceives itself in a desperate situation in which using any means necessary may be its only option for survival.

Disincentives to Bioterror

On a more general level, there are incentives and disincentives for using biological weapons, but the disincentives tend to win out. As for the incentives, the acquisition, transfer, production, and delivery of biological weapons make them comparatively easy to conceal if managed by skilled personnel. (Conversely, of course, while they are comparatively easy to conceal, some agents can be extremely contagious and some can be extremely deadly, making them difficult to handle.) Because bacteria and viruses are living microorgan-

isms, small amounts can be used to grow much larger quantities. In addition, some biological agents, such as toxins, can be derived from naturally occurring plants or animals. Thus, the physical properties of some biological agents make them effective strategic weapons that can be assembled covertly.

Indeed, biological agents may appeal to terrorist groups because of what they can do or what they represent. As for what they can do, such agents may be desirable because they affect people indiscriminately, have a delayed impact, can be confused with natural disease outbreaks, and, in some cases, incapacitate rather than kill. As noted earlier, the Rajneeshees chose a biological material that would incapacitate people rather than kill, because they did not want their attack to provoke the scrutiny of authorities. Aum, in contrast, was fascinated with poisons. The cult's leader Shoko Asahara wrote songs about sarin. In addition to this pernicious obsession, Aum leaders had delusions of grandeur that far exceeded reality. They imagined a world they sought to create that was not constrained by the world in which they lived. To bring this imaginary world into being, they sought weapons they believed might trigger an apocalypse from which they would emerge as a dominant power. Since Aum leaders viewed their organization as a government and military in waiting, seeking to acquire some of the most potent weapons it believed states possessed. Instead of seeking lower-grade pathogens, Aum sought pathogens that are generally associated with military biological weapons programs. Aum exhibited this unique combination of obsession, delusions of grandeur, and belief in an apocalypse they could launch that would enable them to reign like leaders of a state.

Despite the incentives for seeking and using biological weapons, there are a number of even more compelling disincentives. As noted earlier, terrorists may hesitate in using biological weapons specifically because breaking the taboo on their use may evoke considerable retaliation. In addition, state sponsors of terrorist groups may exert restraint on the weapons the group uses. State sponsors have a great incentive to control the activities of the groups they support, because they fear that retaliation may be directed against them if they

are connected to a group that used biological weapons. Moreover, terrorists may be drawn to explosives like arsonists are drawn to fire. The immediate gratification of explosives and the thrill of the blast may meet a psychological need of terrorists that the delayed effects of biological weapons do not.

However, perhaps the greatest disincentive to using biological weapons is that terrorists can inflict (and have inflicted) many more fatalities and casualties with conventional explosives than with unconventional weapons. Putting aside the spectacular quality of the Aum subway attack with liquid sarin, far fewer people died or were injured than in similarly spectacular attacks with conventional explosives. In comparison to the bombings of the Murrah federal building in Oklahoma City, the Khobar Towers military barracks in Saudi Arabia, and the U.S. embassies in Kenya and Tanzania, fewer people died as a result of the sarin release. In comparison with the recent attacks on the World Trade Center and the Pentagon, the Tokyo subway incident, though clearly tragic, was simply an event of much smaller scale.

Periodical Bibliography

The following articles have been selected to supplement the diverse views presented in this chapter.

Michael Duffy	"Could It Happen Again?" *Time*, August 4, 2003.
Gregg Easterbrook	"The Big One: The Real Danger Is Nuclear," *New Republic*, November 5, 2001.
Economist	"The Spores of War," November 30, 2002.
Sarah Estabrooks	"Nuclear Terrorism," *Ploughshares Monitor*, December 2001.
Sydney J. Freedberg Jr.	"Beyond the Blue Canaries," *National Journal*, March 10, 2001.
Laurie Garrett	"The Nightmare of Bioterrorism," *Foreign Affairs*, January/February 2001.
Richard L. Garwin	"The Technology of Mega Terror," *Technology Review*, September 2002.
Siobhan Gorman and Sydney J. Freedberg Jr.	"A Burnt-Orange Nation," *National Journal*, March 1, 2003.
Richard Lacayo	"Will We Be Safer?" *Time*, September 8, 2003.
John Newhouse	"The Threats America Faces," *World Policy Journal*, Summer 2002.
John Parachini	"Putting WMD Terrorism into Perspective," *Washington Quarterly*, Autumn 2003.
Douglas Pasternak	"A Nuclear Nightmare," *U.S. News & World Report*, September 17, 2001.
John L. Scherer	"Awaiting Armageddon: Is the Paranoia Justified?" *USA Today Magazine*, January 2004.
Jonathan B. Tucker and Amy Sands	"An Unlikely Threat," *Bulletin of the Atomic Scientists*, July 1999.
World Watch	"Weapons of Mass Distraction," July/August 2003.

CHAPTER 2

How Should the United States Deal with Countries That Threaten to Develop Weapons of Mass Destruction?

Chapter Preface

"Is Iran next after Iraq?" asked BBC correspondent Justin Webb in a May 2003 report. Many journalists and political observers have asked the same thing about North Korea. President George W. Bush declared in January 2002 that all three nations were developing weapons of mass destruction (WMD) and therefore constituted an "axis of evil," so when the United States invaded Iraq in spring 2003, Webb and other political observers questioned whether Iran and North Korea might also become military targets.

Iraq had previously flouted international law in August 1990, when it invaded neighboring Kuwait. The United States, as part of a coalition of nations chartered by the United Nations, quickly drove the Iraqi occupation army out of Kuwait in February 1991. Soon after, Iraqi leader Saddam Hussein accepted the terms of a UN resolution requiring it to end its WMD programs. For the rest of the 1990s, the Iraqi government walked a fine line, alternately agreeing and refusing to cooperate with UN weapons inspectors.

After the September 11, 2001, terrorist attacks on America, President George W. Bush and other U.S. officials began arguing that Iraq was moving forward with its WMD programs and therefore constituted a threat to the United States. In consequence,White House officials claimed, Saddam Hussein must be removed from power. However, the UN Security Council refused to pass a resolution authorizing military action against Iraq. France, Germany, and other nations argued that UN weapons inspectors in Iraq should be given more time to find concrete evidence of Iraq's WMD programs. The United States invaded Iraq without UN approval on March 20, 2003.

A continuing controversy over Iraq is whether the U.S. invasion was indeed necessary, or whether further inspections could have kept Saddam Hussein in check. The debate over how to keep Iran and North Korea from pursuing their own WMD programs also comes down to a choice between diplomacy and the use of force. The authors in the following chapter offer their opinions about how the United States should deal with the "axis of evil."

"The [Bush] administration's refusal to sit down and talk [with] North Korea . . . makes no sense."

Negotiation Can Reduce the Nuclear Threat Posed by North Korea

Leon V. Sigal

Leon V. Sigal is director of the Northeast Asia Cooperative Security Project at the Social Science Research Council in New York and the author of *Disarming Strangers: Nuclear Diplomacy with North Korea*. In the following viewpoint he discusses the diplomatic standoff that arose in late 2002 between North Korea and the United States over North Korea's decision to move forward with its nuclear weapons program. Writing in February 2003, Sigal warns that the United States should not be too aggressive in its dealings with North Korea. Sigal believes that trying to coerce North Korea into dismantling its nuclear program will only worsen the crisis; instead, the United States should negotiate with North Korea and grant it some concessions, such as a pledge that the United States will not attack it.

As you read, consider the following questions:

1. What is North Korea's "basic stance," as described by Sigal?
2. How did President George W. Bush repudiate the U.S. pledge of "no hostile intent" toward North Korea, in Sigal's view?
3. In the author's opinion, what are the four options that the United States has in dealing with North Korea?

Leon V. Sigal, "The North Korean Crisis: A Humanitarian Perspective," *Asian Social Issues Program* (ASIP) on AsiaSource.Org, a research site of the Asia Society, February 12, 2003.

[As of February 2003,] North Korea has . . . lit three nuclear fuses, all of them long ones. North Korea could soon light a short nuclear fuse as well.

It is seeking equipment to enrich uranium. [According to] U.S. intelligence estimates, and I quote, North Korea "is constructing a plant that could produce enough weapons-grade uranium for two or more nuclear weapons per year when fully operational, which could be as soon as mid-decade." The uranium enrichment fuse, in other words, is more than three years long.

North Korea is preparing to restart production of plutonium by refueling its reactor at Yongbyon, which had been frozen under the 1994 Agreed Framework. Once refueled—the North told the IAEA [International Atomic Energy Agency] that would take one or two months—the reactor could generate a bomb's worth of plutonium in a year. Allowing at least another six months to reprocess and weaponize the plutonium, it could have a nuclear device in a year and a half, another device a year or so later, or five to six in five years.

Pyongyang [the capital and government of North Korea] also says it will resume construction of two reactors frozen under the 1994 accord. It will take at least two years to complete the first, longer to complete the second. Were they up and running, the three reactors could generate 30 bombs' worth of plutonium a year. Again, that fuse is quite long.

North Korea has yet to light a short fuse by removing the spent fuel now stored in casks in Yongbyon and reprocessing it. It could soon do so. If it does, within a year it could have five or six bombs' worth of plutonium fabricated into nuclear devices.

These nuclear fuses are real. By contrast, whether or not North Korea already has one or two bombs is not known for sure. A divided U.S. intelligence community estimated in November 1993, nearly a year before the Agreed Framework was signed, that "it was more likely than not" it had "one, possibly two" nuclear devices, which was later lowered to one. Why the administration is now treating that possibility as a certainty is worth asking.

By its actions Pyongyang has convinced many in Washington it is determined to arm and should be punished for

brazenly breaking its commitments. Both that assessment and the policy that flows from it are wrong.

North Korea is no Iraq. It says it is ready to give up its nuclear, missile, and other weapons programs. In return it wants the United States to stop treating it like an enemy. The North's willingness to cut its nuclear fuses before they detonate a grave crisis is worth probing in direct negotiations.

That is what Pyongyang is seeking by renouncing the nuclear Nonproliferation Treaty. Renunciation not only leaves it no longer lawfully bound not to make nuclear arms, although it says it does not intend to do so "at this stage." It also leaves the 1994 Agreed Framework in effect as the only basis for negotiating inspections directly with the United States. This is intended to underscore North Korea's basic stance that if the United States remains its foe, it feels threatened and will seek nuclear arms and missiles to counter that threat, but if the United States is no longer its foe, it says it will not.

A Decade of Distrust

To understand why the North is acting this way, it is essential to recall how we got here. In the early 1990s Pyongyang decided to trade in its plutonium program in return for an end to enmity. At the same time it kept its nuclear option open as leverage on Washington to live up to its end of the bargain.

That became the basis of the October 1994 Agreed Framework, whereby North Korea agreed to freeze and eventually dismantle its plutonium program in return for two new light-water reactors for generating electricity, an interim supply of heavy fuel oil, gradual relaxation of U.S. economic sanctions, and, above all, improved relations.

Washington got what it most wanted up front, but it did not live up to its end of the bargain. When Republicans won control of Congress in elections just weeks later, they denounced the deal as appeasement. The Clinton administration, unwilling to challenge Congress, back-pedaled on implementation. It did little easing of sanctions until 1999. Reactor construction did not get under way until 1999. It did not always deliver heavy fuel oil on schedule. Above all,

it did [not] live up to the pledge made in Article II to "move toward full normalization of political and economic relations"—in other words, end enmity. When Washington was slow to fulfill the terms of the accord, Pyongyang threatened to break it in 1997. Its effort to acquire technology to enrich uranium began soon thereafter.

Don't Try Regime Change in North Korea

Is it time for Operation Korean Freedom? The regime change in Iraq [in 2003] has prompted some to urge regime change in the other two members of the President George W. Bush's "axis of evil"—North Korea and Iran. . . .

What unintended consequences might result if the United States now ousts the brutal dictator of North Korea? . . .

War. North Korea takes military action to avert regime collapse or to coerce an end to the international pressure. South Koreans fear this outcome the most, because their country could be ravaged in the process. If North Korea indeed has nuclear weapons, it might use them. . . .

Civil War. Kim Jong-il's government collapses into factions and civil war breaks out. The loss of central control would leave North Korean weapons of mass destruction in the hands of domestic factions, which could try to sell them to third parties. . . .

A Worse Regime. A new regime takes over in North Korea that is weaker than Kim Jong-il's and even more nationalistic. . . .

These grim prospects, coupled with the lack of preparation for regime change, explain the reluctance of South Korea, China and Japan to support a policy of toppling Kim Jong-il.

This also explains why the United States has chosen the path of negotiation instead of launching an "Operation Korean Freedom." The likely dangerous consequences of regime change should also affect the willingness of the United States to accept a compromise in talks. Our tough stance may have been a good opening position, but only compromise can put this crisis behind us.

Bruce Bennett and Nina Hachigan, "Don't Try Regime Change in North Korea," *International Herald Tribune*, January 30, 2004.

At the same time the North tried again to improve relations, this time using its missile program as inducement. On June 16, 1998, it publicly offered to negotiate an end to its

development as well as exports of ballistic missiles in return for a declared end to enmity. It coupled that offer with a threat to resume missile tests, a threat it carried out on August 31 when it launched a three-stage rocket, the Taepodong I, over Japan in an unsuccessful attempt to put a satellite into orbit.

Pyongyang's tactics led many to conclude it was engaging in blackmail in an attempt to extort economic aid without giving up anything in return. It was not. It was playing tit for tat, cooperating whenever Washington cooperated and retaliating when Washington reneged, in an effort to end hostile relations.

Thanks to [South Korean president] Kim Dae Jung and [former U.S. defense secretary] Bill Perry, Washington got back on the road to reconciliation in 1999. That policy paid off that September when Pyongyang agreed to suspend its test launching of missiles while negotiations proceeded. In return, Washington promised to end sanctions under the Trading with the Enemy Act, a pledge it carried out after the June 2000 North-South summit.

High-level talks in October 2000 yielded a pledge that "neither government would have hostile intent toward the other." In plain English, we are not enemies.

The declared end to enmity opened the way to a missile deal. In negotiations with Secretary of State Madeleine Albright in Pyongyang, North Korean ruler Kim Jong Il offered to end exports of all missile technology and to freeze testing, production, and deployment of all missiles with a range of 300 miles. Kim wanted President [Bill] Clinton to come to Pyongyang to seal the deal, consummation of a ten-year campaign to end enmity with the United States. Without his commitment to come, negotiations stalled.

The Bush Administration's Hardline Stance

Instead of picking up the ball where Clinton had dropped it, [President George W.] Bush moved the goalposts. Although it was aware of North Korea's ongoing nuclear and missile activities, the administration did not resume negotiations. Instead, it tried to reinterpret the Agreed Framework unilaterally, demanding prompt inspections to get at the North's

nuclear past. In response, the North expressed willingness to renegotiate the 1994 nuclear accord, trading expedited inspections for electricity, which it regards as compensation for the delay in reactor construction, but without a deal it warned it could "no longer keep its nuclear activities in a state of freeze and implement the Agreed Framework." The North accelerated efforts to acquire the means to enrich uranium. Then in 2002 President Bush repudiated the U.S. pledge of no "hostile intent" by naming North Korea to the so-called "axis of evil" and announcing a new doctrine of waging preventive war—without allies, without U.N. sanction, in violation of international law. The North in turn began acquiring an operational capability to enrich uranium.

North Korea wants direct negotiations with the United States. It says it is willing to refreeze the plutonium program that it has unfrozen and to negotiate verifiable elimination of its uranium enrichment program. It has also offered to discuss its chemical and biological programs.

In return it says it wants a written pledge that the United States will not attack it, impede its economic development, or seek to overthrow its government—not a reward for bad behavior but nothing more than the commitments Washington made in 1994 and did not keep. If Washington refuses, Pyongyang will proceed with nuclear arming. And until it is sure the political relationship is improved, it will keep its nuclear option open as a hedge by refusing to dismantle its plutonium facilities for now.

Negotiations with North Korea can avoid a replay of the 1994 nuclear crisis. Then, as now, Washington had four options: compel the collapse of North Korea, which was thought likely to provoke the North to nuclear arm sooner than collapse; impose sanctions, which were rightly deemed unlikely to be effective; attack its nuclear facilities, which was not certain to eliminate all the nuclear material and sites in the North but sure to risk war and raise a political storm in the South; or negotiate.

The administration's refusal to sit down and talk until North Korea dismantles its uranium enrichment program makes no sense. Do we really want the North to dismantle it without U.S. inspectors present? And how do we get inspec-

tors into North Korea without negotiating with Pyongyang?

Pyongyang seems willing to cut its nuclear fuses while negotiations proceed. Negotiations can begin now before the North gets closer to making bombs or later after the North has some. By refusing to deal, President Bush may have to live with a nuclear-arming North Korea. Why would North Korea give up its nuclear and missile programs if the United States remains its foe?

This administration began, like its predecessors, by demonizing North Korea as a rogue state. A rogue is a criminal and the way to treat criminals is to punish them, not negotiate.

The administration's approach has put the United States in the way of reconciliation between North and South Korea, which is political dynamite in the South. The Bush administration is also alienating Japan and antagonizing China. An attempt to rein in the United States has been the catalyst for unprecedented cooperation among the other five powers in Northeast Asia. The Japan-D.P.R.K. [Democratic People's Republic of Korea, the official name of North Korea] summit meeting last September [2002] and the recent Japan-Russian summit should be seen in this light. So should the warming between South Korea and China. Hardline unilateralists are putting Washington on a collision course with its own allies, undermining political support in South Korea and Japan for the alliance and jeopardizing the U.S. troop presence in the region.

Diplomacy vs. Coercion

There is a better way: diplomatic give-and-take. That was the strategy pursued in tandem by South Korea and the United States in 1991 and again in 2000, the most fruitful years of dealing with North Korea.

The great divide in American foreign policy thinking is between those who believe that to get our way in the world we have to push other countries around and those who think that cooperation can sometimes reduce threats to our security.

In closing, it is worth reminding ourselves, what U.S. interests are at stake with North Korea.

First, the United States wants to assure that, whatever happens internally in North Korea, the artillery Pyongyang

has emplaced within range of Seoul [South Korea, America's ally] is never fired in anger.

Second, it wants to stop the North from nuclear arming.

Third, it wants to prevent the North from developing, testing, deploying and selling any more ballistic missiles.

Fourth, it wants a ban on biological and chemical weapons.

Fifth, it seeks reconciliation between the two Koreas.

The only way to achieve these aims is to test whether North Korea is willing to cooperate with the United States. Coercion will not work; it will only ensure that North Korea deploys more artillery near the demilitarized zone, seeks more aggressively to acquire nuclear arms, and tests, deploys and sells more missiles. It will further alienate allies South Korea and Japan and antagonize China.

The crime-and-punishment approach has never worked before with North Korea and there is no reason to believe it will work now. It will only impede efforts to ease the humanitarian crisis in North Korea. Whenever tensions have risen in the past, both the United States and the D.P.R.K. have made it more difficult for humanitarian agencies and NGOs [nongovernmental organizations] to do their work there.

"[North Korea] has absolutely no intention of ever giving up its nuclear capability."

Negotiation Cannot Reduce the Nuclear Threat Posed by North Korea

Nicholas Eberstadt

In the following viewpoint Nicholas Eberstadt argues that the United States should not make any concessions to North Korea in the hope of encouraging that nation to end its nuclear weapons program. Eberstadt maintains that for years North Korea has engaged in nuclear blackmail, alternately threatening to develop nuclear missiles, then making promises not to once it secures promises of oil, food aid, and other benefits from the United States and its allies. Instead of granting North Korea more concessions, he concludes, the United States must recognize that North Korea has no intention of ever willingly abandoning its nuclear program. Nicholas Eberstadt holds the Henry Wendt Chair in Political Economy at the American Enterprise Institute.

As you read, consider the following questions:

1. What is the name of the bargain that the Clinton administration forged with North Korea in 1994, according to Eberstadt?
2. What "bold solution" for ending the nuclear crisis did North Korea pitch in February 2004, as described by Eberstadt?

Nicholas Eberstadt, "La Grand Illusion, Korean Style," *The American Enterprise*, February 13, 2004.

How many times can someone sell the same dead puppy to the same bunch of suckers? In effect, North Korea's Kim Jong Il is currently conducting an international experiment to determine the precise answer to this question.

The goods "the Dear Leader" has been hawking, of course aren't really non-performing pets—they're phony nuclear deals. And the designated "marks" in this scam aren't schoolchildren, or simpletons at a county fair—they're top Western and Asian statesmen.

Today, once again, Pyongyang [the capital and government of North Korea] is asking the United States and its Northeast Asian allies and associates to pony up to buy a this-time-we-really-mean-it shutdown of the DPRK's [the Democratic People's Republic of Korea] nuclear weapons program.

Given the high stakes in this North Korean sting, and the sophistication of the intended victims, you'd think the game would have been shut down early. But you'd be wrong. The latest hapless steps toward another session of "Six Party talks" on the North Korean nuclear drama, in fact, suggest that the usual dupes are assuming position for another round of North Korean atomic bait-and-switch.

A Long-Running Scam

A little background may elucidate the present state of play. The dynastic enterprise known as the DPRK has been open for business since 1948, and for most of that time it has been building, and gaming, its nuclear program. Long ago, Kim & Son figured out a shakedown formula for extracting protection money from abroad in return for promising to scrap the nuke program.

It works like this: Make a Deal. Break the deal. Then demand a new deal for more, issuing dark threats until you get what you want.

That gambit, to be sure, could be dismissed as little more than basic coursework for Mafia 101. But any Goodfella would have to admit: so far, the formula's worked pretty well for Pyongyang.

Just look at the record. In the early 1990s, Pyongyang got the previous President [George] Bush to remove all US nuclear weapons from South Korea to grease a 1991 North-

South deal for the "de-nuclearization" of the Korean peninsula. Soon Pyongyang was caught cheating on that particular understanding—so it threatened to turn Seoul [South Korea, America's ally] into a "sea of fire," and got an improved bargain from the Clinton Administration (the "Agreed Framework" of 1994, with free oil shipped and free nuclear reactors in exchange for a freeze on then-extant DPRK nuclear sites). And when Kim & Co. seemed to be cheating on the "Agreed Framework" in 1999, Washington paid 500,000 tons in food aid—Pyongyang actually called it an "inspection fee"—to check out a single suspect nuclear site. (In the course of those negotiations, incidentally, North Korea warned Washington about a possible "pre-emptive strike" on the US if the talks didn't work out.)

In October 2002, once again, North Korea was caught cheating on its nuclear freeze arrangements—this time, with its now-notorious secret highly enriched uranium (HEU) program. So what did Pyongyang do? Naturally, it upped the ante.

It kicked out all the "Framework's" inspectors, unsealed the 8000 "Framework" plutonium fuel rods, tore up its copy of the Nuclear Nonproliferation Treaty, and announced that it was reprocessing the fissile material for a "peace deterrent." It started saying it possessed nuclear weapons, and that it was time to test, or sell, one of them. And it began asking its "negotiating partners" for a whole lot more money to keep things quiet in the neighborhood. To prove it was serious about its new proposed terms of trade, North Korea blew off Beijing and Washington in the "Three Party Talks" of April 2003, and then dissed them both again—plus Seoul, Tokyo and Moscow—in the expanded "Six Party Talks" of August 2003.

A New Round of Nuclear Appeasement

So here we are. And as 2004 commences, it looks as if Pyongyang's blackmail entrepreneurs have judged their international market correctly. Far from fashioning real-time penalties for the world's most naked and provocative violator of proliferation strictures, Western and Asian diplomatists are whipping out their calculators to figure the new

price for postponing a North Korean nuclear breakout.

For the moment, the primary obstacle to nuclear appeasement bonuses for Pyongyang is the United States—or more specifically, the President [George W. Bush] and certain limited circles within his government. [In February 2004], however, Pyongyang executed a deft end-run around W., using US minions to do the blocking.

"Now, if you'll just put it down carefully. . . ."

Lurie. © 1995 by Cartoonews International Syndicate. Reproduced by permission.

North Korea's play was to invite an unofficial delegation of Americans (all would-be dealmakers) for a pilgrimage to Pyongyang—and then, with the international media trained on the event, to rush past the White House with a highly-publicized "bold solution" for ending the nuclear impasse.

As the US stage props settled into their hotel rooms, North Korea's news agency pitched the package: in return for an end to Washington's sanctions and a resumption of free supplies for oil, power and energy from the US and its allies, Pyongyang would "refrain from [the] test and produc-

tion of nuclear weapons and stop even operating nuclear power industry for a peaceful purposes."

Some deal, huh? North Korea gets the status quo ante "Framework" fuel aid, plus new money from the World Bank and other institutions ("ending sanctions" is code language for Washington's unlocking the door to multilateral aid). And for all this, America gets a promise—from Kim Jong Il, no less—that he won't blow off a bomb, or build any new ones—at least for now.

The Illusion of Progress

So how did North Korea's interlocutors react to this awful proposal? By falling all over themselves. "An important and serious step," enthused Moscow. "Helpful in creating the atmosphere for a second round of talks," chirped Seoul. Beijing "welcomed" North Korea's "further willingness" to "stop nuclear activities." And in Washington, an upbeat [Secretary of State] Colin Powell hailed the offer as "an interesting step," "a positive step" for "the next round of six party framework talks." Lost in this feel-good chorus was any apparent recollection of the original objective of those framework talks: namely, to hold Pyongyang to its previous promises to scrap its nuke program completely and forever.

As North Korea's neighbors get ready to shuffle off to their next obligatory fleecing in this ongoing hustle, one may wonder: what keeps this con going? It's not that American and Asian leadership is invincibly ignorant—not at all. Rather, it's that they've bought into a variant of La Grande Illusion (as such thinking was called in France in the late 1930s). The notion that the Kim regime has absolutely no intention of ever giving up its nuclear capability—at any price, for any reason—is too terrible to face. Better to play pretend—even if this means being bilked without cease for fake "breakthroughs" and bogus "accords."

"Rogue states such as Iran . . . whose pursuit of weapons of mass destruction makes them hostile to U.S. interests, will learn that their covert programs will not escape either detection or consequences.

The United States Must Prevent Iran from Developing Nuclear Weapons

John R. Bolton

John R. Bolton is the U.S. Department of State undersecretary for arms control and international security. In the following viewpoint he argues that the United States must prevent rogue nations such as Iran from developing nuclear weapons. Iran claims it is pursuing a nuclear energy program, but Bolton maintains that Iran's pursuit of nuclear technologies is part of a covert nuclear weapons program. Bolton explains that U.S. strategy in Iran is to work with the international community to end Iran's nuclear program. He urges the United States to continue its efforts to prevent the transfer of nuclear materials to Iran. Bolton hopes for a diplomatic solution in Iran, but also warns that when it comes to rogue states developing WMD, "no option is off the table."

As you read, consider the following questions:
1. What is the "management" of spent nuclear fuel a euphemism for, according to the author?
2. What statement from Iranian official Hasan Rowhani makes Bolton doubt Iran's commitment to ending its nuclear program?

John R. Bolton, remarks to the Conference of the Institute for Foreign Policy Analysis and the Fletcher School's International Security Studies Program, Washington, DC, December 2, 2003.

Progress by terrorist states towards a nuclear weapons capability, while often slow and uncertain, concealed and camouflaged, must nonetheless engage American attention in a sustained and systematic fashion. Often undertaken in conjunction with ambitious ballistic missile programs, efforts to attain nuclear weapons pose a direct and undeniable threat to the United States and its friends and allies around the world. Whether the nuclear capabilities of states like Iran, North Korea and others are threats today, or "only" threats "tomorrow," there can be no dispute that our attention is required now before the threats become reality, and tens of thousands of innocent civilians, or more, have been vaporized.

This is not to say by any means that we should not also be gravely concerned about chemical and biological weapons programs. We are, and many of the steps that we take internationally against nuclear weapons are applicable to chemical and biological threats as well. In fact, states around the world are closely scrutinizing the way we deal with the proliferation of nuclear weapons, and you can be sure that they will draw the appropriate conclusions about the utility of other weapons of mass destruction (WMD) based on our performance in the nuclear field.

The Need to Confront Rogue States

Of course, our information about WMD programs in other countries is not perfect. No one is more aware of the uncertainties that we face than the senior American intelligence officials and policy makers who deal with these life-and-death issues. Some analysts have said that not finding WMD in Iraq—to date—proves that [Iraqi leader Saddam Hussein] was not an imminent threat, and that our Coalition military action [in 2003] was therefore not justified. These criticisms miss the mark that our concern was not the imminence of Saddam's threat, but the very existence of his regime, given its heinous and undeniable record, capabilities, intentions, and long-standing defiance of the international community. President [George W.] Bush specifically and unambiguously addressed this issue in his January 2003, State of the Union message when he said: "Some have said we must not act until the threat is imminent. Since when have terrorists and

tyrants announced their intentions, politely putting us on notice before they strike? If this threat is permitted to fully and suddenly emerge, all actions, all words, and all recriminations would come too late. Trusting in the sanity and restraint of Saddam Hussein is not a strategy, and it is not an option."

Given the right opportunity or incentive, Saddam could have easily transferred WMD capabilities to terrorist groups or others for their use against us, with potentially catastrophic results. State sponsors of terrorism are aggressively working to acquire weapons of mass destruction and their missile delivery systems. While Saddam's removal from power has unquestionably improved the international security situation, we face significant challenges in other parts of the world. Rogue states such as Iran, North Korea, Syria, Libya and Cuba, whose pursuit of weapons of mass destruction makes them hostile to U.S. interests, will learn that their covert programs will not escape either detection or consequences. While we will pursue diplomatic solutions whenever possible, the United States and its allies are also willing to deploy more robust techniques, such as the interdiction and seizure of illicit goods. If rogue states are not willing to follow the logic of nonproliferation norms, they must be prepared to face the logic of adverse consequences. It is why we repeatedly caution that no option is off the table.

Iran's Nuclear Ambitions

Let me discuss [one problem] in particular: Iran. . . . Although Iran has biological, chemical and missile programs, I will focus today on their nuclear weapons program, which Iran itself has acknowledged has been underway for at least eighteen years—all in violation of Iran's obligations under the Nuclear Nonproliferation Treaty ("NPT"). Our strategy for nearly three years has been to use bilateral and multilateral pressure to end that program, and to secure international consensus against Iran's pursuit of a nuclear weapons capability. On November 26, [2003] the International Atomic Energy Agency ("IAEA") Board of Governors unanimously adopted a resolution that "strongly deplores Iran's past failures and breaches of its obligations to comply with the provisions of its Safeguards Agreement. . . ." There was also unanimous agree-

ment that "should any further serious Iranian failures come to light, the Board of Governors would meet immediately to consider . . . all options at its disposal, in accordance with the IAEA Statute and Iran's Safeguards Agreement."

The Possibility of Military Action Against Iran

Whether the [Iranian] regime is prepared to alter its long-term nuclear strategy is still an open question. In nuclear policy, the Iranian leadership is facing its toughest dilemma in more than 20 years. On one hand, there is a strong desire to develop an arsenal of nuclear weapons as a national deterrent: Iran is located in a rough neighborhood that includes at least five states with nuclear weapons. On the other hand, pursuing a nuclear program will isolate Iran, lead to new sanctions, and give the United States a pretext not only to destroy Iran's nuclear centers, but even to use a mixture of military and political pressure to topple the regime itself.

That fear is well grounded: Reports suggest that covert action could be used against Iran's nuclear installations. The U.S. has already recruited a number of Mujahedin Khalq [Iranian opposition group] elements in Iraq and won a pledge from their leader, Massoud Rajavi, to help with sabotage attacks inside Iran if necessary. If the U.S. and/or Israel were to strike areas in Iran, Tehran would be unable to retaliate except through Lebanese and Palestinian radical groups. The regime would appear weak and vulnerable, thus encouraging domestic opponents who dream of its overthrow.

Amir Taheri, *National Review*, November 10, 2003.

This decisive action followed three successive reports by the IAEA's Director General, which established beyond doubt Iran's multiple violations. While Iran has consistently denied any program to develop nuclear weapons, the IAEA has amassed an enormous amount of evidence to the contrary that makes this denial increasingly implausible.

In what can only be an attempt to build a capacity to develop nuclear materials for nuclear weapons, Iran has enriched uranium with both centrifuges and lasers, and produced and reprocessed plutonium. It attempted to cover its tracks by repeatedly and over many years neglecting to report its activities, and in many instances providing false declarations to the IAEA. For example, the IAEA Director General reports that Iran conducted uranium enrichment experi-

ments with centrifuges using uranium Iran told the IAEA was "lost" due to its leaking valves. Iran conducted unreported uranium conversion experiments with uranium Iran declared to the IAEA as process loss. And Iran delayed IAEA inspectors until key facilities had been sanitized.

I repeat: The United States believes that the long-standing, massive and covert Iranian effort to acquire sensitive nuclear capabilities make sense only as part of a nuclear weapons program. Iran is trying to legitimize as "peaceful and transparent" its pursuit of nuclear fuel cycle capabilities that would give it the ability to produce fissile material for nuclear weapons. This includes uranium mining and extraction, uranium conversion and enrichment, reactor fuel fabrication, heavy water production, a heavy water reactor well-suited for plutonium production, and the "management" of spent fuel—a euphemism for reprocessing spent fuel to recover plutonium. The IAEA Director General's report confirms that Iran has been engaged in all of these activities over many years, and that it deliberately and repeatedly lied to the IAEA about it.

The International Community Must Act

The international community now needs to decide over time whether Iran has come clean on this program and how to react to the large number of serious violations to which Iran has admitted. Unfortunately, Iran itself has already indicated that it has mixed feelings about its obligations to adhere to the IAEA's resolutions. [In October 2003] Hasan Rowhani, head of Iran's Supreme National Security Council and the man who concluded the October deal in Tehran with the three European foreign ministers, gave Iran's most recent interpretation of the IAEA's actions. He said, "our decision to suspend uranium enrichment is voluntary and temporary. Uranium enrichment is Iran's natural right and [Iran] will reserve for itself this right. . . . There has been and there will be no question of a permanent suspension or halt at all." Rowhani went on to say, "We want to control the whole fuel cycle. Since we are planning to build seven nuclear fuel plants in the future, we want to provide fuel for at least one of the plants ourselves."

The IAEA's November 26 resolution should leave no doubt that one more transgression by Iran will mean that the IAEA is obligated to report Iran's noncompliance to the Security Council and General Assembly of the United Nations, in accordance with Article XII.C of the IAEA Statute. This Statute explicitly states that when non-compliance is found, the "Board shall report the non-compliance to all members and to the Security Council." Iran's Safeguards Agreement similarly provides that if the Board finds "the Agency is not able to verify there has been no diversion of nuclear material required to be safeguarded," the Board may report to the Security Council. The real issue now is whether the Board of Governors will remain together in its insistence that Iran's pursuit of nuclear weapons is illegitimate, or whether Iranian efforts to split the Board through economic incentives and aggressive propaganda will succeed. For our part, the United States will continue its efforts to prevent the transfer of sensitive nuclear and ballistic missile technology to Iran, from whatever source, and will monitor the situation there with great care.

"A U.S. or Israeli attempt to strike Iran's nuclear facilities . . . could well have the unintended consequence of antagonizing a highly nationalistic and largely pro-Western populace."

The United States Should Not Take an Aggressive Stand over Iran's Nuclear Program

Karim Sadjadpour

Karim Sadjadpour argues in the following viewpoint that, despite its government's past hostility to the United States, Iranians under thirty are one of the most pro-American groups in the Middle East. Most Iranians, according to the author, do not want their government to develop nuclear weapons for fear that such an action would worsen relations with the United States and enable Iran's hard-line government to stay in power. However, the author warns that a military strike or other aggressive action on the part of the United States could alienate Iranians and convince them to support a nuclear program. Karim Sadjadpour is an analyst with the International Crisis Group and a visiting fellow at the American University of Beirut.

As you read, consider the following questions:

1. What effect has the Iran-Iraq war had on Iranians, in the author's opinion?
2. What proportion of Iranians are under thirty, according to the author?

Karim Sadjadpour, "Iranians Don't Want to Go Nuclear," *Washington Post*, February 3, 2004.

Do the people of Iran want the bomb? Iran's [October 2003] decision to allow for tighter inspection of its nuclear facilities—which Iran says are for civilian purposes— was hailed by Iranian and European officials as a diplomatic victory, while analysts and officials in Washington and Tel Aviv continue to be wary of Tehran's intentions. But despite the attention given to Iran's nuclear aspirations in recent months, one important question has scarcely been touched on: How do the Iranian people feel about having nuclear weapons?

Iranian officials have suggested that the country's nuclear program is an issue that resonates on the Iranian street and is a great source of national pride. But months of interviews I have done in Iran reveal a somewhat different picture. Whereas few Iranians are opposed to the development of a nuclear energy facility, most do not see it as a solution to their primary concerns: economic malaise and political and social repression. What's more, most of the Iranians surveyed said they oppose the pursuit of a nuclear weapons program because it runs counter to their desire for "peace and tranquility." Three reasons were commonly cited.

Most Iranians Want Peace and Greater Freedom

First, having experienced a devastating eight-year war with Saddam Hussein's Iraq that took the lives of hundreds of thousands of their compatriots, Iranians are opposed to reliving war or violence. Many Iranians said the pursuit of nuclear weapons would lead the country down a path no one wanted to travel.

Two decades ago revolutionary euphoria was strong, and millions of young men volunteered to defend their country against an Iraqi onslaught. Today few Iranians have illusions about the realities of conflict. The argument that a nuclear weapon could help serve as a deterrent to ensure peace in Iran seemed incongruous to most. "If we want peace, why would we want a bomb?" asked a middle-aged Iranian woman, seemingly concurring with an influential Iranian diplomat who contends that a nuclear weapon "would not augment Iran's security but rather heighten its vulnerabilities."

Second, while a central premise of Iran's Islamic government from the time of its inception has been its steadfast op-

position to the United States and Israel, for most Iranians no such nemeses exist. Iran's young populace—more than two-thirds of the country is younger than 30—is among the most pro-American in the Middle East, and tend not to share the impassioned anti-Israel sentiment of their Arab neighbors. While the excitement generated on the Indian and Pakistani streets as a result of their nuclear detonations is commonly cited to show the correlation between nuclear weapons and national pride, such a reaction is best understood in the context of the rivalry between the two countries. The majority of Iranians surveyed claimed to have little desire to show off their military or nuclear prowess to anyone. "Whom would we attack?" asked a 31-year-old laborer, echoing a commonly heard sentiment in Tehran. "We don't want war with anyone."

Building a Better Relationship with Iran

A new and candid, if not necessarily congenial, relationship would be mutually beneficial to [the United States and Iran] in several strategic respects, ranging from stability in Iraq to the fight against nuclear proliferation and terrorism to Iran's own desire to end its international isolation. . . .

Many hurdles stand in the way of a genuine rapprochement between the United States and Iran, including complex legal problems dating from the 1979 embassy takeover. Yet the beginnings of a strategic course correction are in place; to make it real, what is now needed is bold, consistent and creative diplomacy.

At a time when the Bush administration needs to stabilize Iraq [after the 2003 war] and turn over sovereignty to an untested government, to put new life into the Middle East peace process, and to make progress in the war against terrorism, what better way than to deal directly with a conflicted but proud nation that also will have a great deal to say about what happens in the region for a long time to come?

James E. Goodby and Fred Hill, "America and Iran Need to Talk," *International Herald Tribune*, February 13, 2004.

Finally, many Iranians, youth in particular, are opposed to the Islamic republic's becoming a nuclear power because they believe it would further entrench the hard-liners in the government. "I fear that if these guys get the bomb they will be able to hold on to power for another 25 years," said a 30-

year-old Iranian professional. "Nobody wants that." In particular some expressed a concern that a nuclear Iran would be immune to U.S. and European diplomatic pressure and could continue to repress popular demands for reform without fear of repercussion.

At the same time, most Iranians—including harsh critics of the Islamic regime—remain unconvinced by the allegations that their government is secretly pursuing a nuclear weapons program. Many dismiss it as another bogeyman manufactured by the United States and Israel to further antagonize and isolate the Islamic regime. "I don't believe we're after a bomb," said a 25-year-old Tehran University student. "The U.S. is always looking for an excuse to harass these mullahs." A recently retired Iranian diplomat who said he is "strongly critical" of the Islamic government agreed with this assessment, saying Iran's nuclear program "is neither for defensive nor offensive purposes. . . . It's only for energy purposes."

I draw two lessons from this. First, the European-brokered compromise on Iran's nuclear program, which appealed to reformists and pragmatists within the Iranian government, was also a victory of sorts for the Iranian people, who are eager to emerge from the political and economic isolation of the past two decades and are strongly in favor of increasing ties with the West. A blatant lack of cooperation with the international community would not have been well-received domestically.

Second, a more aggressive reaction by the international community—a U.S. or Israeli attempt to strike Iran's nuclear facilities—could well have the unintended consequence of antagonizing a highly nationalistic and largely pro-Western populace and convincing Iranians that a nuclear weapon is indeed in their national interests. Such a reaction would be disastrous for U.S. interests in the region, especially given Iran's key location between Iraq and Afghanistan.

Western and Israeli diplomats and analysts should know that the ability to solve the Iranian nuclear predicament diplomatically has broad implications for the future of democracy and nonproliferation in Iran and the rest of the Middle East. The goal is to bring the Iranian regime on the same page with the Iranian people. A non-diplomatic attempt to destroy Iran's nuclear facilities could do precisely the opposite.

"The Bush administration continually hyped unproven but sensational allegations [about Iraq]."

The U.S. Invasion of Iraq Was Based on False Pretenses

Thomas R. Eddlem

Thomas R. Eddlem argues in the following viewpoint that the Bush administration used inflammatory rhetoric to lure the American public into supporting the spring 2003 U.S. invasion of Iraq. According to Eddlem, President Bush and other senior U.S. officials justified going to war by claiming that Iraq possessed biological and chemical weapons, and was seeking to build nuclear weapons. However, writes Eddlem, David Kay—the CIA official appointed to lead the U.S. effort to find Iraq's weapons of mass destruction in the wake of the invasion—submitted a report in October 2003 stating that search teams had found no weapons of mass destruction. Eddlem contrasts the claims of the Bush administration with the findings of the Kay report to support his view that America was deceived about Iraq's weapons of mass destruction. Thomas R. Eddlem is the editor of the *Hanson Express* in Hanson, Massachusetts, and is a regular contributor to the *New American* and *Point South* magazines.

As you read, consider the following questions:

1. According to the author, what false claim did President George W. Bush make in his January 28, 2003, State of the Union address?
2. What does the discovery of Botulinum type B in Iraq prove, according to David Kay?

Thomas R. Eddlem, "Deceiving Us into War," *New American*, vol. 19, November 17, 2003, p. 10.

"Facing growing doubts at home about the wisdom of attacking [Iraq in 2003], President [George W.] Bush . . . will launch a campaign to defend the U.S. invasion," began a Reuters wire dispatch on October 8 [2003]. President Bush is going to need a public relations campaign of unprecedented proportions.

Bush initially persuaded the American people to accept the war because of the alleged imminent threat of chemical and biological attacks against the U.S. from Iraq. In addition, he warned, there was the looming danger of Iraqi nuclear terrorism. In an October 7, 2002, speech, President Bush summarized the justification for war against Saddam Hussein: "America must not ignore the threat gathering against us. Facing clear evidence of peril, we cannot wait for the final proof—the smoking gun—that could come in the form of a mushroom cloud."

It's hard to invoke an image more frightening than that. But mushroom cloud talk aside, the only cloud of smoke that emerged from the war debate was the evaporating smoke and mirrors campaign used by Bush administration officials to exaggerate—and perhaps falsify—intelligence to support launching the war against Iraq.

Bait and Switch

Most Americans thought that the Iraq War was fought for the limited objective of removing the putative threat—Saddam Hussein. Administration spokesmen repeatedly suggested it would be a "cakewalk." The general impression given was that we would be out in a relatively short time. But that war quickly mutated into an occupation and reconstruction projected to last for years (or decades), at an enormous cost of blood and treasure.

It is beyond doubt that Iraq pursued an active chemical and biological weapons program for more than two decades. Saddam also at one point had a primitive nuclear program. However, the charge that Iraq's nuclear program was advanced was far-fetched. The claim that Iraq still had vast stockpiles of chemical and biological weapons at the time of our Operation Iraqi Freedom invasion was also dubious and remains unproven. It was an obvious, calculated ploy to win

public support for launching an aggressive war.

The new Bush public relations campaign is a classic bait-and-switch operation. The White House spinmeisters are laboring to divert public attention from past administration hoaxes and locus it instead upon the new freedom experienced by the Iraqi people, now that Saddam Hussein is no longer running the country. But freeing the Iraqi people from tyranny, no matter how desirable, was never a justification for war. If it were, we would soon be sending U.S. troops to overturn dozens or equally despotic regimes.

The administration already appears to be backing down from pre-war claims made by senior officials that there were huge stockpiles of chemical and biological weapons and an advanced nuclear program. The Bush administration, recall, did not merely claim that Saddam Hussein had weapons of mass destruction [WMDs]. Iraq was bulging with such weapons, we were told, and the direct threat those weapons presented to the United States was supposedly so great and so imminent that we had no choice but to act quickly.

"There are a number of terrorist states pursuing weapons of mass destruction—Iran, Libya, North Korea, Syria, just to name a few—but no terrorist state poses a greater or more immediate threat to the security of our people than the regime of Saddam Hussein and Iraq," Secretary of Defense Donald Rumsfeld told the Senate Armed Services Committee on September 19, 2002. "The goals of our coalition are clear and limited. We will end a brutal regime, whose aggression and weapons of mass destruction make it a unique threat to the world," President Bush said in a message to the Iraqi people on April 10 of [2003].

National Security Adviser Condoleezza Rice told NBC's *Meet the Press* on September 28: "Let's remember that the intelligence going into the war—it's quite separable from what [arms inspector] David Kay now finds. . . ." Rice would be correct if U.S. intelligence agencies were giving the White House different intelligence before the war from what U.S. inspector David Kay has found. But this has not been the case. The intelligence going into the war actually coincides with the virtually nonexistent threat Kay has thus far uncovered.

Following are some examples of how the Bush adminis-

tration deceptively used (or flat-out ignored) intelligence from its own agencies to manipulate popular support toward the war against Iraq.

Saddam and September 11

> We've had no evidence that Saddam Hussein was involved with the September 11th [attacks].
>
> —President George Bush, after meeting with members of the Congressional Conference Committee on Energy Legislation, September 17, 2003

Huh? Most Americans would probably be somewhat startled to hear the president's remark above. According to opinion polls, a majority of Americans believe that Saddam Hussein was behind the September 11 [2001] terrorist attacks on the U.S. That's the main reason we went to war, right? Much of the popular support for attacking Iraq was based on this presumption of guilt and the need for a just response. The Bush administration and its media allies have done everything possible to create that impression. They have done this primarily through clever inference and insinuation, constantly juxtaposing Saddam's crimes and villainy with the 9-11 atrocity. But they have provided no hard evidence of Iraqi ties to the attacks. This is one of the biggest bait-and-switches in the "War on Terror.". . .

Significant Quantities of Uranium

> The British government has learned that Saddam Hussein recently sought significant quantities of uranium from Africa.
>
> —President George W. Bush, State of the Union address, January 28, 2003

This statement is now widely known to be based upon a forgery. Recently, the Bush administration's own chief investigator for weapons of mass destruction, David Kay, concluded: "We have not uncovered evidence that Iraq undertook significant post-1998 steps to actually build nuclear weapons or produce fissile material." In other words, Kay says there's no evidence that Bush's "mushroom cloud" was anything but a figment of overheated war propaganda.

That Bush's statement about uranium was false is now

common knowledge; that Bush made the claim against the advice of his own intelligence agencies needs to be more widely known. According to CIA Director George Tenet, the CIA twice warned the Bush administration that the evidence supporting the claim was unreliable.

Iraq and the Future of Preemption

The Bush Administration's rationale for regime change in Baghdad hinged on the danger posed by Saddam Hussein's quest for weapons of mass destruction, and on the frightening possibility that a confluence of objectives could prompt the transfer of such tools of destruction to terrorists. The need for a preventive response, in turn, served as the guiding principle behind Washington's subsequent decision to resort to military action [in 2003]. . . .

The course of events in Iraq has profound consequence for the future of pre-emption. The postwar difficulty experienced by the United States in uncovering Iraq's weapons of mass destruction programs has increasingly called into question the rationale for preemptive action: the notion that Iraq was an imminent threat to U.S. and regional security. Over time, this situation could prove seriously damaging to the viability of the Bush strategy. An unambiguous, post-facto demonstration of the global threat posed by Saddam Hussein's regime remains essential to shoring up legitimacy for the Bush Administration's pre-emption strategy among already skeptical members of the international community. That American efforts—spearheaded by Dr. David Kay's Iraq Survey Group—have, despite some successes, so far fallen short of accomplishing this goal does not bode well, either for preemption's popular appeal or its international acceptance.

Ilan Berman, *National Interest*, Winter 2003.

Other intelligence reports reached the White House revealing the same conclusion. Former U.S. Ambassador Joseph Wilson explained to NBC's *Meet the Press* on October 3 [2003]:

> When the State Department said, "We were duped by that information," that was a misstatement of fact because I knew that there were at least three reports pertaining to this particular case: mine, but also the report of our ambassador on the scene and, also, the report of the deputy commander in chief of U.S. Armed Forces Europe, a four star Marine

> Corps general, all of whom had gone down to take a look at this allegation and all of whom had reported that it was not true. There was one report, which turned out to be a forged document, which was so dicey that even an Italian weekly tabloid magazine would not use it. And yet it was that report that formed the basis for the 16 words in the State of the Union address.

Tenet explained in a July 11 [2003] press release . . . : "[CIA] officials who were reviewing the draft remarks [in the State of the Union speech] on uranium raised several concerns about the fragmentary nature of the intelligence with National Security Council colleagues. Some of the language was changed. From what we know now, Agency officials in the end concurred that the text in the speech was factually correct—i.e. that the British government report said that Iraq sought uranium from Africa." Despite CIA concerns, the administration resorted to using the dubious—and now discredited—British report to alarm the American people.

Why? If President Bush did not know that the evidence supporting the allegation was fragmentary and unreliable, certainly his advisers did. Yet his advisers allowed him to use it anyway to make the case for war. Considering this example alone, a neutral observer might conclude that this case of exaggerating the evidence was an honest mistake.

But this was hardly a lone example of exaggeration or tinkering with the truth. . . .

Trailer Trash

> We found the weapons of mass destruction. We found biological laboratories. You remember when Colin Powell stood up in front of the world, and he said, Iraq has got laboratories, mobile labs to build biological weapons. . . . [W]e've so far discovered two. And we'll find more weapons as time goes on. But for those who say we haven't found the banned manufacturing devices or banned weapons, they're wrong. We found them.
>
> —President Bush, in remarks broadcast by Polish television, after the discovery of two tractor trailers alleged to have been designed for producing biological weapons, May 30, 2003

The first thing that needs to be pointed out is that this statement contains both a major falsehood and a major sleight-of-hand. The falsehood is that the trailers were weapons of mass

destruction—which they definitely were not. The sleight-of-hand concerns the administration's conspicuous switch from charges about actual weapons to weapons programs. Before the war, and up until June 9 [2003], Bush and his top administration officials spoke not about WMD weapons programs but actual stockpiled weapons.

A huge sea-change in the administration's claims of Iraq's on-the-ground threat occurred on June 9. When questioned at a photo-op on that date about the failure to find WMDs, Bush responded: ". . . I mean, Iraq had a weapons program. Intelligence throughout the decade showed they had a weapons program. I am absolutely convinced with time we'll find out that they did have a weapons program."

President Bush said on the eve of war that "Intelligence gathered by this and other governments leaves no doubt that the Iraq regime continues to possess and conceal some of the most lethal weapons ever devised. . . . The danger is clear: using chemical, biological or, one day, nuclear weapons, obtained with the help of Iraq, the terrorists could fulfill their stated ambitions and kill thousands or hundreds of thousands of innocent people in our country, or any other. . . . We cannot live under the threat of blackmail." To go from talk about actual chemical and biological weapons already produced, to tractor trailers that may be capable of producing such weapons, constitutes a huge quantum leap downward in threat assessment.

But there is no reason to believe even this downgraded assessment. President Bush's own WMD inspector for Iraq, David Kay, concluded there was no evidence the two tractor trailers had ever been used to produce biological weapons. Kay reported that his investigation into "the two trailers found in northern Iraq in April has yielded a number of explanations, including hydrogen, missile propellant, and BW (biological weapons) production, but technical limitations would prevent any of these processes from being ideally suited to these trailers.". . .

Aluminum Tubes: A Hole in the Story

Most U.S. experts think they [aluminum tubes] are intended to serve as rotors and centrifuges used to enrich uranium.

—Secretary of State Colin Powell in an address before the UN Security Council, February 5, 2003

Administration supporters now frequently cite Colin Powell's remarks before the United Nations Security Council as evidence of a strong case that Saddam Hussein was building a nuclear program, especially because Powell did not use the now infamous "16 words" about the supposed attempt to purchase uranium from Africa.

But Powell's story is likewise proven false by the evidence. Bush administration investigator David Kay concluded "the evidence does not tie any activity directly to centrifuge research or development." In other words, Kay's report flatly contradicts Powell's sensational charges.

Former State Department intelligence official Greg Thielmann explained that Kay's conclusions constituted the consensus of some U.S. intelligence officials long before the Kay Report. Thielmann told PBS's *Frontline* for October 9, 2003: "We started out being agnostic on this but the more we got into it, it was not a difficult assessment for us to arrive at, ultimately, that the Department of Energy experts were correct in seeing that these tubes were not well suited for uranium enrichment centrifuge rotors but were in fact for something else." Thielmann had completed his work and left State Department service in October 2002, four months before Powell's address to the Security Council.

Bogus Botox Boast

Let me tell you what the report said. It states that Saddam Hussein's regime had a clandestine network of biological laboratories. They had a live strain of deadly agent called botulinum.

—President Bush, remarks in Milwaukee, October 3, 2003

London's *Independent* newspaper provided an analysis that exposed President Bush's insinuation. "Botulinum type A is one of the most poisonous substances known, and was developed in weaponized form by Iraq before 1991. However, type B—the form found at the biologist's home—is less lethal," the *Independent* noted. "Botulinum type B could also be used for making an antidote to common botulinum poisoning. That is one of the reasons why many military labo-

ratories around the world keep reference strains of C botulinum Okra B. The UK keeps such substances, for example, and calls them 'seed banks.'"

Both strains of botulinum have wide commercial uses worldwide for less than insidious purposes. A form of Botulinum A is commonly marketed in the United States as an anti-wrinkle injection under the well-known brand name "Botox." Botulinum B, which was found in the scientist's refrigerator, is also used to create a muscle pain reliever in the United States under the name "Myobloc."

The Kay Interim report did say the botulinum "can be used to produce biological weapons," but the *Independent* pointed out that Kay did not allege that the botulinum samples found had been formed into anything resembling a weapon: "Note what that sentence does not say: these facilities were suitable for chemical and biological weapons research (as almost any modern lab would be), not that they had engaged in such research. The reference to UN monitoring is also spurious: under the terms of UN resolutions, all of Iraq's chemical and biological facilities are subject to monitoring. So all this tells us is that Iraq had modern laboratories.". . .

The evidence is overwhelming: The Bush administration continually hyped unproven but sensational allegations to get the American people to agree to a war against a regime that was not a direct or imminent threat to the United States. The administration's ongoing public relations campaign to justify transforming the war into an indefinite occupation of Iraq portends more of the same.

"The war to remove Saddam was, in the broad strategic sense, in the sense relevant to serious international politics, necessary."

The U.S. Invasion of Iraq Was Justified

Robert Kagan and William Kristol

Robert Kagan is a contributing editor, and William Kristol is editor, of the *Weekly Standard*, a conservative weekly political magazine. In the following viewpoint they defend the U.S. decision to invade Iraq in 2003. That decision has come under intense scrutiny since David Kay, the official in charge of U.S. efforts to find Iraq's weapons of mass destruction in the wake of the invasion, submitted a report in October 2003 stating that search teams had found no weapons of mass destruction. Kristol and Kagan, however, contend that the Iraq war was not waged because Saddam Hussein was believed to have weapons of mass destruction, but because he was intent on building such weapons and adamantly refused to comply with UN inspectors sent to verify that Iraq did not have illegal weapons programs. In the authors' view, the Iraq war was justified because Saddam Hussein, left unchecked, would have eventually been successful in building weapons of mass destruction.

As you read, consider the following questions:

1. Why did Saddam Hussein expel UN weapons inspectors in December 1998, according to the authors?
2. In the authors' view, what was the primary purpose of UN Security Council resolution 1441?

Robert Kagan and William Kristol, "The Right War for the Right Reasons," *The Weekly Standard*, February 23, 2004.

With all the turmoil surrounding [weapons inspector] David Kay's comments on the failure to find stockpiles of biological and chemical weapons in Iraq [after the 2003 war], it is time to return to first principles, and to ask the question: Was it right to go to war?

Critics of the war, and of the Bush administration, have seized on the failure to find stockpiles of weapons of mass destruction in Iraq. But while his weapons were a key part of the case for removing [Iraqi leader Saddam Hussein], that case was always broader. Saddam's pursuit of weapons of mass destruction was inextricably intertwined with the nature of his tyrannical rule, his serial aggression, his defiance of international obligations, and his undeniable ties to a variety of terrorists, from Abu Nidal to al Qaeda. . . . Together, this pattern of behavior made the removal of Saddam desirable and necessary, in the judgment of both the Clinton and Bush administrations. That judgment was and remains correct.

It is fashionable to sneer at the moral case for liberating an Iraqi people long brutalized by Saddam's rule. Critics insist mere oppression was not sufficient reason for war, and in any case that it was not Bush's reason. In fact, of course, it was one of Bush's reasons, and the moral and humanitarian purpose provided a compelling reason for a war to remove Saddam. . . .

Such a rationale is not "merely" moral. As is so often the case in international affairs, there was no separating the nature of Saddam's rule at home from the kinds of policies he conducted abroad. Saddam's regime terrorized his own people, but it also posed a threat to the region, and to us. The moral case for war was linked to strategic considerations related to the peace and security of the Middle East.

Saddam was not a "madman." He was a predator and an aggressor. He achieved through brute force total dominance at home, and it was through force and the threat of force that he sought dominance in his region, as well. He waged war against Iran throughout the 1980s. He invaded Kuwait in 1990. He spent tens of billions of dollars on weapons, both conventional and unconventional. His clear and unwavering ambition, an ambition nurtured and acted upon across three decades, was to dominate the Middle East, both economically and militarily, by attempting to acquire the lion's share

of the region's oil and by intimidating or destroying anyone who stood in his way. This, too, was a sufficient reason to remove him from power. . . .

Saddam's Weapons of Mass Destruction Programs

The threat of Saddam's weapons of mass destruction was related to the overall political and strategic threat his regime posed to the Middle East. Still, there is no question that Saddam's history with and interest in weapons of mass destruction made his threat distinctive. The danger was not, however, that Iraq would present a direct threat to the physical security of the United States or, in the current popular phrase, pose an "imminent" threat to the American homeland. Our chief concern in 1998 . . . was the threat Saddam posed to regional security and stability, the maintenance of which was in large part the responsibility of the United States. If Saddam "does acquire the capability to deliver weapons of mass destruction," we argued, which eventually he was "almost certain to do if we continue along the present course," American troops in the region, American allies, the stability of the Middle East, and the world's supply of oil would all be put at risk. The threat to the United States was that we would be compelled to defend our allies and our interests in circumstances made much more difficult and dangerous by Saddam's increasingly lethal arsenal.

That was why Saddam's weapons of mass destruction programs, both what we knew about them and what we did not know about them, gave the situation a special urgency. It was urgent in 1998, and it was urgent four years later. There was no doubt in 1998—and there is no doubt today, based on David Kay's findings—that Saddam was seeking both to pursue WMD programs and to conceal his efforts from U.N. weapons inspectors. After 1995, when the defection of Saddam Hussein's son-in-law and chief organizer of the weapons programs, Hussein Kamal, produced a wealth of new information about Iraqi weapons programs and stockpiles—information the Iraqis were forced to acknowledge was accurate—the U.N. weapons inspections process had become an elaborate cat-and-mouse game. As President [Bill] Clinton recalled in his speech three years later, Kamal had "revealed

that Iraq was continuing to conceal weapons and missiles and the capacity to build many more." The inspectors intensified their search. And they must have been having some success, for as they drew closer to uncovering what the Iraqis were hiding, Saddam grew less and less cooperative and began to block their access to certain facilities. . . .

President Clinton declared in early 1998 that Saddam was clearly attempting "to protect whatever remains of his capacity to produce weapons of mass destruction, the missiles to deliver them, and the feed stocks necessary to produce them." The U.N. inspectors believed, Clinton continued, that "Iraq still has stockpiles of chemical and biological munitions . . . and the capacity to restart quickly its production program and build many, many more weapons." Meanwhile, a February 13, 1998, U.S. government White Paper on Iraq's weapons of mass destruction stated that "in the absence of [United Nations] inspectors, Iraq could restart limited mustard agent production within a few weeks, full-production of sarin within a few months, and pro–Gulf War production levels—including VX—within two or three years."

It was President Clinton who, in February 1998, posed the critical question: "What if [Saddam] fails to comply and we fail to act, or we take some ambiguous third route, which gives him yet more opportunities to develop this program of weapons of mass destruction. . . . Well, he will conclude that the international community has lost its will. He will then conclude that he can go right on and do more to rebuild an arsenal of devastating destruction. And some day, some way, I guarantee you he'll use this arsenal." "In the next century," Clinton predicted, "the community of nations may see more and more of the very kind of threat Iraq poses now—a rogue state with weapons of mass destruction, ready to use them or provide them to terrorists . . . who travel the world among us unnoticed."

Over the course of 1998, the U.N. inspections process collapsed. Attempts to break the stalemate with Saddam and allow the U.N. inspectors access to the prohibited sites came to naught. . . . [In December 1998], the Clinton administration launched Operation Desert Fox, a four-day missile and bombing strike on Iraq aimed at destroying as much of Saddam's

weapons capabilities as possible. Based on American intelligence, the Clinton administration targeted suspected weapons production facilities throughout Iraq. The Air Force and intelligence agencies believed the bombing had destroyed or degraded a number of Iraqi weapons of mass destruction facilities, but they never knew the extent of the damage, because, of course, there were no inspectors left to investigate.

Saddam expelled the U.N. inspectors in response to the attack, and they did not return until November 2002. As Clinton . . . recalled, "We might have gotten it all; we might have gotten half of it; we might have gotten none of it. But we didn't know." Clinton went on to say about President [George W.] Bush's actions in the fall of 2002, "So I thought it was prudent for the president to go to the U.N. and for the U.N. to say you got to let these inspectors in, and this time if you don't cooperate the penalty could be regime change, not just continued sanctions.". . .

The inspectors left, and for the next four years, Saddam's activities were shrouded in darkness. After all, many prohibited Iraqi activities had escaped detection even while the inspectors were trying to monitor them. Without the inspectors, the task of keeping track of Saddam's programs was well-nigh impossible.

When the Bush administration came to office, therefore, it had no less reason to worry about Saddam's potential capabilities than the Clinton administration. . . .

A Renewed Urgency

Then came the terrorist attacks of September 11, 2001. September 11 shocked the nation, and it shocked the president. Its effect was to make many both inside and outside the administration take a closer look at international threats, because it was clear that all of us had been too sanguine about such threats prior to September 11. Nor was it in the least surprising that the issue of Iraq arose immediately. . . . After all, we had a decade-long history of confrontation with Iraq, we were flying military missions in Iraqi air space, President Clinton had declared Saddam the greatest threat to our security in the 21st century, Clinton officials like [National Security Adviser] Sandy Berger and [Secretary of State]

Madeleine Albright had concluded that Saddam must eventually be removed, and U.N. weapons inspectors had written one alarming report after another about Saddam's current and potential weapons capabilities.

Dealing with the Hard Cases

Coercive diplomacy, the alternative to war, requires political judgment under conditions of uncertainty, a fact lost in the increasingly rancorous partisan debate. The critics who are bashing President [George W.] Bush for pushing a hard line on Iraq [by going to war with that nation in 2003] are also bashing President Bush for not pushing a hard enough line on North Korea. Ironically, the president is doing everything in North Korea that he was accused of not doing in Iraq: building an international coalition to support pressure on North Korea; not taking North Korean claims at face value; weighing carefully the costs of military action; and so on. The bottom line is that the hard cases—North Korea, Iran and, yes, Iraq—are hard cases precisely because the easy options have been tried and proved wanting.

If the [January 2004 Kay testimony claiming that no weapons of mass destruction were found in Iraq] had been available in March 2003, it's unlikely that the administration would have pressed for war. But since the war case rested on multiple pillars—dealing with a problem now before it became an unmanageable problem later, recognizing that [Iraqi leader Saddam Hussein] could not be trusted in the long run, recognizing that the war on terrorists involved getting tough on the causes of terrorism (stunted political development in the Middle East), recognizing that the status quo policy on Iraq was responsible for creating the conditions that gave rise to [the terrorist group] al Qaeda in the first place—it is possible that reasonable people would have still advocated war.

Peter D. Feaver, "The Fog of WMD," *Washington Post*, January 28, 2004.

So the Bush administration concluded that it had to remove the Saddam Hussein regime once and for all, just as Clinton and Berger had suggested might someday be necessary. . . . Saddam's regime itself was the problem, above and beyond his weapons capabilities. It was an obstacle to progress in the Middle East and the Arab world. It was a threat to the Iraqi people and to Iraq's neighbors. But a big part of the threat involved Saddam's absolute determination to arm himself with

both conventional and unconventional weapons. . . .

The Bush administration's approach to Iraq was fundamentally in keeping with that of the Clinton administration, except that after September 11, inaction seemed even less acceptable. The majority of the Democratic party foreign policy establishment supported the war, and not because they were misled by the Bush administration's rhetorical hype leading up to the war. . . . Nor did they support the war because they were fundamentally misled by American intelligence about the nature and extent of Saddam's weapons programs. Most of what they and everyone else knew about those programs we had learned from the U.N. inspectors, not from U.S. intelligence.

Some of that intelligence has now turned out to be wrong. Some of it has turned out to be right. And it is simply too soon to tell about the rest. The press has focused attention almost entirely on David Kay's assertion that there were no stockpiles of chemical and biological weapons when the United States and its allies invaded Iraq last March [2003]. We'll address that assertion in a moment. But what about the rest of Kay's testimony?

The key question for more than a decade, for both the Clinton and the Bush administrations, was not only what weapons Saddam had but what weapons he was trying to obtain, and how long it might be before containment failed and he was able to obtain them. The goal of American policy, and indeed of the U.N. Security Council over the course of the dozen years after the end of the Gulf War in 1991, was not primarily to find Saddam's existing stockpiles. That was subsidiary to the larger goal, which was to achieve Iraq's disarmament, including the elimination not only of existing prohibited weapons but of all such weapons programs, to ensure that Iraq would not possess weapons of mass destruction now or in the future. . . .

It is important to recall that the primary purpose of Security Council Resolution 1441, passed on November 8, 2002, was not to discover whether Saddam had weapons and programs. There was little doubt that Saddam had them. The real question was whether he was ready to make a clean breast of everything and give up not only his forbidden weapons but

also his efforts to acquire them once and for all. The purpose was to give Saddam "one final chance" to change his stripes, to offer full cooperation by revealing and dismantling all his programs and to forswear all such efforts in the future. . . .

Resolution 1441 demanded that, within 30 days, Iraq provide "a currently accurate, full, and complete declaration of all aspects of its programs to develop chemical, biological, and nuclear weapons, ballistic missiles, and other delivery systems such as unmanned aerial vehicles and dispersal systems designed for use on aircraft, including any holdings and precise locations of such weapons, components, sub-components, stocks of agents, and related material and equipment, the locations and work of its research, development and production facilities, as well as all other chemical, biological, and nuclear programs, including any which it claims are for purposes not related to weapon production or material." Administration officials doubted Saddam would do this. They hoped only that, once Saddam's noncompliance became clear, they would win unanimous support for war at the U.N. Security Council. . . .

Kay's Findings of Illegal Activity

Now, of course, we know more definitively that Saddam did not comply with Resolution 1441. That is a part of Kay's testimony that has been widely ignored. What Kay discovered in the course of his eight-month-long investigation was that Iraq had failed to answer outstanding questions about its arsenal and programs. Indeed, it had continued to engage in an elaborate campaign of deception and concealment of weapons activities throughout the time when . . . inspectors were in the country, and right up until the day of the invasion, and beyond.

As Kay told the Senate Armed Services Committee [in January 2004], the Iraq Survey Group "discovered hundreds of cases, based on both documents, physical evidence and the testimony of Iraqis, of activities that were prohibited under the initial U.N. Resolution 687 and that should have been reported under 1441, with Iraqi testimony that not only did they not tell the U.N. about this, they were instructed not to do it and they hid material." Kay reported, "We have had a number of Iraqis who have come forward and said, 'We did not tell the U.N. about what we were hiding, nor would we

have told the U.N.,'" because the risks were too great. And what were the Iraqis hiding? As Kay reports, "They maintained programs and activities, and they certainly had the intentions at a point to resume their programs. So there was a lot they wanted to hide because it showed what they were doing was illegal." As Kay reported [in] October [2003], his survey team uncovered "dozens of WMD-related program activities and significant amounts of equipment that Iraq concealed from the U.N. during the inspections that began in late 2002." Specifically, Kay reported:

- A clandestine network of laboratories and safehouses within the Iraqi Intelligence Service that contained equipment suitable for research in the production of chemical and biological weapons. . . .
- A prison laboratory complex, which may have been used in human testing of biological weapons agents. Iraqi officials working to prepare for U.N. inspections in 2002 and 2003 were explicitly ordered not to acknowledge the existence of the prison complex.
- So-called "reference strains" of biological organisms, which can be used to produce biological weapons. The strains were found in a scientist's home.
- New research on agents applicable to biological weapons, including Congo Crimean Hemorrhagic Fever, and continuing research on ricin and aflatoxin—all of which was, again, concealed from [inspectors].
- Plans and advanced design work on new missiles with ranges up to at least 1,000 kilometers—well beyond the 150-kilometer limit imposed on Iraq by the U.N. Security Council. These missiles would have allowed Saddam to threaten targets from Ankara to Cairo.

Kay also reported that Iraq "was in the early stages of renovating the [nuclear] program, building new buildings.". . .

We believe that war would have come eventually because of the trajectory that Saddam was on—assuming the United States intended to continue to play its role as guarantor of peace and security in the Middle East. The question was whether it was safer to act sooner or later. The president argued, convincingly, that it was safer—it was necessary—to act sooner. Sanctions could not have been maintained; con-

tainment, already dubious, was far less persuasive after September 11; and so the war to remove Saddam was, in the broad strategic sense, in the sense relevant to serious international politics, necessary. This is of course a legitimate subject of debate—but it would be almost as much so even if large stockpiles of weapons had already been recovered.

So what about those stockpiles? The failure to find them, and now David Kay's claim that they did not exist at the time of the invasion last year (a claim reported by an astonishing number of journalists as meaning they never existed at all), has led many to maintain that the entire war was fought on false pretenses. We have addressed that claim. But we also want to address Kay's assertion.

We are prepared to believe that the large stockpiles of anthrax, ricin, VX, and other biological and chemical weapons that once existed were at some point destroyed by the Iraqis. But we do not understand why Kay is so confident he knows what happened to those stockpiles, or to other parts of Saddam's weapons programs that have not been found.

According to Kay's [January 2004] testimony before the Senate (and since he has provided no written report and no documentation to support his recent claims, this is all anyone has to go on), Kay and his team "went after this not in the way of trying to find where the weapons are hidden." When the Survey Group did not find the weapons in "the obvious places," presumably meaning the places that had been identified by intelligence and other sources, Kay explains, he tried other means of discovering the truth. His principal method appears to have been interviews with scientists who would have known what was produced and where it might be stored, as well as a search through a portion of the documents uncovered after the war. Kay acknowledges that stockpiles may, in fact, still be hidden somewhere. But he does not believe they are. . . .

The truth is, neither Kay nor anyone else knows what happened to the weapons stockpiles that we know Iraq once had—because the Iraqis admitted having them. Again, we are willing to be persuaded that Saddam had no weapons stockpiles last year when the war began. But it is too soon, we believe, to come firmly to that conclusion. Nor do we

find particularly persuasive the argument that Saddam was only pretending to have weapons of mass destruction, or that he was delusional and being deceived by all around him. These hypotheses are possible. It is also possible we will find stockpiles of weapons, or evidence of their destruction or removal just before the war. . . .

It remains possible that new evidence will be found. We understand why some now want to declare the search over. But we can hardly see how it benefits the people of the United States or the world to declare it over prematurely.

A Just War

Whatever the results of that search, it will continue to be the case that the war was worth fighting, and that it was necessary. For the people of Iraq, the war put an end to three decades of terror and suffering. The mass graves uncovered since the end of the war are alone sufficient justification for it. Assuming the United States remains committed to helping establish a democratic government in Iraq, that will be a blessing both to the Iraqi people and to their neighbors. As for those neighbors, the threat of Saddam's aggression, which hung over the region for more than two decades, has finally been eliminated. The prospects for war in the region have been substantially diminished by our action.

It is also becoming clear that the battle of Iraq has been an important victory in the broader war in which we are engaged, a war against terror, against weapons proliferation, and for a new Middle East. Already, other terror-implicated regimes in the region that were developing weapons of mass destruction are feeling pressure, and some are beginning to move in the right direction. Libya has given up its weapons of mass destruction program. Iran has at least gestured toward opening its nuclear program to inspection. The clandestine international network organized by Pakistan's A.Q. Khan that has been so central to nuclear proliferation to rogue states has been exposed. From Iran to Saudi Arabia, liberal forces seem to have been encouraged. We are paying a real price in blood and treasure in Iraq. But we believe that it is already clear—as clear as such things get in the real world—that the price of the liberation of Iraq has been worth it.

Periodical Bibliography

The following articles have been selected to supplement the diverse views presented in this chapter.

David Albright and Corey Hinderstein	"Iran: Player or Rogue?" *Bulletin of the Atomic Scientists*, September/October 2003.
Jahangir Amuzegar	"Iran's Crumbling Revolution," *Foreign Affairs*, January/February 2003.
Michael Barone	"Stopping Rogue Nukes," *U.S. News & World Report*, November 3, 2003.
Massimo Calabresi	"The Next WMD Crisis: New Evidence Suggests North Korea Is Advancing Its Nuclear-Weapons Plans. What Can the U.S. Do?" *Time*, July 28, 2003.
Michael Duffy	"So Much for the WMD: America's Top Weapons Sleuth Says the Intelligence on Iraq's Arms Was All Wrong," *Time*, February 9, 2004.
Craig Eisendrath	"U.S. Foreign Policy After September 11," *USA Today*, May 2002.
Peter Huessy and Paul Craig Roberts	"Symposium: Will Pre-Emptive War, Such as in Iraq, Make the United States Safer in the Long Term?" *Insight on the News*, April 29, 2003.
Robert Kagan and William Kristol	"Why We Went to War," *Weekly Standard*, October 20, 2003.
James T. Laney and Jason T. Shaplen	"How to Deal with North Korea," *Foreign Affairs*, March/April 2003.
John J. Mearsheimer and Stephen M. Walt	"An Unnecessary War," *Foreign Policy*, January/February 2003.
Alexander V. Nemets and John L. Scherer	"Seeds of North Korea's Contentiousness," *World & I*, June 2003.
Kenneth M. Pollack	"Spies, Lies, and Weapons," *Atlantic Monthly*, January/February 2004.
Jack Spenser	"Do Iraq, Iran, and North Korea Truly Constitute an Axis of Evil?" *USA Today Magazine*, May 2002.
Time	"How Dangerous Is North Korea?" January 13, 2003.
Scott L. Wheeler	"The Link Between Iraq and Al-Qaeda," *Insight on the News*, October 14, 2003.
Kevin Whitelaw et al.	"'We Were All Wrong,'" *U.S. News & World Report*, February 9, 2004.

CHAPTER 3

What Policies Should the United States Adopt Toward Nuclear Weapons?

Chapter Preface

A fundamental controversy in U.S. nuclear policy is the tension between nonproliferation and deterrence. Since the Cold War, the United States has promoted nonproliferation, encouraging nations without nuclear weapons not to build them and countries with nuclear weapons to reduce or limit the size of their nuclear arsenals. The ultimate goal of many advocates of nonproliferation is a world without nuclear weapons.

However, the United States also pursues a policy of deterrence, essentially trying to keep the nuclear peace with the implicit threat that any nation that uses nuclear weapons will become the target of a U.S. nuclear attack. A key part of U.S. nuclear policy is to maintain a nuclear arsenal large enough to be a credible deterrent threat.

The tension between nonproliferation and deterrence is particularly clear in the debate over nuclear testing. As part of its nonproliferation efforts, in 1996 the United States, along with 152 other nations, signed the Comprehensive Nuclear Test Ban Treaty (CTBT), which prohibits all signatories from testing nuclear weapons. Proponents of the CTBT argue that by keeping other nations from conducting nuclear tests, the United States can be assured that its nuclear arsenal will remain the most advanced in the world.

However, the treaty does not take effect until it is approved by the governments of the United States and other signing nations, and in 1999 the Republican-controlled Senate refused to ratify the CTBT. The Bush administration's Nuclear Posture Review (NPR), a congressionally mandated examination of U.S. nuclear policy, also indicates a reluctance to ban nuclear testing. In language that has alarmed antinuclear groups, the NPR states that the United States should be ready "to design, develop, manufacture, and certify new warheads in response to new national requirements; and maintain readiness to resume underground nuclear testing if required."

Whether or not to ban nuclear testing is just one of the issues in the debate over U.S. nuclear policy. The authors in the following chapter offer their viewpoints on nuclear abolition, testing, and deterrence.

"Safety from nuclear destruction must be our goal. We can reach it only by reducing and then eliminating nuclear arms."

The United States Should Eliminate Its Nuclear Arsenal

Jonathan Schell

In the following viewpoint *Nation* writer Jonathan Schell calls on the American public to help revitalize the movement to abolish nuclear weapons. Schell argues that America's need to maintain a huge nuclear arsenal ended with the Cold War. But he notes that the Bush administration abandoned the goal of nuclear arms reduction in 2002 when the United States signed the toothless Moscow treaty with Russia and then formally withdrew from the Anti-Ballistic Missile treaty, a more stringent arms control treaty dating back to 1972. Schell believes that the new U.S. stance on nuclear deterrence will worsen the threat of terrorism, as more nations develop nuclear weapons of their own, making it more likely that nuclear weapons or materials might be stolen by terrorist groups. Jonathan Schell is the Harold Willens Peace Fellow at the Nation Institute, and the author of several books, including *The Fate of the Earth* and *The Unfinished Twentieth Century*.

As you read, consider the following questions:

1. How many nuclear weapons will be dismantled under the Moscow treaty, according to the author?
2. Between what two countries is nuclear war most imminent, in Schell's view?
3. What three developments does the author call signs of "the second nuclear age"?

Jonathan Schell, "The Growing Nuclear Peril," *The Nation*, vol. 274, June 24, 2002, p. 11.

On June 12, 1982, 1 million people assembled in Central Park in New York City to call for a freeze of the nuclear arms race. In the years that followed, the cold war waned and then ended, and the strategic nuclear arsenals of the United States and the Soviet Union were not only frozen but cut to about half of their peak. In the early post–cold war years, it seemed conceivable that nuclear arms might be on their way to obsolescence, and nuclear danger pretty much dropped out of the public mind.

A New Nuclear Era?

It's now clear that these hopes were ill founded. The nuclear dilemma was not going away; it was changing shape. Four years ago [in 1998], I asked in a special issue of this magazine [the *Nation*] whether the nuclear arsenals of the cold war were "merely a monstrous leftover from a frightful era that has ended, and will soon follow it into history, or whether, on the contrary, they are the seeds of a new, more virulent nuclear era." The seeds have now sprouted, and that new era is upon us in South Asia and elsewhere.

Today, twenty years after the June 12 demonstration, some of us who were present at the event believe that the time has come again for the public to make its voice heard in protest against the direction of nuclear policies, and we are therefore issuing the Urgent Call on the following page. As one of its signatories, I wish to explain why I think this is necessary. Passages from the Call are in [italics]; the commentary is in ordinary type.

"*Despite the end of the cold war, the United States plans to keep large numbers of nuclear weapons indefinitely.*"

According to President George W. Bush, the recently signed Moscow Treaty, under which the United States and Russia have agreed to a limit on deployed strategic weapons of no more than 2,200 each, "liquidates the legacy of the cold war." Rarely has more contradiction, misdirection and confusion been compacted into a single phrase. Let us count the ways.

(1) The cold war—the global ideological struggle between the United States and the Soviet Union—in fact ended definitively in 1991 with the disappearance of the Soviet Union

from the face of the earth. The President at the time, Bush's father, told us so. As one Russian wag recently commented, "I'm tired of attending funerals for the cold war." The cold war is over. Long live the cold war.

(2) Does liquidating the legacy of the cold war then perhaps mean liquidating the nuclear arsenals that were built up in the name of that struggle? No. Not a single nuclear warhead will be dismantled under the treaty. Even the deployed weapons will, when the reductions are complete, be quite sufficient for either country to blow up the other many times over. It is better that the excess warheads will be in storage than on hairtrigger alert, but the move only reduces the overkill. All the kill remains. In other words, at the treaty's expiration, in 2012, more than two decades after the disappearance of the Soviet Union, the nuclear policies—as distinct from the active and alert force levels—of the two nations will not have changed in the slightest particular.

(3) If neither the cold war nor its nuclear arsenals are being liquidated, does the treaty at least consolidate a postwar friendship between Russia and the United States? On the contrary, the United States has introduced a fresh note of suspicion into the relationship by insisting on storing rather than dismantling the "reduced" weapons in order to "hedge" against some undefined deterioration in relations with Russia—notwithstanding the new consultative relationship of Russia with NATO [North Atlantic Treaty Organization]. One day, the United States thus declares to Russia, 2,200 nuclear weapons may not be enough for dealing with you; we may again need 10,000. That message is reinforced by a shortening of the usual six-month withdrawal time in treaties to three months.

(4) Does the treaty liquidate anything, then? Yes—nuclear arms control. The Bush Administration, which resisted putting even the Moscow agreement in treaty form, has let it be known that it intends no further arms control treaties with Russia. On June 13, [2002] the United States will formally withdraw from the Anti-Ballistic Missile treaty. The world, President Bush is saying, has had all the nuclear disarmament it is going to get out of the end of the cold war. But if the twice-announced end of that conflict cannot get

Russia and the United States out of the trap of "mutual assured destruction," what can? Nothing is on the horizon. Woodrow Wilson fought the "war to end all wars." George Bush has signed an arms control treaty to end all arms control treaties.

Nuclear Proliferation Fuels the Terrorist Threat

"The dangers posed by huge arsenals, threats of use, proliferation and terrorism are linked. . . ."

It's all a matter, as we've learned to say of the pre–September 11 [2001 terrorist attacks] intelligence failures, of connect-

End the Nuclear Danger: An Urgent Call

A decade after the end of the cold war, the peril of nuclear destruction is mounting. The great powers have refused to give up nuclear arms, other countries are producing them and terrorist groups are trying to acquire them.

Poorly guarded warheads and nuclear material in the former Soviet Union may fall into the hands of terrorists. The Bush Administration is developing nuclear "bunker busters" and threatening to use them against nonnuclear countries. The risk of nuclear war between India and Pakistan is grave.

Despite the end of the cold war, the United States plans to keep large numbers of nuclear weapons indefinitely. The latest US-Russian treaty, which will cut deployed strategic warheads to 2,200, leaves both nations facing "assured destruction" and lets them keep total arsenals (active and inactive, strategic and tactical) of more than 10,000 warheads each.

The dangers posed by huge arsenals, threats of use, proliferation and terrorism are linked: The nuclear powers' refusal to disarm fuels proliferation, and proliferation makes nuclear materials more accessible to terrorists.

The [September 11, 2001, terrorist attacks] brought home to Americans what it means to experience a catastrophic attack. Yet the horrifying losses that day were only a fraction of what any nation would suffer if a single nuclear weapon were used on a city.

The drift toward catastrophe must be reversed. Safety from nuclear destruction must be our goal. We can reach it only by reducing and then eliminating nuclear arms under binding agreements.

We therefore call on the United States and Russia to fulfill

ing the dots. The failure of the end of the cold war's political hostilities to bring with it the end of the cold war's nuclear arsenals is a fact of prime importance for the era that is beginning. No longer justified as a remnant of the old era, they have now become the foundation stone of the new one. They relegitimize nuclear arsenals at lower levels. The plain message for the future is that in the twenty-first century, countries that want to be safe need large nuclear arsenals, even in the absence of present enemies. This of course is a formula for nuclear proliferation.

The place in the world to look today for a portrait of pro-

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their Commitments under the Nonproliferation Treaty to move together with the other nuclear powers, step by carefully inspected and verified step, to the abolition of nuclear weapons. As key steps toward this goal, we call on the United States to:

- *Renounce* the first use of nuclear weapons.
- Permanently *end* the development, testing and production of nuclear warheads.
- *Seek agreement* with Russia on the mutual and verified destruction of nuclear weapons withdrawn under treaties, and increase the resources available here and in the former Soviet Union to secure nuclear warheads and material and to implement destruction.
- *Strengthen* nonproliferation efforts by ratifying the Comprehensive Test Ban Treaty, finalizing a missile ban in North Korea, supporting UN inspections in Iraq, locating and reducing fissile material worldwide and negotiating a ban on its production.
- *Take* nuclear weapons off hairtrigger alert in concert with the other nuclear powers (the UK, France, Russia, China, India, Pakistan and Israel) in order to reduce the risk of accidental or unauthorized use.
- *Initiate* talks on further nuclear cuts, beginning with US and Russian reductions to 1,000 warheads each.

To sign the statement, go to urgentcall.org or send name, organization/profession (for id only) and contact information to Urgent Call, c/o Fourth Freedom Forum, 11 Dupont Circle NW, 9th Floor, Washington, DC 20036.

Jonathan Schell et al., *Nation*, June 24, 2002, p. 12.

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liferation is South Asia, where India and Pakistan are closer to nuclear war than any two countries have been since the Cuban missile crisis, or perhaps ever. According to a recent government study, 12 million lives are at immediate risk. A multiple of that could be the eventual total. The world has scarcely begun to absorb the meaning of these figures. It is a crisis in which almost every conceivable form of violence and threat of violence is tied into a single knot. Up to a million men facing each other across an 1,800-mile border are primed for a World War I–style conventional war. Between them is a disputed territory, Kashmir. On that territory a liberation movement pits an indigenous Muslim minority against Indian repression in the part of Kashmir under its control. Extremist groups in Kashmir and supporters who cross the border from Pakistan to aid them add the incendiary ingredient of terrorism. In a deadly new combination, terrorism threatens to unbalance the balance of terror. The leaders of both countries—the dictator Pervez Musharraf of Pakistan and the head of the Hindu fundamentalist Bharatiya Janata Party, Prime Minister Atal Behari Vajpayee of India—have taken "tough" stands from which they can withdraw only at high political cost. In a groggy atmosphere of global inattention and inaction, the two nations drift toward nuclear war. Its outbreak would change history forever.

Even as the great powers' fresh embrace of their nuclear arsenals incites proliferation, proliferation (to further connect the dots) fuels the terrorist danger. A world of multiplying nuclear powers will be a world awash in nuclear materials. To give just one instance, it is known that the Pakistani nuclear-weapon scientist and Muslim fanatic Sultan Bashiruddin Mahmood had visited [terrorist] Osama bin Laden to talk over nuclear matters. [In early 2002], bin Laden announced—falsely, we can only hope—that he possessed nuclear arms, and it is known that the Al Qaeda network has sought them. In a May article in the *New York Times Magazine*, complete with washed-out, vaguely post-apocalyptic photographs of New York, Bill Keller reported that forestalling such an attack is now one of the highest priorities of the federal government.

The relegitimation of nuclear weapons in the toothless

Moscow Treaty, the rising danger of nuclear war in South Asia and the spreading fear of nuclear terrorism in the United States and elsewhere are only the most recent harvest of danger—three new dots on the single, terrifying emerging map of the second nuclear age.

A World Without Nuclear Weapons

"Safety from nuclear destruction must be our goal. We can reach it only by reducing and then eliminating nuclear arms under binding agreements."

The Bush Administration, which is acutely aware of the dangers of both nuclear terrorism and nuclear proliferation (Secretary of Defense Donald Rumsfeld has called the use of a weapon of mass destruction on American soil "inevitable"), has consistently turned to military force as its chosen remedy. Its formula for dealing with terrorism is to overthrow states that harbor terrorists. Its program for stopping proliferation is likewise overthrowing some states—beginning with the government of Iraq—that seek to engage in it. The new strategy has been codified in a new Nuclear Posture Review, which proposes a policy of "offensive deterrence," under which the United States threatens pre-emptive attack, including possible nuclear attack, against nations that acquire or threaten to use weapons of mass destruction. Disarmament has become an occasion for war. But force is more likely to incite proliferation than to end it. In a world whose great powers were committed to nuclear disarmament, the decision by other nations to forgo these weapons would be consistent with national self-respect. But in a world in which one self-designated enforcer of a two-tier nuclear system sits atop a mountain of nuclear bombs and threatens destruction of any regime that itself seeks to acquire them, such forbearance becomes national humiliation—a continuation of the hated colonial system of the past, or "nuclear apartheid," as the Indian government put it.

The Urgent Call, by contrast, proposes a return to the tested and proven path of negotiation, through which 182 countries have already agreed, under the terms of the Nuclear Nonproliferation Treaty, to stay out of the nuclear weapons business. The call raises the banner of a single stan-

dard: a world without nuclear weapons.

"*We therefore call on the United States and Russia . . . to move together with the other nuclear powers, step by carefully inspected and verified step, to the abolition of nuclear weapons.*"

The goal of nuclear abolition, it is true, is ambitious, and the difficulties are mountainous. Many will say, as they have throughout the nuclear age, that it is unrealistic. They would perhaps be right if we lived in a static world. But events—in South Asia, in Central Asia, in the Middle East, in New York—are moving at breakneck pace, and the avenues to disaster are multiplying. A nuclear revival is under way. A revival of nuclear protest is needed to stop it.

"For the foreseeable future we have no alternative but to continue to depend on nuclear weapons and the deterrence they provide."

The United States Should Not Eliminate Its Nuclear Arsenal

C. Paul Robinson, interviewed by James Kitfield

C. Paul Robinson is director of Sandia National Laboratories, a government-owned, privately operated facility that develops technologies to enhance U.S. national security. In 2001 Robinson wrote an influential paper supporting the inclusion of nuclear weapons in U.S. defense policy. The following viewpoint is excerpted from an interview Robinson gave to *National Journal* in September 2001. In it he argues that the abolition of nuclear weapons would severely undermine U.S. national security. Robinson supports reductions in the U.S. nuclear stockpile but believes that America must maintain an arsenal sizable enough to deter other nations from threatening the United States with their own weapons of mass destruction. He also supports the use of smaller nuclear weapons that might be used against rogue nations without inflicting extremely massive casualties.

As you read, consider the following questions:

1. Roughly speaking, about how many nuclear weapons does the author believe the United States must maintain?
2. According to Robinson, why did Iraq refrain from using more of its chemical and biological weapons in the 1991 Gulf War?

James Kitfield, "Ban the Bomb? Heck No, It's Too Useful," *National Journal*, vol. 33, September 8, 2001, p. 36.

To his critics, C. Paul Robinson is Dr. Strangelove incarnate, a Cold Warrior who after nearly four decades working in the U.S. nuclear weapons complex learned to love the bomb. While even hardliners in the Bush Administration are today trumpeting "deep cuts" in the U.S. nuclear arsenal, Robinson, director of Sandia National Laboratories, argues for new types of nuclear weapons to deter new kinds of threats. Although most of the globe embraces the dream inherent in the Nuclear Nonproliferation Treaty of a future world without nukes, Robinson—with unusual, to-the-point frankness—decries this "delegitimization" of nuclear weapons.

Not even his critics, however, question Robinson's credentials as an articulate advocate for the continued value of the United States' nuclear deterrent. A physicist by trade, Robinson spent nearly 20 years at Los Alamos National Laboratory, eventually heading its nuclear weapons programs. With the title of ambassador, he also served as Ronald Reagan's chief negotiator and head of the U.S. delegation to the Nuclear Testing Talks in Geneva in the 1980s. He is presently chairman of the policy subcommittee of the Strategic Advisory Group, a panel that advises the four-star commander of U.S. Strategic Command, which is in charge of U.S. nuclear weapons. Many of Robinson's ideas for reshaping America's nuclear arsenal—contained in his white paper "Pursuing a New Nuclear Weapons Policy for the 21st Century"—have been embraced by senior Bush Administration officials. *National Journal* correspondent James Kitfield recently interviewed Robinson in Washington.

The Importance of Deterrence

James Kitfield: In a post–Cold War era when most policy makers are focusing on reducing nuclear arsenals, you argue in your paper that nuclear weapons not only "have an abiding place on the international scene," but also that new ones should be tailored for new kinds of deterrence.

C. Paul Robinson: As I wrote this paper, it felt like putting my head in a guillotine, because I knew that some people were going to try and chop it off for making these arguments. A lot has been done in recent years to delegitimize nuclear weapons to the point that I find people are lulled

into a belief that nuclear weapons are going to go away soon, and thus we needn't worry about them anymore. But it's ridiculous to think that we can "uninvent" nuclear weapons.

I also happen to think that nuclear weapons have not only been vital to U.S. national security, but also that history has turned out better for our having nuclear weapons. U.S. nuclear weapons help maintain peace, and a lot of other nations depend on our nuclear umbrella. So, like it or not, for the foreseeable future we have no alternative but to continue to depend upon nuclear weapons and the deterrence they provide.

Are there no compelling strategic and moral arguments for, as you say, "delegitimizing" weapons of such horrific destructive potential? For instance, the United States signed the Nuclear Nonproliferation Treaty, which calls for nonnuclear states to forgo nuclear weapons, and for nuclear weapons states to work to reduce their arsenals eventually to zero.

The NPT Treaty, the arguments surrounding the Comprehensive Test Ban Treaty, and a lot of the rhetoric we heard from the Clinton White House all suggested that sooner or later nuclear weapons are going to go away. I simply don't believe that is true. I think it's important that people wake up and realize that nuclear weapons have meant a lot to our security, and we'd better make sure that our arsenal doesn't erode if our future depends on it.

And you've taken on the mission of sounding the alarm?

No one likes thinking the unthinkable, because it's a tough business. But someone's got to do it. I guess after spending my entire career in this field, I don't think anyone else knows more about the subject than me.

Arms control advocates would argue that the NPT is largely responsible for many nuclear have-nots doing without nuclear weapons.

Yes and no. I believe the establishment of NATO [the North Atlantic Treaty Organization] did more to prevent proliferation than the NPT, because it extended our nuclear umbrella over the nations of Western Europe that could relatively easily have developed their own nuclear weapons. I think there's a lesson in that example which applies today to South Asia.

The Bush Administration has proposed deep reductions in our offensive nuclear arsenal as a sweetener in selling its proposed na-

U.S. Nuclear Forces, 2003

Type	Name	Launchers	Year deployed	Warheads x yield (kiloton)	Warheads active/spares
Intercontinental Ballistic Missiles					
LGM-30G	Minuteman III				
	Mk-12	150	1970	1 W62 × 170	150
	Mk-12	50	1970	3 W62 × 170 (MIRV)	150/15
	Mk-12A	300	1979	3 W78 × 335 (MIRV)	900/20
LGM-118A	MX/Peacekeeper	40	1986	10 W87 × 300 (MIRV)	400/50
Total		**540**			**1,600/85**
Submarine-Launched Ballistic Missiles					
UGM-96A	Trident I C4	96/4	1979	6 W76 × 100 (MIRV)	576
UGM-133A	Trident II D5	288/12			
	Mk-4		1992	8 W76 × 100 (MIRV)	1,920/156
	Mk-5		1990	8 W88 × 475 (MIRV)	384/16
Total		**384/16**			**2,880/172**
Bombers					
B-52	Stratofortress	94/56*	1961	ALCM/W80-1 × 5–150	430/20
				ACM/W80-1 × 5–150	430/20
B-2	Spirit	21/16	1994	B61-7, -11, B83-1 bombs	800/45
Total		**115/72**			**1,660/85**
Nonstrategic forces					
Tomahawk Ship-Launched					
Cruise Missiles		325	1984	1 W80-0 × 5–150	320
B61-3, -4, -10 bombs		n/a	1979	0.3–170	800/40
Total		**325**			**1,120/40**
Grand total**					**~7,650**

ACM: advanced cruise missile; ALCM: air-launched cruise missile; ICBM: intercontinental ballistic missile (range greater than 5,500 kilometers); MIRV: multiple independently targetable reentry vehicles; SLCM: sea-launched cruise missile; SLBM: submarine-launched ballistic missile.
* The first figure is the total inventory, including those used for training, testing, and backup; the second figure is the primary mission inventory: the number of operational aircraft assigned for nuclear or conventional missions.
** Nearly 3,000 additional intact warheads are retained in reserve or inactive stockpiles.

Robert S. Norris, Hans M. Kristensen, and Joshua Handler, "Nuclear Notebook," *Bulletin of the Atomic Scientists*, May/June 2003.

tional missile defense shield. At some point, might such reductions erode the United States' ability to extend its nuclear umbrella?

I support deep reductions, but at some point [those cuts] would call our umbrella into question. I worked on a report on that subject for the commander in chief of U.S. Strategic Command as a member of the Strategic Advisory Group. Essentially, our blueprint concluded that at some point between 2,000 and 1,000 nuclear weapons, we will run into speed bumps and probably a stop sign on reductions. It's not an exact science, and that level would still represent a dramatic reduction from today's massive U.S. and Russian nuclear arsenals.

At some point in reducing our arsenal, we also have to switch from bilateral to multilateral negotiations, because our nuclear arsenal has to deter a potential threat from unforeseen alliances that might develop in the future between other nuclear states. Stranger things have happened throughout history. Somewhat counterintuitively, a world in which there are just a few nuclear weapons would also be very dangerous, because the possibility that one side would "break out," and secretly construct a dominant nuclear force of a hundred or so weapons, would be quite high.

Do you think the Bush Administration's proposed missile defense system will lessen the need for some offensive nuclear weapons in the deterrence equation?

I believe both offensive and defensive systems can coexist as part of an overall national security policy, though I have yet to hear that policy articulated. You'll never have a defense, however, that is dominant against offensive nuclear weapons. When I speak publicly on the subject, I also ask audiences to consider that the United States or one of its allies were attacked with nuclear weapons one day, and our proposed missile defense system worked as advertised. Say only 5 or 10 percent, or whatever number you pick, of the attacking nuclear missiles got through. Do you really think the war is then over? . . .

In your paper, you argue that the United States needs to tailor its nuclear arsenal to deter new types of threats, especially chemical and biological weapons. Do we really need to find new uses for nuclear weapons?

Not necessarily new. We had a pretty good test case with Iraq during the Persian Gulf War. If you look at the volumes of chemical and biological weapons later reported by United Nations weapons inspectors, it was astounding what Iraq possessed. Why weren't those weapons of mass destruction used? Many military experts I've talked to are absolutely convinced it was because of a secret letter sent by President [George] Bush threatening the gravest consequences if such weapons were released. President Clinton made a similar threat against North Korea during a crisis in 1994.

The Need for Smaller Tactical Weapons

If our implicit threat of nuclear retaliation deterred rogue states such as Iraq and North Korea, why do we need new nuclear weapons?

The problem is, the strategic nuclear policy we developed during the Cold War has been stretched about as far as possible to fit a changing post–Cold War era. Today, we are threatened not only by nuclear weapons in the arsenal of peer nuclear competitors like Russia, but increasingly by biological, chemical, and radiological weapons that could kill huge numbers of people in a flash. Yet it's pretty incredible to think that the United States would respond to such an attack by vaporizing 11 million people in a rogue state just because they were poorly led. Where the hell are we going to use missiles with four to eight warheads, or half-megaton yields? Even the few "tactical" nuclear weapons that we have left have high yields of above 100 kilotons. I would hope a U.S. President would think it was crazy to use such weapons in response to a rogue-state attack.

After a decade of trying to sort out what we learned from the Cold War and how we might tailor our nuclear deterrence and deterrent message to fit the future, I now argue that we need lower-yield nuclear weapons that could hold at risk only a rogue state's leadership and tools of aggression with some level of confidence.

Isn't the United States' vaunted conventional military superiority—based in large part on our increasingly accurate precision-guided weapons—enough of a deterrent?

No. We've seen examples as recently as the [1999] air war

with Serbia, when we attacked underground targets with conventional weapons with very little effect. It just takes far too many aircraft sorties and conventional weapons to give you any confidence that you can take out underground bunkers. By putting a nuclear warhead on one of those weapons instead of high explosives, you would multiply the explosive power by a factor of more than a million.

Wouldn't fielding new, low-yield nuclear weapons capable of penetrating underground bunkers require new designs and a return to nuclear testing?

In my paper, I conclude that we would neither have to conduct testing nor redesign for such a weapon, because we have them already. Right now, all of our weapons have primary and secondary stages. Through a process known as "boosting," you get a thermonuclear reaction. The primary alone, however, has a yield of 10 kilotons or less, or basically what you would want for a bunker-buster or a weapon that would cause relatively low collateral damage. All we have to do is send these weapons back to the factory and replace the secondary stage with a dummy. The beauty of that approach is that we are already very good at building dummy secondary stages. For safety and costs reasons, most of the weapons we have flown and tested in the past have had dummy secondary stages. So we could develop these lower-yield weapons without forcing the nuclear testing issue back onto the table, with a richer database of past tests, and at relatively low cost. . . .

How do you respond to critics who believe that by tailoring new nuclear weapons for new types of deterrence, you would make their eventual use in a crisis more likely?

My response is that for God's sake, then, let's think this through in advance rather than doing it on the fly. Say Iraq had instigated the first use of biological or chemical weapons during the Persian Gulf War, causing huge numbers of casualties. How would we have retaliated to make good on President Bush's threat? By vaporizing 11 million people? Because I can tell you, we haven't given a lot of thought to this issue. We need to carefully think through our posture of nuclear deterrence, because whatever decision is made during the next crisis will leave a message to all of history.

Preserving the Peace

Why not send a message that the United States will not be the first to use nuclear weapons?

The burden is on those who believe it is immoral to threaten nuclear retaliation for the use of chemical or biological weapons to propose an alternative. I subscribe to the advice of [former British prime minister] Winston Churchill: "Be careful above all things not to let go of the atomic weapon until you are sure, and more sure than sure, that other means of preserving the peace are in your hands." Those words reflect my thinking on the subject very well.

"Without a low-yield penetrator, rogue-state leaders are able to have, in effect, a safe haven for themselves and their weapons of mass destruction."

The United States Should Modernize Its Nuclear Arsenal

Richard Lowry

In the following viewpoint Richard Lowry argues that the United States needs to build new, smaller-yield nuclear weapons. Lowry maintains that the current U.S. nuclear arsenal is made up of high-yield nuclear weapons that during the Cold War were intended to convince the Soviet Union that it would face annihilation if it started a nuclear war with the United States. Today, maintains Lowry, the idea that America would use these incredibly destructive weapons—which would kill massive numbers of civilians—simply is not credible. He contends that the United States needs smaller nuclear weapons both to provide credible deterrence and to provide a means of destroying deeply buried underground bunkers in which terrorists and rogue nations build and store weapons of mass destruction. Richard Lowry is editor of the *National Review*, a conservative weekly magazine.

As you read, consider the following questions:

1. As stated by the author, what countries have tested nuclear weapons since the United States voluntarily stopped testing in 1992?
2. Why does the Federation of American Scientists oppose low-yield nuclear weapons, as quoted by Lowry?

Richard Lowry, "The Nukes We Need: Adapting Our Arsenal to Today," *National Review*, vol. 54, March 25, 2002.

When President [George W.] Bush peered across the DMZ [demilitarization zone] into North Korea [during his visit to South Korea in February 2002], the most important things to see were out of sight. The North Koreans have two related proficiencies: weapons production and tunneling. They built an underground city to conceal work on the No Dong ballistic missile, tested in 1993. In 1998, a tunnel complex big enough to house a plutonium production plant was discovered near a nuclear research center supposedly shut down under the 1994 U.S.–North Korean Agreed Framework. Meanwhile, the North Korea forward staging areas near the DMZ have more than 4,000 tunnels and bunkers.

The Underground Threat

The North Koreans may specialize mainly in backwardness, but in this they are on the cutting edge. Russia, China, Iraq, and other countries all have a new appreciation for the bunker mentality. The Chinese learned from NATO [North Atlantic Treaty Organization] air campaigns in the Gulf and the Balkans that digging is the best way to counteract NATO's mastery of the air. As for the Russians, they have a tradition of digging going back to the Cold War, with some bunkers in Moscow estimated to be 1,000 feet deep, and one facility under Yamantau Mountain in the Urals reportedly as large as the area inside the Washington Beltway.

As the war on terrorism has now also become—at least in the president's rhetoric—a war on weapons of mass destruction (WMD), this drive underground cannot be ignored, especially in U.S. nuclear policy. The U.S. is finally—a decade late—taking account of the end of the Cold War by drastically reducing its operational strategic nuclear force from roughly 6,000 warheads to 2,000. But it makes no sense to react to the changed international environment only by scrapping the old force. The arsenal should also be updated to deal with new realities, most importantly by developing an earth-penetrating nuke, designed to target deeply buried WMD [weapons of mass destruction] sites.

William Schneider, chairman of the Pentagon's Defense Science Board, explains that there has been a revolution in the economics of digging in recent years, thanks mostly to

work on the Channel Tunnel. Run as a commercial venture, the Chunnel project emphasized innovation, producing technologies cheaper and more efficient than the traditional blast-and-cut methods. Now, according to Schneider, for a few million dollars a country can buy a Japanese, Finnish, or German machine that can dig an 18-meter-wide hole at a rate of 70 meters a day.

The Robust Nuclear Earth Penetrator

Our potential enemies are burrowing in their chemical weapons capability, their conventional capability, their command and control, biological and nuclear weapons programs. Our current weapons systems cannot destroy targets that are deeply buried in tunnels. They were not designed to do so.

In the 2001 Defense Authorization Bill, the Congress directed NNSA [the National Nuclear Security Administration] to study whether we can take an existing nuclear weapon and encase it in such a way so that it will penetrate the earth before it explodes. The intent is to hold at risk hard and deeply buried targets.

Having a Robust Nuclear Earth Penetrator (RNEP) does not make it more likely that the President would use such a weapon. The use of nuclear weapons is one of the gravest decisions any President can contemplate. It does make it more probable that that weapon would destroy a deeply buried target if he had to use it, and, hence, more likely that we could deter the use of weapons of mass destruction by an enemy.

The President should have options—the options of conventional forces, of precision conventional weapons, and of nuclear weapons that are capable of holding all targets at risk.

U.S. House of Representatives Policy Committee, Subcommittee on National Security and Foreign Affairs, *Differentiation and Defense: An Agenda for the Nuclear Weapons Program*, February 2003.

The U.S. has been working to counteract this new underground capability with conventional weapons. The GBU-28 "Bunker Buster"—a 5,000-lb. laser-guided bomb rushed into production for the Gulf War—has penetrated over 20 feet of concrete and more than 100 feet of earth in tests. Even bigger and better weapons are in the works. One is called "Big BLU," a sort of plus-size daisy cutter (the 15,000-lb. bomb designed to blast clear a 600-meter area that has had a star-

ring role in [the 2001 war in] Afghanistan).

With these bombs, the military is essentially attempting to create something that has the power of a nuclear weapon without actually being nuclear. But the explosive force of conventional weapons can be pushed only so far. In addition, some bunkers are simply too deep and too hard. A recent Pentagon study concluded, "Even with the current strategy and acquisition initiatives, the United States will still not be able to hold all known or suspected Hard and Deeply Buried Targets at risk for destruction, especially the deep underground facilities."

This means that the only conventional force to which some targets will be vulnerable is an invasion or special-forces raid. But not all future conflicts will resemble Afghanistan or the Persian Gulf War, when the U.S. had total control of the skies and could operate almost at will. The ground-force option, in addition to risking American lives, would almost always fail what Keith Payne, head of the influential National Institute for Public Policy (NIPP), says should be a three-pronged test for taking out a dangerous WMD site in a crisis: It should be prompt, predictable (for our leaders, not the enemy), and definitive. A conventional raid might well be none of the above.

The Need for Smaller, More Accurate Nukes

Which leaves nuclear weapons. "From the public record, I don't know of any non-nuclear way of dealing with this underground threat promptly and conclusively," says Payne, whose work has been the basis of the Bush administration's recent reevaluation of U.S. nuclear strategy. A nuke would have several advantages. It passes the prompt-predictable-definitive test. It also might not require intelligence as precise as that necessary for a conventional weapon—the explosive force provides room for error.

And it would destroy the targeted WMD agents rather than spread them as a conventional blast might. As a report from NIPP recently put it, chemical and biological agents "are extremely difficult to destroy (or sterilize) definitely, as opposed merely to disperse, except by means of the extraordinary heat and neutron flux generated by nuclear explo-

sives." A nuke, of course, would create another hazard—radioactive fallout—but a low-yield weapon could be designed to minimize it.

The problem is that we don't have this kind of weapon. Given that we have been in the nuclear business for 50 years, how is that possible? A host of strategic and technical reasons account for it, together with a perverse arms-control orthodoxy that has attempted to keep the U.S. arsenal as massive, inaccurate, and potentially horrific in its effects as possible.

Mutual Assured Destruction relied on the "balance of terror," on the willingness of the U.S. and the Soviet Union to hold their populations hostage. Any highly accurate or earth-penetrating weapon that instead would have been effective against specific military targets was considered "destabilizing"—a "war-fighting" weapon rather than a weapon of generalized terror. So, U.S. nukes tended to be designed for killing lots of Russians rather than destroying narrow military targets.

This was also simply easier as a technical matter. Getting a warhead to drive into the ground, then explode, is a technical challenge on the order of getting a car to drive through a wall, then have its left-turn signal flash. As nuclear expert Robert Barker explains, the weapon has to be fast enough to enter the ground, but not so fast as to destroy the warhead and the mechanism that triggers it. The warhead design, needless to say, must be very rugged. These difficulties, however, are probably surmountable. We dealt with some of them in creating nuclear artillery shells, which had to withstand enormous G-forces.

But arms-controllers aren't interested in having these problems surmounted. In fact, [many] . . . want U.S. nuclear weapons to be as indiscriminate as possible. In their 1983 letter on nuclear weapons, the U.S. Catholic bishops opposed making nukes more accurate. This would seem to be in direct contradiction to Just War Theory, which emphasizes "discrimination" in order to minimize civilian casualties. The bishops' spirit lives on in 1994 congressional language prohibiting the U.S. from "research and development which could lead to the production by the United States of a new low-yield nuclear weapon, including a precision low-yield warhead."

There have, nonetheless, been attempts to update the U.S. arsenal. The Clinton administration worked to develop a penetrator without actually creating a "new" weapon. It gave an existing nuke, the B-61, a new needle-shaped hardened case. But the re-jiggered B-61 relies only on its terminal velocity—it is dropped, unpowered, from the air—to drive it into the earth. A true earth-penetrator would be powered so that it could hit the ground at much higher speeds. (The B-61 burrows about 20 feet deep into dry earth, whereas a true penetrator might need to go through 100 feet of granite.)

One advantage of the B-61 is that its yield can be adjusted downward from its high of 340 kilotons. A low-yield penetrator would probably be 10 kilotons or less (the Hiroshima bomb was 15 kilotons). The issue of size is so important because the U.S. wants a weapon that can be used in a crisis without the sort of massive collateral damage that would be simply unacceptable. As Stephen Younger, then an associate lab director at Los Alamos [nuclear arms facility], wrote in a controversial June 2000 paper, "A reliance on high-yield strategic weapons could lead to 'self-deterrence'"—in other words, an unwillingness on the part of the U.S. to use its own weapons.

The Testing Taboo

If the U.S. wants to develop a useful new nuke it will have to cross another arms-control taboo—against nuclear testing. In theory, it might be possible to jerry-rig a new weapon without testing, but that would be far from ideal as a technical matter. In any case, the "stockpile stewardship program," which was supposed to supplant testing with computer models, was drastically underfunded in the Clinton administration, limiting its usefulness. It is questionable whether we can retain confidence even in our current arsenal without testing, since our warheads were designed to last only 15 to 20 years.

In 1992, the first President Bush signed a bill instituting a voluntary moratorium on testing, although he made clear that he opposed it, and the Senate declined to make it permanent in 1999 by refusing to ratify the Comprehensive Test Ban Treaty. Arms-controllers argue that if the U.S. eschews testing, it will create a new anti-nuclear "norm"

around the world. But the Chinese, French, Indians, Pakistanis, and perhaps the Russians have tested subsequent to the U.S. moratorium.

For arms-controllers, the underlying rationale for the taboo against testing seems obvious: to prevent the U.S. from developing a new weapon, and ultimately to force the existing arsenal to die on the vine. It ensures that the U.S. has an aging, less and less reliable arsenal, built for a long-past strategic threat that bears little resemblance to the present one. The last new U.S. nuclear weapon was fielded in the 1980s, which means that it was designed in the 1970s. The longer the U.S. goes without designing and manufacturing a new weapon, the less capable it will be of doing so, as the expertise and manufacturing base wither away.

Credible Deterrence

The thrust of the arms-controllers seems to come down to limiting U.S. power. Consider: Arms-controllers oppose American missile defenses because it is supposedly destabilizing for the U.S. to have sites that can be protected from rogue-state (or Russian or Chinese) attack. On the other hand, arms-controllers apparently don't mind rogue states' having sites that can be protected from U.S. attack. There is no effort to create an international treaty keeping rogues from digging deep bunkers. And arms-controllers oppose a new U.S. weapon that would be capable of holding these sites at risk. Assured destruction apparently looks much better when it applies only to the U.S.

During the debate over missile defense [in 2001], arms-controllers made nice sounds about deterrence (who needs missile defense when you have deterrence?). But deterrence depends on credibility. As long as the U.S. arsenal is chock-full of weapons that can only cause indiscriminate damage—and mass civilian casualties—it doesn't seem credible that we will use them, and so their deterrent value is lost. Which is exactly the way arms-controllers like it—the U.S. arsenal becomes, in effect, irrelevant.

Their complaint about a low-yield nuke is exactly that, in the words of Congress in 1994, it would "blur the distinction between nuclear and conventional war." Or, as a Federation

of American Scientists report puts it, "adding low-yield warheads to the world's nuclear inventory simply makes their eventual use more likely." Actually, that's not quite true: It makes their use seem more plausible, which in turn makes their use less likely.

Without a low-yield penetrator, rogue-state leaders are able to have, in effect, a safe haven for themselves and their weapons of mass destruction. If they knew they didn't have any such protection, it might deter them from threatening or attacking the U.S. in the first place. This is how deterrence works. But deterrence also fails, in which case a low-yield penetrator might be necessary to preempt an imminent attack or to retaliate against one—and keep more from coming—by, say, hitting all of [a rogue government's] . . . command bunkers.

The Bush administration is at least making moves toward updating the arsenal. The Minuteman missile is having its 1970s-era guidance system overhauled, so some attention is being paid to applying the benefits of new precision technology to existing nukes. The administration has also undertaken a study of the need for a new earth-penetrating low-yield nuke. Developing one would mean running into the teeth of congressional and international opposition, and it is, of course, extremely unlikely that such a weapon would ever be used. Conventional options would almost always be preferable.

The key word, however, is "almost." Nuclear weapons have always been available as a bad option that might be necessary only if every other option is worse. The world, unfortunately, didn't stop offering us bad options back in 1989. We should stop pretending otherwise.

"These [low-yield tactical nuclear weapons] have not only political but military liabilities."

The United States Should Not Modernize Its Nuclear Arsenal

Michael A. Levi

Michael A. Levi is director of the Strategic Security Project at the Federation of American Scientists in Washington, D.C. In the following viewpoint he argues that the United States should not build new types of nuclear weapons. The rationale for such weapons is that they are necessary to destroy deeply buried targets—underground bunkers where rogue nations or terrorists may conceal weapons of mass destruction. But Levi maintains that situations where the United States would need to destroy such bunkers are rare. Furthermore, he maintains that using conventional weapons to disable such targets would be more effective in many cases, and would certainly cause less collateral damage. In addition, Levi warns that building new nuclear weapons would undercut America's responsibility to discourage nuclear proliferation.

As you read, consider the following questions:

1. In Levi's opinion, what do most arguments for bunker-busting nuclear weapons ignore?
2. What is the highest-yield weapon in the U.S. nuclear arsenal, according to the author?
3. How might military planners disable, rather than destroy, deeply buried bunkers, in Levi's view?

Michael A. Levi, "The Case Against New Nuclear Weapons," *Issues in Science and Technology*, vol. 19, Spring 2003, pp. 63–68.

Does the United States need nuclear bombs to destroy enemy bunkers and chemical or biological weapons? For some people, the answer is clear. Strong proponents of nuclear weapons speak of the need to give the president every possible military option, and the Bush administration's 2002 Nuclear Posture Review reflects this affirmative response. On the other side, committed opponents maintain that no potential military capability could justify designing—let alone building or using—new nuclear bombs. For both camps, the details of the proposed weapons are irrelevant.

Yet neither of the simple arguments for or against new nuclear weapons is broadly accepted. The United States does not develop every possible weapon simply to provide the president with all options; policymakers have, for example, judged the military value of chemical weapons insufficient to outweigh the political benefits of forgoing them. On the other hand, the nation has never rejected nuclear use outright and has always reserved the possibility of using tactical nuclear weapons. Indeed, until the end of the Cold War, such weapons were central to U.S. military thinking.

Despite their disagreements, the people engaged in debate over new nuclear weapons have tacitly agreed on one thing: that these weapons would deliver substantial military benefits. Thus, they have cast the dilemma over new nuclear weapons as one of military necessity versus diplomatic restraint. But this is a false tension: New nuclear weapons would, in fact, produce few important military advances. Yet their development would severely undercut U.S. authority in its fight against proliferation.

Advocates of new tactical nuclear weapons have tended to focus shortsightedly on simple destructive power. In particular, most arguments for bunker-busting nuclear weapons ignore the difficulty of locating threatening bunkers in the first place. During the Gulf War of 1991, military planners painstakingly assessed the potential consequences of bombing Iraqi chemical weapons facilities, debating nuclear and nonnuclear weapons, as well as the option of leaving the bunkers alone. Ultimately, the military used conventional weapons to bomb every known facility. Subsequently, however, international weapons inspectors, aided by Iraqi defec-

tors, discovered that those targets had been the mere tip of a vast Iraqi system for producing and storing weapons of mass destruction. Had the military used nuclear weapons to bomb all known chemical facilities during the Gulf War, the United States would have made barely a dent in Iraq's deadly capability while incurring massive political backlash as people died from the accompanying nuclear fallout.

The challenge of finding hidden targets is the norm, not an exception. In Afghanistan [in 2001], U.S. efforts to eliminate the [ruling] Taliban and Al Qaeda [terrorists] were hindered by the difficulty of tracking down their underground hideouts. Intelligence technology, which relied heavily on detecting mechanical equipment, power lines, and communications systems to identify hidden facilities, floundered in the face of a backward enemy who employed none of the technologies being searched for. [Terrorist] Osama bin Laden is still alive not because the United States lacked powerful weaponry, but because U.S. intelligence could not find him in the caves of Tora Bora.

Still, an inability to locate all enemy weapons stockpiles and underground leadership targets is not an argument for leaving alone those that can be found. But proponents of nuclear weapons have overstated the capability of the nuclear option even in cases where targets can be located, while underestimating nonnuclear potential. In particular, proponents have contended that nuclear weapons are needed to compensate for difficulties in precisely locating underground targets; that they are needed to neutralize chemical and biological agents and thus prevent their deadly use; and that only with nuclear weapons will there be no "safe havens" (no depth below which enemies are safe). However, each of these arguments can be debunked, as illustrated in the following examples.

Inadequate Intelligence

Libya has been suspected of producing chemical weapons at its Tarhunah complex, located 60 kilometers southeast of the capital city of Tripoli and hidden in tunnels and bunkers under roughly 20 meters of earth. The problem is that U.S. analysts have not been able to produce an exact blueprint of the underground chambers. This lack of precision leads some

observers to argue that although the facility is, in theory, shallow enough to be destroyed with conventional arms, uncertainty concerning its location may require the large destructive radius of a nuclear weapon to compensate.

America's Nuclear Hypocrisy

It is ironic and hypocritical that the Bush administration has condemned both North Korea and Iran for their apparent efforts to develop nuclear weapons. The Bush administration itself is undermining the international nuclear nonproliferation regime.

The heart of the regime is the Nuclear Non-Proliferation Treaty (NPT). One of its main provisions is the promise by the nuclear weapon states, including the United States, to move toward nuclear disarmament. In return for that promise, the non-nuclear weapon states have pledged not to acquire nuclear weapons. . . .

Nevertheless, the Bush administration's 2002 Nuclear Posture Review calls for rebuilding key parts of the U.S. nuclear weapons production complex to permit the modification, upgrading, or replacement of portions of the existing nuclear force. It further proposes the development of new, low-yield, and presumably more usable nuclear weapons, such as a new nuclear earth-penetrating weapon. The alleged purpose of this weapon is to give the United States the capability to destroy hardened and/or deeply buried targets, such as the cave complex used by Al Qaeda [terrorists] in Afghanistan. . . .

Clearly, if the Bush administration were serious about halting the proliferation of nuclear weapons, it would accept the same standards of behavior that it is attempting to impose on non-nuclear weapon states.

Ronald E. Powaski, "Bush's Nuclear Hypocrisy," *Bulletin of the Atomic Scientists*, January/February 2004.

A nuclear weapon detonated at or near the surface produces a large crater and sends a massive shock wave into the ground. Underground facilities within this crater are destroyed, as are facilities slightly outside the zone by strong stresses that rupture the earth. Based on the intelligence community's knowledge (even given its uncertainty) about the Tarhunah facility, it is apparent that a five-kiloton ground-penetrating nuclear weapon could destroy it. This attack would produce a moderate amount of nuclear fallout, the pre-

cise nature of which would depend on whether the weapon was detonated inside the facility or in the surrounding earth. To be conservative, military planners would have to assume the latter. Such a blast would kill every human being within approximately 15 square kilometers, according to calculations by Robert Nelson of Princeton University. Although this zone would not reach Tripoli, concerns about fallout would require medical monitoring for civilians as far as 20 kilometers downwind from the facility. U.S. troops in the zone would have to halt operations or risk being exposed to fallout. Troops could not enter the immediate facility area to inspect damage or collect intelligence, even with protective gear, which is ineffective against nuclear fallout.

Alternatively, there are a number of nonnuclear approaches that are already available or could be developed for destroying or neutralizing this type of complex. If the main bunker could be more precisely located, then a single earth-penetrating conventional bomb could reach it. A missile the length of the current GBU-28 penetrator, modified to strike the surface at twice the GBU-28's current impact speed, could smash through the cover of earth and reinforced concrete and destroy the facility with conventional explosives. This suggests that the military should focus on improving intelligence capabilities, particularly the ability to precisely map underground targets that have already been located, rather than on devising ever more powerful weapons.

Even if the facility cannot be precisely localized, several conventional penetrator missiles used simultaneously could mimic the effect of a small nuclear weapon. One scenario would be to mount multiple sorties to cover the entire suspected facility area. In a more sophisticated approach, the military is now developing a "small-diameter bomb" that packs several penetrating missiles into the payload of a single aircraft—essentially, an underground version of the ubiquitous cluster bomb. Extending the small-diameter-bomb concept to missiles the length of the GBU-28 would enable simultaneous delivery of as many as 24 penetrating missiles, at least several of which would be expected to penetrate the facility.

Still other options are available. If the facility were operating, then conventional electromagnetic pulse weapons—

recently added to the U.S. arsenal—might be applied to destroy or disable equipment inside. Because an electromagnetic pulse can easily travel down a bunker's power and ventilation ducts, equipment inside would be vulnerable to attack. Such weapons could be delivered by cruise missile.

In an indirect approach to rendering the facility useless, cruise missiles could be used to temporarily block its entrances. It also would be possible to establish a "no-personnel zone" or "no-vehicle zone" around the facility. A range of intelligence assets, such as spy satellites, would be trained on the area surrounding the complex, and any attempt to move material into or out of the facility would be stopped. Although the facility itself might continue to produce weapons, those weapons could not be removed and used on the battlefield. These approaches would be limited by the need to continually devote assets to a single facility or to mount repeated attacks; if there were many simultaneous targets of concern, the method might not prove feasible.

In each case of applying conventional weapons, collateral damage due to chemical dispersal would be minimal outside the facility. Inside, chemical agents would be dispersed, but U.S. troops inspecting the area could mitigate the dangers from these by wearing protective gear.

Agent Defeat

Proponents of nuclear weapons for attacking stockpiles of chemical and biological agents, called "agent defeat weapons," typically argue that the biological or chemical fallout produced by a conventional explosive attack can be more deadly than the fallout produced by a nuclear weapon. This argument misses two crucial points: In many cases, nonnuclear agent defeat payloads can avoid spreading chemical and biological fallout; and the fallout from a nuclear attack, though perhaps smaller than the potential biological or chemical fallout, is still prohibitive.

Consider a hypothetical example from Iraq, which is suspected of retaining stockpiles of weaponized anthrax and is known to use hardened bunkers extensively.[1] A typical bunker

1. Since this viewpoint was written in spring 2003, U.S. inspectors in Iraq have determined that it did not possess biological weapons.

might be 20 meters in height and cover an area measuring 400 square meters, have walls that are five meters thick and a roof of reinforced concrete, and be buried under five meters of earth. Built during the absence of United Nations weapons inspections, the bunker's existence has become known to U.S. intelligence through satellite imagery captured during its construction. It is believed to contain several tons of anthrax in storage barrels, though in the absence of a continuing ground presence, this cannot be confirmed.

A 20-ton penetrating nuclear weapon (if it were developed) detonated at the floor of the facility would incinerate its contents, preventing the dispersal of anthrax. But it would also spread nuclear fallout. Deaths from acute radiation poisoning would be expected as far as one kilometer downwind. People nearer than four kilometers downwind would, if not evacuated quickly, receive a radiation dose greater than that received by a nuclear worker during an entire year.

Nonnuclear payloads might, however, spread less collateral damage while avoiding political problems. A penetrating bomb carrying a fragmenting warhead and incendiary materials could be used. The warhead would break the anthrax out of any exposed containers, and the heat from the incendiary materials would neutralize the anthrax. Containers that were heavily shielded might not break open, but although the anthrax would not be destroyed, neither would it be released. The bunker would remain intact.

Alternatively, a penetrating bomb carrying submunitions and neutralizing chemicals could be used. The submunitions would spread throughout the bunker and release the anthrax from its containers, even if it were stored behind barriers, and the neutralizing chemicals would render the anthrax inert. The bunker would probably remain intact, although it could be breached if it had been poorly constructed.

U.S. planners may not want to directly attack the bunker. Instead, a watch could be placed on the facility using satellite imagery coupled with armed unmanned aerial vehicles. Anyone or anything attempting to enter or leave the bunker would be destroyed, making the anthrax inside unusable.

Among proponents of new nuclear weapons, the most consistent error is the assumption that they would be silver

bullets, leaving no underground facilities invulnerable to their effects. But such is not the case. Even the two-megaton B-83 bomb, the highest-yield weapon in the U.S. arsenal, would leave unscathed any facilities buried under more than 200 meters of hard rock. In contrast, functional defeat approaches—sealing off entrances rather than directly destroying the bunker—have no depth limitations.

To better understand this, consider North Korea's Kumchangri underground complex, which was once suspected of housing illicit nuclear weapons activities. The depth of the facility, built into the side of a mountain, is not publicly known, but its main chamber may quite possibly be deeper than 200 meters, putting it out of the range of even megaton-sized, earth-penetrating nuclear weapons. Even if the facility were only 150 meters underground, a one-megaton penetrating nuclear weapon would be required to destroy it, and the resulting nuclear fallout would have enormous consequences. If the wind were blowing southwest, then the North Korean capital of Pyongyang, 80 miles away, would have to be evacuated within hours of detonation to prevent the death of more than 50 percent of its residents from radiation poisoning. If the wind were blowing north or northwest, then residents of several large cities in China would have to be evacuated immediately. And if the wind were blowing south, then residents of several large cities in South Korea, as well as U.S. troops stationed in the DMZ, would have to be evacuated within hours to avoid numerous radiation deaths.

Alternatively, regardless of the facility's depth, military planners could seek to disable rather than destroy the facility. Cruise missiles could be used to collapse entrances to the bunker. Entrances, however, might be reopened quickly, requiring repeated sorties to keep the facility closed. Thennobaric weapons, which debuted in Afghanistan, could be used to send high-pressure shock waves down the tunnels, possibly destroying equipment inside the facility.

An "information umbrella" approach also might be applied. The United States, possibly together with allies, would declare that no North Korean vehicles would be allowed to come near the facility. This curfew would be monitored us-

ing surveillance assets, and any vehicle attempting to enter or leave the facility would be destroyed. . . .

Broader Discussion Needed

Though many people now maintain that the military has little interest in tactical nuclear weapons, policymakers continue to contemplate developing and deploying them. This will, unfortunately, remain the natural state unless political decisionmakers force a change. Although designers of nuclear weapons have a built-in imperative to seek nuclear solutions to military problems, there is little to be gained by the uniformed military from pushing back. It falls to Congress to actively solicit the advice of military thinkers on the utility or lack thereof of new tactical nuclear weapons.

[As of spring 2003], only the Senate Committee on Foreign Relations has devoted substantial hearing time to tactical nuclear weapons. But these weapons have not only political but military liabilities. To explore these issues, the House and Senate Armed Services Committee should convene hearings. . . . The committee should solicit input from retired military officers and from individuals who have spent time understanding both the nuclear and nonnuclear options. Only by making direct comparisons will policymakers be able to find agreement on a way forward.

"Deterrence is the practice of preventing aggression by threatening unacceptable consequences."

The United States Should Use Its Nuclear Arsenal to Deter Nations from Developing Weapons of Mass Destruction

Loren B. Thompson

In the following viewpoint Loren B. Thompson defends the U.S. strategy of using the threat of nuclear attack to deter terrorists and rogue nations from threatening the United States. Nuclear deterrence was at the core of America's and the Soviet Union's defense strategies throughout the Cold War, as each nation used the threat of nuclear annihilation to discourage the other from attacking first. Thompson believes that the terrorist attacks of September 11 demonstrated the post–Cold War need for a renewed effort to deter terrorists or rogue states from using weapons of mass destruction. Loren B. Thompson is chief operating officer of the Lexington Institute, a conservative advocacy organization, and a professor of security studies at Georgetown University.

As you read, consider the following questions:

1. By how much does President George W. Bush want to reduce the size of the U.S. nuclear arsenal, according to Thompson?
2. What is the core of America's deterrent posture, as described by Thompson?

Loren B. Thompson, "How to Stop Worrying and Love the Bomb," www.opinionjournal.com, March 17, 2002.

Someone tuned in to the breathless media coverage of the Bush administration's nuclear report [in March 2002] could be excused for assuming that [nuke lovers] had taken control of the Pentagon. According to the scribes at the *New York Times*, America is behaving as a "nuclear rogue." "If Pentagon proposals become American policy, . . . countries could conclude they have no motive to stay non-nuclear," an editorial complained.

From the sounds of it, President [George W.] Bush is pushing dangerous policies that would move the world closer to nuclear war. The countries named in the Nuclear Posture Review quickly got their backs up. China said it was shocked, "deeply shocked" at its inclusion on the target sheet and wants a "clear explanation." Axis of Evil[1] member Iran explained that the report itself was equivalent to terrorism.

The Continuing Importance of Deterrence

Let's stop and take a deep breath. Are we actually going to nuke countries ranging from Russia to Libya to North Korea? No. What the government says it will do with nuclear weapons, and what it actually intends to do, are seldom the same thing. The public posture on nuclear use is called "declaratory" strategy. The secret war plans are "operational" strategy.

That's a difference worth bearing in mind. According to recent reports, the Bush administration wants to reduce the size of the nation's nuclear arsenal by about two-thirds while expanding the range of options for selectively applying such weapons. Some journalists have read the changes as evidence that Mr. Bush's advisers are lowering the barriers to employing weapons of mass destruction. In reality, the opposite is true.

The new stance is an effort to maximize the incentives other countries have to avoid using such weapons—not just nuclear weapons, but also chemical or biological weapons suitable for committing mass murder. The envisioned changes are an overdue response to shifts in the global secu-

1. President George W. Bush has named Iran, Iraq, and North Korea as the Axis of Evil.

rity environment that make devastating attacks on the American homeland more likely.

But because the core of U.S. nuclear strategy is an elusive psychological concept called deterrence, the proposed changes are easily misunderstood. That's nothing new: Every effort to adjust nuclear strategy to changing circumstances has elicited the same fearful responses from the media, whether it was Dwight Eisenhower's policy of massive retaliation, John Kennedy's assured destruction, Richard Nixon's flexible selective targeting, or Ronald Reagan's defensive initiatives.

A decade after the Cold War ended, it may seem disappointing to have to revisit the logic of strategic deterrence—many people hoped that the specter of nuclear holocaust would gradually slip into history. But the [September 11, 2001, terrorist attacks] demonstrated such aspirations are premature, and forced the administration to bolster the nation's deterrent posture.

Deterrence is the practice of preventing aggression by threatening unacceptable consequences. It has been used to channel conflict throughout history. Many historians believe that the reason Hitler did not use poison gas in World War II was his fear of retaliation in kind (he had been temporarily blinded by a gas attack in World War I).

After the advent of atomic weapons, the theoretical underpinnings of deterrence were elaborately systematized by scholars like Albert Wohlstetter and Henry Kissinger. The basic dilemma posed by such weapons was that their destructiveness made effective defense very difficult. If even a handful of bombs managed to get by defenders, they would cause vast carnage. A surprise attack could be so devastating that the target might lose the ability to retaliate.

Nuclear deterrence was conceived to stabilize this precarious balance. In essence, it sought to guarantee that no nuclear aggressor could escape destruction, thereby minimizing the incentive to attack. The concept had major limitations, especially when dealing with irrational or accident-prone adversaries, but once the Soviets achieved nuclear parity it was widely seen as the only viable option for assuring national survival.

The main problem with deterrence is that it is a psychological construct. It won't work unless the enemy believes you have the capability and will to make good on the threat of retaliation. During the late Cold War period, a great deal of thought went into designing nuclear forces that not only could retaliate, but could do so credibly. That meant not threatening nuclear Armageddon in response to limited provocations, because such behavior was unbelievable and hence a poor deterrent.

New Methods of Deterrence

Today's threats are far more diverse and less predictable than those of the past. States hostile to the United States and to our friends and allies have demonstrated their willingness to take high risks to achieve their goals, and are aggressively pursuing WMD [weapons of mass destruction] and their means of delivery as critical tools in this effort. As a consequence, we require new methods of deterrence. A strong declaratory policy and effective military forces are essential elements of our contemporary deterrent posture, along with the full range of political tools to persuade potential adversaries not to seek or use WMD. The United States will continue to make clear that it reserves the right to respond with overwhelming force—including through resort to all of our options—to the use of WMD against the United States, our forces abroad, and friends and allies.

In addition to our conventional and nuclear response and defense capabilities, our overall deterrent posture against WMD threats is reinforced by effective intelligence, surveillance, interdiction, and domestic law enforcement capabilities. Such combined capabilities enhance deterrence both by devaluing an adversary's WMD and missiles, and by posing the prospect of an overwhelming response to any use of such weapons.

George W. Bush, *The National Strategy to Combat Weapons of Mass Destruction*, December 2002.

Like the Soviets, President Reagan believed that the most potent deterrent was a credible capacity to fight and win nuclear wars. All of his strategic initiatives—better offensive forces, effective nuclear defenses, government continuity—were designed to support that goal. Much of the academic and policy community came to share Mr. Reagan's view, not

because it wanted to wage such a conflict, but because it wanted to prevent one.

This all seemed like ancient history before September 11. U.S. nuclear strategy during the Cold War years was focused almost exclusively on the Soviets, so once communism collapsed nuclear forces were seen to be much less important. Although the Bush administration began reviewing the nation's nuclear posture within weeks after taking office, the main thrust of its efforts was to slash the size of the strategic arsenal by finding other means of deterring adversaries.

Part of a Broader Strategy

September 11 didn't so much change this impulse as temper it, by reinforcing the administration's awareness that not all mechanisms of mass destruction were nuclear, and not all potential aggressors were Russians. Mr. Bush's advisers still want to cut the nuclear arsenal, but they want to use what weapons remain to strengthen deterrence in a new world of more diverse threats.

One way the congressionally mandated Nuclear Posture Review would do that is by signaling potential perpetrators of mass murder—such as Iraq and North Korea—that evil behavior may elicit the ultimate punishment. Another way is to develop new weapons that can credibly address emerging threats such as deeply buried command bunkers or biolabs.

The core of the nation's deterrent posture will continue to be sea-based and land-based ballistic missiles, backed up by highly capable conventional and special forces. The modest refinements Mr. Bush proposes would simply seek to dissuade new classes of aggressors from attacking America and its allies. If deterrence fails, the U.S. would then seek to defeat those enemies at the lowest feasible level of violence.

Mr. Bush and his advisers have few illusions about their ability to bargain with the kind of people who make up [the al Qaeda terrorist network]. But even the most deluded aggressor usually has some fear that can be manipulated to restrain his actions. The proposed retooling of U.S. nuclear strategy would more precisely target such fears and make the prospect of warfare using weapons of mass destruction as remote as possible.

"The language in the new U.S. strategic posture portrays an image of an American military with a newly itchy nuclear trigger finger."

The United States Should Not Threaten Other Nations with Its Nuclear Arsenal

Theresa Hitchens

Theresa Hitchens is vice president of the Center for Defense Information, a nonpartisan think tank in Washington, D.C. In the following viewpoint she maintains that the U.S. strategy for dealing with national security threats has become too reliant on nuclear weapons. Hitchens writes that under President George W. Bush, the United States has declared that it will develop new types of nuclear weapons but will preemptively attack other nations that develop weapons of mass destruction. Hitchens warns that America's interest in developing new nuclear weapons, and its implied willingness to use them, may spur other nations to develop nuclear weapons of their own, thus making America less safe.

As you read, consider the following questions:

1. What nonnuclear states could potentially be targets of a U.S. nuclear attack, according to the author?
2. In Hitchens's opinion, what questions should the United States be asking in regards to its new nuclear strategy?

Theresa Hitchens, "Everyone Will Want One: Instead of Being Deterred by the New U.S. Policy, Enemies May Respond by Acquiring Their Own Nuclear Weapons," *Bulletin of the Atomic Scientists*, vol. 59, January/February 2003, p. 22.

Is the United States now willing to launch a preemptive—or even a preventive—nuclear war? There has been little real public discussion, but the Bush administration's most recent strategy documents could be interpreted as lowering the traditional U.S. barriers to the use of nuclear weapons. Considering how potentially dangerous the international reaction to such a radical policy shift could be, it behooves U.S. policymakers and Congress to take a critical look at the wisdom of treading down this path.

A Dangerously Aggressive Stance

The administration released its classified Nuclear Posture Review (NPR) to Congress on December 31, 2001, and issued a new, more general, National Security Strategy on September 17, 2002. How radical is this policy shift? Neither document can be said to call explicitly for preemptive or preventive nuclear strikes. And, at the same time, the United States has never made a pledge not to use nuclear weapons first. But when the NPR is read as an implementation strategy for the goals embodied in the National Security Strategy, the specter of a United States ever more ready to use nuclear weapons first against an adversary or even a suspected attacker—state or non-state, nuclear armed or not—emerges quite clearly.

As the strategy bluntly states, "Our enemies . . . are seeking weapons of mass destruction . . . [and] America will act against such emerging threats before they are fully formed." The document further asserts that classic deterrence is unlikely to work against terrorists or rogue states and warns that the United States "cannot let our enemies strike first."

The National Security Strategy seeks to justify this new strategic posture by citing the recognized right under international law for a nation to defend itself by taking preemptive action against an "imminent attack." However, the strategy's language clearly stretches the traditional definition of "imminent"—seemingly to include preventing a nation or non-state actor from obtaining even the capability to attack the United States, particularly with weapons of mass destruction.

For example, the strategy states: "The greater the threat, the greater is the risk of inaction—and the more compelling

the case for taking anticipatory action to defend ourselves, even if uncertainty remains as to the time and place of the enemy's attack. . . . The United States cannot remain idle while dangers gather."

And how will the United States achieve its goals? The answer includes, according to the strategy, transformation of the U.S. military to "provide a wider range of military options." This language echoes that of the NPR, which states that U.S. strategic forces must provide the president with "a range of options to defeat any aggressor," and calls for a more "flexible" set of nuclear weapons that "vary in scale, scope, and purpose" to counter emerging threats such as terrorists, rogue states, and the use of weapons of mass destruction.

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Perhaps one of the most interesting aspects of the NPR is the concept of a "New Triad," mixing nuclear and non-nuclear offensive options with missile defense. In the past, nuclear strike capabilities have been considered largely separate from non-nuclear capabilities, doctrine, and strategy. On the one hand, this could be a positive development—as the growing capabilities of conventional weaponry could decrease the perceived need for nuclear weapons for a number

of future missions. On the other hand, there is the danger that the NPR's language will blur the distinction between the use of conventional and nuclear weapons—perhaps lowering the nuclear first-strike threshold.

Increased Risk of Nuclear War

Most clearly, however, the potential for preemptive or preventive nuclear war may be seen in the NPR's discussion of using nuclear weapons to "defeat" hardened and deeply buried targets. The NPR details the need to consider new "nuclear weapons options," including "possible modifications to existing weapons to provide additional yield flexibility in the stockpile; improved earth-penetrating weapons (EPWs) to counter the increased use by potential adversaries of hard and deeply buried facilities; and warheads that reduce collateral damage."

Finally, the NPR names North Korea, Iraq, Iran, Syria, and Libya as countries that could be involved in potential "contingencies" requiring nuclear weapons. This list is important in that it highlights the fact that non-nuclear countries are now considered potential nuclear targets—a policy directly counter to U.S. promises to eschew nuclear use against non-nuclear states, promises that crucially underpin the Nuclear Non-Proliferation Treaty.

Whether by intent or not, the language in the new U.S. strategic posture portrays an image of an American military with a newly itchy nuclear trigger finger, or at least a bent for coercive nuclear diplomacy. At issue, then, is how other nations will respond. Is it reasonable to expect that, with the world's most preeminent military power asserting its renewed placement of value on nuclear weapons, others will continue on a path of nuclear restraint? Will U.S. enemies be deterred by the threat of a preemptive/preventive nuclear strike, or will they instead be spurred to take their own "use 'em or lose 'em" posture?

Unfortunately, these important questions have yet to be taken up in earnest in Washington. But one cannot help but believe they are being answered—likely with negative results for U.S. national and international security—elsewhere in the world.

Periodical Bibliography

The following articles have been selected to supplement the diverse views presented in this chapter.

Drake Bennett	"Critical Mess: How the Neocons Are Promoting Nuclear Proliferation," *American Prospect*, July/August 2003.
Sidney Drell et al.	"A Strategic Choice: New Bunker Busters Versus Nonproliferation," *Arms Control Today*, March 2003.
Daniel Goure	"Nuclear Deterrence, Then and Now," *Policy Review*, December 2003.
Jonathan Granoff	"Power over the Ultimate Evil," *Tikkun*, November/December 2003.
Binoy Kampmark	"America's Nuclear Deterrence in the Age of Terrorism," *Contemporary Review*, April 2003.
Raffi Khatchadourian	"Saying No to Nuclear Arms," *Nation*, June 24, 2002.
David Krieger and Devon Chaffee	"Facing the Failures of the Nuclear Nonproliferation Treaty Regime," *Humanist*, September/October 2003.
John Parachini	"Non-Proliferation Policy and the War on Terrorism," *Arms Control Today*, October 2001.
Keith B. Payne	"The Nuclear Jitters: Fear Not Research, and Wise Deterrence," *National Review*, June 30, 2003.
George Perkovich	"Bush's Nuclear Revolution—a Regime Change in Nonproliferation," *Foreign Affairs*, March/April 2003.
Ronald E. Powaski	"Bush's Nuclear Hypocrisy," *Bulletin of the Atomic Scientists*, January/February 2004.
Nancy Small	"Is Nuclear Deterrence Still Moral?" *America*, September 29, 2003.
Henry Sokolski	"Taking Proliferation Seriously," *Policy Review*, October/November 2003.

CHAPTER 4

How Can the United States Defend Itself Against Weapons of Mass Destruction?

Chapter Preface

Among the various bioweapon threats, smallpox has received the most attention from both the media and from homeland security officials. Smallpox is extremely contagious, and like the common cold can be transmitted from person to person through the air or through contaminated clothing or surfaces. Antibiotics are not very effective in treating smallpox, and the disease is lethal in about 30 percent of cases. The development of a vaccine for smallpox stands as one of modern science's greatest achievements. In 1979 the World Health Organization officially declared that smallpox had been eradicated, but strains of the virus are stored in high-security research facilities in the United States and Russia, and homeland security officials are concerned that other samples of the smallpox virus could still exist elsewhere in the world.

The United States has over 200 million doses of smallpox vaccination, enough for every American. However, the smallpox vaccine has significant risk of side effects: Historically, between 14 and 52 of every 1 million people who receive the vaccine have experienced life-threatening reactions, and 1 to 2 out of every 1 million have died. That is why the United States stopped vaccinating children against smallpox in the early 1980s, and why the U.S. government's efforts to vaccinate five hundred thousand health care workers have met with heavy resistance. Fortunately, vaccination even *after* exposure to the smallpox virus is usually effective in stopping the disease.

The danger associated with smallpox vaccinations is just one example of how difficult it is for a nation to prepare for bioterrorism. The viewpoints in the following chapter explore some of the ways in which the United States is working to prevent and prepare for both nuclear and biological attacks.

"We and our elected representatives must take whatever steps are necessary to protect our nation from all forms of attack, which include ballistic missiles."

The United States Should Build a Missile Defense System

Brian T. Kennedy

Brian T. Kennedy is president of the Claremont Institute, a conservative think tank in Claremont, California. In the following viewpoint, which he wrote in January 2002, Kennedy says that the terrorist attacks of September 11, 2001, raised public awareness about how vulnerable the United States is to attackers. While the attacks of September 11 were tragic, argues Kennedy, a nuclear missile attack would have been much, much worse. Therefore, he believes that the United States should build the means to defend against nuclear missile attack as soon as possible.

As you read, consider the following questions:

1. What is the government's primary constitutional duty, in Kennedy's view?
2. What two countries does Kennedy accuse of supplying nuclear technologies to rogue nations?
3. Why are space-based missile defense systems especially promising, according to the author?

Brian T. Kennedy, "Protecting Our Nation: The Urgent Need for Ballistic Missile Defense," www.claremont.org, January 1, 2002.

It will seem to many Americans that the national security concerns of the United States changed radically on September 11 [2001, when terrorists flew airplanes into the World Trade Center and the Pentagon]. But everything I have to say was true before that horrible day, and every bit of analysis since then confirms it.

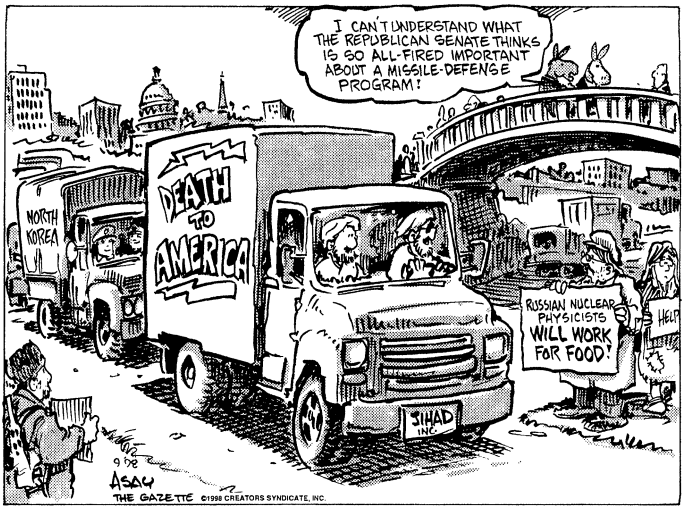
On September 11, our nation's enemies attacked us using hijacked airliners. Next time, the vehicles of death and destruction might well be ballistic missiles armed with nuclear, chemical, or biological warheads. And let us be clear: The United States is defenseless against this mortal danger. We would today have to suffer helplessly a ballistic missile attack, just as we suffered helplessly on September 11. But the dead would number in the millions and a constitutional crisis would likely ensue, because the survivors would wonder—with good reason—if their government were capable of carrying out its primary constitutional duty: to "provide for the common defense.". . .

The Threat Is Real

The attack of September 11 should not be seen as a fanatical act of individuals like Osama Bin Laden, but as a deliberate act of a consortium of nations who hope to remove the U.S. from its strategic positions in the Middle East, in Asia and the Pacific, and in Europe. It is the belief of such nations that the U.S. can be made to abandon its allies, such as Israel and Taiwan, if the cost of standing by them becomes too high. It is not altogether unreasonable for our enemies to act on such a belief. The failure of U.S. political leadership, over a period of two decades, to respond proportionately to terrorist attacks on Americans in Lebanon, to the first World Trade Center bombing, to the attack on the Khobar Towers in Saudi Arabia, to the bombings of U.S. embassies abroad, and most recently to the attack on the USS *Cole* in Yemen, likely emboldened them. They may also have been encouraged by observing four government's unwillingness to defend Americans against ballistic missiles.

For all of the intelligence failures leading up to September 11, we know with absolute certainty that various nations are spending billions of dollars to build or acquire strategic bal-

listic missiles. Their purpose is to inflict from afar massive casualties on the United States, or to use the threat of doing so to blackmail us, for the purpose of forcing us to withdraw from our alliances around the world and retreat to the North American continent. Yet even now, under a president who supports it, missile defense advances at a glacial pace.



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You don't often hear these arguments in academic circles, and rarely even in political circles. They require talking about unpleasant subjects such as war and conflict and possible death, and I think it is the way of democratic peoples to look away from such subjects until they are forced to face them, as we Americans were forced to begin facing them on September 11. We were reminded on that day that the nature of international relations requires us to be prepared for war. And while at one time war was conducted with sword and spears, later arrows, later cannon and bullets, and later bombs, today it is waged with advanced weaponry that includes strategic ballistic nuclear missiles.

Who are these enemy nations, in whose interest it is to press the U.S. into retreating from the world stage? Despite

the kind words of Russian President Vladimir Putin, encouraging a "tough response" to the terrorist attack of September 11, we know that it is the Russian and Chinese governments that are supplying our enemies in Iraq, Iran, Libya, and North Korea with the ballistic missile technology to terrorize our nation. Is it possible that Russia and China don't understand the consequences of transferring this technology? Are Vladimir Putin and [Chinese president] Jiang Zemin unaware that countries like Iran and Iraq are known sponsors of terrorism? In light of the absurdity of these questions, it is reasonable to assume that Russia and China transfer this technology as a matter of high government policy, using these rogue states as proxies to destabilize the West because they have an interest in expanding their power, and because they know that only the U.S. can stand in their way.

Recall that in February of 1996, during a confrontation between mainland China and our democratic ally on Taiwan, Lt. Gen. Xiong Guang Kai, a senior Chinese official, made an implicit nuclear threat against the U.S., warning our government not to interfere because Americans "care more about Los Angeles than they do Taipei." With a minimum of 20 Chinese intercontinental ballistic missiles (ICBMs) currently aimed at the U.S., such threats must be taken seriously. . . .

How to Stop Ballistic Missiles

For all the bad news about the ballistic missile threat to the U.S., there is the good news that missile defense is well within our technological capabilities. As far back as 1962 a test missile fired from Vandenberg Air Force Base was intercepted (within 500 yards) by an anti-ballistic missile launched from the Kwajalein Atoll. The idea at the time was to use a small nuclear warhead in the upper atmosphere to destroy incoming enemy warheads. But it was deemed politically incorrect—as it is still today—to use a nuclear explosion to destroy a nuclear warhead, even if that warhead is racing toward an American city. (Again, only we seem to be squeamish in this regard: Russia's aforementioned 9,000 interceptors bear nuclear warheads.) So U.S. research since President [Ronald] Reagan reintroduced the idea of missile defense in 1983 has been aimed primarily at developing the means to destroy en-

emy missiles through direct impact or "hit-to-kill" methods. American missile defense research has included ground-based, sea-based and space-based interceptors, and air-based and space-based lasers. Each of these systems has undergone successful, if limited, testing. The space-based systems are especially effective since they seek to destroy enemy missiles in their first minutes of flight, known also as the boost phase. During this phase, missiles are easily detectable, have yet to deploy any so-called decoys or countermeasures, and are especially vulnerable to space-based interceptors and lasers.

The best near-term option for ballistic missile defense, recommended by former Reagan administration defense strategist Frank Gaffney, is to place a new generation of interceptor, currently in research, aboard U.S. Navy Aegis Cruisers. These ships could then provide at least some missile defense while more effective systems are built. Also under consideration is a ground-based system in the strategically important state of Alaska, at Fort Greeley and Kodiak Island. This would represent another key component in a comprehensive "layered" missile defense that will include land, sea, air and space.

Arguments Against Missile Defense

Opponents of missile defense present four basic arguments. The first is that ABM [anti-ballistic missile] systems are technologically unrealistic, since "hitting bullets with bullets" leaves no room for error. They point to recent tests of ground-based interceptors that have had mixed results. Two things are important to note about these tests: First, many of the problems stem from the fact that the tests are being conducted under ABM Treaty restrictions on the speed of interceptors, and on their interface with satellites and radar.[1] Second, some recent test failures involve science and technology that the U.S. perfected 30 years ago, such as rocket separation. But putting all this aside, as President Reagan's former science advisor William Graham points out, the difficulty of "hitting bullets with bullets" could be simply overcome by placing small nuclear charges on "hit-to-kill" vehicles as a

1. The United States formally withdrew from the ABM treaty in June 2001, in part because of its restrictions on missile defense testing.

"fail safe" for when they miss their targets. This would result in small nuclear explosions in space, but that is surely more acceptable than the alternative of enemy warheads detonating over American cities.

The second argument against missile defense is that no enemy would dare launch a missile attack at the U.S., for fear of swift retaliation. But as the CIA pointed out two years ago—and as Secretary of Defense [Donald] Rumsfeld reiterated recently in Russia—an enemy could launch a ballistic missile from a ship off our coasts, scuttle the ship, and leave us wondering, as on September 11, who was responsible.

The third argument is that missile defense can't work against ship-launched missiles. But over a decade ago, U.S. nuclear laboratories, with the help of scientists like Greg Canavan and Lowell Wood, conducted successful tests on space-based interceptors that could stop ballistic missiles in their boost phase from whatever location they were launched.

Finally, missile defense opponents argue that building a defense will ignite an expensive arms race. But the production cost of a space-based interceptor is roughly one to two million dollars. A constellation of 5,000 such interceptors might then cost ten billion dollars, a fraction of America's defense budget. By contrast, a single Russian SS-18 costs approximately $100 million, a North Korean Taepo Dong II missile close to $10 million, and an Iraqi Scud B missile about $2 million. In other words, if we get into an arms race, our enemies will go broke. The Soviet Union found it could not compete with us in such a race in the 1980s. Nor will the Russians or the Chinese or their proxies be able to compete today. . . .

An American Focus

In conclusion, had the September 11 attack been visited by ballistic missiles, resulting in the deaths of three to six million Americans, a massive scientific effort would have immediately been launched to ensure that such an attack would not happen again. Just as firemen have been working around the clock at "Ground Zero" in New York City, teams of scientists nationwide would have been working around the clock to build and deploy a ballistic missile defense. America, thankfully, has a window of opportunity however nar-

row—to do so now, before it is too late.

Faced with a similar crisis in the 1930s, [British prime minister] Winston Churchill traveled the length and breadth of England to convince his countrymen that Britain should build massively its defenses in response to the growing Nazi threat. He and his colleagues called this effort "The Focus." Today we must begin an American Focus. We and our elected representatives must take whatever steps are necessary to protect our nation from all forms of attack, which include ballistic missiles no less than hi-jackings or terrorist bombings. This is the least we owe those fellow citizens who lost their lives in New York and Washington. Even more, is what we owe the Free World and our Constitution.

Let us begin in earnest.

"We may be less safe if the President's [missile defense] program is implemented than if it is not."

The United States Should Not Build a Missile Defense System

George Rathjens and Carl Kaysen

In the following viewpoint George Rathjens and Carl Kaysen argue that America's plan to build a missile defense system is unrealistic and may harm national security rather than enhance it. The authors maintain that the technical difficulties involved in shooting down ballistic missiles are such that no missile defense system will ever be totally reliable. Rathjens and Kaysen warn that with a missile defense system in place, U.S. leaders might be tempted to take more aggressive stances against emerging nuclear powers such as North Korea; unfortunately, they contend, a catastrophe could result since the missile defense system will be unlikely to stop all enemy missiles. George Rathjens is a former director of the Advanced Research Project Agency of the Department of Defense. Carl Kaysen has served as a deputy special assistant to President John F. Kennedy for national security affairs.

As you read, consider the following questions:

1. What is North Korea's likely rationale for seeking nuclear weapons, in the authors' opinion?
2. According to Rathjens and Kaysen, what two questions must be considered in regard to an imperfect missile defense system?

George Rathjens and Carl Kaysen, "Missile Defense: The Dangers and Lack of Realism," www.clw.org, February 2004.

[In December 2002] President [George W.] Bush announced that he was ordering the deployment of an anti-ballistic-missile (ABM) system, with the first sites to be operational in 2004 in Alaska and California. In 1967 President [Lyndon B.] Johnson made a strikingly similar decision. Both smacked of election-year domestic politics. President Johnson had reason to fear that Republican opponents would make a political issue in the 1968 election of a failure by him to begin deployment of ABM defenses. President Bush's core constituency of hawkish right wingers will be reassured by his decision.

Reality Check

Yet, notwithstanding very active systems development efforts in both administrations, there was not then, and there is not now even the remotest prospect that a near-term defense of population against a determined attack by a major power—then, the Soviet Union; now, Russia or China—would be effective. So, deployment is being rationalized now by the Bush Administration, as it was by Johnson's, as useful against emerging nuclear powers: then, China; now, North Korea—and possibly Iran.

The most fundamental problem is that the proposed system relies on a "hit-to-kill" interceptor to destroy incoming warheads above the atmosphere. We doubt that the problem of discriminating between warheads and decoys in the midpart of their trajectories can be effectively solved in the near future, if ever. If it can not be, each American metropolitan area would have to be defended from a separate installation. But North Korea, or any other nation with a few nuclear-armed ICBMs [intercontinental ballistic missiles], would need hold hostage only a few American cities, perhaps only one, to have an effective deterrent.

Secretary of Defense [Donald] Rumsfeld has defended the President's deployment decision, arguing that, having "a limited capability to deal with a relatively small number of incoming ballistic missiles . . . is better than nothing", and that Americans should feel "marginally safer" with such deployment than without it.

Given the overwhelming retaliatory capability of the United

States, we question the premise underlying the Secretary's statements that North Korea (or perhaps another aspirant nuclear weapons state) would deliver a nuclear first strike against it once it had a capability to do so. It is more reasonable to assume that North Korea's rationale for acquiring a nuclear ICBM capability has been similar to that of the United States—to be able to deter another nation with strong military capabilities (in North Korea's case, the United States; in that of the United States, the Soviet Union) from involvement in regions of conflict in ways inimical to its interests.

A Lucrative Project for Defense Contractors

Top Ten Defense Companies Receiving the Largest Dollar Amounts of Pentagon Missile Defense Contracts, 1998–2001

Company	Total $
Boeing Co.	$3,503,913,000
Lockheed Martin Corp	$1,739,200,000
TRW, Inc.	$711,824,000
Raytheon	$601,938,000
Computer Sciences Corp	$410,520,000
Mevatec Corp	$218,524,000
Teledyne Technologies	$190,471,000
Science Applications Intl Corp	$168,403,000
Colsa Corp	$167,180,000
Sparta, Inc.	$134,805,000
Total	$7,846,778,000

Michelle Ciarrocca and William D. Hartung, "Axis of Influence: Behind the Bush Administration's Missile Defense Revival," World Policy Institute, July 2002.

Moreover, there is the possibility that at a future date, when an ABM system might actually have some capability, it could, in a crisis, be oversold to a president who might then make catastrophic decisions based on an assumed level of performance that would not be realized. This is reason enough for us to conclude that, contrary to Secretary Rumsfeld's observations, we may be less safe if the President's pro-

gram is implemented than if it is not. While we appreciate that such an error may seem a remote possibility to many, we call attention to the fact that President Bush, senior, believed that during the 1991 Gulf War, Patriot interceptor missiles had been 96% effective in destroying Iraqi Scud missiles. After later assessment, it was apparent that few, if any, successful interceptions occurred; Secretary of Defense Cohen said, "The Patriots didn't work".

An ABM system, even a very imperfect one, might have some value as a hedge against accidental attacks. Even so, two questions must arise. First, whether the resources required might be more wisely used on homeland security and to meet other objectives, both military and civil. Second, whether, with the deployment, the leaders and the public of the United States would feel more secure about its involvement in crises in northeast Asia, where American interests clash with those of North Korea, than if the United States were not to proceed with the deployment proposed.

An affirmative answer to this last question depends on whether any deployed defense might be essentially 100% effective. This, however, will certainly not be the case with President Bush's announced deployment, nor do we believe it likely with any system that might evolve from it.

Like it or not, nuclear deterrence is likely to be with us during the first part of this century, as it was during much of the last. But, the United States may more often be the deterred rather than the deterrer should it seek to involve itself militarily in regions where there may be others with nuclear capabilities and interests opposed to it. We think it important that Americans recognize that the United States may not hold all the high cards and that it will have to face the reality that the costs of getting its way on all points of difference with adversaries may be higher than its citizenry are willing to pay. Beyond deterrence, its choices in dealing with North Korea as an emerging nuclear power will be by negotiation or preemptively destroying North Korea's offending capabilities, with all the risks of massive civilian casualties and political costs that that would entail.

It is illusory to see an ABM defense system as an escape from this dilemma.

"Nuclear terrorism is a largely preventable disaster."

The United States Should Secure the Materials Used to Make Nuclear Weapons

Graham Allison and Andrei Kokoshin

In the following viewpoint Graham Allison and Andrei Kokoshin argue that the United States and Russia must undertake a new, coordinated effort to track down and safeguard nuclear weapons and the materials used to build them. Dozens of nuclear weapons may have been lost in accidents during the Cold War, warn the authors, and many thousands more are vulnerable to theft from sites in Russia and emerging nuclear powers. In addition, the fissile materials necessary to power nuclear explosions are stored at hundreds of sites in dozens of countries. Allison and Kokoshin argue that measures need to be taken by the United States and Russia to ensure that these weapons and weapons-usable materials do not fall into terrorist hands. Graham Allison is director of the Belfer Center for Science and International Affairs at Harvard University's John F. Kennedy School of Government. Andrei Kokoshin is director of the Institute for International Security Studies of the Russian Academy of Sciences.

As you read, consider the following questions:

1. In what eight states are nuclear weapons known to exist, according to the authors?
2. By the authors' estimate, about what percent of containers entering the United States undergo X-ray?

Graham Allison and Andrei Kokoshin, "The New Containment: An Alliance Against Nuclear Terrorism," *The National Interest*, Fall 2002.

During the Cold War, American and Russian policymakers and citizens thought long and hard about the possibility of nuclear attacks on their respective homelands. But with the fall of the Berlin Wall and the disappearance of the Soviet Union, the threat of nuclear weapons catastrophe faded away from most minds. This is both ironic and potentially tragic, since the threat of a nuclear attack on the United States or Russia is certainly greater today than it was in 1989.

In the aftermath of Osama bin Laden's September 11 [2001 terrorist attacks against America] which awakened the world to the reality of global terrorism, it is incumbent upon serious national security analysts to think again about the unthinkable. Could a nuclear terrorist attack happen today? Our considered answer is: yes, unquestionably, without any doubt. It is not only a possibility, but in fact the most urgent unaddressed national security threat to both the United States and Russia. . . .

The argument made here can be summarized in two propositions: first, nuclear terrorism poses a clear and present danger to the United States, Russia and other nations; second, nuclear terrorism is a largely preventable disaster. Preventing nuclear terrorism is a large, complex, but ultimately finite challenge that can be met by a bold, determined, but nonetheless finite response. The current mismatch between the seriousness of the threat on the one hand, and the actions governments are now taking to meet it on the other, is unacceptable. Below we assess the threat and outline a solution that begins with a U.S.-Russian led Alliance Against Nuclear Terrorism. . . .

Means

To the best of our knowledge, no terrorist group can now detonate a nuclear weapon. But as Secretary of Defense Donald Rumsfeld has stated, "the absence of evidence is not evidence of absence." Are the means beyond terrorists' reach, even that of relatively sophisticated groups like Al-Qaeda?

Over four decades of Cold War competition, the superpowers spent trillions of dollars assembling mass arsenals, stockpiles, nuclear complexes and enterprises that engaged hundreds of thousands of accomplished scientists and engi-

neers. Technical know-how cannot be un-invented. Reducing arsenals that include some 40,000 nuclear weapons and the equivalents of more than 100,000 nuclear weapons in the form of highly enriched uranium (HEU) and plutonium to manageable levels is a gargantuan challenge.

Terrorists could seek to buy an assembled nuclear weapon from insiders or criminals. Nuclear weapons are known to exist in eight states: the United States, Russia, Great Britain, France, China, Israel, India and Pakistan. Security measures, such as "permissive action links" designed to prevent unauthorized use, are most reliable in the United States, Russia, France and the United Kingdom. These safeguards, as well as command-and-control systems, are much less reliable in the two newest nuclear states—India and Pakistan. But even where good systems are in place, maintaining high levels of security requires constant attention from high-level government officials.

Alternatively, terrorists could try to build a weapon. The only component that is especially difficult to obtain is the nuclear fissile material—HEU or plutonium. Although the largest stockpiles of weapons-grade material are predominantly found in the nuclear weapons programs of the United States and Russia, fissile material in sufficient quantities to make a crude nuclear weapon can also be found in many civilian settings around the globe. Some 345 research reactors in 58 states together contain twenty metric tons of HEU, many in quantities sufficient to build a bomb. Other civilian reactors produce enough weapons-grade nuclear material to pose a proliferation threat; several European states, Japan, Russia and India reprocess spent fuel to separate out plutonium for use as new fuel. The United States has actually facilitated the spread of fissile material in the past—over three decades of the Atoms for Peace program, the United States exported 749 kg of plutonium and 26.6 [in] metric tons of HEU to 39 countries.

Terrorist groups could obtain these materials by theft, illicit purchase or voluntary transfer from state control. There is ample evidence that attempts to steal or sell nuclear weapons or weapons-usable material are not hypothetical, but a recurring fact. [In fall 2001], the chief of the directorate of the Rus-

sian Defense Ministry responsible for nuclear weapons reported two recent incidents in which terrorist groups attempted to perform reconnaissance at Russian nuclear storage sites. The past decade has seen repeated incidents in which individuals and groups have successfully stolen weapons material from sites in Russia and sought to export them—but were caught trying to do so. In one highly publicized case, a group of insiders at a Russian nuclear weapons facility in Chelyabinsk plotted to steal 18.5 kg (40.7 lbs.) of HEU, which would have been enough to construct a bomb, but were thwarted by Russian Federal Security Service agents.

In the mid-1990s, material sufficient to allow terrorists to build more than twenty nuclear weapons—more than 1,000 pounds of highly enriched uranium—sat unprotected in Kazakhstan. Iranian and possibly Al-Qaeda operatives with nuclear ambitions were widely reported to be in Kazakhstan. Recognizing the danger, the American government itself purchased the material and removed it to Oak Ridge, Tennessee. In February 2002, the U.S. National Intelligence Council reported to Congress that "undetected smuggling [of weapons-usable nuclear materials from Russia] has occurred, although we do not know the extent of such thefts." Each assertion invariably provokes blanket denials from Russian officials. Russian Atomic Energy Minister Aleksandr Rumyantsev has claimed categorically: "Fissile materials have not disappeared." President [Vladimir] Putin has stated that he is "absolutely confident" that terrorists in Afghanistan do not have weapons of mass destruction of Soviet or Russian origin.

Lost Nukes and Rogue States

For perspective on claims of the inviolable security of nuclear weapons or material, it is worth considering the issue of "lost nukes." Is it possible that the United States or Soviet Union lost assembled nuclear weapons? At least on the American side the evidence is clear. In 1981, the U.S. Department of Defense published a list of 32 accidents involving nuclear weapons, many of which resulted in lost bombs. One involved a submarine that sank along with two nuclear torpedoes. In other cases, nuclear bombs were lost from air-

craft. Though on the Soviet/Russian side there is no official information, we do know that four Soviet submarines carrying nuclear weapons have sunk since 1968, resulting in an estimated 43 lost nuclear warheads. These accidents suggest the complexity of controlling and accounting for vast nuclear arsenals and stockpiles.

Nuclear materials have also been stolen from stockpiles housed at research reactors. In 1999, Italian police seized a bar of enriched uranium from an organized crime group trying to sell it to an agent posing as a Middle Eastern businessman with presumed ties to terrorists. On investigation, the Italians found that the uranium originated from a U.S.-supplied research reactor in the former Zaire, where it presumably had been stolen or purchased sub rosa.

Finally, as President [George W.] Bush has stressed, terrorists could obtain nuclear weapons or material from states hostile to the United States. In his now-infamous phrase, Bush called hostile regimes developing WMD [weapons of mass destruction] and their terrorist allies an "axis of evil." He argued that states such as Iraq, Iran and North Korea, if allowed to realize their nuclear ambitions, "could provide these arms to terrorists, giving them the means to match their hatred." The fear that a hostile regime might transfer a nuclear weapon to terrorists has contributed to the Bush Administration's development of a new doctrine of preemption against such regimes, with Iraq as the likeliest test case. It also adds to American concerns about Russian transfer of nuclear technologies to Iran. While Washington and Moscow continue to disagree over whether any safeguarded civilian nuclear cooperation with Iran is justified, both agree on the dangers a nuclear-armed Iran would pose. Russia is more than willing to agree that there should be no transfers of technology that could help Iran make nuclear weapons.

Opportunity

Security analysts have long focused on ballistic missiles as the preferred means by which nuclear weapons would be delivered. But today this is actually the least likely vehicle by which a nuclear weapon will be delivered against Russia or the United States. Ballistic weapons are hard to produce, costly

and difficult to hide. A nuclear weapon delivered by a missile also leaves an unambiguous return address, inviting devastating retaliation. As Robert Walpole, a National Intelligence Officer, told a Senate subcommittee in March [2002], "Non-missile delivery means are less costly, easier to acquire, and more reliable and accurate." Despite this assessment, the U.S. government continues to invest much more heavily in developing and deploying missile defenses than in addressing more likely trajectories by which weapons could arrive.

Terrorists would not find it very difficult to sneak a nuclear device or nuclear fissile material into the United States via shipping containers, trucks, ships or aircraft. Recall that the nuclear material required is smaller than a football. Even an assembled device, like a suitcase nuclear weapon, could be shipped in a container, in the hull of a ship or in a trunk carried by an aircraft. After . . . September 11, the number of containers that are x-rayed has increased, to about 500 of the 5,000 containers currently arriving daily at the port of New York/New Jersey—approximately 10 percent. But as the chief executive of CSX Lines, one of the foremost container-shipping companies, put it: "If you can smuggle heroin in containers, you may be able to smuggle in a nuclear bomb.". . .

A New Alliance

The good news about nuclear terrorism can be summarized in one line: no highly enriched uranium or plutonium, no nuclear explosion, no nuclear terrorism. Though the world's stockpiles of nuclear weapons and weapons-usable materials are vast, they are finite. The prerequisites for manufacturing fissile material are many and require the resources of a modern state. Technologies for locking up super-dangerous or valuable items—from gold in Fort Knox to treasures in the Kremlin Armory—are well developed and tested. While challenging, a specific program of actions to keep nuclear materials out of the hands of the most dangerous groups is not beyond reach, if leaders give this objective highest priority and hold subordinates accountable for achieving this result.

The starting points for such a program are already in place. In his major foreign policy campaign address at the Ronald Reagan Library, then–presidential candidate George

W. Bush called for "Congress to increase substantially our assistance to dismantle as many Russian weapons as possible, as quickly as possible." In his September 2000 address to the United Nations Millennium Summit, Russian President Putin proposed to "find ways to block the spread of nuclear weapons by excluding use of enriched uranium and plutonium in global atomic energy production." The Joint Declaration on the New Strategic Relationship between the United States and Russia, signed by the two presidents at the May 2002 summit, stated that the two partners would combat the "closely linked threats of international terrorism and the proliferation of weapons of mass destruction." Another important result yielded by the summit was the upgrading of the Armitage/Trubnikov-led U.S.-Russia Working Group on Afghanistan to the U.S.-Russia Working Group on Counterterrorism, whose agenda is to thwart nuclear, biological and chemical terrorism.

Operationally, however, priority is measured not by words, but by deeds. A decade of Nunn-Lugar Cooperative Threat Reduction Programs [under which thousands of Russian nuclear weapons have been destroyed] has accomplished much in safeguarding nuclear materials. Unfortunately, the job of upgrading security to minimum basic standards is mostly unfinished: according to Department of Energy reports, two-thirds of the nuclear material in Russia remains to be adequately secured. Bureaucratic inertia, bolstered by mistrust and misperception on both sides, leaves these joint programs bogged down on timetables that extend to 2008. Unless implementation improves significantly, they will probably fail to meet even this unacceptably distant target. What is required on both sides is personal, presidential priority measured in commensurate energy, specific orders, funding and accountability. This should be embodied in a new U.S.-Russian led Alliance Against Nuclear Terrorism.

Five Pillars of Wisdom

When it comes to the threat of nuclear terrorism, many Americans judge Russia to be part of the problem, not the solution. But if Russia is welcomed and supported as a fully responsible non-proliferation partner, the United States

Dismantling the Former Soviet Nuclear Arsenal

The United States has spent about $7 billion over the past decade through a variety of . . . threat reduction programs. European countries, Canada, and Japan also contributed to these efforts, although in smaller amounts. As a result, Ukraine, Kazakhstan, and Belarus have been denuclearized. Over 800 strategic launchers, 97 heavy bombers, 24 ballistic missile submarines, and 815 ballistic missiles and related silos were destroyed pursuant to U.S.-Russian arms reduction agreements. The EU [European Union] as an institution spent more than €700 million on nuclear reactor safety in the former Soviet Union and billions of euros to help stabilize the successor states socially, politically, and economically. The world's largest anthrax production facility, located in Kazakhstan, was dismantled. The first prototype CW [chemical weapons] destruction facility in Russia is ready to start operating. Projects funded by the International Science and Technology Centers have engaged more than 50,000 WMD [weapons of mass destruction] scientists, helping to prevent the spread of their expertise into dangerous hands.

But enormous challenges remain. "Rapid" security upgrades have been completed at facilities containing only 46 percent of the approximately 603 metric tons of weapons-usable nuclear materials in Russia targeted by the U.S. Department of Energy's MPC&A [Material Protection, Control and Accounting] program, and "comprehensive" upgrades are only now getting under way. Less than one-seventh of Russia's total highly enriched uranium stockpile has been rendered unusable for nuclear weapons and virtually none of its plutonium. The same is true for the United States. None of Russia's nerve agent CW has yet been destroyed, a task that will also stretch out over the coming decade. Its former military biological weapons program continues to remain closed to outsiders, and physical protection against theft or seizure of biological pathogens is inadequate at a number of locations. Finally, thousands of weapons scientists and workers are still unemployed or underemployed. If current Russian downsizing plans are implemented, many will be laid off in the next few years, but it is unclear where they will find new jobs.

Robert J. Einhorn and Michèle A. Flournoy, project directors, *Protecting Against the Spread of Nuclear, Biological, and Chemical Weapons: An Action Agenda for the Global Partnership*. Washington, DC: Center for Strategic and International Studies, 2003.

stands to accomplish far more toward minimizing the risk of nuclear terrorism than if it treats Russia as an unreconstructed pariah. As the first step in establishing this alliance, the two presidents should pledge to each other that his government will do everything technically possible to prevent criminals or terrorists from stealing nuclear weapons or weapons-usable material, and to do so on the fastest possible timetable. Each should make clear that he will personally hold accountable the entire chain of command within his own government to assure this result. Understanding that each country bears responsibility for the security of its own nuclear materials, the United States should nonetheless offer Russia any assistance required to make this happen. Each nation—and each leader—should provide the other sufficient transparency to monitor performance.

To ensure that this is done on an expedited schedule, both governments should name specific individuals, directly answerable to their respective presidents, to co-chair a group tasked with developing a joint Russian-American strategy within one month. In developing a joint strategy and program of action, the nuclear superpowers would establish a new world-class "international security standard" based on President Putin's Millennium proposal for new technologies that allow production of electricity with low-enriched, non-weapons-usable nuclear fuel.

A second pillar of this alliance would reach out to all other nuclear weapons states—beginning with Pakistan. Each should be invited to join the alliance and offered assistance, if necessary, in assuring that all weapons and weapons-usable material are secured to the new established international standard in a manner sufficiently transparent to reassure all others. Invitations should be diplomatic in tone but nonetheless clear that this is an offer that cannot be refused. China should become an early ally in this effort, one that could help Pakistan understand the advantages of willing compliance.

A third pillar of this alliance calls for global outreach along the lines proposed by Senator Richard Lugar in what has been called the Lugar Doctrine. All states that possess weapons-usable nuclear materials—even those without nuclear weapons capabilities—must enlist in an international

effort to guarantee the security of such materials from theft by terrorists or criminal groups. In effect, each would be required to meet the new international security standard and to do so in a transparent fashion. Pakistan is particularly important given its location and relationship with Al-Qaeda [terrorists], but beyond nuclear weapons states, several dozen additional countries hosting research reactors—such as Serbia, Libya and Ghana—should be persuaded to surrender such material (almost all of it either American or Soviet in origin), or have the material secured to acceptable international standards.

A fourth pillar of this effort should include Russian-American led cooperation in preventing any further spread of nuclear weapons to additional states, focusing sharply on North Korea, Iraq and Iran. The historical record demonstrates that when the United States and Russia have cooperated intensely, nuclear wannabes have been largely stymied. It was only during periods of competition or distraction, for example in the mid-1990s, that new nuclear weapons states realized their ambitions. India and Pakistan provide two vivid case studies. Recent Russian-American-Chinese cooperation in nudging India and Pakistan back from the nuclear brink suggests a good course of action. The failure and subsequent freeze of North Korean nuclear programs offers complementary lessons about the consequences of competition and distraction. The new alliance should reinvent a robust non-proliferation regime of controls on the sale and export of weapons of mass destruction, nuclear material and missile technologies, recognizing the threat to each of the major states that would be posed by a nuclear-armed Iran, North Korea or Iraq.

Finally, adapting lessons learned in U.S.-Russian cooperation in the campaign against bin Laden and the Taliban [in Afghanistan, which was aiding him], this new alliance should be heavy on intelligence sharing and affirmative counter-proliferation, including disruption and pre-emption to prevent acquisition of materials and know-how by nuclear wannabes. Beyond joint intelligence sharing, joint training for pre-emptive actions against terrorists, criminal groups or rogue states attempting to acquire weapons of mass destruc-

tion would provide a fitting enforcement mechanism for alliance commitments.

As former Senator Sam Nunn has noted: "At the dawn of a new century, we find ourselves in a new arms race. Terrorists are racing to get weapons of mass destruction; we ought to be racing to stop them." Preventing nuclear terrorism will require no less imagination, energy and persistence than did avoiding nuclear war between the superpowers over four decades of Cold War. But absent deep, sustained cooperation between the United States, Russia and other nuclear states, such an effort is doomed to failure. In the context of the qualitatively new relationship Presidents Putin and Bush have established in the aftermath of September 11, success in such a bold effort is within the reach of determined Russian-American leadership. Succeed we must.

4
VIEWPOINT

"Biosecurity measures can raise barriers thwarting would-be bioterrorists from easily obtaining dangerous pathogens."

The United States Should Aid Global Efforts to Reduce the Bioterrorism Threat

Michael Barletta

Michael Barletta is a senior research associate in the Proliferation Research and Assessment Program at the Center for Nonproliferation Studies in Monterey, California. In the following viewpoint he discusses the concept of biosecurity, which he defines as measures to prevent terrorists from gaining access to pathogens and toxins, as well as the equipment and trained personnel necessary to produce bioweapons. Barletta explains that, ironically, biodefense research programs—designed to develop vaccines and drugs to deal with bioweapons—often present major biosecurity risks, since these programs involve all the materials and technologies needed to make bioweapons. Barletta calls on the United States to increase security at U.S. biodefense facilities and also to become more involved in developing standardized biosecurity measures that can be implemented on a global scale.

As you read, consider the following questions:

1. What is the FBI profile of the perpetrator of the 2001 anthrax attacks, as described by Barletta?
2. What international biosecurity body was formed in response to Iraq's chemical and biological weapons programs, according to Barletta?

Michael Barletta, "Biosecurity Measures for Preventing Bioterrorism," http://cns.miis.edu, November 27, 2002.

One year ago [in 2001], anthrax mail attacks in the United States illustrated the ominous potential of bioterrorism, as faceless assailant(s) abused modern science to disseminate lethal pathogens to disrupt everyday life, cripple basic government functions, and spread fear. Bioterrorism—the deliberate use of microorganisms or toxins by non-state actors to sicken or kill people or to destroy or poison the food supplies upon which we depend—poses an uncertain but potentially devastating threat to the health and well-being of people around the world. Unless countered effectively, this threat may increase with the rapid pace of developments in science and biotechnology. While policymakers and medical service providers must prepare to treat victims of future bioterrorist attacks, in this as in most aspects of human health, prevention is far better than response after the fact. This essay . . . provides an introduction to biosecurity measures, a key element among policy efforts to address the threat of bioterrorism.

Biosecurity in the Context of Bioterrorism

The term "biosecurity" is used in quite distinct ways by different policy and scientific communities. For example, professionals in agricultural science and industry, and specialists in ecological research and policymaking, have very different concepts in mind when using this word. In the context of biological weapons threats in general and bioterrorism in particular, biosecurity can be defined in narrow terms: *biosecurity is the effective implementation of measures that aim to prevent would-be terrorists, criminals, and spies from gaining access to dangerous pathogens and toxins.* Related measures limit access to equipment, technologies, and information that could be used for malicious purposes involving biological weapons. . . .

Biosecurity is sometimes also used to refer to the much broader range of measures to prevent and respond to possible biological attacks, (e.g., biodefense; public health; law enforcement, etc.), but a focused definition refers to a subset of policies to deny unauthorized access to germs and toxins for illicit purposes. Experts at Sandia National Laboratories conceptualize biosecurity as falling into six categories of measures: physical protection, personnel reliability, scien-

tific and programmatic oversight, pathogen accountability, transportation security, and information security.

Among the diseases that could be used as biological weapons, anthrax, botulism, plague, smallpox, tularemia, and viral hemorrhagic fevers are among those judged by specialists at the U.S. Centers for Disease Control and Prevention (CDC) to be of greatest concern. While most national and international authorities concur in identifying about three dozen pathogens and toxins as "select agents"—i.e., those presenting the gravest security threats given their potential for contagion or weaponized dissemination and probability of causing serious illness or death—there are differences among the select agent lists employed around the world, and disagreement over the significance of listed agents. All lists, wherever employed, must be updated regularly to respond to new information and developments. For example, since 1973, thirty new disease agents have been identified, including some for which no cure exists, notably HIV, Ebola virus, hepatitis C virus, and Nipah virus.

There is growing recognition in the United States and around the world of the need for effective biosecurity measures to mitigate biological warfare (BW) threats, and especially to reduce the threat of bioterrorism. Government officials, industry representatives, and nongovernmental analysts emphasize the need for focused and effective steps to prevent terrorists from misusing science, medicine, and biotechnology. Most recognize the need for centralized action at the national level to promote biosecurity; many stress the importance of developing and implementing consistent international biosecurity standards and measures.

Without standardized measures applied worldwide, terrorists could exploit unprotected or least-protected facilities to gain access to toxins and pathogens, and then use the material for bioweapon attacks in far-distant locations. Consider the mass-murder attacks of 11 September 2001, which demonstrated the ruthless transnational reach of al-Qa'ida terrorists. Given the group's ambition to acquire mass-destruction weapons, and its track record of killing fellow Muslims in conducting terrorist strikes, its operatives may be willing to unleash deadly epidemics against the population of the United

States or other countries that it considers to be enemies. If al-Qa'ida operatives were to gain access to a lethal contagious pathogen from a location anywhere in the world, they might employ suicidal or unwitting individuals as carriers to launch disease attacks from one country to another—despite the likelihood that an epidemic would spread via intercontinental air travel to eventually decimate Islamic peoples among other noncombatants. Given this prospect, al-Qa'ida's reported interest in obtaining the smallpox pathogen should be a matter of grave international concern. . . .

Although many countries are working to develop or upgrade and implement biosecurity measures and related legislation, these efforts vary in breadth and effectiveness, and significant gaps remain in even the best-secured states. Furthermore, some biodefense initiatives—the principal responses that have been launched by leading states—may unintentionally increase prospects for bioterrorism.

Biodefense Risks

Biodefense research, such as efforts to develop vaccines and drugs, is a necessary element among national efforts to prepare for bioterrorism and BW. Unfortunately, however, without better provisions for biosecurity the ongoing expansion of civilian and military biodefense programs will increase some bioterrorism risks. Because more people in more facilities will be trained to work on projects involving lethal pathogens and toxins, there will be greater risk that insiders within these facilities may abuse their access to dangerous biomaterials and sensitive information for criminal or terrorist purposes.

For example, the terrorist(s) who last year mailed letters containing anthrax spores in the United States used a virulent *Bacillus anthracis* strain held since 1981 by a military biodefense facility at Fort Detrick, Maryland. It is possible that this deadly strain may have been acquired directly from the facility, or from one of several other labs supplied with this bacterium to conduct biodefense research. The FBI behavioral profile of the unknown perpetrator is of a lone individual with a scientific background, laboratory access, and experience working with hazardous materials like anthrax

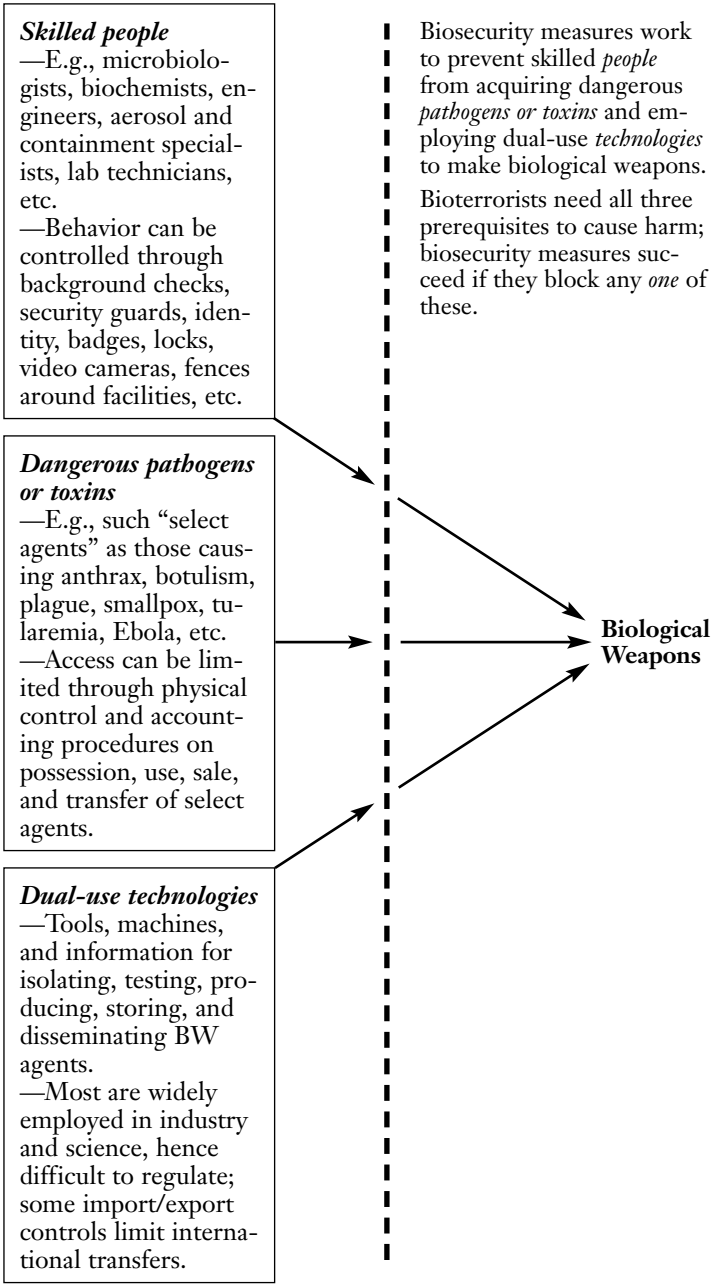
bacteria. The technical sophistication apparently required to prepare the anthrax spores used in the attacks suggests that the assailant(s) might have been supported by a foreign biowarfare program, or alternatively, that the culprit(s) may have stolen material from a U.S. or foreign biodefense program that uses the agent for research. Revelations about the lack of oversight on dangerous projects, and unreliable internal security at a leading research facility, have raised questions as to the security of BW-relevant agents within U.S. biodefense programs. But whatever the origin of the anthrax material, and whether or not the anthrax mail attacks were inflicted by a lone insider-turned-terrorist, the ensuing investigation and disclosures have highlighted the inadequacy of existing measures to control access to deadly organisms.

Thwarting Acquisition

In the past, terrorists and criminals have acquired biological weapons agents in several ways, including collecting pathogenic microorganisms and toxins directly from natural sources; purchasing disease strains from culture collections; and infiltrating medical and bioresearch facilities or paying criminal accomplices to do so on their behalf. Non-state actors could also acquire deadly bacteria, viruses, and toxins from state BW programs as well as biodefense facilities. Eventually, terrorists might develop the capability to synthesize some pathogens in the test tube by means of genetic engineering techniques.

Thus, controlling access to pathogen cultures and toxins cannot entirely prevent the malevolent use of biology and medicine. But biosecurity measures can raise barriers thwarting would-be bioterrorists from easily obtaining dangerous pathogens and toxins. For example, physical security measures blocked a recent attempt to steal pathogens from a biodefense laboratory in Kazakhstan. Complicating and delaying acquisition of lethal agents would increase prospects that terrorists with ambitions to use biological weapons will be stopped by domestic law enforcement, foreign intelligence, or military action before they can launch bioterrorist attacks. Moreover, denying terrorists access to known lethal strains of pathogens may limit or even entirely negate their

Requirement for Biological Weapons



Michael Barletta, Center for Nonproliferation Studies, November 2002.

efforts to cause harm. For example, the Japanese cult Aum Shinrikyo was unable to sicken anyone in its repeated attempts to use anthrax bacteria for bioterrorism, in part because the group's scientists had acquired and mass-produced a non-lethal strain of the organism. Fortunately, the group also failed in its effort to acquire samples of the Ebola virus for use in its bioweapons program.

In fact, simply delaying terrorist attacks could be invaluable; implementing effective biosecurity measures now could gain time for biodefense programs to develop better means to detect and diagnose biological weapons attacks, and to prevent and treat illnesses caused by bioweapons. Improved detection and treatment capabilities could reduce the harm that bioterrorists can inflict. Better detection, moreover, would have forensic value and increase the likelihood that bioterrorists would be quickly identified, apprehended, and punished. By contrast, the bioterrorist(s) who unleashed anthrax in fall 2001 benefited from the incubation period of the disease, and the time required for doctors to diagnose it as anthrax, to thus far escape detection and arrest. In turn, recognition of stronger detection and treatment capabilities could lead terrorists to decide that pursuing biological weapons would be ineffectual and personally or organizationally hazardous, and hence not worth pursuing.

To stymie aspiring bioterrorists, biosecurity efforts only need to block any one of three general requirements for bioweapon production: skilled people, dangerous pathogens or toxins, and dual-use technologies [which can be used for legitimate biotechnology purposes or misused for bioterrorism]. Although primarily aimed at non-state actors, effective biosecurity measures could also thwart procurement activities by states seeking to produce biological weapons. In the 1980s, weak controls on the transfer of biological agents enabled Iraq to acquire cultures and toxins for its BW programs from France, Germany, Japan, and the United States. Inadequate internal security measures also may have allowed Iraqi agents to infiltrate British microbiology laboratories to gain access to potential BW agents and BW-relevant expertise.

Iraqi exploitation of Western commerce and scientific cooperation for its chemical and biological weapons programs

led to formation and strengthening of the Australia Group (AG), an export control coordinating body now comprised by 33 member states plus the European Commission. The AG is a crucial element in international efforts to limit access by proliferant countries to pathogens and toxins, as well as to equipment and supplies required for their weaponization. In June 2002, the AG tightened its guidelines on transfers of sensitive items related to biological and chemical weapons. That same month, the Group of Eight (G8) [Germany, Canada, the United States, France, Italy, Japan, the United Kingdom, and Russia] reached agreement on nonproliferation principles that included physical protection, control, and accounting for biological agents and other materials that could be used by terrorists to conduct mass-destruction attacks. The G8's nonproliferation activities currently focus on securing facilities in the former Soviet Union. In Europe, member states of the European Union have undertaken efforts on biosecurity that include development of a prioritized list of select agents, an agent inventory, and guidelines for surveillance and reporting on agent production, transfer, and processing.

As noted above, there are regulatory and legislative initiatives currently underway to promote biosecurity within the national borders of a number of countries. In the United States, these efforts include two new laws regulating lethal toxins and pathogens, an interagency working group refining laboratory biosecurity procedures, and formation of the Department of Homeland Security with responsibilities for biosecurity. Of course, stringent regulations and powerful agencies are not in themselves sufficient; biosecurity measures must be implemented effectively in order to actually reduce the risk of illicit misuse of biological agents. Distressingly, more than five years after initiation of the Select Agent Program to regulate transfers of pathogens and toxins within the United States—and over one year after the country suffered bioterrorist attacks with anthrax bacteria that many officials believe originated in a U.S. laboratory—implementation of the program remains seriously deficient.

Moreover, although U.S. regulatory efforts are necessary steps to reduce bioterrorism risks, U.S. measures alone can-

not prevent terrorists from acquiring deadly pathogens, in part due to the operation of over 1,500 culture collections worldwide that possess, exchange, and sell disease specimens for legitimate scientific, medical, and agricultural research purposes. Many of these collections are in countries that are not members of the AG, and that may have negligible or ineffectual measures for biosecurity. In the past, even criminals and terrorists who possessed technical expertise in isolating disease organisms from natural sources have relied on culture collections to acquire deadly organisms.

In recognition of the global dimensions of the threat, there are also policy proposals for action on biosecurity measures at the international level. One approach would be to establish an encompassing convention to criminalize bioterrorism and related activities worldwide, with biosecurity measures and other provisions to strengthen enforcement of the prohibition against BW. Another mechanism could be an international scientific commission and governing body to develop biosecurity standards and oversee their enforcement, and also to provide oversight of research that might be misused for biological weapons purposes. More narrowly, an international inventory of anthrax bacteria and other pathogens could be initiated by the UN Security Council, under Article V of the 1972 Biological and Toxin Weapons Convention (BWC). Another option would be negotiation of a Biosecurity Convention focused on reducing risks of bioterrorism, separate from but in partial support of the BWC. A technically grounded, multilateral negotiation process could offer a politically feasible means for generating international biosecurity standards and winning the support necessary to put them into practice worldwide. . . .

Whatever initiatives are undertaken by national and international authorities, biosecurity measures should be designed carefully so as to avoid undue constraints on legitimate scientific and medical research and productive commercial activities, and they must be vigorously implemented in order to effectively forestall bioterrorist threats to the United States and to international security.

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VIEWPOINT

"A strong public health system can quickly identify the presence of a biological attack, contain the number of patients, help restore calm to society, and ensure the health of the population."

A Strong Public Health System Can Manage the Consequences of a Biological Attack

Rebecca Katz

Rebecca Katz is a doctoral candidate at the Woodrow Wilson School of International Affairs and the Office of Population Research at Princeton University. In the following viewpoint Katz argues that the United States should strengthen its public health system in preparation for acts of bioterrorism. Currently, she warns, the nation's hospitals, infectious disease laboratories, and vaccine distribution systems are woefully underprepared for the disease outbreaks that could follow a bioterror attack. She believes that more federal funds should immediately be put toward improving the public health system's ability to rapidly detect and respond to infectious disease outbreaks.

As you read, consider the following questions:

1. What is the public health system, as defined by the author?
2. What would be the first sign of a biological weapon attack, according to Katz?

Rebecca Katz, "Public Health Preparedness: The Best Defense Against Biological Weapons," *Washington Quarterly*, vol. 25, Summer 2002.

Two major exercises have tested the U.S. government's preparedness for, and capacity to respond to, a large-scale, covert biological weapons attack. TOPOFF, led by the Federal Emergency Management Agency (FEMA) and the Department of Justice in May 2000, and Dark Winter, directed by CSIS [Center for Strategic and International Studies] in May 2001, found that the United States was ill prepared to detect and respond effectively to a bioterrorist attack in a way that would prevent the attack from escalating into a major security crisis. These exercises demonstrated the devastating impact a bioterrorist attack can have when initiated against a poorly prepared government: hundreds of thousands dead or sick, widespread panic, a resultant breakdown of civil society, and the suppression of individual rights in order to control the spread of disease.

TOPOFF and Dark Winter revealed how a biological weapons attack is unlike an attack utilizing conventional weapons or even another type of weapon of mass destruction. Although the Department of Defense and typical first-responders (local fire and police departments) ably handle the defense against, management of, and deterrence of most weapons, these actors are not sufficient for detection and control of a biological attack. Maintaining homeland security against a biological attack requires a strong civil defense rooted in the capabilities of a new player in the realm of national security: the public health system.

The public health system is a federal, state, and local infrastructure responsible for monitoring health status, diagnosing and investigating health problems, linking people to health services, enforcing health laws and regulations, assuring a competent health workforce, communicating with the public, disseminating information, and conducting scientific research. This system plays a vital role in an effective defense against biological weapons. A strong public health system can quickly identify the presence of a biological attack, contain the number of patients, help restore calm to society, and ensure the health of the population. Understanding the role of public health will allow policymakers to structure a comprehensive weapons defense, allocate funds appropriately, and set up collaborative efforts. . . .

Public Health Preparedness Today

If a terrorist group or hostile nation releases a biological weapon on the U.S. public, the first sign of an attack is likely to be the seemingly innocent event of a small number of people going to their private doctors' offices or the emergency room at their local hospitals, complaining of flu-like symptoms. Patients may arrive at various hospitals throughout a geographic region, reducing the likelihood that one hospital may raise suspicions that a cluster of disease is within the community. Once such a cluster has been identified, determining if the disease results from a natural epidemic or if a biological attack has taken place will most likely be initially impossible.

To determine exactly what is wrong with the patients, blood samples will be sent to local laboratories and then possibly to state or federal laboratories, depending on the initial suspicions of the physicians treating the patients or the inability of a local lab to identify an agent. This process can continue for a day or a month, depending on the capacity of the local labs (the size, personnel, and equipment available), the awareness of disease possibilities, and the agent itself.

Once officials have detected and diagnosed the disease, they must determine the number of people affected, treat the infected populations, and make efforts to contain the spread of disease. This process may be as simple as getting antibiotics to a finite number of infected people if the biological agent is not communicable (cannot be spread from person to person) or as complicated as tracking down possible contacts of patients, initiating vaccination campaigns, and enacting quarantine procedures for infectious patients. In order for the public health system to operate effectively during a biological weapons attack on the United States, it must include a strong infectious-disease surveillance system, vaccine development and pharmaceutical stockpiles, scientific research, communications networks, laboratory capacity, hospital readiness, and professional training.

Infectious Disease Surveillance

The longer it takes to identify the presence of an outbreak, the more people will become sick or die, at a greater cost to

society. According to one study, if officials identify an anthrax attack on a population of 100,000 and distribute proper doses of antibiotics to the exposed population within 24 hours, approximately 5,000 people will die and the cost to society both in health care expenditures and economic loss will be $128 million. On the other hand, if officials do not identify the attack for six days and only then give doses of antibiotic prophylaxes to the exposed population, approximately six and a half times as many people will die (33,000) at a cost almost 205 times higher ($26.3 billion).

This example demonstrates the importance of early detection of an event, be it an epidemic of a naturally occurring disease, such as the occasional outbreak of meningitis on a college campus, or a biological attack, such as the anthrax letters of last fall. To identify such an event quickly, a multifaceted surveillance system is needed. Well before an attack occurs, public health departments around the country from the local to the state level must establish and enforce reporting mechanisms of diagnoses from hospitals and private physicians, findings from laboratories, and sales of prescription drugs as well as over-the-counter medication from pharmacies. Complete, real-time reporting from all of these areas, in addition to accurate historical trends to use for comparison, would enable public health departments to identify out-of-the-ordinary occurrences, as well as piece together an initial picture of the location and timing of events in a given region. Information from this system should be monitored at the federal level in order to analyze both regional and national trends.

Accurate reporting in this surveillance system will depend on trained physicians, competent local laboratories, and functional communication systems, as well as vigilance on the part of participants in the surveillance system, to ensure that information is continuously updated, either automatically or through personnel dedicated to this task. A comprehensive surveillance system relies on passive (having disease information reported to a central location) and active (searching for information on disease occurrences) surveillance and requires personnel to monitor the situation 24 hours a day. A national infectious disease surveillance system

is only as strong as its weakest link. Thus, in order for the system to be effective, every region of the country must be connected and actively participate.

Today, a hodgepodge of surveillance systems operates around the country, with the nearly 3,000 local health departments, 50 state health departments, and several large municipalities all using different variations. The Centers for Disease Control and Prevention (CDC) maintains more than 100 surveillance systems, most of which operate independently of each other. Recognizing the need to manage information from local and state surveillance better, the CDC created the National Electronic Disease Surveillance System (NEDSS), which is designed to integrate a variety of disease databases. Although NEDSS is a start, by no means has it accomplished the task of integrating all the surveillance systems operating nationwide. A comprehensive system must be available to all and capable of reporting to the local, state, and federal level. This system must also be impervious to attack, from both outside and within the public health community. The Office of Homeland Defense, with the guidance and expertise of the CDC and health informatics professionals, is an appropriate choice to coordinate an integrated nationwide surveillance system.

Vaccine Development

Vaccination against known bioterrorist agents, specifically anthrax and smallpox, are part of a preattack defense and a postattack containment. Although engaging in large-scale vaccination programs of the civilian population prior to an attack is neither practical nor safe, vaccine availability if a large-scale attack did occur is important, particularly for smallpox. Because the smallpox vaccine is dangerous to people with compromised immune systems (e.g., people with HIV/AIDS, on chemotherapy, or with autoimmune diseases), a large-scale vaccination program is only practical if a viable threat exists that outweighs the danger posed by the vaccine itself. If a smallpox outbreak did occur, however, engaging in a regional vaccination program to contain the spread of the disease would be essential.

The United States once kept a stockpile of smallpox vac-

Project Bioshield

In my State of the Union address, I asked Congress to approve a comprehensive plan for research and production of needed drugs and vaccines, a plan that we call Project BioShield. My budget requests almost $6 billion to quickly make available safer and more effective vaccines and treatments against agents like small pox, anthrax, botulinum toxin, e-bola and plague.

We already have the knowledge and ability to manufacture some of the vaccines and drugs we need. Yet, we have had little reason to do so up until now, because the natural occurrence of these diseases in our country is so rare. But the world changed on September the 11th, 2001, and we've got to respond to that change.

In light of the new threats, we must now develop and stockpile these vaccines and these treatments. Right now, America must go beyond our borders to find companies willing to make vaccines to combat biological weapons. Two main drug therapies used to treat anthrax are produced overseas. We must rebuild America's capacity to produce vaccines by committing the federal government to the purchase of medicines that combat bioterror.

Under Project Bioshield, the government will have the spending authority to purchase these vaccines in huge amounts, sufficient to meet any emergency that may come. Project BioShield will give our scientific leaders greater authority and flexibility in decisions that may affect our security. Our labs will be able to hire the experts, get more funding quickly, and build the best facilities to accelerate urgently needed discoveries.

We'll have a better and safer smallpox vaccine, antibodies to treat botox, sophisticated devices that can confirm a case of anthrax infection almost instantly. We will ensure that promising medicines are available for use in an emergency. Like other great scientific efforts, Project BioShield will have many applications beyond its immediate goals. As scientists work to defeat the weapons of bioterror, they will gain new insights into the workings of other diseases. This will also break new ground in the search for treatments and cures for other illnesses. This could bring great benefits for all of humanity, especially in developing countries where infectious diseases often go uncontrolled.

George W. Bush, remarks on the Bioshield Initiative, Bethesda, MD, February 3, 2003.

cine, but much of that vaccine has deteriorated, leaving only 15.4 million original doses. Packaging and distribution problems could further reduce the number of available

doses, although a recent study suggests that the existing 15 million doses can be expanded through dilution to at least 75 million and possibly 150 million. The federal government recently approved contracts for the production of enough smallpox vaccine to serve the entire domestic population. . . . Whether any of these stockpiled vaccines will be made available to foreign nations in the event that smallpox is released overseas, however, is unclear.

More research is needed to improve the currently available vaccines, as well as to develop and manufacture vaccines for other diseases categorized by the CDC as bioterrorist threats. Tests also must continue to determine if the available vaccines protect against more potent variants of diseases, such as the drug-resistant anthrax bioengineered by the Soviet biowarfare program.

In order to avoid chaos during an event, development and dissemination prior to an attack of vaccine priority and distribution plans is essential. These plans should incorporate the best methods for controlling the spread of disease, saving the most lives, and ensuring the utility of responders. The CDC has developed vaccination plans for smallpox containment, but plans do not currently exist for vaccination for other known biological weapons, nor have the details of distribution techniques and prioritization among nonpatients been established in all regions. The public health community should work with organizations such as the National Guard as well as local law enforcement and even local business to arrange plans to distribute vaccinations to large numbers of people. Authorities could use the same plans to distribute drugs and other medical supplies.

Pharmaceutical Stockpile

The CDC has taken the lead in creating the National Pharmaceutical Stockpile Program, which maintains a national repository of drugs and medical material to be delivered to the site of a biological attack. Mandated by Congress in January 1999, this stockpile can provide quantities of drugs and medical supplies that might otherwise be difficult to obtain rapidly in the event of an emergency. Originally funded with $52 million a year, this program can presently deliver pack-

ets of drugs and medical equipment, along with a small team to assist with distribution, to any U.S. site within 12 hours.

The program has developed remarkably well with such limited funds, but further resources are needed to enhance the program's ability to respond to a greater variety of situations. With additional funds, more drugs can be stocked in a larger variety of locations around the country, reducing the time between request and delivery of the stockpile as well as increasing the number of people that could be treated. Local authorities could also receive more intensive training in distribution strategies, and leaders could dispatch larger teams of experts in the case of an emergency. . . .

Hospitals

Currently, U.S. hospitals are operating at close to full capacity, and barely enough hospital beds and nurses are available to respond to the annual flu epidemic. Most metropolitan areas have a limited number of ventilators and beds in rooms especially designed to isolate infectious patients. The entire Washington, D.C., area has fewer than 100 of these isolation beds, all of which would be quickly filled in the event of a biological weapons attack of smallpox or some type of hemorrhagic fever, such as the Ebola virus.

All major hospital centers in the country should develop plans to handle a bioterrorist event. In the event of a large-scale bioterrorist attack, hospitals must first decide where to situate patients physically and then assess whether enough personnel are available to work in an emergency, as well as whether the hospital is equipped to quarantine patients if necessary. Hospitals might need to hire additional nurses and purchase equipment for use in an emergency. Because these expenditures may be inconsistent with individual hospitals' profit maximization policies, compensating hospitals from the bioterrorism preparedness funds may be necessary. . . .

Training

In almost all emerging infectious disease outbreaks, the local medical and public health personnel are the first professionals to identify the existence of a problem, and only then are federally trained experts involved. Having a cadre of experts

at the CDC ready to be called when needed, however, is not enough. Physicians, nurses, epidemiologists, emergency medical personnel, and lab workers nationwide must also be trained to recognize the existence of a problem, even if only to know when to call federal experts.

Not enough epidemiologists and public health officials are trained to investigate every suspected outbreak at the local, state, or federal level. Funding should be given to schools of public health and to fellowship programs to ensure that a cadre of highly trained professionals are available. Officials should also allocate portions of local and state budgets to the hiring of infectious disease epidemiologists. Federal programs should also expand so that more people will be trained in advanced outbreak investigation. Currently, the CDC places Epidemic Intelligence Service members (highly trained professionals) in state health departments around the country. On average, however, only one person is placed in each state, and at least 12 states have no representative. Fortunately, officials have slated this program to receive a significant increase in funding, which they will hopefully use to place at least one person in every state and large metropolitan region, with preferably a small team of professionals in each state to coordinate disease investigations and communication with federal authorities.

In addition to training more epidemiologists, existing medical personnel must learn about the role they might play in a biological attack. Most U.S. physicians and first-responders today have never seen a case of smallpox or many of the other diseases listed as critical threats; an infection would thus challenge them to present a diagnosis of the disease without laboratory confirmation. Because rapid diagnosis and treatment is an essential component of bioterrorism response, physicians should become familiar with likely bioterrorist attack agents. Although some physicians initially resisted attending training sessions, they are becoming more willing participants as they perceive the threat of a bioterrorist attack and recognize the role they might play. In addition to the voluntary training of attending physicians, an organized, mandatory program should educate medical students, selected residents, and paramedics on the signs, symptoms,

and treatment of agents identified by the CDC as possible biological weapons. Officials should also reinforce for these professionals the protocols for reporting diseases and the required actions in the event of a bioterrorist attack.

How to Appropriate the Increased Funds

The public health system has suffered years of financial neglect, leaving it disabled in its ability to manage outbreaks of infectious diseases effectively without quickly becoming overwhelmed. In 1992, 12 states had no one on the payrolls responsible for monitoring food-borne and waterborne diseases (the two easiest pathways for terrorists to release a biological weapon). A 1999 Harvard University study determined that public health leaders felt they were only performing one-third of the functions essential to protecting the health of the U.S. public, primarily because of insufficient resources.

In 1999 the Congress appropriated $121 million to the CDC to improve the national disease surveillance system. For fiscal year 2000, $277.6 million was set aside for the Department of Health and Human Services (which includes NIH and CDC) to improve the disease surveillance system, engage in research, stockpile drugs, and create vaccines. Bioterrorism funding for 2002 was raised to $1.4 billion, and the president's budget for 2003 proposes a 319 percent increase, to $5.9 billion.

For the first time in its history, the U.S. public health system is positioned to receive enough resources that, if spent appropriately, could improve the public health infrastructure to the point where the system could fulfill its mission to protect the public's health. . . .

Beyond improvements in the U.S. public health system, public health infrastructure around the world could be improved. The release of a biological agent in one part of the world will not be limited in its spread to national borders unless a nation's public health infrastructure is capable of containing the disease. Thus, from a security and a public health point of view, our nation's best interest lies in enhancing the surveillance and response capacity of public health systems around the world—particularly in areas with

a possibly increased threat of biological attack.

A strong additional argument for funding the public health system for bioterrorism preparedness is the beneficial side effects of antibioterrorism programs. In the 1950s, officials allocated the CDC funds to establish an Epidemic Intelligence Service (EIS), designed to create a cadre of professionals who could serve as "an early-warning system against biological warfare and man-made epidemics." EIS has existed for 50 years and has played a key role in combating epidemics all over the world, including eradicating smallpox, controlling Ebola outbreaks, discovering how AIDS is transmitted, and studying U.S. public health problems. The EIS program has also trained many medical and public health leaders in the United States, including the most recent director of the CDC, deans of prominent schools of public health, and practicing physicians around the world. . . .

The Unique Bioweapons Challenge

The threat of a biological weapons attack on the United States is more real than at any time in the nation's history. The goals and actions of terrorists and hostile states have changed in a way that makes biological weapons use conceivable, while technological advances have made biological agents weaponization more feasible than in decades and centuries past.

Rapid detection and consequence management of a biological attack will be the primary responsibility of the public health system. As it stands today, a biological weapons attack would quickly overwhelm the public health system. In order for this system to be effective in its detection and response roles, officials should focus more attention toward strengthening the public health infrastructure in general and the infectious disease surveillance system in particular.

"Along with the ability to deploy about 600 people, [the Nuclear Emergency Search Team] also has about 150 tons of equipment at its disposal."

Nuclear Detection Teams Can Prevent Nuclear Terrorism

Jeffrey T. Richelson

Jeffrey T. Richelson is a senior fellow with the National Security Archive in Washington, D.C., and the author of *The Wizards of Langley: Inside the CIA's Directorate of Science and Technology*. In the following viewpoint he discusses the role of the federal Nuclear Emergency Search Team (NEST) in preventing nuclear terrorism. NEST operatives have a wide range of scientific specialties, as well as an arsenal of nuclear detection equipment. If a nuclear threat is received, writes Richelson, NEST operatives can be covertly deployed to locate and destroy a bomb. However, Richelson warns that NEST's effectiveness is dependent on intelligence—the more time that NEST has to deal with a threat, and the more information it has, the greater its chances of locating and neutralizing a hidden nuclear device.

As you read, consider the following questions:

1. Who is referred to as the "father of NEST," according to Richelson?
2. In what year was NEST established, according to the author?
3. What is one of the ways that NEST might disable a nuclear bomb, as described by Richelson?

Jeffrey T. Richelson, "Defusing Nuclear Terror," *Bulletin of the Atomic Scientists*, vol. 25, March/April 2002, p. 38.

On October 16, 1994, the Federal Bureau of Investigation (FBI) received word that one of its informants was being held hostage by a domestic terrorist group, the Patriots for National Unity, in a New Orleans safe house. The next morning, after overhearing plans to kill the hostage, a raid by the FBI's hostage rescue team freed the informant. During a debriefing, the rescued informant revealed that members of the terrorist group were looking to obtain nuclear material and assemble several nuclear devices. The bureau also determined that one of the group's members may have leased a boat. In response to a possible nuclear threat, the FBI alerted a number of other federal agencies, including the Nuclear Emergency Search Team (NEST)—a special unit under the control of the Energy Department's Nevada Operations Office.

Fortunately, this entire scenario is fictional, just like the many incidents of nuclear terror portrayed in films and novels over the last 40 years: from Spectre's threat in the 1961 James Bond thriller *Thunderball* to employ stolen nuclear bombs against U.S. or British cities; to the Libyan-backed threat of atomic devastation in Larry Collins's *The Fifth Horseman* (1980); to the destruction caused by a terrorist nuclear device in Tom Clancy's *The Sum of All Fears* (1991); to the attempt by an aggrieved Serbian to incinerate the United Nations in the 1997 film *The Peacemaker* starring George Clooney and Nicole Kidman.

In the scenario described above, NEST was participating, along with the FBI, Federal Emergency Management Agency (FEMA), and several other organizations, in a "full-field exercise" designated "Mirage Gold." The purpose of the exercise was to test how successfully the agencies would respond to a nuclear terrorist threat—and if they could work together effectively.

Origins

The possible need to track down lost, stolen, smuggled, or "improvised" nuclear devices has concerned national security agencies for at least as long as novelists have been spinning fictional scenarios. A 1963 national intelligence estimate, The Clandestine Introduction of Weapons of Mass Destruction

into the U.S., addressed the question of whether the Soviet Union was likely to attempt to smuggle biological, chemical, or nuclear weapons into the United States. The intelligence community concluded that "the Soviets almost certainly would not contemplate the use of clandestinely delivered nuclear weapons except as a supplement to other weapons in the context of general war," and that "the Soviets probably recognize that it would be impracticable for them to mount a clandestine nuclear attack on a sufficient number of [U.S. delivery vehicles] to reduce substantially the weight of a U.S. strike."

There was also, in the 1960s, concern about the possible consequences of a crash of nuclear-armed aircraft. According to Duane C. Sewell, commonly referred to as the "father of NEST," this led to the creation of a team based at Lawrence Livermore National Laboratory that could send qualified people to pick up the remains of the aircraft, detect the presence of a nuclear device, determine the area at risk, remove the bomb, and minimize the physical and political damage. When a B-52 carrying four thermonuclear bombs crashed near Thule, Greenland, in 1968, the value of such a capability was demonstrated. "Project Crested Ice" involved transporting two technicians and an instrument for detecting plutonium, suitably winterized to operate at temperatures of minus 60 degrees Fahrenheit, to the accident scene. Within 24 hours of arrival, they were able to locate the area contaminated with plutonium.

Then, in the summer of 1972, the terrorist group Black September seized, and ultimately murdered, nine members of the Israeli Olympic team. Among those who became seriously concerned over the prospect of nuclear terrorism was James Schlesinger, then chairman of the Atomic Energy Commission (AEC). He held a series of meetings exploring whether terrorists could steal plutonium and make a bomb with it, whether they could steal a bomb, and whether the United States would be able to locate it. In 1974, while those issues were being considered and investigated, the FBI received a note demanding that $200,000 be left at a particular location in Boston or a nuclear device would be detonated somewhere in the city. This note was not part of an exercise, but the real thing.

William Chambers, a Los Alamos nuclear physicist who was studying the detection issue, was instructed by the AEC and FBI to assemble the best team he could and head for Boston to search the city. The operation reflected its ad hoc origins. The group rented a fleet of mail vans to carry concealed equipment that could detect the emissions of a plutonium or uranium weapon. But the team found that they did not have the necessary drills to install the detectors in the vans. NEST field director Jerry Doyle recalled, "If they were counting on us to save the good folk of Boston . . . well, it was bye-bye Boston." Fortunately, it was all a hoax—FBI agents waited, but no one showed up to claim the bag of phony bills they left at the designated location.

The threat to Boston resulted in a secret November 18, 1974 memo from General Earnest Graves, the AEC's assistant general manager for military applications, to Mahlon E. Gates, manager of the commission's Nevada Operations Office. Titled "Responsibility for Search and Detection Operations," it authorized Gates to assume responsibility for the planning and execution of AEC operations to search for and identify "lost or stolen nuclear weapons and special nuclear materials, nuclear bomb threats, and radiation dispersal threats." Before the end of 1975, the NEST team was established to prepare for and manage such activities.

Capabilities

If necessary, NEST can deploy approximately 600 individuals to the scene of a terrorist threat, although actual deployments have rarely involved more than 45 people. According to a Nevada Operations Office briefing, deployed personnel come from a pool of about 750 individuals, most of whom work for Energy or its private contractors in other primary capacities. In addition to NEST members based at the team's Las Vegas headquarters, personnel are pulled from three Energy Department labs (Lawrence Livermore, Los Alamos, and Sandia), and from three contractors (Reynolds Electrical & Engineering, Raytheon Services of Nevada, and EG&G).

NEST personnel also have a wide variety of specialties. NEST briefing slides list 17 different categories of personnel, including four types of physicists (nuclear, infrared, at-

mospheric, and health), engineers, chemists, and mathematicians, as well as specialists in communications, logistics, management, and public information. As a result, the organization chart for a full NEST field deployment contains a multitude of divisions and subdivisions—what one might expect at a large government agency.

NEST and Dirty Bombs

Not all the challenges for the NEST searchers come from outside the border.

Radiological dispersal devices—known as dirty bombs—can be constructed from waste from nuclear power plants wrapped in conventional explosives. These would not produce a nuclear explosion. But, depending on the size of the package, large quantities of radioactive particles would be spewed into the environment.

"Detonation of a dynamite-laden casket of spent fuel from a power plant would not kill quite as many people as died [in the September 11, 2001, terrorist attacks]," [according to Bruce Blair, president of the Center for Defense Information]. "But if it happened in Manhattan, you could expect 2,000 deaths and thousands more suffering from radiation poisoning."

Can NEST intercept and disable this litany of deadly devices before they are used by terrorists?

The ease of detection depends greatly on the nuclear material used. Some will emit alpha radiation, which can be shielded by a single sheet of paper. Most beta rays won't make it through wood or dry wall. It's the neutrons and gamma rays, which can shoot out hundreds of yards, that offer the best bet for detection while driving up a city street or walking through a convention center, hotel or office building or flying low over a community.

Andrew Schneider, *St. Louis Post-Dispatch*, October 21, 2001.

If a nuclear terrorist threat is received, the NEST team first assesses the threat's technical and psychological validity. To determine if the technical details are accurate and indicate some knowledge of building nuclear devices (or were simply lifted from a Tom Clancy novel), NEST maintains a comprehensive computer database of nuclear weapon design information—from reports in scientific journals to passages from spy novels. Meanwhile, psychologists and psychiatrists

examine the letter writer's choice of words and sentence structure to try to assess the writer's state of mind and the region from which he or she originates.

If NEST were to move into the field, it would not travel lightly. Along with the ability to deploy about 600 people, it also has about 150 tons of equipment at its disposal. NEST's air force consists of four helicopters equipped with radiological search systems, and three airplanes (a King Air B-200, a Citation-II, and a Convair 580T) modified for remote sensing missions. It can deploy vans with equipment capable of detecting the emissions from nuclear material. And by applying appropriate artwork to the sides of vehicles, its graphics department can help undercover vans blend into the flood of commercial vans on the road. When asked if the artwork would be the same as a legitimate company's or be imaginary—possibly allowing a terrorist armed with the Yellow Pages to determine that the van was a phony—a NEST spokesperson remarked that the search team seeks to insure that it does not "raise the suspicions of the terrorists."

NEST also has an arsenal of handheld nuclear detectors that can be concealed in any one of many attache cases, briefcases, lunch packs, and suitcases. The detectors can silently let a NEST member know that a radiation source has been detected by transmitting a signal to the member's concealed earphone.

In addition to equipment for detecting nuclear material, NEST also has diagnostic, disablement, and damage-limitation devices. Its diagnostic capability includes portable X-ray machines to peer under a bomb's outer shell as well as a hand-held device that looks like a Dustbuster and can pick up emissions to better estimate a threat. To disable a bomb, NEST might detonate explosives around it, or it could use a 30-millimeter cannon to blast the bomb into small pieces. The team can construct a nylon tent, 35 feet high and 50 feet in diameter, into which 30,000 cubic feet of thick foam can be pumped, which can mitigate the spread of radiation from a radiation dispersal device. According to a NEST team member, however, the foam is primarily intended to limit the damage from a non-nuclear detonation used to disable a nuclear weapon.

Deployments

Since NEST's creation, about 100 threats involving alleged nuclear devices or radioactivity have come to its attention. At least a dozen, and possibly more than twice that number, have resulted in deployment of NEST personnel. NEST, in general, will not confirm or deny when or whether it has deployed to a particular city or region. However, it has been reported that between 1975 and 1981 NEST personnel were sent to investigate threats in Boston, Los Angeles, Spokane, Pittsburgh, New York, Sacramento, Tennessee, and Reno.

The threat to New York came in July 1975 when terrorists claimed, "We have successfully designed and built an atomic bomb. It is somewhere on Manhattan Island. We refer you to the accompanying drawing in one-eighth scale. We have enough plutonium and explosives for the bomb to function. The device will be used at 6:00 p.m. July 10 unless our demands are met." As reported in the *New York Times Magazine*, the key demand involved $30 million in small bills.

NEST was impressed by the drawing. According to one account, it was sophisticated, precise, and "made by someone with more than a passing acquaintance with nuclear physics." But that did not lead the United States to part with real money. A dummy ransom package was left at the drop site in Northampton, Massachusetts, and FBI agents waited for someone to claim it. Nobody showed up and there was no further communication from the extortionists.

That same year, Fred L. Hartley, chairman of the Los Angeles–based Union Oil Company of California, received a note claiming that there was a nuclear device on one of the company's properties. The extortionist wanted $1 million; otherwise, the bomb would be detonated. Such a threat, away from the natural radiation of an urban area—where radiation can be emitted by freshly paved streets or Vermont granite in an office building—made it easier to use NEST vans in the search for a nuclear device.

"The guys were out there in their trucks listening to their earpieces," former NEST official Jerry Doyle told Larry Collins, the author of the first major article on the search team. "Suddenly one got an intensive reading, looked up and there, about 50 yards away, was a big bulky, unidentified

wooden crate resting by a refinery fence. There was a moment of real panic," Doyle recalled. Fortunately, it was just a box left by some repairmen, and the signal came from natural radioactivity in the soil. The FBI managed to capture a suspect, who was tried and convicted, but was released after six months in prison.

NEST's deployment to Washington, D.C. during the bicentennial summer of 1976 may be the type of precautionary deployment that becomes more common after the September 11 attacks. Vans circled the streets and drove around federal buildings near the Mall, checking radiation levels. The FBI worried that a terrorist group might be tempted by the bicentennial's significance to threaten to explode or release nuclear material, but the summer passed without a threat.

Not all of NEST's deployments have involved nuclear terrorism. For three months in 1978, about 120 NEST personnel helped the Canadian government locate the remains of the Soviet Cosmos 954 ocean surveillance satellite that crashed into northern Canada. The following year, NEST equipment was used to monitor radiation in the vicinity of the Three Mile Island nuclear accident. . . .

Outlook

The catalyst for NEST's creation in the mid-1970s was the attempt to enlist nuclear terror in the service of extortion. And some NEST exercises still employ a nuclear extortion scenario, according to a current team member. But the premise for Mirage Gold was different, and consistent with today's greatest fear—that terrorists may not be interested in money or changing government policy. They may simply want to detonate a nuclear weapon.

It is also a premise that puts a much greater premium on intelligence. Nuclear extortionists have to threaten a particular city or area and give the threatened party time to react, giving NEST time to deploy and attempt to locate any bomb that might be in place. But terrorists could strike anywhere, and would give no warning. A NEST spokesperson acknowledged that without advance intelligence, the team would have nowhere to go. Exceptions may include deploy-

ments at high-profile events, such as the Salt Lake City Olympics, which would be obvious potential targets for terrorists. But to prevent detonation of a terrorist nuclear device in other circumstances would require warning from the FBI, Central Intelligence Agency, National Security Agency, or an allied intelligence service.

Of course, even advance warning is no guarantee of success, given the difficulty of locating a hidden nuclear device and the limited time that may be available. A comment in the Nevada Operations Office's after action report on Mirage Gold is chilling, not as a criticism of NEST members, with their diverse talents and dedication, but as an acknowledgment of a harsh reality. The report notes that it would be "a drastic mistake to assume that NEST technology and procedures will always succeed, resulting in zero nuclear yield."

Periodical Bibliography

The following articles have been selected to supplement the diverse views presented in this chapter.

Bulletin of the Atomic Scientists	"Missile Defense," November/December 2001.
Geoffrey Cowley	"The Plan to Fight Smallpox," *Newsweek*, October 14, 2002.
Philip E. Coyle	"Is Missile Defense on Target?" *Arms Control Today*, October 2003.
Nicole Deller and John Burroughs	"Arms Control Abandoned: The Case of Biological Weapons," *World Policy Journal*, Summer 2003.
Katherine Eban	"Waiting for Bioterror: Is Our Public Health System Ready?" *Nation*, December 9, 2002.
Economist	"Warding Off Missiles," December 4, 2003.
Economist	"Who Will Build Our Biodefences?: Vaccines Against Bioterrorism," February 1, 2003.
Craig Eisendrath, Gerald E. Marsh, and Melvin A. Goodman	"Can We Count on Missile Defense?" *USA Today Magazine*, September 2001.
Steven Johnson	"Stopping Loose Nukes," *Wired*, November 2002.
Charles C. Mann	"Homeland Insecurity," *Atlantic Monthly*, September 2002.
New York Times	"The Greater Nuclear Danger," September 27, 2002.
New York Times	"Heading Off Nuclear Terrorism," May 25, 2002.
Michael Scardaville	"The Cost of Securing the Homeland," *World & I*, August 2003.
Amanda Spake	"The Smallpox Conundrum," *U.S. News & World Report*, December 23, 2002.
Amanda Spake et al.	"Are You Ready?" *U.S. News & World Report*, February 24, 2003.
Time	"The Secretary of Missile Defense," May 14, 2001.
USA Today	"Antiterrorism Efforts May Bolster Public Health System," August 2003.
Kevin Whitelaw, Mark Mazzetti, and Richard J. Newman	"Wishing Upon a Star," *U.S. News & World Report*, November 19, 2001.

For Further Discussion

Chapter 1

1. What types of nuclear threat is John J. Stanton most concerned with in his viewpoint? What type of nuclear threat does Joseph Cirincione believe is exaggerated?
2. John Parachini argues that a bioterror attack is unlikely; Amy Sands, on the other hand, contends that several of the arguments Parachini puts forth are flawed. Whose position do you find more convincing and why?

Chapter 2

1. Did you have an opinion on the U.S. invasion of Iraq before reading the viewpoints by Thomas R. Eddlem, Robert Kagan, and William Kristol? Did either of the viewpoints influence your opinion of the Iraq war, and if so, how?
2. Both the viewpoints on the U.S. invasion of Iraq quote David Kay, the CIA official who led the search for weapons of mass destruction in Iraq. In your opinion, which authors make better use of quotes from Kay to support their views? Explain your answer.

Chapter 3

1. After reading the viewpoint by Jonathan Schell and C. Paul Robinson, do you believe that the United States should destroy its nuclear weapons? Why or why not?
2. After reading the viewpoints by Loren B. Thompson and Theresa Hitchens, do you feel that deterrence is a sensible strategy for the United States? Explain your answer.

Chapter 4

1. One of the main arguments against building a missile defense system, echoed by George Rathjens and Carl Kaysen, is that it may be technologically impossible to build such a system. Do you find this argument convincing? Why or why not?
2. Michael Barletta advocates securing the materials and technologies necessary to make biological weapons, while Rebecca Katz advocates improving the public health system's ability to deal with a biological attack. Based on the viewpoints, which measure do you think should be a higher priority for the U.S. government? Explain your answer.

Organizations to Contact

The editors have compiled the following list of organizations concerned with the issues debated in this book. The descriptions are derived from materials provided by the organizations. All have publications or information available for interested readers. The list was compiled on the date of publication of the present volume; the information provided here may change. Be aware that many organizations take several weeks or longer to respond to inquiries, so allow as much time as possible.

American Enterprise Institute (AEI)
1150 Seventeenth St. NW, Washington, DC 20036
Web site: www.aei.org

AEI is a think tank based in Washington, D.C., whose members support a strong and well-funded military and a "hawkish" approach to dealing with rogue states. AEI publishes the magazine *American Enterprise*. Other publications include papers "North Korea's Survival Game: Understanding the Recent Past, Thinking About the Future" and "In Iraq with the Coalition of the Willing."

ANSER Institute for Homeland Security
e-mail: homelandsecurity@anser.org
Web site: www.homelandsecurity.org

The institute is a nonprofit, nonpartisan think tank that works to educate the public about homeland security issues. The institute's Web site contains a virtual library of fact sheets, reports, legislation, and government documents and statistics on homeland security issues. It also publishes the *Journal of Homeland Security* and a weekly newsletter.

Arms Control Association (ACA)
1726 M St. NW, Suite 201, Washington, DC 20036
(202) 463-8270 • fax: (202) 463-8273
e-mail: aca@armscontrol.org • Web site: www.armscontrol.org

The Arms Control Association is a nonprofit organization dedicated to promoting public understanding of and support for effective arms control policies. ACA seeks to increase public appreciation of the need to limit arms, reduce international tensions, and promote world peace. It publishes news articles on foreign policy; fact sheets on missile defense, nuclear testing, and other issues, and the monthly magazine *Arms Control Today*.

Brookings Institution
1775 Massachusetts Ave. NW, Washington, DC 20036
(202) 797-6000 • fax: (202) 797-6004
e-mail: brookinfo@brook.edu • Web site: www.brookings.org

The institution is a think tank that conducts research and education in foreign policy, economics, government, and the social sciences. Its publications include the quarterly *Brookings Review* and periodic *Policy Briefs*, including "The New National Security Strategy: Focus on Failed States," "The New National Security Strategy and Preemption," and "A 'Master' Plan to Deal with North Korea."

Cato Institute
1000 Massachusetts Ave. NW, Washington, DC 20001-5403
(202) 842-0200 • fax: (202) 842-3490
Web site: www.cato.org

The institute is a libertarian public policy research foundation dedicated to peace and limited government intervention in foreign affairs. It publishes numerous reports and periodicals, including *Policy Analysis* and *Cato Policy Review*, both of which discuss U.S. policy on terrorism, weapons of mass destruction, and foreign policy.

Center for Arms Control and Nonproliferation
322 Fourth St. NE, Washington, DC 20002
(202) 546-0795
Web site: www.armscontrolcenter.org

The center serves as a "watchdog" of the U.S. Congress and Executive Branch on a range of arms control issues. It supports the United Nations disarmament and weapons inspections programs and opposes missile defense and the use of force to resolve international conflicts. The center's Web site offers news updates and commentaries on a variety of WMD issues.

Center for Defense Information (CDI)
1779 Massachusetts Ave. NW, Suite 615, Washington, DC 20036
(202) 332-0600 • fax: (202) 462-4559
e-mail: info@cdi.org • Web site: www.cdi.org

CDI is comprised of civilians and former military officers and serves as an independent monitor of the military, analyzing spending, policies, weapon systems, and related military issues. The center opposes both excessive expenditures for weapons and policies that increase the danger of war. It publishes the *Defense Monitor* ten times per year.

Center for Nonproliferation Studies
Monterey Institute for International Studies
460 Pierce St., Monterey, CA 93940
(831) 647-4154 • fax: (831) 647-3519
e-mail: cns@miis.edu • Web site: http://cns.miis.edu

The center researches all aspects of nonproliferation and works to combat the spread of weapons of mass destruction. The center has multiple reports, papers, speeches, and congressional testimony available online, including the papers "After 9/11: Preventing Mass-Destruction Terrorism and Weapons Proliferation" and "New Challenges in Missile Proliferation, Missile Defense, and Space Security." Its main publication is the *Nonproliferation Review*, which is published three times per year.

Center for Strategic and International Studies (CSIS)
1800 K St. NW, Washington, DC 20006
(202) 887-0200 • fax: (202) 775-3199
Web site: www.csis.org

CSIS is a public policy research institution that specializes in the areas of U.S. domestic and foreign policy, national security, and economic policy. The center analyzes world crisis situations and recommends U.S. military and defense policies. Its publications include the journal *Washington Quarterly* and the reports *Change and Challenge on the Korean Peninsula: Developments, Trends, and Issues* and *Combating Chemical, Biological, Radiological, and Nuclear Terrorism: A Comprehensive Strategy.*

Council on Foreign Relations (CFR)
58 E. Sixty-eighth St., New York, NY 10021
(212) 434-9400 • fax: (212) 986-2984
Web site: www.cfr.org

The council specializes in foreign affairs and studies the international aspects of American political and economic policies and problems. Its journal *Foreign Affairs*, published five times a year, includes analyses of current conflicts around the world. Articles and op-ed pieces by CFR members are available on its Web site, along with the report *A New National Security Strategy in an Age of Terrorists, Tyrants, and Weapons of Mass Destruction.*

Federation of American Scientists (FAS)
1717 K St. NW, Suite 209, Washington, DC 20036
(202) 546-3300
Web site: www.fas.org

The federation is a nonprofit organization founded in 1945 out of concerns about the implications of nuclear weapons for mankind. FAS members support arms control through international treaties. The federation has available on its Web site primary documents, fact sheets, and news reports concerning weapons of mass destruction and missile defense.

Foreign Policy Association (FPA)
470 Park Ave. South, 2nd Fl., New York, NY 10016
(212) 481-8100 • fax: (212) 481-9275
e-mail: info@fpa.org • Web site: www.fpa.org

FPA is a nonprofit organization that believes a concerned and informed public is the foundation for an effective foreign policy. Publications such as the annual *Great Decisions* briefing book and the quarterly *Headline Series* review U.S. foreign policy issues and FPA's Global Q & A series offers interviews with leading U.S. and foreign officials on issues concerning the Middle East, intelligence gathering, weapons of mass destruction, and military and diplomatic initiatives.

Heritage Foundation
214 Massachusetts Ave. NE, Washington, DC 20002-4999
(800) 544-4843 • (202) 546-4400 • fax: (202) 544-6979
e-mail: pubs@heritage.org • Web site: www.heritage.org

The foundation is a public policy research institute that advocates limited government and the free-market system. The foundation publishes the quarterly *Policy Review* as well as monographs, books, and papers supporting U.S. noninterventionism and the building of a nuclear missile defense system. Heritage publications on U.S. defense policy include *President Bush Strikes the Proper Balance on Non-Proliferation Policy* and *Compassionate Counter-Proliferation*.

Nuclear Control Institute
1000 Connecticut Ave. NW, Suite 410, Washington, DC 20036
(202) 822-8444
Web site: www.nci.org

The institute is an independent research and advocacy center specializing in problems of nuclear proliferation. It monitors nuclear activities worldwide and pursues strategies to halt the spread and reverse the growth of nuclear arms. Its Web site provides an

overview as well as many detailed reports of the problem of unguarded nuclear material.

Peace Action
1100 Wayne Ave., Suite 1020, Silver Spring, MD 20910
(301) 565-4050 • fax: (301) 565-0850
e-mail: paprog@igc.org • Web site: www.peace-action.org

Peace Action is a grassroots peace and justice organization that works for policy changes in Congress and the United Nations, as well as state and city legislatures. It also promotes education and activism on topics related to peace and disarmament issues. The organization produces a quarterly newsletter and also publishes an annual voting record for members of Congress.

Union of Concerned Scientists (UCS)
2 Brattle Sq., Cambridge, MA 02238
(617) 547-5552 • fax: (617) 864-9405
e-mail: ucs@ucsusa.org • Web site: www.ucsusa.org

UCS is concerned about the impact of advanced technology on society. It supports nuclear arms control and opposes building a missile defense system. Publications include the quarterly *Nucleus* newsletter and reports and briefs concerning nuclear proliferation, including "The Troubling Science of Bunker-Busting Nuclear Weapons" and "President Bush's Nuclear Weapons Policy: Illogical, Ineffective, and Dangerous."

U.S. Department of Homeland Security (DHS)
Washington, DC 20528
Web site: www.dhs.gov

DHS's priority is to protect the nation against terrorist attacks. Its component agencies analyze threats and intelligence, guard America's borders and airports, protect critical infrastructure, and coordinate the U.S. response to future emergencies. The DHS Web site offers a wide variety of information on homeland security, including press releases, speeches and testimony, and reports on topics such as airport security, weapons of mass destruction, planning for and responding to emergencies, and the DHS threat advisory system.

U.S. Department of State
2201 C St. NW, Washington, DC 20520
Web site: www.state.gov

The State Department is a federal agency that advises the president on the formulation and execution of foreign policy. The State Department's Web site includes pages providing background in-

formation on every country in the world, as well as news updates and speeches from senior department officials.

Web Sites

Missilethreat.com
www.missilethreat.com
This Web site is a project of the Claremont Institute (www.claremont.org), a conservative think tank that supports the building of a missile defense system.

Nuclear Files
www.nuclearfiles.org
This Web site, a project of the Nuclear Age Peace Foundation (www.wagingpeace.org), provides background information, analysis and access to primary documents on nuclear weapons, missile defense, and arms control treaties.

The White House Web Site
www.whitehouse.gov
This Web site offers an archive of President George W. Bush's speeches on national security, the war on terrorism, and other WMD issues.

Bibliography of Books

Yonah Alexander and Milton Hoenig, eds.	*Super Terrorism: Biological, Chemical, and Nuclear.* Ardsley, NY: Transnational, 2001.
William Blum	*Rogue State: A Guide to the World's Only Superpower.* Monroe, ME: Common Courage Press, 2000.
Michael E. Brown, ed.	*Grave New World: Security Challenges in the 21st Century.* Washington, DC: Georgetown University Press, 2003.
Richard Butler	*Fatal Choice: Nuclear Weapons and the Illusion of Missile Defense.* Boulder, CO: Westview Press, 2001.
Stephen J. Cimbala, ed.	*Deterrence and Nuclear Proliferation in the Twenty-first Century.* Westport, CT: Praeger, 2001.
Joseph Cirincione, ed.	*Repairing the Regime: Preventing the Spread of Weapons of Mass Destruction.* New York: Routledge, 2000.
Joseph Cirincione et al.	*Deadly Arsenals: Tracking Weapons of Mass Destruction.* Washington, DC: Carnegie Endowment for International Peace, 2002.
Malcolm Dando	*The New Biological Weapons: Threat, Proliferation, Control.* London: Lynne Reinner, 2001.
Gavin de Becker	*Fear Less: Real Truth About Risk, Safety, and Security in a Time of Terrorism.* Boston: Little, Brown, 2002.
Richard A. Falkenrath	*America's Achilles Heel: Nuclear, Biological, and Chemical Terrorism and Covert Attack.* Cambridge, MA: MIT Press, 1998.
Kathlyn Gay	*Silent Death: The Threat of Chemical and Biological Terrorism.* Brookfield, CT: Twenty-first Century Books, 2001.
Nadine Gurr and Benjamin Cole	*The New Face of Terrorism: Threats from Weapons of Mass Destruction.* New York: I.B. Tauris, 2000.
Robert Hutchinson	*Weapons of Mass Destruction: The No-Nonsense Guide to Nuclear, Chemical and Biological Weapons Today.* London: Weidenfeld & Nicolson, 2003.
Peter R. Lavoy, Scott D. Sagan, and James J. Wirtz, eds.	*Planning the Unthinkable: How New Powers Will Use Nuclear, Biological, and Chemical Weapons.* Ithaca, NY: Cornell University Press, 2000.
Robert Litwak	*Rogue States and U.S. Foreign Policy: Containment After the Cold War.* Washington, DC: Woodrow Wilson Center Press, 2000.

National Research Council	*Making the Nation Safer: The Role of Science and Technology for Countering Terrorism*. Washington, DC: National Academies Press, 2002.
Michael E. O'Hanlon et al.	*Defending America: The Case for Limited National Missile Defense*. Washington, DC: Brookings Institution Press, 2001.
Sheldon Rampton and John C. Stauber	*Weapons of Mass Deception: The Uses of Propaganda in Bush's War on Iraq*. New York: Jeremy P. Tarcher, 2003.
Scott D. Sagan and Kenneth N. Waltz	*The Spread of Nuclear Weapons: A Debate Renewed*. New York: W.W. Norton, 2003.
Jonathan Schell	*The Unfinished Twentieth Century: The Crisis of Weapons of Mass Destruction*. New York: Verso, 2001.
Martin Schram	*Avoiding Armageddon*. New York: Basic Books, 2003.
Henry Sokolski	*Best of Intentions: America's Campaign Against Strategic Weapons Proliferation*. Westport, CT: Praeger, 2001.
Henry Sokolski and James M. Ludes, eds.	*Twenty-first Century Weapons Proliferation: Are We Ready?* Portland, OR: Frank Cass, 2001.
Victor A. Utgoff	*The Coming Crisis: Nuclear Proliferation, U.S. Interests, and World Order*. Cambridge, MA: MIT Press, 2000.

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