REACTIONS AND OVERREACTIONS TO TERRORISM: THE ATOMIC OBSESSION

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ABSTRACT

The proliferation of nuclear weapons, particularly to terrorists, is commonly held to be the single most serious threat to the national security of the United States. Assessed in appropriate context, that could actually be seen to be a rather cheering conclusion. The likelihood a terrorist group will come up with a nuclear weapons seems to be vanishingly small. However, the obsessive quest to control nuclear proliferation--particularly since the end of the Cold War--has enhanced the appeal of--or desperate desire for--nuclear weapons for some regimes. In addition, the quest has been a necessary cause of far more deaths than have been inflicted by all nuclear--or even all "weapons of mass destruction"--detonations in all of history.

When asked by Jim Lehrer in their first presidential debate in September 2004 to designate the "single most serious threat to the national security to the United States," the candidates had no difficulty agreeing on one. Concluded Lehrer, "So it's correct to say the single most serious threat you believe, both of you believe, is nuclear proliferation?" George W. Bush: "In the hands of a terrorist enemy." John Kerry: "Weapons of mass destruction, nuclear proliferation."[1]

In like manner, Governor Thomas Kean, chair of the 9/11 Commission, confesses that what keeps him up at night is "the worry of a terrorist with a nuclear device in one of our major cities."[2] Bill Keller of the New York Times has a similar problem. After finishing a long article about nuclear terrorism for that newspaper's magazine, he mused, "I am not evacuating Manhattan, but neither am I sleeping quite a soundly." He also reports the response of then-Secretary of Homeland Security Tom Ridge when asked what he worried about most: Ridge "cupped his hands prayerfully and pressed his fingertips to his lips.

[1] Kerry: "Nuclear proliferation.....There's some 600-plus tons of unsecured material still in the former Soviet Union and Russia....there are terrorists trying to get their hands on that stuff today." Bush: "I agree with my opponent that the biggest threat facing this country is weapons of mass destruction in the hands of a terrorist network."

[2] As interviewed for Frontline's "The Enemy Within," PBS, on March 27, 2006: http://www.pbs.org/wgbh/pages/frontline/enemywithin/interviews/kean.html

'Nuclear,' he said simply" (2002). Many academics are distinctly inclined to agree. Chief among them is the distinguished political scientist, Graham Allison, in his thoughtful, well-argued, and determinedly alarming 2004 book, Nuclear Terrorism: The Ultimate Preventable Catastrophe.

The quest to control nuclear proliferation has become obsessive, particularly since the end of the Cold War and even more so since the events of September 11 that so greatly (if irrelevantly) elevated concerns about a terrorist bomb: "nothing is really new about these perils," notes Keller, but 9/11 turned "a theoretical possibility into a felt danger," giving "our nightmares legs" (2002).

This paper seeks to assess our "most serious" security threat and concludes that maybe Governor Kean and Keller can get some sleep. It argues that the likelihood a terrorist group will come up with a nuclear weapon seems to be vanishingly small--perhaps very substantially less than one in a million. Meanwhile, in my view, the obsessive quest has been substantially counterproductive and has often inflicted dire costs. Nuclear proliferation, while not necessarily desirable, is unlikely to accelerate or prove to be a major danger. However, a central cause of proliferation, particularly since end of the Cold War, are the policies designed to prevent it. They have enhanced the appeal of--or desperate desire for--nuclear weapons for some regimes even as they have been a necessary cause of far more deaths than have been inflicted by all nuclear--or even all "weapons of mass destruction"--detonations in all of history.

Imagined predictions

Quoting from Governor Kean's Commission report, Allison has ascribed the fact that the United States was surprised on 9/11 to a "failure of imagination" (2006, 36). After exercising his own imagination and examining the nuclear terrorism issue, he proclaims his own "considered judgment" in his book: "on the current path, a nuclear terrorist attack on America in the decade ahead is more likely than not" (2004, 15). He repeats that judgment in an article published two years later without reducing the terminal interval to compensate--apparently the end date is an ever-receding target (2006, 39).[3] Actually, he had been in the prediction business on this issue at least as early as 1995 when his imagination induced him boldly to pronounce, "In the absence of a determined program of action, we have every reason to anticipate acts of nuclear terrorism against American targets before this decade is out."

If there was a failure to exercise imaginations before the 9/11 attacks, this defect was substantially reversed in the aftermath. Notes Allison, "no one" in the American national security community considered that disaster to be an "isolated occurrence" (2004, 6), and it was apparently inconceivable that the country would go over five years (and counting) without a some sort of repetition. Or even three: it was in 2004 that Charles Krauthammer characterized the post-9/11 period as one in which, "contrary to every expectation and prediction" (and, one might add, fantasy) the second shoe never dropped (2004a). As Rudy Giuliani, New York's mayor on 9/11, reflected in 2005, "Anybody--any one of these security experts, including myself--would have told you on September 11, 2001, we're looking at dozens and dozens and multiyears of attacks like this. It hasn't been quite that bad" (CNN, 22 July 2005).[4]

[3] In support of his prediction Allison cites the "world's most successful investor" and "legendary odds maker," Warren Buffett, as declaring a nuclear terrorist attack to be inevitable (2004, 14-15; 2006, 39). Contacted by the Wall Street Journal, however, Buffett says he was worrying about any nuclear explosion, not just one set off by terrorists, and that he was talking about something that might come about over the next century, not within a ten-year period (Bialik 2005), something that seems clear in the source Allison uses for his quote: Serwer and Boorstin 2002. George Will, working from the musings of Gregg Easterbrook, has wryly advised doomsayers to predict catastrophe no later that ten years into the future but no sooner than five because that would be soon enough to terrify their rapt listeners, but far enough off for people to forget if the doomsaying proves to be wrong (2004).

[4] See also Benjamin and Simon 2005, 115. For an early suggestion that 9/11 might fail to inspire a sequel of that

No, not nearly. Precisely what Giuliani's "security experts" were basing their expert opinion on is not entirely clear, but there certainly was no failure--or at any rate, lack--of imagination.

There have been plenty of imaginative predictors on other issues as well. World War III is always, and will always remain, possible. However, a prediction in the aftermath of World War II that the planet would go 60 years and more without a repetition of that experience would have been met with derision by the thoughtful alarmists of the time like the imaginative historian Arnold Toynbee: "In our recent Western history war has been following war in an ascending order of intensity; and today it is already apparent that the War of 1939-45 was not the climax of this crescendo movement" (1950, 4). Or by the imaginative futurist H. G. Wells: "the end of everything we call life is close at hand and cannot be evaded" (Wagar 1961, 13n). Or by the imaginative dictator Josef Stalin: "We shall recover in fifteen or twenty years and then we'll have another go at it" (Djilas 1962, 114-15). Or by the imaginative scientist Albert Einstein: "Unless we are able, in the near future, to abolish the mutual fear of military aggression, we are doomed" (1960, 533). Or by the imaginative publishers of Bulletin of the Atomic Scientists who have sported a "doomsday clock" on the cover that has pointedly--and, some might irreverently suggest, pointlessly--remained frozen at a few minutes before midnight for the better part of a century now (see also Mueller 1989, 97-99).

Allison's bold, imaginative, and alarming prediction of 2004 may, unlike the one he issued in 1995, prove right. But it also might end up there with that of the imaginative scientist/novelist who assured us nearly 50 years ago that if "the nuclear arms race between the United States and the U.S.S.R. not only continues but accelerates...within, at the most, ten years, some of those bombs are going off" (Snow 1961, 259); or with that of the imaginative University of Chicago political scientist who in 1979 proclaimed, "The world is moving ineluctably towards a third world war--a strategic nuclear war" (Hans J. Morgenthau in Boyle 1985, 73); or with that of the imaginative Harvard pundit who confidently assured us in May 2004 that "we can confidently expect that terrorists will attempt to tamper with our election in November" (Ignatieff 2004, 48).

As this experience suggests, it is clearly possible to have a surfeit of imagination and to become obsessed with what Bernard Brodie once labeled in somewhat different context, "worst case fantasies" (1978, 68). Peter Zimmerman and Jeffrey Lewis pointedly conclude a 2006 article by declaring, "just because a nuclear terrorist attack hasn't happened shouldn't give us the false comfort of thinking it won't" (2006, 39). However, just because something terrible is possible shouldn't send us into hysterics thinking it will surely come about.

If there has been a "failure of imagination," perhaps it has been in the inability or unwillingness to consider the difficulties confronting the atomic terrorist. Terrorist groups seem to have exhibited only limited desire and even less progress in going atomic. This may be because, after brief exploration, they have discovered that the tremendous effort required is scarcely likely to be successful.

The atomic terrorist: likelihood

Warnings about the possibility that small groups, terrorists, and errant states could fabricate nuclear weapons have been repeatedly uttered at least since 1946 when A-bomb maker J. Robert Oppenheimer agreed that "three or four men" could smuggle atomic bomb units into New York and "blow up the whole city" (Allison 2004, 104), a massive and absurd exaggeration of the capacity of atomic bombs of the time. Such assertions proliferated after the 1950s when the "suitcase bomb" appeared to become a practical possibility. And it has now been over three decades since terrorism specialist Brian

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magnitude, see Mueller 2002a, 2002b. Krauthammer apparently missed these items although they appeared in publications he regularly writes for. See also Mueller 2003; Seitz 2004.

Jenkins published his warnings about how the "widespread distribution of increasingly sophisticated and increasingly powerful man-portable weapons will greatly add to the terrorist's arsenal" and about how "the world's increasing dependence on nuclear power may provide terrorists with weapons of mass destruction" (1975, 33). We continue to wait.

It is essential to note, however, that making a bomb is an extraordinarily difficult task. As the Gilmore Commission, a special advisory panel to the President and Congress, stresses, building a nuclear device capable of producing mass destruction presents "Herculean challenges." The process requires obtaining enough fissile material, designing a weapon "that will bring that mass together in a tiny fraction of a second, before the heat from early fission blows the material apart," and figuring out some way to deliver the thing. And it emphasizes that these merely constitute "the *minimum* requirements." If each is not fully met, the result is not simply a less powerful weapon, but one that can't produce any significant nuclear yield at all or can't be delivered (Gilmore 1999, 31, emphasis in the original).

Similarly a set of counterterrorism and nuclear experts interviewed in 2004 by Dafna Linzer for the Washington Post pointed to the

> enormous technical and logistical obstacles confronting would-be nuclear terrorists, and to the fact that neither al Qaeda nor any other group has come close to demonstrating the means to overcome them.

Allison nonetheless opines that a dedicated terrorist group could get around all the problems in time and eventually steal, produce, or procure a "crude" bomb or device, one that he however acknowledges would be "large, cumbersome, unsafe, unreliable, unpredictable, and inefficient" (2004, 97).

In his recent book, Atomic Bazaar: The Rise of the Nuclear Poor, William Langewiesche spends a great deal of time and effort assessing the process by means of which a terrorist group could come up with a bomb. Unlike Allison, he concludes that it "remains very, very unlikely. It's a possibility, but unlikely." Also:

> The best information is that no one has gotten anywhere near this. I mean, if you look carefully and practically at this process, you see that it is an enormous undertaking full of risks for the would-be terrorists. And so far there is no public case, at least known, of any appreciable amount of weapons-grade HEU [highly enriched uranium] disappearing. And that's the first step. If you don't have that, you don't have anything.

The first of these bold declarations, however, comes from a book discussion telecast in June 2007 on C-SPAN and the second from an interview on National Public Radio.[5] Judgments in the book itself, while consistent with such conclusions, are expressed more ambiguously, even coyly: "at the extreme is the possibility, entirely real, that one or two nuclear weapons will pass into the hands of the new stateless guerrillas" (2007, 17) or "if a would-be nuclear terrorist calculated the odds, he would have to admit that they are stacked against him," but they are "not impossible" (2007, 69)

Even more, blurb writers have concluded (needless to say) that it is hysteria, not reassurance, that sells. Thus, the jacket flap says the book "examines in dramatic and tangible detail the chances of such weapons being manufactured and deployed by terrorists," an accurate description, but one that deftly avoids revealing the author's conclusion as to what those chances actually happen to be. And when the Atlantic (purveyor last decade of cheery cover screeds about "The Crisis of Public Order," "The Drift Toward Disaster," "The Coming Anarchy," and "The Coming Plague") published the relevant chapter

[5] The C-SPAN talk was recorded in Seattle on May 24, 2007, and telecast in June. NPR: Morning Edition, 15 May 2007.

from Langewiesche's book in December 2006, it chose to accentuate the negative on its wraparound grabber: "The Nuclear Nightmare: How a Terrorist Could [not even the slightly more circumspect "Might"] Get a Bomb."

If the prospects that terrorists might come up with a bomb are "not impossible," how close to impossible are they? Langewiesche's discussion, as well as other material, helps us assess the many ways such a quest--in his words, "an enormous undertaking full of risks"--could fail. The odds, indeed, are stacked against the terrorists, perhaps massively so.

Assistance by a state

A favorite fantasy of imaginative alarmists envisions that a newly nuclear country will palm off a bomb or two to friendly terrorists for delivery abroad. As Langewiesche stresses, however, this is highly improbable because there would be too much risk, even for a country led by extremists, that the ultimate source of the weapon would be discovered (2007, 20). Moreover, there is a very considerable danger the bomb and its donor would be discovered even before delivery or that it would be exploded in a manner and on a target the donor would not approve (including on the donor itself).

It is also worth noting that, although nuclear weapons have been around now for well over half a century, no state has ever given another state--even a close ally, much less a terrorist group--a nuclear weapon (or chemical, biological, or radiological one either, for that matter) that the recipient could use independently. For example, during the Cold War, North Korea tried to acquire nuclear weapons from its close ally, China, and was firmly refused (Oberdorfer 2005; see also Pillar 2003, xxi). There could be some danger from private (or semi-private) profiteers, like the network established by Pakistani scientist A. Q. Khan. However, its activities were rather easily penetrated by intelligence agencies (the CIA, it is very likely, had agents within the network), and the operation was abruptly closed down in 2004 (Langewiesche 2007, 169-72).

In addition, al Qaeda--the chief demon group--is unlikely to be trusted by just about anyone. As Peter Bergen (2007, 19) has pointed out, the terrorist group's explicit enemies list includes not only Christians and Jews, but all Middle Eastern regimes; Muslims who don't share its views; most Western countries; the governments of India, Pakistan, Afghanistan, and Russia; most news organizations; the United Nations; and international NGOs. Most of the time it didn't get along all that well even with its host in Afghanistan, the Taliban government (Burke 2003, 150, 164-65; Wright 2006, 230-1, 287-88; Cullison 2004).

Stealing or buying a bomb: loose nukes

There has been a lot of worry about "loose nukes," particularly in post-Communist Russia--weapons, "suitcase bombs" in particular, that can be stolen or bought illicitly. However, when asked, Russian nuclear officials and experts on the Russian nuclear programs "adamantly deny that al Qaeda or any other terrorist group could have bought Soviet-made suitcase nukes." They further point out that the bombs, all built before 1991, are difficult to maintain and have a lifespan of one to three years after which they become "radioactive scrap metal" (Badken 2004). Similarly, a careful assessment of the concern conducted by the Center for Nonproliferation Studies has concluded that it is unlikely that any of these devices have actually been lost and that, regardless, their effectiveness would be very low or even non-existent because they require continual maintenance (2002, 4, 12; see also Langewiesche 2007, 19).

It might be added that Russia has an intense interest in controlling any weapons on its territory since it is likely to be a prime target of any illicit use by terrorist groups, particularly, of course, Chechen ones with whom it has been waging an vicious on-and-off war for over a decade. Officials there insist that all weapons have either been destroyed or are secured, and the experts polled by Linzer (2004) point out that "it would be very difficult for terrorists to figure out on their own how to work a Russian or Pakistan

bomb" even if they did obtain one because even the simplest of these "has some security features that would have to be defeated before it could be used" (see also Langewiesche 2007, 19; Wirz and Egger 2005, 502). One of the experts, Charles Ferguson, stresses

> You'd have to run it through a specific sequence of events, including changes in temperature, pressure and environmental conditions before the weapon would allow itself to be armed, for the fuses to fall into place and then for it to allow itself to be fired. You don't get off the shelf, enter a code and have it go off.

Moreover, continues Linzer, most bombs that could conceivably be stolen use plutonium which emits a great deal of radiation that could relatively easily be detected by passive sensors at ports and other points of transmission.

The government of Pakistan, which has been repeatedly threatened by al Qaeda, has a similar very strong interest in controlling its nuclear weapons and material.

It is conceivable that stolen bombs, even if no longer viable as weapons, would be useful for the fissile material that could be harvested from them. However, Christoph Wirz and Emmanuel Egger, two senior physicists in charge of nuclear issues at Switzerland's Spiez Laboratory, point out that even if a weapon is not completely destroyed when it is opened, its fissile material yield would not be adequate for a primitive design, and therefore several weapons would have to be stolen and then opened successfully (2005, 502).

Building a bomb of one's own

Since they are unlikely to be able to buy or steal a useable bomb and since they are further unlikely to have one handed off to them by an established nuclear state, terrorists would need to manufacture the device themselves.

Because of the dangers and difficulties of transporting and working with plutonium, a dedicated terrorist group, it is generally agreed, would choose to try to use highly enriched uranium (Keller 2002; Linzer 2004; Allison 2004, 96-97; Goldstein 2004, 131-32; Wirz and Egger 2005, 500; Langewiesche 2007, 21-23).[6] The goal would be to get as much of this stuff as necessary (more than 100 pounds is required to reach critical mass) and then fashion it into an explosive.[7] Most likely this would not be a bomb that can be dropped or hurled, but rather an "improvised nuclear device" (IND) that would be set off at the target by a suicidal detonation crew.

The process is a daunting one, and it requires that a whole cascade of events click perfectly and in sequence.

To begin with, stateless groups are simply incapable of manufacturing the required fissile material for a bomb since the process requires an enormous industrial process (Allison 2004; Langewiesche 2007, 20; Perry et al. 2007). Moreover, they are unlikely to be supplied with the material by a state for the same reasons a state is unlikely to give them a workable bomb. Thus, they would need to steal or illicitly purchase this crucial material.

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[6] By contrast, Frank Barnaby tends to conclude that terrorists would work with plutonium--though this might result in a bomb much smaller than the one dropped on Nagasaki--because HEU is easily secured while plutonium is more generally available (2004, 110-17). However, as Langewiesche and others stress, working with plutonium is far more complicated and dangerous.

[7] Actually, some scientists maintain that the amount of fissile material required would be larger--"certainly several, and possibly ten times the so-called formula quantities" (Mark et al. 1987, 60).

Although there is legitimate concern that some material, particularly in Russia, may be somewhat inadequately secured (though things have improved considerably), it is under lock and key, and even sleepy, drunken guards, notes Langewiesche, will react with hostility (and noise) to a raiding party. Thieves also need to know exactly what they want and where it is, and this presumably means trusting bribed, but not necessarily dependable, insiders. And to even begin to pull off such a heist, they need to develop a highly nuanced "sense for streets" in foreign lands filled with people who are often congenitally suspicious of strangers (2007, 33-48).

Corruption in some areas may provide an opportunity to buy the relevant material, but purchasers of illicit goods and services would have to pay off a host of greedy confederates, any one of whom could turn on them or, either out of guile or incompetence, furnish them with stuff that is useless. The exchange could also prove to be part of a sting. Moreover, although there may be disgruntled and much underpaid scientists in places like Russia, they would have to consider the costs of detection. A. Q. Khan, the Pakistani nuclear scientist was once a national hero for his lead work on his country's atomic bomb. But when he was brought down for selling atomic secrets to other governments, he was placed under severe house arrest, allowed no outside communication or contact, including telephone, newspapers, or internet, and is reportedly in declining health (Langewiesche 2007, 75-76). Renegade Russian scientists who happen not to be national heroes could expect a punishment that would be considerably more unpleasant.

In the last ten years or so, there have been 10 known thefts of highly enriched uranium--in total less than 16 pounds or so, far less than required for an atomic explosion. Most arrestingly, notes Linzer, "the thieves--none of whom was connected to al Qaeda--had no buyers lined up, and nearly all were caught while trying to peddle their acquisitions" (2004).

If terrorists were somehow successful at obtaining a critical mass of relevant material, they would then have to transport it hundreds of miles out of the country over unfamiliar terrain and probably while being pursued by security forces (Langewiesche 2007, 48-50).

Crossing international borders would be facilitated by following established smuggling routes and, for a considerable fee, opium traders (for example) might provide expert, and possibly even reliable, assistance. But the routes are not as chaotic as they appear and are often under the watch of a handful of criminal regulators who might find it in their interest to disrupt passage, perhaps to collect reward money (Langewiesche 2007, 54-65).

Once outside the country with their precious booty, terrorists would have to set up a large and well-equipped machine shop to manufacture a bomb. More than a decade ago Allison insisted that it would be "easy" for terrorists to assemble a crude bomb if they could get enough fissile material (Allison et al. 1996, 12).

However, the process would take months of very careful and dangerous labor by several highly skilled scientists, technicians, and machinists who would have to be assembled for the task while no consequential suspicions are generated among friends, family, and police about their curious and sudden absence from normal pursuits. Wirz and Egger point out that precise blueprints are required, not just sketches and general ideas, and that even with a good blueprint they "would most certainly be forced to redesign" (2003, 499-500). This was also emphasized in an earlier report by five Los Alamos scientists: although schematic drawings showing the principles of bomb design in a qualitative way are widely available,

> the detailed design drawings and specifications that are essential before it is possible to plan the fabrication of actual parts are not available. The preparation of these drawings requires a large number of man-hours and the direct participation of individuals thoroughly informed in several quite distinct areas: the physical, chemical, and metallurgical properties of the various materials

> to be used, as well as the characteristics affecting heir fabrication; neutronic properties; radiation effects, both nuclear and biological; technology concerning high explosives and/or chemical propellants; some hydrodynamics; electrical circuitry; and others (Mark et al. 1987, 58).

Moreover, stresses physicist David Albright, the process would also require "good managers and organization people" (Keller 2002).

Wirz and Egger stress that the work, far from being "easy," is difficult, dangerous, and extremely exacting, and that the technical requirements "in several fields verge on the unfeasible." In distinct contrast with Allison, they conclude that "it takes much more than knowledge of the workings of nuclear weapons and access to fissile material to successfully manufacture a usable weapon" (2003, 501-2). The Los Alamos scientists certainly agree:

> the design and building would require a base or installation at which experiments could be carried out over many months, results could be assessed, and, as necessary, the effects of corrections or improvements could be observed in follow-on experiments. Similar considerations would apply with respect to the chemical, fabrication, and other aspects of the program (Mark et al. 1987, 64-65).

Although they think the problems can be dealt with "provided adequate provisions have been made," they also stress that "there are a number of obvious potential hazards in any such operation, among them those arising in the handling of a high explosive; the possibility of inadvertently inducing a critical configuration of the fissile material at some stage in the procedure; and the chemical toxicity or radiological hazards inherent in the materials used. Failure to foresee *all* the needs on these points," they conclude laconically, "could bring the operation to a close" (Mark et al. 1987, 62, emphasis added).

The work would have to be carried out in utter secret, of course, even while local and international security police are likely to be on the intense prowl. "In addition to all the usual intelligence methods," note the Los Alamos scientists, "the most sensitive technical detection equipment available would be at their disposal" and effective airborne detectors used to prospect for uranium have been around for decades and "great improvement in such equipment have been realized since" (Mark et al. 1987, 60). Moreover, points out Langewiesche, people in the area may observe with increasing curiosity and puzzlement the constant coming and going of technicians unlikely to be locals (2007, 65-69).[8] In addition, the bombmakers would not be able to test the product to be sure they were on the right track (Linzer 2004; Mark et al. 1987, 64).

The process of manufacturing an IND requires, then, that people with great technical skills be assembled, that they stay utterly devoted to the cause, that corrupted co-conspirators, many of them foreign, remain utterly reliable, that no curious outsider gets wind of the project over the months or even years it takes to pull off, and that international and local security services are kept perpetually in the dark.

The finished product could weigh a ton or more (Mark et al. 1987, 55, 60). Encased in lead shielding to mask radioactive emissions, it would then have to be transported to, and smuggled into, the relevant country, where it would be received by a dedicated and technically-proficient group of collaborators infiltrated or organized locally for the purpose. The weapon would then have to be moved

[8] The Los Alamos scientists suggest that the process of bomb building could be speeded up if the team were able to spend "a considerable number of weeks (or, more probably, months)" preparing and practicing for the assembly using natural uranium as a stand-in (Mark et al. 1987, 59). This would still not solve the problem of curious locals, of course. Moreover, it seems to be rather impractical since, given the difficulties of securing adequate quantities of fissile material, the team might spend years, even decades, waiting around for the stuff to arrive.

over local and unfamiliar roads to the target site in a manner that did not arouse suspicion.

At the target site, the crew, presumably suicidal, would have to set off their improvised and untested nuclear device hoping, and fervently praying, that the machine shop work has been perfect, that there have been no significant shakeups in the treacherous process of transportation, and that the thing, after all this effort, won't prove to be a dud.

Assessing the probabilities

Atomic scientists, perhaps laboring under the concern, in Langewiesche's words, that "a declaration of safety can at any time be proved spectacularly wrong" (2007, 49), have thus far been disinclined to catalogue the difficulties terrorists would face. But physicists Wirz and Egger have published a paper that does so. It concludes that the task "could hardly be accomplished by a subnational group" (2005, 501).

One group that tried, in the early 1990s, was the Japanese apocalyptic group, Aum Shinrikyo. Unlike al Qaeda, it was not under siege, and it had money, expertise, a remote and secluded haven in which to set up shop, even a private uranium mine. But it made dozens of mistakes in judgment, planning, and execution (Linzer 2004). Chagrined, it turned to biological weapons which, as it happened, didn't work either, and finally to chemical ones, resulting eventually in a somewhat botched release of sarin gas in a Tokyo subway that managed to kill a total of 12 people.

Even if there is some desire for the bomb by terrorists, fulfillment of that desire is obviously another matter, and it might be useful to take a stab at estimating just how "not impossible" their task is. After all, all sorts of things are "not impossible." A colliding meteor or comet could destroy the earth, Vladimir Putin or the British could decide one morning to launch a few nuclear weapons at Massachusetts, George Bush could become a transvestite or decide to bomb Hollywood or do both simultaneously, an underwater volcano could erupt to cause a civilization-ending tidal wave, Osama bin Laden could convert to Judaism, declare himself to be the Messiah, and fly in a gaggle of mafioso hit men from Rome to have himself publicly crucified.

Brodie's cautionary comment in the 1970s about the imaginative alarmists in the defense community holds as well for those in today's terrorism community, both of which are inhabited by

> people of a wide range of skills and sometimes of considerable imagination. All sorts of notions and propositions are churned out, and often presented for consideration with the prefatory works: "It is conceivable that..." Such words establish their own truth, for the fact that someone has conceived of whatever proposition follows is enough to establish that it is conceivable. Whether it is worth a second thought, however, is another matter (1978, 83).

In the case of nuclear terrorism, an approach that seems to have some appeal is to begin by assessing the barriers that must be surmounted by a terrorist group in order to carry out the task of producing and then successfully detonating an improvised nuclear device-- one that would be, as Allison notes, "large, cumbersome, unsafe, unreliable, unpredictable, and inefficient" (2004, 97). Table 1 presents some 25 of these, and there are surely many more. If one assumes that the terrorists have in each instance a fighting chance of 50 percent of surmounting each of these obstacles--and for many barriers, probably almost all, the odds against them are far, far worse than that--the chances a group could successfully pull off the mission come out to be very considerably worse than one in 33 million, a result they might just find a bit uninspiring, even dispiriting.

Those would be the odds for a single attempt by a single group, and there could be multiple attempts by multiple groups, of course. Although Allison considers al Qaeda to be "the most probable perpetrator" on the nuclear front (2004, 29), he is also concerned about the potential atomic exploits of

other organizations such as Indonesia's Jemaah Islamiyah, Chechen gangsters, Lebanon's Hezbollah, and various doomsday cults (2004, 29-42). He even cites a 2001 newspaper account of a UN report supposedly suggesting that there were 130 terrorist groups "capable of developing a homemade atomic bomb" if they obtained sufficient fissile material (Allison 2006, 38).[9] Even with multiple attempts, however, the odds would remain long: if there were a hundred determined efforts over a period of time, the chance at least one of these would be successful is only one in 334,554. If there were 1000 concerted attempts, presumably over several decades, the chance of success would be one in 33,555.[10] All this focuses on the effort to deliver a single bomb; if the requirement were to deliver several, the odds become, of course, even more prohibitive. Moreover, if there were a large number of such ventures, policing and protecting would presumably become easier because the aspirants would likely be stepping all over each other in their quest to access the right stuff.

Bill Keller suggests that "the best reason for thinking it won't happen is that it hasn't happened yet," and that, he worries, "is terrible logic" (2002). "Logic" aside, there is another quite good reason for thinking it won't happen: the task is bloody *difficult*. The science fiction literature, after all, has been spewing out for decades--centuries, even--a wealth of imaginative suggestions about things that might come about that somehow haven't managed to do so.

Meanwhile, although there have been plenty of terrorist attacks in the world since 2001, all (thus far, at least) have relied on conventional destructive methods--there hasn't even been the occasional gas bomb. In effect the terrorists seem to be heeding the advice found in a memo on an al Qaeda laptop seized in Pakistan in 2004: "Make use of that which is available...rather than waste valuable time becoming despondent over that which is not within your reach" (Whitlock 2007). That is: Keep it simple, stupid.

In fact, it seems to be a general historical regularity that terrorists tend to prefer weapons that they know and understand, not new, exotic ones (Rapoport 1999, 51; Gilmore 1999, 37; Schneier 2003, 236). Indeed, the truly notable innovation for terrorists over the last few decades has not been in qualitative improvements in ordnance at all, but rather in a more effective method for delivering it: the suicide bomber (Pape 2005, Bloom 2005).

Al Qaeda's atomic progress, if any

The degree to which al Qaeda has pursued a nuclear weapons program may have been exaggerated, often by the same slam dunkers who gave us Saddam Hussein's WMD development. Meanwhile, the media, following conventional patterns, dutifully and mostly uncritically transmit the assertions put forward.

Bin Laden's reported "Hiroshima" crack and the uranium scam

Stressing that "The greatest danger of another catastrophic attack in the United States will materialize if the world's most dangerous terrorists acquire the world's most dangerous weapons," Governor Kean's 9/11 Commission cites two specific indications that al Qaeda is seeking nuclear weapons: reports from 1998 "that Bin Ladin's associates thought their leader was intent on carrying out a 'Hiroshima'" and evidence that "al Qaeda has tried to acquire or make nuclear weapons for at least ten years" (Kean 2004, 380; see also Allison 2006, 37).

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[9] Actually, however, the account later says that the number comes from a list created by the State Department identifying organizations considered to pose "a nuclear, chemical *or* biological threat" (Edwards 2001, emphasis added).

[10] By contrast, see the discussions in Posner 2005 and Sunstein 2006, 32.

Information about the "Hiroshima" crack obviously comes from third-hand reports speculating about Osama bin Laden's mindset. Moreover, the Commission elsewhere notes that the reports suggest he was hoping to inflict "at least 10,000 casualties" (Kean 2004, 116). Many times that many casualties were suffered at Hiroshima, and this could suggest that if bin Laden did utter the word, he was using it as many others have, as a synonym for a "major event," not necessarily an atomic one.

The only evidence the Commission supplies to support its conclusion that al Qaeda had been working on nuclear weapons for at least ten years comes from a episode that took place around 1993 in Sudan when bin Laden's

> business aides received word that a Sudanese military officer who had been a member of the previous government cabinet was offering to sell weapons-grade uranium. After a number of contacts were made through intermediaries, the officer set the price at $1.5 million, which did not deter Bin Ladin. Al Qaeda representatives asked to inspect the uranium and were shown a cylinder about 3 feet long, and one thought he could pronounce it genuine. Al Qaeda apparently purchased the cylinder, then discovered it to be bogus. But while the effort failed, it shows what Bin Ladin and his associates hoped to do. One of the al Qaeda representatives explained his mission: "it's easy to kill more people with uranium" (Kean 2004, 60).

Information about this curious episode comes mainly, perhaps entirely, from Jamal al-Fadl who defected from al Qaeda in 1996 after he had been caught stealing $110,000 from the organization. As Lawrence Wright relates in his prize-winning The Looming Tower, Fadl "tried to sell his story to various intelligence agencies in the Middle East, including the Israelis," but only found a buyer "when he walked into the American Embassy in Eritrea" (2006, 197). Although Fadl clearly lied repeatedly in early interviews, some CIA investigators came to trust him, and he spun out his tale about the bogus uranium (Wright 2006, 5). He became a government witness, and by 2001 the government had spent nearly $1 million on him (Mayer 2006). One of his FBI debriefers says, "He's a lovable rogue. He's fixated on money...He likes to please. Most people do." (Mayer 2006).[11]

In the text of his book Wright narrates the uranium story much the same way as the 9/11 Commission (2006, 191).[12] However, Wright also relays the testimony of the man who allegedly actually purchased the substance for bin Laden as well as of a Sudanese intelligence agent, and both claim that, although there were other various scams going around at the time that may have served as grist for Fadl, the uranium episode never happened. Perhaps because an alarming tale in the hand is worth considerably more that two debunkings in the bush, Wright buries the conflicting testimony in a backnote (2006, 411-12).

Fadl was also a key inspiration for the CIA's notion that bin Laden was developing chemical

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[11] While under protective custody, Fadl won a prize in the New Jersey Lottery (Wright 2006, 197). The prize, however, was small, and his unamused FBI handlers wouldn't let him keep it anyway (Mayer 2006). The "al Qaeda representative" who made the crack about how easy it is to kill people with uranium was identified by Fadl during court testimony in the United States vs. bin Laden case in early 2001 as an Egyptian, Abu al Tayar.

[12] In his discussion of the episode, Allison (2004, 26-27) neglects to mention that the material was bogus although his source specifically concludes, "It seems likely either that the material was not useful for a weapon or that it was one of many scams that have been perpetrated involving the sale of supposed nuclear material" (Benjamin and Simon 2002, 129). Allison also says Fadl "could not confirm whether the uranium actually changed hands," implying that there really was uranium up for sale. Additionally, he asserts that the material was "weapons-usable" although his source nowhere uses such language. By contrast, see the discussion based on the same source in Goldstein 2004, 134.

weapons in Sudan, a supposition that eventually led in 1998 to the mistaken destruction by bombing of a Sudanese pharmaceutical plant, erroneously suspected of producing such a product (Wright 2006, 282). The loss of the vital medications the plant was actually making in that impoverished country may have led to the deaths of tens of thousands of Sudanese over time (Daum 2001, 19).[13]

Conversations with Pakistani scientists

As a key indication of al Qaeda's desire to obtain atomic weapons, Allison and many others have focused on a set of conversations in Afghanistan in August 2001 that two Pakistani nuclear scientists, Sultan Bashiruddin Mahmood and Abdul Majid, who had been working on relief and reconstruction programs in the country, reportedly had with Osama bin Laden, Ayman Zawahiri, and two other al Qaeda officials (Allison 2004, 20-24). The source for information about these meetings comes from a front page Washington Post article written by Kamran Khan and Molly Moore and published in late 2001. It is based on information supplied by Pakistani intelligence officers, and the reporters were unable either to interview the scientists, who had been interrogated for two months by that time, or to determine "the nature of the investigatory techniques being used."

The article says the "lengthy" (Allison uses the word "intense") conversations took place over "two or three" days (Allison says "three") and concerned chemical, biological, and nuclear weapons. Allison contends that the talks were "especially about" nuclear weapons and that bin Laden was "particularly interested in nuclear weapons," but that emphasis does not appear in the Post article, the source he specifies. The Pakistani intelligence officers who are the source for that article characterize the discussions as "academic," and they also maintain that to be the descriptor the scientists "insisted" on using (see also Baker 2002).

They do report, however, that the scientists "described bin Laden as intensely interested in nuclear, chemical and biological weapons." This does suggest a degree if fascination with the subject, though I must say that when I have lectured about the effects and operations of such weapons, student interest has characteristically been considerable, maybe even at times intense. Also important is that fact that the scientists reportedly said that "bin Laden indicated he had obtained, or had access to, some type of radiological material that he said had been acquired for him by the radical Islamic Movement of Uzbekistan" and that he "asked them how the material could be made into a weapon or something usable." (Allison puts this more provocatively: the scientists were told that "Al Qaeda had succeeded in acquiring nuclear material for a bomb.") They then told him "it would not be possible to manufacture a weapon with the material he might have," a response Allison creatively renders as "Mahmood explained to his hosts that the material in question could be used in a dirty bomb but could not produce a nuclear explosion."[14]

To further darken the issue, Allison says, quoting from another newspaper article, "Pakistani military authorities found it 'inconceivable that a nuclear scientist would travel to Afghanistan without getting clearance from Pakistani officials,' because Pakistan 'maintains a strict watch on many of its

[13] William Cohen, Defense Secretary at the time, has admitted that information was so inadequate at the time that policy-makers did not even know that the plant was producing medicine at all (Stern 1998-99, 178-79). The United States has thus far refused to apologize or offer compensation and has still not ruled out the possibility that the plant did have some "link" to the production of chemical weapons (Lacey 2005).

[14] Although Mahmood is not allowed to speak to reporters, his son is. According to him, "My father never went along." Bin Laden "asked him about how to make a bomb and things like that. But my father wouldn't help him. He told him, 'It's not so easy. you can't just build a bomb, you can't just do it with a few thousand rupees. You need a big institution. You should forget it'" (Baker 2002).

nuclear scientists, using a special arm of the Army's general headquarters to monitor them even after retirement.'" He also discloses that "American operatives have sought to intercept further 'vacations' in Afghanistan by Pakistani nuclear physicists and engineers" (2004, 23-24). But the Khan-Moore article makes it completely clear that Mahmood and Majid *did* have permission from the Pakistani government to travel to Afghanistan (they were allowed three trips in 2001), and it nowhere indicates that the trip was in any sense labeled a "vacation."

Mahmood had been vocally sympathetic to militant Islamic groups and had advocated sending weapons grade plutonium and uranium to other Muslim states (not terrorist groups), positions that resulted in his being pressured to resign from office in 1999, two years before the conversations took place (Albright and Higgins 2003, 50). He also is something of a mystic, and has recommended that spirits be tapped as a free source of energy and is convinced that sunspots influence major human events, predicting in 1998 that 2002 would be a year of upheaval and that "millions, by 2002, may die through mass destruction weapons, hunger, disease, street violence, terrorist attacks, and suicide" (Fielding et al 2002; Albright and Higgins 2003, 51). (In quoting this list of calamities, Allison sharpens it for his purposes by leaving out hunger, disease, and street violence.) Mahmood's talents as an economist are equally fanciful: it is his opinion that Afghanistan would have become a strong industrial country within 10 years had the United States not invaded in 2001 (Albright and Higgins 2003, 53).

It is possible to believe that the two scientists "provided detailed responses to bin Laden's technical questions about the manufacture of nuclear, biological and chemical weapons," as another Washington Post report puts it (Kahn 2001). But the questions do not seem to be very sophisticated, and as the scientists themselves have reportedly put it, it seems that the discussion was wide ranging and academic (even rather basic) and that they provided no material or specific plans (Kahn and Moore 2001). Pakistani officials stressed to Khan and Moore that Mahmood "had experience in uranium enrichment and plutonium production but was not involved in bomb-building," and therefore that he "had neither the knowledge nor the experience to assist in the construction of any type of nuclear weapon," nor were the scientists "believed to be experts in chemical or biological weaponry" (see also Albright and Higgins 2003, 49, 51; Baker 2002). Therefore, they likely were incapable of providing truly helpful information because their expertise was in not in bomb design, which might be useful to fabricate a terrorist device, but rather in the processing of fissile material, which is almost certainly beyond the capacities of a nonstate group. As a Pakistani nuclear scientist working at Princeton put it, Mahmood "may not actually have much more knowledge than you would get from an undergraduate degree in nuclear physics. My suspicion is if you gave him a bucket full of plutonium he wouldn't know what to do with it, because he never worked with nuclear weapons, as far as we know" (Baker 2002). Nonetheless, reports Allison, U.S. intelligence agencies have convinced themselves that the two errant Pakistani scientists provided al Qaeda with a "blueprint" for constructing nuclear weapons (2004, 24).

Evaluating the evidence in Afghanistan

Examining and assessing documents and other information uncovered by intelligence agencies and the media in Afghanistan after the fall of the Taliban in 2001, physicist David Albright concludes that "if al Qaeda had remained in Afghanistan, it would have likely acquired nuclear weapons eventually" and that "al Qaeda was intensifying its long-term goal to acquire nuclear weapons and would have likely succeeded if it had remained powerful in Afghanistan for several more years" (2002) (Allison quotes the latter).

Albright's findings include the following:

> Only a relatively small portion of the records found were about nuclear weapons or WMD, though perhaps some documents were destroyed or taken along on the flight.

> A handwritten 25-page document entitled "Superbomb" was found. It has some relatively sophisticated sections while others are remarkably inaccurate or naive. It is not a cookbook for making nuclear weapons as many critical steps are missing, and it includes designs for atom bombs that are not credible. It looks like the type used by lecturers at Arab universities.
>
> Student notebooks suggest that people learning how to make conventional explosives were also given a brief primer at the end of the sessions about nuclear weapons.
>
> There was no evidence al Qaeda had acquired nuclear weapons or had collected a cadre of nuclear scientists or engineers.
>
> Although their efforts in making nuclear weapons were far less sophisticated than known state programs, their determination to get nuclear weapons is "astounding."

If al Qaeda had any visions at all about obtaining an atomic bomb, these seem to have been at most a distant glint based on some very limited and preliminary probes. That they may have had dreams at all is perhaps "astounding" given the rudimentary state of the group's science capacities, its limited resources, and its severe isolation.

Albright argues that the group "was putting together a serious program to make nuclear weapons," but it is difficult to see how one can come to that conclusion from the evidence he supplies. He seems to believe that they were creating something of a state-within-a-state, and that the Taliban government could provide cover while they, unnoticed, put together over a period of years (it took Pakistan 27) the infrastructure necessary to build a bomb (including the production of fissile material) while importing the scientists, technicians, and material necessary to carry out the task.

CIA adviser and arms inspector Charles Duelfer has stressed that the development of nuclear weapons in such a manner requires thousands of knowledgeable scientists and large physical facilities (Testimony before the Senate Select Committee on Intelligence, 6 October 2004; see also Seitz 2004, Allison 2004, 98; Wirz and Egger 2005). Pakistan would seem to have been the logical, and perhaps only possible, supplier. Albright suggests that, although "al Qaeda's nuclear program seems to have been relatively primitive," Pakistani scientists like Mahmood "would probably have provided extensive and ongoing assistance" if the 9/11 attacks had not led to cutting off contacts between Pakistani scientists and al-Qaeda (that is, the invasion of Afghanistan was not required for this).[15]

However, as noted earlier, the Pakistanis were keeping careful watch on their scientists and materials even before 9/11--specifically, Mahmood had been sacked merely for suggesting aiding the nuclear programs of other Muslim states (not terrorists), and they had allowed him only three visits to Afghanistan in all of 2001 (Khan and Moore 2001). This process was much intensified after Pakistan's A. Q. Khan network--which had informally supplied nuclear information to several states (but not to the Taliban or to any substate groups)--was exposed in 2004 (Langewiesche 2007, chs. 3-4).

Be all that as it may, Albright concludes that any al Qaeda atomic efforts were "seriously disrupted"--indeed, "nipped in the bud"--by the invasion of Afghanistan in 2001. Whatever the situation before the invasion, he concludes that after the attack "the overall chance of al Qaeda detonating a nuclear explosive appears on reflection to be low" (2002).

[15] On the post-9/11 cutoff of contact, see Albright and Higgins 2003, 54-55; Suskind 2006, 69-70, 122.

Loose nukes

Allison, intent on hyping the threat of nuclear terrorism, soberly relays--without the slightest effort at critical evaluation much less skepticism--a report of an Arabic-language magazine that bin Laden's boys by 1998 had purchased no less than twenty nuclear warheads "from Chechen mobsters in exchange for $30 million in cash and two tons of opium" (2004, 27). Allison's source is a Seattle Times article which also notes that the magazine report and other ones from the time inspired "a spate of alarming, unconfirmed and exaggerated news reports" that played off those original reports and that these, themselves, remain unconfirmed (Port and Smith 2001). Very much in the game is the London Times which suggested that bin Laden had already collected tactical nuclear weapons by 1998 (Binyon 1998). If any of those reports are true, one might think the terrorist group (or their Chechen suppliers) would have tried to set one of those things off by now.

Absence of evidence, we need hardly be reminded, is not evidence of absence. Thus, Allison approvingly reports that, when no abandoned nuclear weapons material was found in Afghanistan, some intelligence analysts responded, "We haven't found most of Al Qaeda's leadership either, and we know that they exist" (2004, 28). Since we know Mount Rushmore exists, maybe the tooth fairy does as well.[16]

Allison also reports a claim by Pakistani journalist Hamid Mir that Zawahiri told him in 2001 "If you have $30 million, go to the black market in central Asia, contact any disgruntled Soviet scientist and...dozens of smart briefcase bombs are available. They have contacted us, we sent our people to Moscow, to Tashkent, to other states, and they negotiated, and we purchased some suitcase bombs" (2004, 27). As he acknowledges in a note, Allison gets this alarming, even incendiary, quote from a San Francisco Chronicle article that is entitled, "Al Qaeda bluffing about having suitcase nukes, experts say; Russians claim terrorists couldn't have bought them." The portion of that article that apparently did not interest Allison notes, as discussed earlier, that Russian nuclear officials and experts on the Russian nuclear programs "adamantly" deny that al Qaeda or other terrorist groups could have bought Soviet-made suitcase nukes (Badken 2004).

Hamid Mir's interview

Mir was brought in to interview bin Laden just a day or two before al Qaeda was to flee from the American invasion in Afghanistan in 2001. There are varying published texts of what was actually said, but in one of them bin Laden supposedly asserted, "If the United States uses chemical or nuclear weapons against us, we might respond with chemical and nuclear weapons. We possess these weapons as a deterrent" (Lawrence 2005, 142n). Bin Laden declined to discuss the weapons' origins, but according to Mir his second in command, Ayman al-Zawahiri, separately expanded with the comment above saying they had bought some nuclear suitcase bombs in Russia.[17]

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[16] Paul Williams has written at least two books proclaiming the likelihood of a nuclear attack on the United States in the near future. In the most recent of these, he concludes "It could occur within a month or a year or two. But most experts believe it will happen soon....As this book goes to press, millions of Americans may be living on borrowed time" (2005, 205). The publication date of this book is September 6, 2005, suggesting that, at best, our borrowed time will be up six days after this paper is presented.

[17] In a 2002 interview, Mir discussed the circumstances of the interview. In it he says, contradicting the published transcript of the interview (Lawrence 2005, 142), that bin Laden told him he had bought a nuclear bomb from a Russian scientist and "had it in a suitcase." He does not mention meeting al-Zawahiri at all. www.maldivesculture.com/maldives_osama_bin_laden.html. Mir also discussed the interview in conversation in 2004 with Andrew Denton of Australian television. In this he says bin Laden "never allowed me to probe his claim that he has nuclear weapons," but that al-Zawahiri, who Mir thinks is "the real brain behind bin Laden" and "the real

Given the military pressure they were under at the time, and taking into account the evidence of the primitive nature of al Qaeda's nuclear program (if it could be said to have had one at all), the reported assertions by the two al Qaeda leaders, while unsettling, appear to be best interpreted as a desperate bluff. Nonetheless they have often been uncritically accepted at face value (Albright 2002; Goldstein 2004, 13).

The costs of the atomic obsession

Negative consequences of the obsession with nuclear proliferation and nuclear terrorism have shown up both in the domestic and in the foreign policy realms.

Domestic policy

Concern about the WMD terrorist has preoccupied a huge amount of homeland security attention and spending. Since no weapons more complicated than box cutters were employed on September 11, it would seem that the experience ought to be taken to suggest that the scenario most to be feared is not the acquisition by terrorists of devices of mass destructiveness, but one in which terrorists are once again able, through skill, careful planning, suicidal dedication, and great luck, to massively destroy with ordinary, extant devices. Not only were the 9/11 bombings remarkably low tech, but they were something that could have happened long ago: both skyscrapers and airplanes have been around for a century now. In addition, the potential for destruction on that magnitude is hardly new: a tiny band of fanatical, well-trained, and lucky terrorists could have sunk or scuttled the Titanic and killed thousands (K. Mueller forthcoming).

Nonetheless, terrorism analyses tend to focus on lurid worst-case scenarios, a great portion of them involving weapons of mass destruction, a concept that, especially after the Cold War, has been expanded to embrace chemical and biological and sometimes radiological weapons as well as nuclear ones.[18] As Bruce Hoffman laments, "Many academic terrorism analyses are self-limited to mostly lurid hypotheses of worst-case scenarios, almost exclusively involving CBRN (chemical, biological, radiological, or nuclear) weapons, as opposed to trying to understand why--with the exception of September 11--terrorists have only rarely realized their true killing potential" (2002, 311-12).

Concerns about atomic terrorism have led to an obsession with port security under the assumption, apparently, that after manufacturing their device at great expense and effort overseas, the terrorists would supply a return address and then entrust their precious product to the tender mercies of

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strategist," told him about purchasing the Russian suitcase bombs. www.abc.net.au/tv/enoughrope/transcripts/s1071804.htm. In a 2006 interview, Mir made a number of assertions relying "on my own investigations," not simply "on claims by al-Qaeda," that bear questioning. 1. Iran is supporting al Qaeda. 2. Russia is supporting the Taliban insurgents in Afghanistan. 3. Al Qaeda smuggled three suitcase nuclear weapons into Europe in 2000 destined for London, Paris, and California. 4. It has smuggled many kilos of enriched uranium into the United States for dirty bomb projects. 5. It tested at least one dirty bomb in Afghanistan in 2000. 6. Before 9/11, 42 trained fighters entered the United States, leaving 23 still "sleeping" there. 7. Al Qaeda can make anthrax. 8. It hasn't struck yet because it is "waiting for the proper time." www.canadafreepress.com/2006/mauro052506.htm. Mir is writing a biography of bin Laden. In the 2002 interview he said he was "finishing the book" and would be "trying to publish it soon." In the 2006 interview he said that he was "putting some finishing touches on the manuscript," that his publisher had not authorized him to "disclose the name of the book," that it would reveal bin Laden's "future plans and details of his nuclear designs," and that he was "planning to publish the book this year."

[18] For a discussion of the phrase, "weapons of mass destruction" and for documentation of its much escalated use in the 1990s, see Carus 2006, 8. For a overviews of the WMD issue, see Easterbrook 2002; Mueller 2006, ch. 2. See also Warrick 2004; Pillar 2003, 21-26.

the commercial delivery system. As a result, huge amounts of money have been hurled in that direction to inspect and to install radiation detectors. This obsession is impressive because there seems to be no evidence that any terrorist has indicated any interest in, or even much knowledge about, using transnational containers to transport much of anything. Perhaps, as some suggest, some of the concern was inspired by the bizarre dispute that erupted in 2006 about having a Dubai-related firm in charge of U.S. port security.

On the other hand, if officials really do believe an atomic bomb is so likely, one might expect that there would be more public information disseminated about what to do when it happens, particularly about what to do if radiation levels are significantly increased as a result of the explosion (or, for that matter, as a result of a "dirty bomb" attack). But thus far, there has been little (for an exception, see Perry et al. 2007).

Foreign policy

Since a terrorist group cannot manufacture fissile material itself, it makes a great deal of sense to secure existing material around the world. Most of it, as it happens, is in Russia, and for over a decade Allison and his colleagues have been leading advocates for strenuous efforts to get the stuff controlled and locked up (Allison et al 1996, Allison 2004). For the most part this process seems to be proceeding apace, albeit at a pace too slow for some (Keller 2002; Langewiesche 2007, 27-33).

The atomic obsession has had a number of other, more questionable, effects on foreign policy. One of these is to enforce a rather tolerant attitude toward Vladimir Putin's Russia where democratic, and to a lesser extent capitalistic, reforms are being gradually dismantled. Clearly, if halting the spread of nuclear weapons, especially to terrorists, is some sort of absolute foreign policy priority, then it becomes "realistic" to accept just about anything else Putin happens to want to do. As Allison and Dimitri Simes put it, "it is hard to take seriously the argument that the United States can realistically expect to try to undermine Putin's role in Russia and Russia's influence on its periphery on the one hand and receive whole-hearted Russian cooperation on matters nuclear" (2006, 13). However, as noted earlier, regardless of what the Americans do, the Russians already have a very substantial interest in preventing the proliferation of weapons to terrorists and to bordering states like Iran and North Korea because Russia is considerably more likely to become a victim than is the United States.

Something similar has happened with respect to policy toward General Perez Musharraf's increasingly unpopular authoritarian rule in Pakistan. When bothered by outside criticism of his political repression, Musharraf sometimes suggests that perhaps he'll stop cooperating on the terrorism front, and this threat has an effect even though he is substantially beholden to foreign aid and even though he had an intense incentive to bring terrorists and other extremists to heel since he is one of their primary targets (Grare 2007). And there is an additional cost. As the prominent Pakistani journalist Ahmid Rashid has pointed out, millions of middle class Pakistanis have protested against Musharraf's rule, advocating a return to civilian rule, and "they are turning very anti-American because they just see this continuous barrage of statements in favor of Musharraf, nothing in favor of the democratic movement."[19]

The chief foreign policy problems with the atomic obsession, however, have come from specific and focused efforts to halt the proliferation of nuclear weapons to states (see also Mueller 2007b).

I do consider dissuading more countries from obtaining nuclear weapons to be actually quite a good idea and preventing terrorists from getting them to be an even better one. Indeed, I am even persuaded from time to time that the world might well be better off if the countries who now have them

[19] Weekend Edition, NPR, 14 July 2007.

gave them up. Perhaps we could start with the French who cling to an arsenal presumably under the influence of the imaginative notion that the weapons might one day prove useful should Nice be savagely bombarded from the sea or should a truly unacceptable number of Africans in former French colonies take up English.

However, the obsessive bipartisan quest to control nuclear proliferation--particularly since the end of the Cold War--has been substantially counterproductive and has often inflicted major costs on innocent people.

Iraq. The current disastrous war in Iraq, with deaths that may well run into the hundreds of thousands, is a key case in point. It was almost entirely sold by the Republican administration as a venture required to keep Saddam Hussein's pathetic and fully containable and deterrable rogue state from developing nuclear and other presumably threatening weapons and to prevent him from palming off some of these to eager and congenial terrorists.[20] Democrats have derided the war as "unnecessary," but the bulk of them only came to that conclusion when neither weapons nor weapons programs were found in Iraq: many of them have made it clear they would support putatively preemptive (actually, preventive) military action and its attendant bloodshed if the intelligence about Saddam's programs had been accurate (on this issue, see also Arkin 2006).

However, the devastation of Iraq in the service of limiting proliferation did not begin with Bush's war in 2003. For the previous thirteen years, the country had suffered under economic sanctions visited upon it by both Democratic and Republican administrations that were designed to force Saddam from office (and, effectively, from life since he had no viable sanctuary elsewhere) and to keep the country from developing weapons, particularly nuclear ones. The goals certainly had their admirable side, but the sanctions proved to be a necessary cause, as multiple studies have shown, of hundreds of thousands of deaths in the country, most of them children under the age of five--the most innocent of civilians (Garfield 1999, United Nations 1999, Gordon 1999, Cockburn and Cockburn 1999, ch. 5; Mueller and Mueller 2000, Welch 2002, Ali et al. 2003, Lopez and Cortwright 2004).

One might have imagined that the people carrying out this policy with its horrific and well-known consequences would from time to time have been queried about whether the results were worth the costs. To my knowledge, this happened only once, on television's "60 Minutes" in 1996. Madeleine Albright, then the American Ambassador to the United Nations, was asked, "We have heard that a half a million children have died. I mean, that's more children than died in Hiroshima....Is the price worth it?" Albright did not dispute the number and acknowledged it to be "a very hard choice." But, she concluded, "we think the price is worth it," pointing out that because of sanctions Saddam had recognized Kuwait and had come "cleaner on some of these weapons programs" (Stahl 1996)

A Lexis-Nexis search suggests that Albright's dismissal on a prominent television show of the devastation sanctions had inflicted on Iraqi civilians went completely unremarked upon by the country's media. In the Middle East, by contrast, it was widely and repeatedly covered and noted (Cockburn and Cockburn 1999, 263). Among the outraged was Osama bin Laden who repeatedly used the punishment that sanctions were inflicting on Iraqi civilians as a centerpiece in his many diatribes against heartless American policy in the area.

North Korea. The damn-the-costs perspective on atomic proliferation is also evident in policies advocated by Allison. Like Bush and Kerry, he proclaims "no new nuclear weapons states" to be a central foreign policy principle. He goes on to pronounce it to be no less than a "supreme priority" that North

[20] For an examination of the assumption that Iraq, however armed, posed much of a threat, see Mearsheimer and Walt 2003; Mueller (in debate with Lindsey) 2003; Mueller 2006, 131-33.

Korea be stopped from joining the nuclear club, and in the process derides then-Secretary of State Colin Powell for stating that North Korea's reactivation of a key nuclear reactor was "not a crisis," but merely "a matter of great concern."

To deal with what he considers an urgent threat, Allison proposes several steps of diplomacy including the screening of a horror video for North Korea's Kim Jong Il ("known to be a great fan of movies") that would graphically depict the kind of destruction American munitions could visit upon Kim's errant country. Should diplomacy fail and this vivid bluff be called, however, Allison essentially advocates launching a Pearl Harbor-like attack even though he acknowledges that potential targets have been dispersed and disguised and that a resulting war might kill tens of thousands in the South--though to cut down on the civilian body count there he does humanely suggest preemptively evacuating Seoul, one of the world's largest cities which already boasts some of the most impressive traffic jams on the planet (Allison 2004, 165-71).

Members of the Bush administration, perhaps because they had become immersed in their own anti-proliferation war in Iraq, were able to contain their enthusiasm for accepting Allison's urgent advice, and North Korea has now become a nuclear weapons state. In 2004 Allison sternly insisted that such an outcome would be "gross negligence" and would foster "a transformation in the international security order no great power would wittingly accept." So, with all that behind us, we are now in position to sit back and watch to see if Allison's predictions come true: a North Korean bomb, he declared, would "unleash a proliferation chain reaction, with South Korea and Japan building their own weapons by the end of the decade" and with Taiwan "seriously considering following suit despite the fact that this would risk war with China," and with North Korea potentially "becoming the Nukes R' Us for terrorists" (2004, 166).

Iran. And now we are at it again. Urged on by Israel and by its influential and voluble allies in the United States (Boudreaux 2007), the same geniuses who gave us the Iraq War seem to be contemplating air strikes or even an invasion of Iran to keep that country from getting an atomic bomb. The hysteria inspired in Israel by some of the fulminations of Iran's current president, a populist windbag with an unpronounceable name whose tenuous hold on office has been enhanced by foreign overreaction to his windbaggeries, may be understandable (though he apparently never exactly said he wanted to "wipe Israel off the map").[21] But it does not necessarily lead to wise policy, even for Israel. Indeed, the long term negative consequences for Israel from an attack on Iran could surpass those that developed even from such ill-advised ventures as its government-induced settlement policy and its 1982 invasion of Lebanon.

The casualties inflicted by an attack on Iran either by direct action and by "collateral damage" (including, potentially, induced nuclear radiation) could rival those suffered by Iraq. And the results would most likely be counterproductive. Israel's highly touted air strike against Iraq's nuclear program in the Osirak attack of 1981, as Dan Reiter and Richard Betts have pointed out, actually caused Saddam Hussein to speed up his nuclear program after decreasing its vulnerability by dispersing its elements--a lesson Iran has also learned (Reiter 2005, 2006, 4-6; Betts 2006).

An attack on Iran is likely to have a similar effect, and the radicalization it would inspire in Pakistan could lead to atomic assistance or even to the fraternal loan of a bomb or two (inspiring fears that one might find its way to Israel's current nemesis, Hezbollah, in Lebanon). Moreover, the outrage it would inspire throughout Muslim lands might make it unsafe for an American to be anywhere in the Middle East except Israel (and perhaps not even there), while Iran would probably exercise its

[21] For a discussion of the "map" issue, see Bronner 2006, Steele 2006.

considerable capacity for helping to make the U.S. position both in Iraq and in Afghanistan markedly more dire.

The incentives for, and the prospects of, proliferation

In distinct contrast, it may be time to think a bit about the strategic consequences of the "supreme priority" approach to nuclear proliferation.

Whatever the problems for terrorists, Langewiesche concludes that we have passed the point of no return on weapons proliferation to established states, including rather poor ones. That is, the nuclear genie is out of the bottle and any state, even quite poor ones (North Korea is a pertinent case in point) can eventually obtain nuclear weapons if they really want to make the effort--although in many cases that might involve, as a former president of Pakistan once colorfully put it, having to "eat grass" (Langewiesche 2007, 88). Langewiesche thinks they will do so even though he stresses that the weapons are expensive: there is "a premium for working fast and in the shadows," and Pakistan apparently had to pay two or three times the going rate for equipment and material it needed (2007, 103). The driver in this process, he somewhat mysteriously concludes, will be "the desire for self-sufficiency" (2007, 177).

We've heard such predictions about impending, rampant proliferation repeatedly since 1945, and they've all been proven wrong. Indeed, nuclear proliferation has proceeded at a remarkably slow pace, confounding the predictions of generations of alarmists. Thus, in 1958 the National Planning Association predicted "a rapid rise in the number of atomic powers...by the mid-1960s" (1958, 42), and a couple of years later, John Kennedy observed that there might be "ten, fifteen, twenty" countries with a nuclear capacity by 1964 (Kraus 1962, 394). By contrast, over the decades a huge number of countries capable of developing nuclear weapons have neglected even seriously to consider the opportunity--for example, Canada, Sweden, and Italy--while Brazil, Argentina, South Korea, Libya, and Taiwan have backed away from or reversed nuclear weapons programs, and South Africa, Ukraine, Belarus, and Kazakhstan have actually surrendered or dismantled an existing nuclear arsenal (Arkin 2006, 45).

There is, then, no imperative for countries to obtain nuclear weapons once they have achieved the technical and economic capacity to do so. Insofar as states have considered acquiring the weapons, they came to appreciate several defects: the weapons are dangerous, distasteful, costly, and likely to rile the neighbors (Mueller 1967). If one values economic growth and prosperity above all, the sensible thing is to avoid the weapons unless they seem vital for security.

It has often been assumed that nuclear weapons would be important status--or virility--symbols. However, like military prowess in general, the weapons have *not* proved to be crucial status symbols. As Robert Jervis has observed, "India, China, and Israel may have decreased the chance of direct attack by developing nuclear weapons, but it is hard to argue that they have increased their general prestige or influence." How much more status would Japan have if it possessed nuclear weapons? Would anybody pay a great deal more attention to Britain or France if their arsenals held 5,000 nuclear weapons, or would anybody pay much less if they had none? Did China need nuclear weapons to impress the world with its economic growth? Perhaps the only such benefit the weapons have conferred is upon contemporary Russia: with an economy the size of the Netherlands, it seems unlikely the country would be invited to participate in the G8 economic club if it had no atomic arsenal.

Moreover, it is not clear that the bomb has been of much value militarily either. It is routinely stated that nuclear weapons are what kept the Cold War from becoming a hot one. However, the people who have been in charge of world affairs since World War II have been the same people or the intellectual heirs of the people who tried assiduously, frantically, desperately, and, as it turned out, pathetically, to prevent World War II, and when, despite their best efforts, world war was forced upon them, they found the experience to be incredibly horrible, just as they had anticipated. On the face of it, to

expect these countries somehow to allow themselves to tumble into anything resembling a repetition of that experience--whether embellished with nuclear weapons or not--seems almost bizarre. That is, although the people who have been running world politics since 1945 have had plenty of disagreements, they have not been so obtuse, depraved, flaky, or desperate as to need visions of mushroom clouds to conclude that another catastrophic world war, nuclear or nonnuclear, win or lose, could be distinctly unpleasant (Mueller 1998; 1995, ch. 5).

It is also difficult to see how nuclear weapons benefited their possessors in specific military ventures. Israel's nuclear weapons did not restrain the Arabs from attacking in 1973, nor did Britain's prevent Argentina's seizure of the Falklands in 1982. Similarly, the tens of thousands of nuclear weapons in the arsenals of the enveloping allied forces did not cause Saddam Hussein to order his occupying forces out of Kuwait in 1990. Nor did the bomb benefit America in Korea or Vietnam, France in Algeria, or the Soviet Union in Afghanistan.

The atomic genie may be out of the bottle, but few are likely to be seduced by its charms, particularly if eating grass is a prerequisite.

Countering the American threat

In other places Langewiesche attributes proliferation not so much to "the desire for self-sufficiency" as to a quest for security against external threats. However, few countries actually face such threats.

The handful of countries to have acquired nuclear weapons programs seem to have done so sometimes as an ego trip (think, again, of France) but more urgently (or in addition) as an effort to deter a potential attack on themselves: China to deter the United States and the Soviet Union, Israel to deter various enemy nations in the neighborhood, India to deter China, Pakistan to deter India, and now North Korea to deter the United States and maybe others.

It follows that one way to reduce the likelihood such countries would go nuclear is a simple one: stop threatening them. From this perspective, George W. Bush's 2002 declaration in which he dramatically and imaginatively grouped Iraq, Iran, and North Korea into an "axis of evil" was one of the most ill-advised presidential pronouncements ever made. I do rather agree that these states did have regimes that were evil--though, less inclined to the theological, I rather prefer the word "contemptible." But, as it happens, there is an extremely important difference between Presidents of the United States and me: what they say matters, what I say doesn't (as legions of my students can attest), and this probably has something to do with the fact that one of us happens to be the commander of the largest and most lethal military in the world while the other is not. And, as William Arkin puts it, "From the perspective of an Iran or North Korea, the 1990's erosion of absolute sovereignty and the post-9/11 presumption of preemption, together with the abandonment of meaningful disarmament by the permanent five, makes WMD seem both necessary and justified" (2006, 45).

Actually, however, the American threat is considerably broader. Bush may have happened to specify three regimes, but many of his supporters, particularly in the neoconservative camp, went quite a bit farther. In an article in the fall of 2004 proposing what he calls "democratic realism," Charles Krauthammer urged taking "the risky but imperative course of trying to reorder the Arab world," with a "targeted, focused" effort on "that Islamic crescent stretching from North Africa to Afghanistan" (2004b, 23, 17). And in a speech in late 2006, he continued to champion what he calls "the only plausible answer," an amazingly ambitious undertaking that involves "changing the culture of that area, no matter how slow and how difficult the process. It starts in Iraq and Lebanon, and must be allowed to proceed." Any other policy, he has divined, "would ultimately bring ruin not only on the U.S. but on the very idea of freedom."

In their 2003 book, The War Over Iraq, Lawrence Kaplan and William Kristol stress that "The mission begins in Baghdad, but does not end there....War in Iraq represents but the first installment...Duly armed, the United States can act to secure its safety and to advance the cause of liberty--in Baghdad and beyond" (2003, 124-25). At a speech given at the Army War College as Baghdad was falling in 2003, Richard Perle triumphally issued an extensive litany of targets, adding for good measure, and possibly in jest, France and the State Department. He also suggested at the time that "a short message" should be delivered to other hostile regimes in the area: "You're next" (Mearsheimer and Walt 2006).

Most interesting is a call issued in Commentary by neoconservatism's champion guru, Norman Podhoretz, in the runup to the war. He strongly advocated expanding Bush's "axis of evil" beyond Iraq, Iran, and North Korea "at a minimum" to embrace "Syria and Lebanon and Libya, as well as 'friends' of America like the Saudi royal family and Egypt's Hosni Mubarak, along with the Palestinian Authority." However, Podhoretz pointedly added, "the alternative to these regimes could easily turn out to be worse, even (or especially) if it comes into power through democratic elections." Accordingly, he emphasized, "it will be necessary for the United States to *impose* a new political culture on the defeated parties" (2002, 28, emphasis in the original). (Podhoretz has proved to be more realistic about democracy than other neoconservatives, but his extravagant notion that the U.S. would somehow have the capacity to impose a new political culture throughout the non-Israeli Middle East seems, like Krauthammer's comparable vision, so fantastic to me as to border, not to put too fine a point on it, on the deranged.)

These men do not, of course, directly run the Bush administration. However, given the important role people like that have had in its intellectual development and military deployment, the designated target regimes would be foolish in the extreme not take such existential threats very seriously indeed (see also Mueller 2007a).

It would certainly be preferable that none of these regimes (and quite a few others) ever obtain nuclear weapons. But if they do so they are by far most likely to put them to use--if that is the term--the same way other nuclear countries have: to deter real or perceived threats.

Nonetheless, even threatened states may not develop nuclear weapons. In fact, in the wake of the Iraq disaster, an invasion by the ever-threatening Americans can probably now be creditably deterred simply by maintaining a trained and well armed cadre of a few thousand troops dedicated to, and capable of, inflicting endless irregular warfare on the hapless and increasingly desperate and ridiculous invaders. The Iranians may not yet have grasped this new reality, but perhaps others on the Bush administration's implicit hit list will.

Proliferation alarmists (a category which seems to embrace almost the totality of the foreign policy establishment) may occasionally grant that countries principally obtain a nuclear arsenal to counter real or perceived threats. But many go on to argue that the newly nuclear country will then use its nuclear weapons to dominate the area. This argument was repeatedly used with dramatic urgency for dangers to world peace and order supposedly posed by Saddam Hussein, and it is now being dusted off and applied to Iran.

Exactly how this domination business is to be carried out is never make very clear. The United States possesses a tidy array of thousands of nuclear weapons and can't even dominate downtown Baghdad--or even keep the lights on there. But the notion apparently is that should an atomic Iraq (in earlier fantasies) or Iran (in present ones) rattle the occasional rocket, all other countries in the area, suitably intimidated, would supinely bow to its demands. Far more likely is that they will make common cause with each other against the threatening neighbor, perhaps enlisting the convenient aid eagerly proffered by other countries probably including the United States and conceivably even Israel.

Conclusion

Arkin issues a sustained lament about what he calls "the devastating consequences associated with the universal and unchallenged assumption of nuclear terrorism." Among these consequences have been the war in Iraq, the single-minded attention to WMD that seduced federal agencies "to prepare for the wrong disaster before Katrina," the rise of "preemption," and the "resurgence of American nuclear capability and missile defenses" (2006, 43).

Proliferation of the bomb, particularly to terrorists, may indeed be the single most serious threat to the national security of the United States. Assessed in appropriate context, that could actually be seen to be a rather cheering conclusion.

Table 1: The atomic terrorist's task in the most likely scenario

1	An inadequately-secured source of adequate quantities of highly-enriched uranium (HEU) must be found
2	The area must be entered while avoiding detection by local police and by locals wary of strangers
3	Several insiders who seem to know what they are doing must be corrupted
4	All the insiders must remain loyal throughout the long process of planning and executing the heist, and there must be no consequential leaks
5	The insiders must successfully seize and transfer the HEU
6	The transferred HEU must be real and not a scam or part of a sting
7	The transferred HEU must be real and not of inadequate quality due to insider incompetence
8	The HEU must be transported across the country over unfamiliar turf while its possessors are being pursued
9	To get the HEU across one or more international borders smugglers must be employed
10	The smugglers must remain loyal despite the temptations of massive reward money, and no consequential suspicion must be generated in other smugglers using the same routes who may be interested in the same money
11	A machine shop must be set up in an obscure area with imported, sophisticated equipment without anyone becoming suspicious
12	A team of highly skilled scientists and technicians must be assembled
13	The complete team must be transported to the machine shop, probably from several countries, without suspicion and without consequential leaks from relatives, friends, and colleagues about the missing
14	The team must have precise technical blueprints to work from (not general sketches) and must be able to modify these appropriately for the precise purpose at hand over months of labor and without being able to test
15	Nothing significant must go wrong during the long process of manufacture and assembly of the improvised nuclear device (IND)
16	During production all members of the team must remain absolutely loyal to the cause and develop no misgivings or severe interpersonal or financial conflicts
17	There must be no inadvertent leaks from the team
18	Local and international police, on high (even desperate) alert, must not be able to detect the project using traditional policing methods as well as the most advanced technical detection equipment
19	No locals must sense that something out of the ordinary is going on in the machine shop with the constant coming and going of non-local people
20	The IND must be smuggled without detection out of the machine shop to an international border
21	The IND must be transported to the target country either by trusting the commercial process filled with people on the alert for cargo of this sort or by clandestine means which requires trusting corrupt co-conspirators who also know about the reward money
22	A team of completely loyal and technically accomplished co-conspirators must be assembled within, or infiltrated into, the target country
23	The IND must successfully enter the target country and be received by the in-country co-conspirators
24	A detonation team must transport the IND to the target place and set it off without anybody noticing and interfering
25	The untested and much-traveled IND must not prove to be a dud

Probability of success assuming a 50/50 chance of succeeding at each barrier: one in 33,554,432

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Terrorist Has No Idea What To Do With All This Plutonium

The Onion, November 30, 2005 Issue 41-48

ZAHEDAN, IRAN—Yaquub Akhtar, the leader of an eight-man cell linked to a terrorist organization known as the Army Of Martyrs, admitted Tuesday that he "doesn't have the slightest clue" what to do with the quarter-kilogram of plutonium he recently acquired.

Yaquub Akhtar.

"We had just given thanks to Allah for this glorious means to destroy the Great Satan once and for all, when [sub-lieutenant] Mahmoud [Ghassan] asked, 'So, what's the next step?'" Akhtar said. "I was at a loss."

The 28-year-old fanatic said he and his associates had initially assumed that at least one member of their group had the physics and engineering background necessary to construct a thermonuclear device.

"Many eyes were upon me," said Basim Aljawad, whose knowledge of physics did not extend to the principles of nuclear fission. "I make nail bombs. That's it."

Not knowing where to turn, the eight men consulted the Muslim holy book the Quran, which proved unhelpful. Said Akhtar: "Even Umar Abd al-Malik, who interprets the ancient scripture more freely than the rest of us, could not find an instructive passage."

Morale was temporarily buoyed when cell member Dawoud Bishr, a former student at the Sorbonne in Paris, was found intently examining the exposed plutonium, which he had lifted from its protective lead footlocker. Two days later, however, the others had to bury Bishr in a landfill outside the city.

Akhtar, in hiding in a small, spartan cellar in one of Zahedan's poorer neighborhoods, said that the only use he's found for the encased lethal substance so far is as a flat surface on which to lay out a map of a government armory outside Islamabad and a large piece of paper to make a blueprint for transferring the plutonium to an effective delivery system.

"I drew a circle to represent the plutonium," Akhtar said. "Then I drew a line pointing to it, and beside it wrote 'plutonium.' After that, I just hit a wall."

Akhtar and his associates initially planned to create a "suitcase bomb," but soon after they obtained the plutonium, they learned that such bombs weigh over 700 pounds, and are therefore too heavy for any of them to lift alone.

Said Akhtar: "The only thing this weapon of mass destruction is destroying right now is our ability to kill infidels."

"I have heard many in the corrupt Western media say that Muslim terrorists have acquired harmful radioactive materials that can be readily deployed," al-Malik said. "Whoever this terrorist group is that's all but ready to strike America with a nuclear device, we sure could use their help."

Unable to search for bomb-making instructions on his laptop for fear of being monitored, Akhtar has been forced to send another of his sub-lieutenants, 23-year-old Ibraheem Jaalal, to a local Internet café in hopes of acquiring the necessary data. According to Jaalal, the process so far has proven "unbearably slow" and "outrageously expensive," claiming he can't believe the coffee shop charges $4.95 for an hour of dial-up-speed Internet use.

The cell's lack of contacts with professional scientists and engineers has also undermined their bomb-building efforts. "A friend of mine at university studied metallurgy," Jaalal said. "I have his e-mail address, but I can't just write him and say, 'Oh, hello, Suleymann, long time no see. Say, I'm a terrorist now, and I was wondering: How do you go about building a nuclear bomb?'"

After three days without progress, the plutonium, once a source of pride for Akhtar and the other men, has increasingly become a fountain of frustration.

"I guess we got carried away with the idea of making a nuclear weapon before thinking the whole thing through," said Akhtar, who admitted that even if he "could bombard that plutonium nuclei with enough electrons, whatever those are," getting the bomb to North America would prove another logistical mess.

"I still believe in taking the lives of American civilians as revenge for the atrocities committed on our brothers, our wives, and our daughters," Akhtar said. "I'm just not entirely sure it's worth a headache this big."