

APOCALYPSE . . . WHEN?

Follow the Trend Lines, Not the Headlines: Terrorism Is Not an Existential Threat

Michael Shermer

"We're fortunate to be living in the most peaceful, most prosperous, most progressive era in human history," President Barack Obama told an audience in Hannover, Germany, on Monday, April 25, 2016, in conjunction with his announcement that he was sending 250 more American special operations troops to Syria because of the ongoing terrorist activities in that war-torn country. "If you had to choose a moment in time to be born, any time in human history, and you didn't know ahead of time what nationality you were or what gender or what your economic status might be, you'd choose today."¹ Obama went on to recount what a number of us have been saying for years about the long-term progress of humanity (see, for example, Steven Pinker's magisterial *The Better Angels of Our Nature*² and my own *The Moral Arc*³), noting that "it's been decades since the last war between major powers. More people live in democracies. We're wealthier and healthier and better educated, with a global economy that has lifted up more than a billion people from extreme poverty."

Such optimism is heartening, coming as it does from someone whose inbox undoubtedly sags from the daily barrage of bad news with which he and his Cabinet must deal. Although Obama clearly erred when he called ISIS a "JV team," his military responses thus far have been commensurate with the actual threat that ISIS—or any other terrorist organization—poses.

What Is an Existential Threat?

You hear the phrase "existential threat" a lot these days. A Google Ngram search shows that it didn't come into use until the late 1950s, most likely in describing the growing threat of global thermonuclear war, and it crawls along the bottom of the curve through the 1960s, 1970s, and early 1980s. Then, around 1983, its use takes off in a steady upward trend line to 2001, after which it spikes dramatically upward in a hockey-stick-like increase, clearly in response to the events of September 11, 2001 (see figure 1).

What does *existential* mean when modifying a threat? Its derivation from the French philosophy of existentialism, which deals with existence—most notably, the deepest and

most meaningful aspects of human existence—implies a threat to our very existence as a civilization or species. Users of the phrase imply that if ISIS, for example, was successful in its global *jihad* to bring about *Sharia* law, it would mean the end of Western civilization and possibly the extermination of all who do not succumb and convert.

If ISIS or any of the other terrorist organizations grounded in Islamism were successful in prevailing, I agree that it would be an existential crisis. But are they, in fact, likely to succeed? No. I will demonstrate why below, but first I want to acknowledge that even if ISIS isn't an existential threat, this doesn't mean that it is not a threat of some sort.

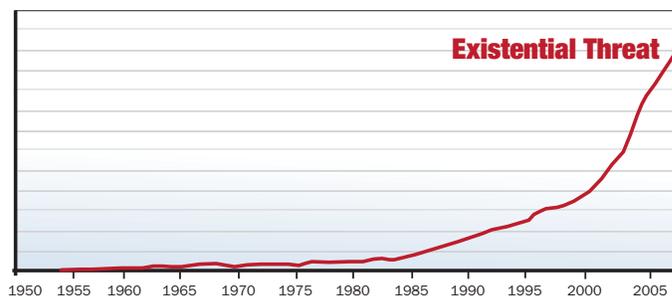


Figure 1. The rise of "existential threat" as a descriptor. Google Ngram search for the phrase "existential threat" 1950–2008.

Who Is Existentially Threatening Us?

As most people know, it has become politically incorrect to associate "Islam" or "Muslims" with terrorism, out of fear that such an affiliation could lead to indiscriminate bigotry against the entire religion of Islam and against all Muslims. Thus was born the pejorative descriptor "Islamophobia," applied to anyone who associates terrorism with the religion. Maajid Nawaz is a case in point. A former Islamist radical jailed for his activities, Maajid is now an Islamic reformer who artfully tries to strike the right causal balance, as in this Facebook post:

One cannot say ISIL are “Islam,” just like one cannot say they have *nothing* to do with Islam. They have *something* to do with it. When we refer to Stalin, we don’t disassociate him entirely from Communism though Trotsky hated what Stalin did and paid with his life. Naming ideologies is a crucial first step in being able to refute them. Islam is a religion. Islamism is the desire to impose Islam over society. Jihadism is the use of force to spread Islamism. It is this desire to impose Islam, *i.e.*, Islamism, that we must refute.⁴

Semantic precision is a core component of science. To that end, the historian and publisher of *Middle East Quarterly*, Daniel Pipes, articulates the difference between Islam and Islamism:

Islamism is an ideology that demands man’s complete adherence to the sacred law of Islam and rejects as much as possible outside influence, with some exceptions (such as access to military and medical technology). It is imbued with a deep antagonism towards non-Muslims and has a particular hostility towards the West. It amounts to an effort to turn Islam, a religion and civilization, into an ideology.

Pipes notes that the word *Islamism* is appropriate here because it centers it as an ideology, not unlike fascism. “Islamism turns the bits and pieces within Islam that deal with politics, economics, and military affairs into a sustained and systematic program.” A program to do what? “Islamism offers a way of approaching and controlling state power. It openly relies on state power for coercive purposes.” As such, Pipes concludes:

Islamism is, in other words, yet another twentieth-century radical utopian scheme. Like Marxism-Leninism or fascism, it offers a way to control the state, run society, and remake the human being. It is an Islamic-flavored version of totalitarianism.⁵

Again, I will concede the point that if an Islamist organization did manage to grab the controls of state power and sweep across the world with arms and armies conquering countries—like Hitler or Stalin—then we would be facing an existential crisis. But the evidence leads me to conclude that nothing like this is in the offing.

Reasons Why We Need Not Fear Terrorism

Terrorism is a form of asymmetrical warfare by nonstate actors against state actors and their innocent noncombatant civilians. It functions, as its name suggests, by evoking terror, which naturally arouses our moral emotions of revenge and justice. This, in turn, confounds clear thinking about terrorism. As such, it is good to review what we really know about terrorism, which has now been the subject of considerable social-science research. Here are five reasons why I do not think terrorism poses an existential threat.

1. *Terrorists are not pure evil.* President George W. Bush was wrong when he said that the 9/11 terrorists hated us for “our freedom of religion, our freedom of speech,

our freedom to vote and assemble and disagree with each other.”⁶ *Evil* may be a good adjective for describing something or someone you really don’t like, but it only clouds our understanding of human behavior. Everyone has a motive and a point of view, including people we call “evil.” In a study of fifty-two cases of Islamic extremists who have targeted the United States, for instance, the political scientist John Mueller concluded that terrorist motives are multivariate in nature and include instrumental violence and revenge: “a simmering, and more commonly boiling, outrage at U.S. foreign policy—the wars in Iraq and Afghanistan, in particular, and the country’s support for Israel in the Palestinian conflict.” *Ideology* in the form of religion “was a part of the consideration for most,” Mueller continues, “but not because they wished to spread *Sharia* law or to establish caliphates (few of the culprits would be able to spell either word). Rather they wanted to protect their coreligionists against what was commonly seen to be a concentrated war upon them in the Middle East by the U.S. government.”⁷

There are practical motives as well, as the anthropologist Scott Atran has documented. Suicide bombers and their families, for example, are showered with status and honor, and most “belong to loose, homegrown networks of family and friends who die not just for a cause, but for each other.” Most terrorists are in their late teens or early twenties, especially students and immigrants “who are especially prone to movements that promise a meaningful cause, camaraderie, adventure, and glory.”⁸

2. *Terrorists are not that organized.* Politicians like to portray terrorists as part of a vast global network of top-down, centrally-controlled conspiracies against the West. But as Atran shows, terrorism is “a decentralized, self-organizing, and constantly evolving complex of social networks,” often organized through social groups and sports organizations such as soccer clubs.⁹

3. *Terrorists are not diabolical geniuses.* The 9/11 Commission Report described al-Qaeda terrorists as “sophisticated, patient, disciplined, and lethal.”¹⁰ But according to political scientist Max Abrahms, after the decapitation of the leadership of the top terrorist organizations, “terrorists targeting the American homeland have been neither sophisticated nor masterminds, but incompetent fools.”¹¹ Examples include:

- 2001 airplane shoe-bomber, Richard Reid, who was unable to ignite the fuse because it was wet from rain and his own foot perspiration;
- 2009 underwear bomber, Umar Farouk Abdulmutallab, who succeeded only in setting his pants ablaze, burning his genitals and getting himself arrested;
- 2010 Times Square bomber, Faisal Shahzad, who managed merely to torch the inside of his 1993 Nissan Pathfinder; and

- the 2013 Boston marathon bombers, who were equipped with only one gun for defense and had no money and no exit strategy beyond hijacking a car with no gas in it. Dzhokhar Tsarnaev used it to run over his brother, Tamerlan, and followed that with a failed suicide attempt inside a land-based boat.
4. *Terrorism does not cause mass deaths.* In comparison to homicides in America, deaths from terrorism are in the statistical noise, barely a blip on a graph compared to the 13,700 homicides a year. By comparison, besides the three thousand deaths on 9/11, the total number of people killed by terrorists in the thirty-eight years before totals 340. The number killed after 9/11 and including the Boston bombing is thirty-three, and that includes the thirteen soldiers killed in the Fort Hood massacre by Nidal Hasan in 2009.¹² That's a total of 373 killed, or 7.8 people per year. Even if we include the three thousand people who perished on 9/11 and the fourteen killed in San Bernardino, that brings the average annual total to 70.4 persons, compared to 13,700 homicides annually.
 5. *Terrorism doesn't work.* In a study of forty-two foreign terrorist organizations active for several decades, Max Abrahms concluded that only two achieved their stated goals—Hezbollah achieved control over southern Lebanon in 1984 and 2000, and the Tamil Tigers took over parts of Sri Lanka in 1990, which they then lost in 2009. That results in a success rate of less than 5 percent.¹³ In a subsequent study, Abrahms and his colleague Matthew Gottfried found that when terrorists kill civilians or take captives, the likelihood of bargaining success with states is significantly lowered, because violence begets violence, and public sentiments turn against the perpetrators of violence. Further, they found that when terrorists did get what they wanted, their goals were more likely to be money or the release of political prisoners, not political objectives.¹⁴ Finally, in terms of the overall effectiveness of terrorism as a means to an end, in an analysis of 457 terrorist campaigns since 1968, the political scientist Audrey Cronin found that not one terrorist group had conquered a state, and that a full 94 percent had failed to gain even *one* of their strategic political goals. And the number of terrorist groups who accomplished *all* of their objectives? *Zero*. Cronin's book is titled *How Terrorism Ends*. Her conclusion: It ends swiftly (groups survive only five to nine years on average) and badly (the death of its leaders).¹⁵

Violent vs. Nonviolent Political Change

Terrorism is meant as a form of violent political change. The political scientists Erica Chenoweth and Maria Stephan have documented the relative success and failure of violent vs. nonviolent campaigns for political change since 1900.¹⁶ Results: "From 1900 to 2006, nonviolent campaigns worldwide were twice as likely to succeed outright as violent

insurgencies." Chenoweth added that "this trend has been increasing over time—in the last 50 years civil resistance has become increasingly frequent and effective, whereas violent insurgencies have become increasingly rare and unsuccessful. This is true even in extremely repressive, authoritarian conditions where we might expect nonviolent resistance to fail." In fact, Chenoweth notes, "campaigns that relied solely on nonviolent methods were on average four times larger than the average violent campaign. And they were often much more representative in terms of gender, age, race, political party, class, and urban-rural distinctions."¹⁷

How does this nonviolent strategy translate into political change? If your movement is based on violence, you are necessarily going to be limiting yourself to mostly young, strong, violence-prone males who also have a propensity for boozing and brawling, whereas, Chenoweth explains, "Civil resistance allows people of all different levels of physical ability to participate—including the elderly, people with disabilities, women, children, and virtually anyone else who wants to."¹⁸

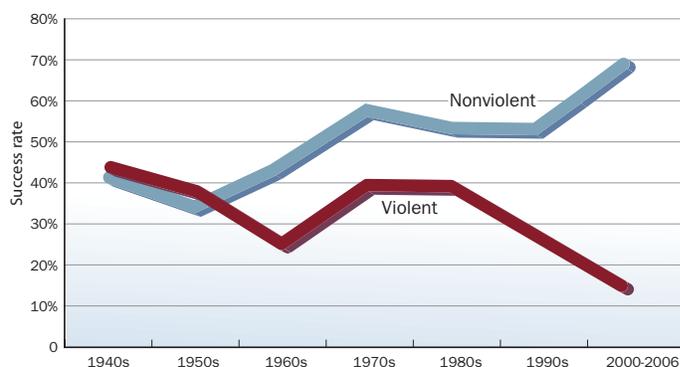


Figure 2. Nonviolent campaigns for political change.

The success rate of campaigns for political change since the 1940s comparing violent and nonviolent methods reveals that violence is a failed strategy, and nonviolence is the method of choice.

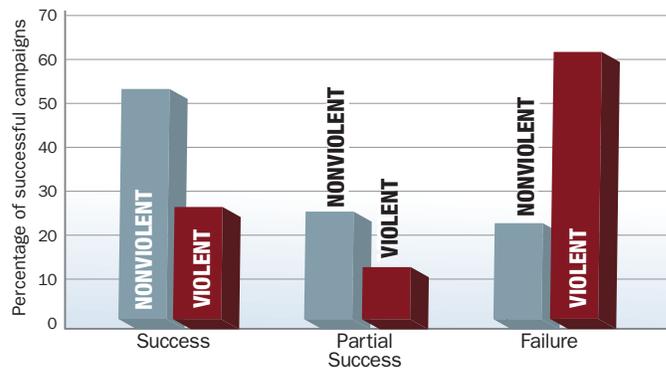


Figure 3. Progress in nonviolent campaigns for political change.

The percentage of successful campaigns for political change comparing violent and nonviolent methods.

Finally, nonviolent campaigns of political change are far more likely to result in democratic institutions than are violent insurgencies. “The data are clear,” Chenoweth concludes: “When people rely on civil resistance, their size grows. And when large numbers of people withdraw their cooperation from an oppressive system, the odds are ever in their favor.”¹⁹ Figures 2²⁰ and 3²¹ show these remarkable trends.

What About Nuclear Terrorism?

Osama bin Laden said he wanted to use nukes if he could get them, and Homeland Security Secretary Tom Ridge pressed the point in calling for more support for his agency: “Weapons of mass destruction, including those containing chemical, biological or radiological agents or materials, cannot be discounted.”²² But as Michael Levi of the Council on Foreign Relations reminds us, “Politicians love to scare the wits out of people, and nothing suits that purpose better than talking about nuclear terrorism. From President Bush warning in 2002 that the ‘smoking gun’ might be a mushroom cloud, to John Kerry in 2004 conjuring ‘shadowy figures’ with a ‘finger on the nuclear button’ and Mitt Romney invoking the specter of ‘radical nuclear jihad’ last spring, the pattern is impossible to miss.”²³

But most experts agree that acquiring the necessary materials and knowledge for building either weapon is far beyond the reach of most (if not all) terrorists. In his book *On Nuclear Terrorism*, Levi invokes what he calls “Murphy’s Law of Nuclear Terrorism: What can go wrong might go wrong” and recounts numerous failed terrorist attacks due to sheer incompetence on the part of the terrorists to build and detonate even the simplest of *chemical weapons*.²⁴

In this context, it is important to note that no dirty bomb has ever been successfully deployed resulting in casualties by anyone anywhere, and that according to the U.S. Nuclear Regulatory Commission—which tracks fissile materials—“most reports of lost or stolen material involve small or short-lived radioactive sources that are not useful for a RDD [radiological dispersal device, or dirty bomb]. Past experience suggests there has not been a pattern of collecting such sources for the purpose of assembling a RDD. It is important to note that the radioactivity of the combined total of all unrecovered sources over the past 5 years would not reach the threshold for one high-risk radioactive source.”²⁵

In short, the chances of terrorists successfully building and launching a nuclear device of any sort is so low that we would be far better off investing our limited resources in defusing the problem of terrorism in other areas.

As President Obama noted in his Hannover speech, such optimism “may surprise young people who are watching TV or looking at your phones and it seems like only bad news comes through every day.” It is a testimony to Obama’s intelligence and foresight to follow the trend

lines instead of the headlines in assessing whether or not terrorism poses an existential threat to our civilization. It doesn’t. **FI**

Notes

1. Quoted in Jessica Chasmar, “Obama: We’re Living in ‘Most Peaceful’ Era in Human History,” *Washington Times*, April 26, 2016.
2. Steven Pinker, *The Better Angels of Our Nature* (New York: Viking, 2011).
3. Michael Shermer, *The Moral Arc* (New York: Henry Holt, 2015).
4. Maajid Nawaz, Facebook Page Post, February 18, 2015.
5. Daniel Pipes, “Distinguishing Between Islam and Islamism,” *Middle East Forum*, June 30, 1998.
6. Quoted in Manuel Perez-Rivas, “Bush Vows to Rid the World of ‘Evil-Doers,’” CNN Washington Bureau, September 16, 2001.
7. John Mueller and Mark G. Stewart, “Hapless, Disorganized, and Irrational,” *Slate*, April 22, 2013.
8. Scott Atran, “Black and White and Red All Over,” *Foreign Policy*, April 22, 2013.
9. *Ibid.*
10. *The 9/11 Commission Report*, 2004. Available at xvi. <http://www.9-11commission.gov/report/911Report.pdf>.
11. Max Abrahms, “Bottom of the Barrel,” *Foreign Policy*, April 24, 2013.
12. Ronald Bailey, “How Scared of Terrorism Should You Be?” *Reason*, September 6, 2011.
13. Max Abrahms, “Why Terrorism Does Not Work,” *International Security* 31 (2006): 42–78.
14. Max Abrahms and Matthew S. Gottfried, “Does Terrorism Pay? An Empirical Analysis,” *Terrorism and Political Violence*, 2014.
15. Audrey Cronin, *How Terrorism Ends: Understanding the Decline and Demise of Terrorist Campaigns* (Princeton: Princeton University Press, 2011).
16. Maria J. Stephan and Erica Chenoweth, “Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict,” *International Security* 33, No. 1 (2008): 7–44. See also Erica Chenoweth and Maria J. Stephan, *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict* (New York: Columbia University Press, 2011).
17. Stephan and Chenoweth, 2008.
18. Erica Chenoweth, “Nonviolent Resistance,” TEDx Boulder 2013. Available at <http://goo.gl/xqTy5P>.
19. *Ibid.*
20. Graph rendered from data in Stephan and Chenoweth, 2008, *op cit.*, Chenoweth and Stephan, 2011, *op cit.*, and Chenoweth, 2013, *op cit.*
21. *Ibid.*
22. Quoted in Michael S. Levi, “Panic More Dangerous than WMD,” *Chicago Tribune*, May 26, 2003.
23. Michael S. Levi, “Fear and the Nuclear Terror Threat,” *USA Today*, March 24, 2011, 9A.
24. Michael S. Levi, *On Nuclear Terrorism* (Cambridge, Mass.: Harvard University Press, 2009).
25. “Fact Sheet on Dirty Bombs,” United States Nuclear Regulatory Commission, December 2012. Available at <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-dirty-bombs.html>. See also http://www.policyalmanac.org/world/archive/dirty_bombs.shtml.

Michael Shermer is the publisher of *Skeptic* magazine, a monthly columnist for *Scientific American*, and a Presidential Fellow at Chapman University. He is the author of *The Moral Arc*, *The Believing Brain*, *Why People Believe Weird Things*, *Why Darwin Matters*, *The Mind of the Market*, *How We Believe*, and *The Science of Good and Evil*. His two TED talks, viewed nearly seven million times, were voted in the top one hundred of the more than two thousand TED talks.

APOCALYPSE . . . WHEN?

It Matters Which Trend Lines One Follows:

Why Terrorism *Is* an Existential Threat Phil Torres

"Although we averted a nuclear nightmare during the Cold War, we now face proliferation of a scope and complexity that demands new strategies and new approaches," President Barack Obama remarked at a 2009 United Nations Security Council summit on nuclear weapons. "Just one nuclear weapon exploded in a city—be it New York or Moscow; Tokyo or Beijing; London or Paris—could kill hundreds of thousands of people. And it would badly destabilize our security, our economies, and our very way of life."¹

Obama is right: even a *single* nuclear weapon being detonated in a major urban area would have global repercussions. As a RAND corporation "scenario analysis" explores, a nuclear weapon being detonated in Los Angeles could not only kill 60,000 people instantly and expose some 150,000 more to radioactive contamination, but millions could attempt to flee the region. Even more, "the economic effects of the catastrophe are likely to spread far beyond the initial attack, reaching a national and even international scale." Global trade could be severely disrupted, local labor supplies in port cities could dwindle, and the largest insurance companies in the country could go bankrupt. "While exact outcomes are difficult to pre-

dict," the report states, "these hypothetical consequences suggest alarming vulnerabilities. Restoring normalcy to economic relations would be daunting, as would meeting the sweeping demands to compensate all of the losses."²

As Michael Shermer noted in his article, Osama bin Laden once called it his "religious duty" to acquire and use weapons of mass destruction (WMDs), including nuclear weapons, and in a recent issue of its propaganda magazine *Dabiq*, the Islamic State fantasizes about getting a nuclear weapon from Pakistan—which has a history of nuclear malfeasance—shipping it across the Atlantic to South America and then smuggling it through the "porous borders" of Central America into the United States. As the article states, this may sound "far-fetched," but it's "infinitely more possible today than it was just one year ago." And many nuclear terrorism experts agree: the issue isn't *whether* such an attack will occur but *when*. As a 2005 survey of eighty-five national security experts reports, "60 percent of the respondents assessed the odds of a nuclear attack within 10 years at between 10 and 50 percent, with an average of 29.2 percent."³ Almost 80 percent of participants identified terrorists as the likely perpetrators of such an attack. While an attack did not, of course, occur before 2015, we may have to thank the same thing that got us through the Cold War without a nuclear holocaust: luck.

Does this mean that terrorism constitutes an existential threat? It depends on how one defines that term—and, to be sure, many pundits and politicians use it hyperbolically to refer to scenarios that would, in some vague sense, be "bad." For the present, let's go with Shermer's definition of *terrorism* as "a threat to our very existence as a civilization or species." This being the case, one could make an argument that nuclear terrorism might constitute an existential threat, given the likely social, political, and economic effects of a nuclear attack. In fact, while the number of terrorist attacks, totaling more than 140,000 between 1970 and 2014, has *declined* over the past few decades, the lethality of attacks—that is, the number of victims per incident—has *increased*. And according to the most recent data, "the number of lives lost to terrorism increased by 80 percent in 2014, reaching the highest level ever recorded at 32,658."⁴



By comparison, 18,111 died of terrorism in 2013. As a Central Intelligence Agency (CIA) document from 2000 presciently notes, terrorism attacks “will become increasingly sophisticated and designed to achieve mass casualties. We expect the trend toward greater lethality in terrorist attacks to continue.”⁵ So do I, as we’ll explore below.

The underlying cause of this historical shift away from smaller attacks and toward less frequent but more catastrophic displays of violence concerns at least two factors: media coverage, which insofar as terrorism is a form of communication enables the message to reach more people, and religion. In fact, the Global Terrorism Index affirms that religious extremism is now the primary driver behind global terrorism, with Islamic groups such as Boko Haram in Nigeria and the Islamic State in Iraq and Syria leading the way. This is germane because secular terrorists are less likely to engage in indiscriminate violence against noncombatants. In contrast, terrorists motivated by religious ideologies often see themselves as engaged in a cosmic struggle that has only one acceptable outcome: the total destruction of God’s enemies and the triumph of his will. This is especially the case with *apocalyptic terrorism*, which has come to dominate the ideological landscape in the Middle East since the 2003 United States–led preemptive invasion of Iraq, in part because many Sunnis and Shi’ites in the region saw the war as an unambiguous fulfillment of prophecy.

For the apocalyptic terrorist in particular, not only is there a cosmic struggle between good and evil, but the culmination of world history—typically marked by an Armageddon-like battle—is imminent. This belief, when ensconced deep in one’s psyche, can produce in the true believer an exaggerated sense of moral urgency, leading him or her to pursue catastrophic violence in the service of catalyzing *The End*. For such individuals, revenge becomes a “divine calling.”⁶ The apocalyptic warrior doesn’t merely want a fight but a *fight to the death*. Or, to borrow a metaphor from former CIA Director Jim Woolsey, terrorists of this ilk “are not seeking a place at the table, but are seeking to blow up the table and kill everyone sitting there.”⁷

The point is that apocalyptic terrorism is *the most dangerous form of terrorism* because it shifts all value expectations from the worldly to the otherworldly, and in doing so it devalues present life in favor of the afterlife. As bin Laden declared in a 2006 audio recording, “As for us, we have nothing to lose. One who swims in the sea does not fear the rain.”

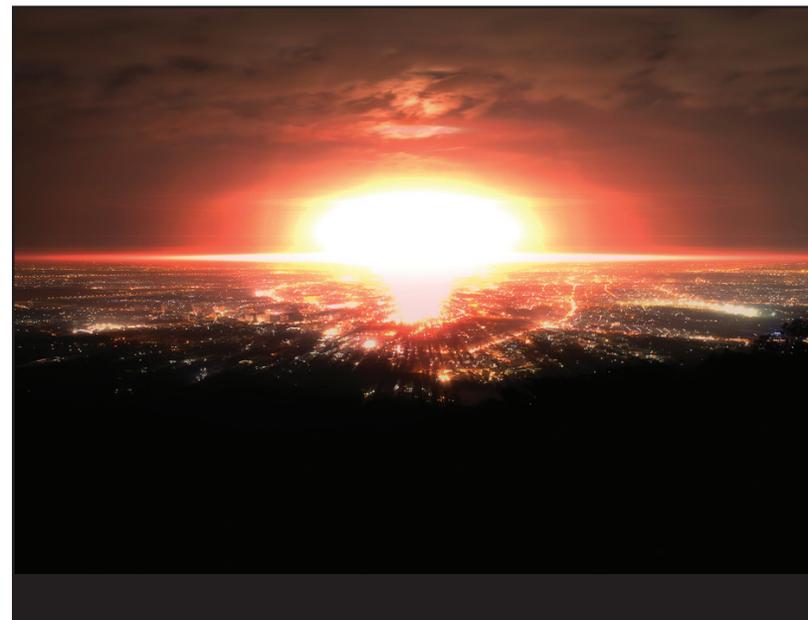
All of this is worrisome on its own, but it becomes even more so when one peers into the future. There are several reasons for thinking that, even if terrorism today doesn’t constitute an existential threat to Western civilization, it very likely will by the *end of the century*, or perhaps in the next few decades. Below are three reasons for anticipatory anxiety about the future of terrorism—about how it could continue to shift toward greater lethality, as the CIA article above noted.

1. Environmental degradation.

How does one become a religious fanatic? What are the root causes of religious extremism? The first point to recognize is that radicalization doesn’t occur in a vacuum.

“Obama is right: even a *single* nuclear weapon being detonated in a major urban area would have global repercussions.”

The societal conditions in which one finds oneself can nontrivially inflate the probability that religious moderates come to accept extreme ideologies. Once accepted, these ideologies can then influence, shape, and determine one’s behavior in the world—a fact that Sam Harris has correctly



emphasized—leading the “true believer” to engage in acts of horrific violence that would otherwise be morally unthinkable. History is replete with examples in which societal stress and the resulting cultural disorientation pushed groups or individuals into extremism. As James Rinehart writes, “terrorist attacks exemplify the presence of serious, unresolved conflicts within a society.”⁸

In the case of apocalyptic terrorism, Mark Juergensmeyer points to three “conditions that make it likely for cosmic war to be conceived as being located on a worldly stage.” The first concerns the crisis being “perceived as a challenge to basic identity and dignity.” In other words, if it’s understood as a conflict of “ultimate significance,” then it’s more likely to “be seen as a transcendent crisis with spiritual implications.” The second occurs if “losing a cultural identity and tradition to the crisis would be unthinkable,” meaning “the elimination of a whole culture and way of life that was thought to be immortal.” This could produce a

“ble,” meaning that literally hundreds of future generations will be affected, for up to ten thousand years. Yet another article in *Nature* argues that biodiversity loss could result in a permanent, catastrophic collapse of the global ecosystem on a timescale of decades. The fact is that human activity has already initiated the sixth mass extinction event in life’s 3.5 billion-year history, and the global population of vertebrates declined by a whopping 52 percent between 1970 and 2010. Readers are welcome to extrapolate this trend into the future.

It follows that climate change and biodiversity loss could significantly fuel terrorism in the future by pushing societies to the brink of collapse. In fact, multiple high-ranking U.S. officials such as John Brennan and Chuck Hagel explicitly agree with this prognosis, as does the Department of Defense.¹⁰ (And we haven’t even explored the possibility that environmental degradation could fuel ecoterrorism, as Frances Flannery argues.) Terrorism will likely become worse as human activity forces global-scale changes to the climate and biosphere.

2. Disruptive technologies.

Another way to satisfy Juergensmeyer’s conditions is to induce widespread societal changes through the introduction of new technologies. The fact is that numerous technological revolutions in the past have proven to have been highly disruptive, forcing the involuntary restructuring of society. Such changes have, consequently, threatened cultural identities and traditions, thereby creating the very conditions that fertilize apocalyptic thinking. According to

many observers, we’re in the early stages of a new technological revolution: the genetics, nanotechnology, and robotics (GNR) revolution. Unlike past revolutions, this one is expected to have far more profound effects than ever before. Indeed, it will be both world-transforming and person-transforming, meaning that it will radically change not only the technological milieu in which the human organism is embedded but the human organism itself.

The result will be completely new environmental conditions in which increasingly cyborgish humans will exist. Technology and biology are merging, and this will challenge our very notion of humanity, which stands at the center of many religious traditions. According to such beliefs, humans are metaphysically distinct from the rest of the animal kingdom by virtue of our unique possession of an immortal soul, which will survive death and eventually join God in a new heaven on Earth. But what is to become of this traditional “anthropology” if life-extension technologies enable humans to live indefinitely long lives? If we radically enhance the human mind? If we redesign our genomes to make us taller, faster, or smarter? If we manage to upload our con-

“Secular terrorists are less likely to engage in indiscriminate violence against noncombatants.”

sense that the struggle is “taking place on a transhistorical plane.” And the third occurs if “the crisis cannot be averted or relieved in real time or in real terms.” That is to say, “if the crisis is seen to be hopeless in human terms, beyond any human ability to control or contain it, it is likely that it may be reconceived on a sacred plane, where the possibilities of change and transformation are in God’s hands.” Each of these conditions could increase the probability of an apocalyptic worldview emerging within a group, and all three together “strongly suggest” that such an ideology will take shape.⁹

The point is that slow-motion catastrophes of climate change and biodiversity loss will very likely satisfy these conditions by resulting, for example, in decade-long mega-droughts, more extreme weather events, sea-level rise, desertification, the spread of infectious disease, species extinctions, dwindling populations, ecological collapse, mass migrations, social upheaval, economic disruptions, and political instability. According to the Intergovernmental Panel on Climate Change (IPCC), the consequences of climate change will be “severe,” “pervasive,” and “irrevers-

sciousness to a computer, perhaps through a “whole-brain emulation”? And what happens if we leave Earth and establish colonies on exoplanets throughout the galaxy, given that Earth is seen as the theological center of the universe? If we create a species of artificial intelligences—call them “spiritual machines”—that exhibit human-level intelligence and emotions? Or even if we find evidence of life in other solar systems?

Unless a “defeater” of progress such as an existential catastrophe prevents the enterprise of innovation from continuing, we can expect profound and pervasive changes to the social, political, and economic underpinnings of human civilization. What’s even more important to note, though, is the very same factor that makes climate change an environmental catastrophe: the rapidity of these transformations. Consider the different situations in which Christianity has existed. Imagine telling a first-century Christian that someday there will exist smartphones, computers, and jet planes. As Arthur C. Clarke once declared, “Any sufficiently advanced technology is indistinguishable from magic.” Thus, for this first-century believer, it may be impossible to imagine his or her faith existing in such a radically different world of inscrutable “magic.” Yet the Christian faith—with its dated allusions to geocentrism, shepherding, and the Emperor Nero (encoded by the numbers 666 and 616)—managed to adapt in piecemeal fashion. When changes are slow enough, single generations tend not to notice them, and ancient memes can survive within a population.

But the GNR revolution will almost certainly unfold at an exponential rate, according to something like a universal Moore’s law. The result will be immense changes to both our world and ourselves on increasingly short timescales. And this will make it far more difficult for rigid ideological systems to make sense of the human condition as it evolves into a *posthuman* condition marked by new forms of civilization populated by creatures who are more artifact than organism. Perhaps this will ultimately lead to the extinction of religious belief, but it seems more than likely that such changes will be met with spasms and seizures of apocalyptic resistance as the identity and dignity of thought-traditions collide with techno-cultural forces that threaten their very existence. As Rinehart writes, “the injection of a new order or hierarchy into a society . . . has frequently engendered millenarian expectations.”¹¹ Indeed, apocalyptic movements have, in the past, “found their most receptive audience in those areas that were undergoing rapid social and economic change. Such change brought cultural shock and disorientation, disrupted the existing socioeconomic order, and had a powerful impact on traditional life.”

Or to quote Juergensmeyer, “catastrophes have often

been the occasion for the rise of demagogues, strange sects and radical new religious movements,” some of which preferentially interpret current affairs through an active apocalyptic telescope.¹² And what is the GNR revolution if not a “catastrophe” in the relevant sense? What is the termination of the human era and the simultaneous inauguration of the posthuman era if not a “catastrophe” for long-standing conceptions of “man created in God’s image”? As the nanotechnology guru Eric Drexler puts it, we need to prepare for “catastrophic success,” as world- and person-transforming technologies emerge on the global market.

3. Destructive technologies.

So far, we’ve focused on the various *agents* who might have some motivation for engaging in acts of violence, given situational factors that could foment religious extremism. But agents are impotent without *tools* to serve as the means to their ends. This leads us to yet another trend relevant to whether terrorism will emerge as an existential threat, if it isn’t one already in the Atomic Age: namely that the *number* of destructive technologies is increasing over time, as is the potential destructiveness of these technologies. While every generation has identified itself as living in a “uniquely” dangerous moment in time, nearly all of them

“Apocalyptic terrorism is *the most dangerous form of terrorism* because it shifts all value expectations from the worldly to the otherworldly.”

have been wrong. This is precisely what Pinker and Shermer show in their masterful books of “voluminous erudition,” namely *The Better Angels of Our Nature* and *The Moral Arc*, respectively.¹³ But what’s missing here is that our situation today really *is* dangerous in unprecedented ways, and it will only become more dangerous moving forward as science and technology become democratized and non-state actors acquire the same destructive capabilities once monopolized by states.

On the one hand, we live today with immensely dangerous chemical, biological, radiological, and nuclear (CBRN) weapons. We’ve already discussed nuclear weapons, a problem that the nuclear terrorism expert Joe Cirincione argues is, if anything, growing. As Cirincione puts it, “We [experts] are fearful. And you should be, too.”¹⁴ But there are also dangers stemming from chemical and biological weapons, both of which have been employed by apoca-

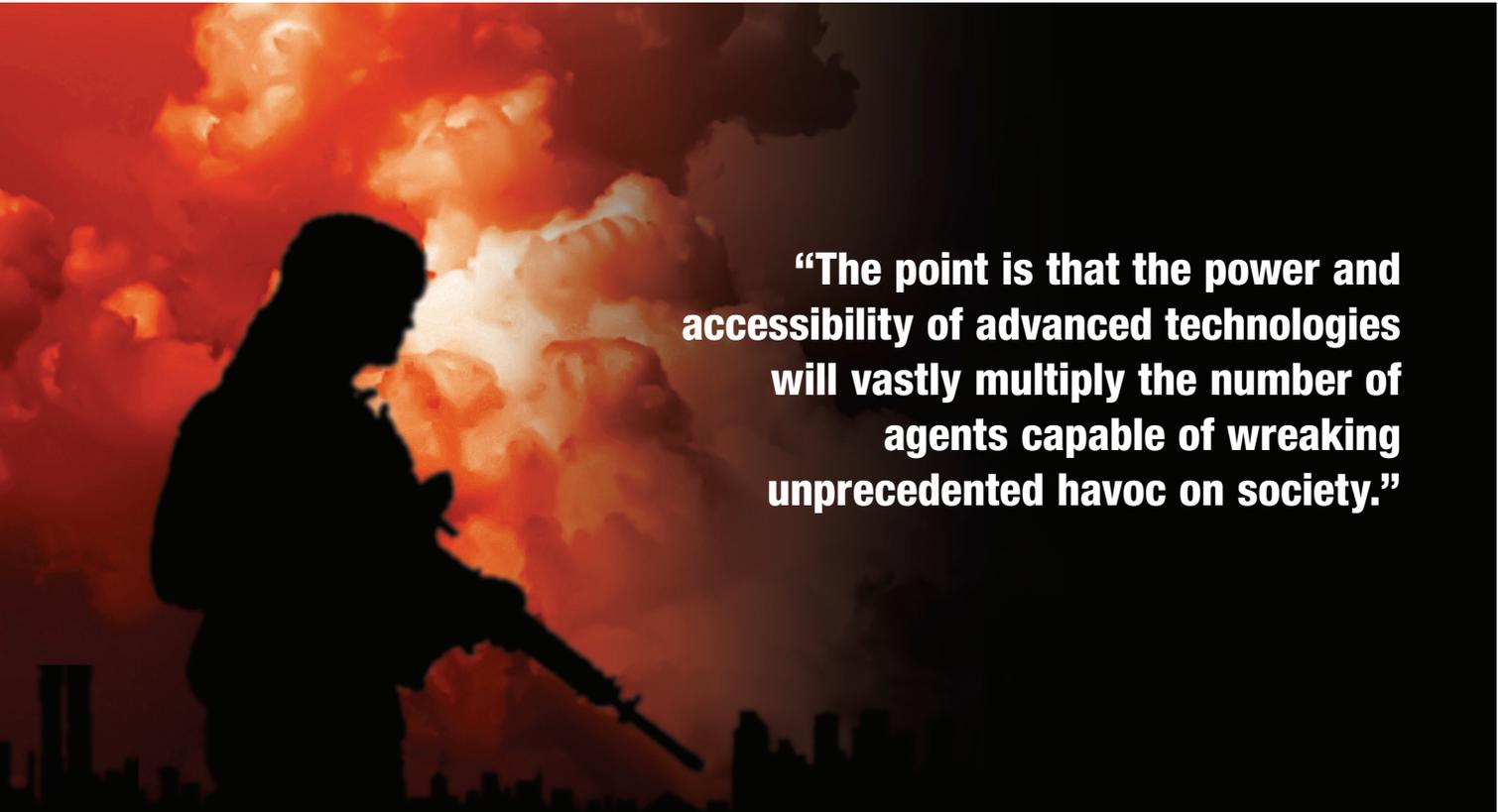
lyptic groups such as the Islamic State, Aum Shinrikyo (in Japan), and the Rajneesh movement (in the United States). Of particular concern here is the possibility of spreading pathogenic germs to sicken or kill people. As Kofi Annan once declared, bioterrorism is “the most important, under-addressed threat relating to terrorism.”¹⁵ Nonetheless, the weapons currently available are insufficient to destroy truly large populations, much less trip humanity into the eternal grave of extinction. But one could imagine them having the same global consequences as a single nuclear weapon exploding in Los Angeles. A terrorist attack involving CBRN weapons could precipitate an economic recession, new global conflicts, and other large-scale repercussions.

This being said, by the end of the twenty-first century, the CBRN dangers of today—including nuclear weapons—could be the *least* of our concerns. Future anticipated technologies associated with the fields of biotechnology,

synthetic biology, nanotechnology, and even artificial intelligence (AI) could empower terrorists in unprecedented ways.¹⁶ At the extreme, these technologies could selectively target specific groups of people, humanity as a whole, or even the entire biosphere. Whereas apocalyptic groups motivated by a conviction that “the world must be destroyed to be saved” could effect only so much destruction in the world of yesteryear, advanced technologies could enable groups of the future to bring about an event of *omnicidal* proportions. This is partly why Sir Martin Rees, an Astronomer Royal and cofounder of the Centre for the Study of Existential Risks at Cambridge University, gives human civilization a fifty-fifty chance of making it through the current century intact. The religious fanatics of the future won’t use a shovel but rather a bulldozer to dig mass graves for their enemies.

Even more, not only are the products of these fields becoming exponentially more powerful, but they’re also becoming increasingly accessible as well. This means that more and more *individuals* will gain more and more power to modify the macroscopic world (perhaps by changing the microscopic worlds that underlie it). The next-generation Ted Kaczynski won’t rely on cabin-made bombs to terrorize society; he or she will set up a five-hundred-dollar “biohacking” lab and synthesize a pathogen that, for example, combines the lethality of rabies, the incurability of Ebola, the contagiousness of the common cold, and the incubation period of HIV—a possibility discussed by a 2015 Global Challenges Foundation report. Or, he or she might

“Technology and biology are merging, and this will challenge our very notion of humanity, which stands at the center of many religious traditions.”



“The point is that the power and accessibility of advanced technologies will vastly multiply the number of agents capable of wreaking unprecedented havoc on society.”

design at weaponized nanoscale assassin—a self-replicating nanobot of some sort—that destroys every organism with the genetic signature of *Homo sapiens*, leaving only a pillar of dust behind. (This is related to the “gray goo” scenario.)

The point is that the power and accessibility of advanced technologies will vastly multiply the number of agents capable of wreaking unprecedented havoc on society. As of 2015, lone-wolf attacks in the West were on the rise, accounting for about 70 percent of terrorism-related deaths. And as Flannery points out, “the core membership of al-Qaeda was most likely only around 500–1,000 [in 2011]. Unfortunately, a very small number of people can do an enormous amount of damage.”¹⁷ This fact will be significantly amplified in the foreseeable future if our best current projections are even remotely accurate.

“In the near future, it could take only a *single* individual or group under the spell of religious delusions to relocate humanity from the category of ‘extant’ to ‘extinct.’”

Our present situation is genuinely unique. Not only are ancient superstitions still prevalent, but a 2015 Pew poll projects that they will become even more ubiquitous in the future as the global percentage of nonbelievers declines from 16.4 percent to 13.2 percent. By 2050, about 8.1 billion of the 9.3 billion people inhabiting our planetary spaceship will subscribe to *some* form of religion. As Alan Cooperman puts it, “You might think of this in shorthand as the secularizing West versus the rapidly growing rest.”¹⁸

Meanwhile, environmental degradation and rapid technological change will almost certainly contribute to precisely the sort of conditions in which terrorism thrives—including its most virulent manifestation, apocalyptic terrorism. Making matters worse, these agential risks could become coupled to various technological risks, resulting in attacks involving nuclear devices, engineered pathogens, nanoweaponry, self-replicating nanobots, and weaponized AI (a possibility not discussed above). Even if terrorists are not highly organized diabolical geniuses motivated by pure evil—to borrow Shermer’s phraseology—so what? In the

near future, it could take only a *single* individual or group under the spell of religious delusions to relocate humanity from the category of “extant” to “extinct.” And even if terrorism doesn’t work as a vehicle for political change, as Shermer correctly points out, so what? The relevant issue is whether the terrorists *believe* that violence works, and if they do, how lethal their attacks could become given the tools available.

Humanity has conducted many extraordinary experiments since Copernicus launched the scientific revolution in 1543. We’ve discovered the gas laws, confirmed Einstein’s general theory of relativity, and found the Higgs boson. But the greatest experiment of all is civilization itself. And we may not have to wait for long to find out whether this experiment succeeds or fails. **■**

Notes

1. “Remarks by the President at the UN Security Council Summit on Nuclear Non Proliferation and Nuclear Disarmament,” The White House, September 24, 2009.
2. Charles Meade and Roger Molander, “Considering the Effects of a Catastrophic Terrorist Attack.” RAND Corporation Technical Report, 2006.
3. Dan Farber, “Nuclear Attack a Ticking Time Bomb, Experts Warn,” CBS News, May 4, 2010.
4. “2015 Global Terrorism Index: Deaths From Terrorism Increased 80 percent Last Year to the Highest Level Ever; Global Economic Cost of Terrorism Reached All-Time High at US\$52.9 Billion,” London: Institute for Economics & Peace, November 17, 2015.
5. “Global Trends 2015: A Dialogue About the Future With Nongovernment Experts,” National Intelligence Council, 2000. Available at <https://goo.gl/W3a1WN>.
6. Frances Flannery, *Understanding Apocalyptic Terrorism* (New York: Routledge, 2016).
7. “Testimony of R. James Woolsey,” February 12, 1998. Available at <https://goo.gl/v2SLf1>.
8. James Rinehart, *Apocalyptic Faith and Political Violence: Prophets of Terror* (New York: Palgrave Macmillan, 2006).
9. Mark Juergensmeyer, “Radical Religious Responses to Global Catastrophe” (forthcoming). See also *Terror in the Mind of God* (Berkeley: University of California Press, 2003).
10. See Phil Torres, “We’re Speeding Toward a Climate Change Catastrophe—and That Makes 2016 the Most Important Election in a Generation,” *Salon*, April 10, 2016.
11. Rinehart, *Apocalyptic Faith*.
12. Juergensmeyer, “Radical Religious Responses.”
13. See John Gray, “John Gray: Steven Pinker Is Wrong about Violence and War,” *Guardian*, March 13, 2015.
14. Joe Cirincione, “Nuclear Terrorists Threat Bigger Than You Think,” CNN, April 1, 2016.
15. “In Lecture at Princeton University, Secretary-General Calls for Progress on Both Nuclear Disarmament, Non-Proliferation,” United Nations press release, November 28, 2016.
16. Indeed, a sufficiently advanced artificial intelligence could pose a terrorist threat *itself*.
17. Flannery, *Understanding Apocalyptic Terrorism*.
18. “Event: The Future of World Religions,” Pew Research Center, 2015. Available at <http://goo.gl/9aP6vO>.

Phil Torres is an author, Affiliate Scholar at the Institute for Ethics and Emerging Technologies, founder of the X-Risks Institute, and freelance writer with articles in *Skeptic*, *FREE INQUIRY*, *The Humanist*, *Salon*, and *The Bulletin of the Atomic Scientists*. His most recent book is *The End: What Science and Religion Tell Us about the Apocalypse* (Pitchstone Publishing, 2016).

‘Just You Wait!’ The Doomsayers’ Answer to Failed Predictions

Michael Shermer

If I had to summarize Phil Torres’s thoughtful analysis of the existential threat of terrorism in a phrase, it would be “Just you wait!” So sixty-eight national security experts of the eighty-five surveyed in 2005 gave the bookmaker’s odds of a terrorist nuclear detonation on American soil by 2015 at an average of 29.2 percent (and a range of 10 to 50 percent), but since that *didn’t* happen, what do such failed predictions mean? The oddsmakers are wrong? Fissile material is hard to procure? Nuclear weapons are difficult

the time horizon out far enough, and the laws of probability must strike against us. But this assumes that human behavior is subject to the same laws as those governing the roll of dice, which it isn’t. It also discounts game-theory strategic efforts during the Cold War such as mutual assured destruction, negotiation, and tit-for-tat reciprocity, all of which were in play during the Cuban Missile Crisis and really did forestall nuclear armageddon. But luck had little to do with it. Kennedy and Khrushchev and their respective Cabinets reasoned their way to a solution to untie the knotted rope each side had helped to tighten. And it sells short the heroic efforts of our intelligence agents who have, to date, prevented the terrorist apocalyptic nuclear scenarios in the offing.

“Move the time horizon out far enough, and the laws of probability must strike against us. But this assumes that human behavior is subject to the same laws as those governing the roll of dice, which it isn’t.”

Where Torres and I are in agreement is over the religious motives of today’s Islamist terrorists, with their apocalyptic visage of a world under *Sharia* law. That should and does concern me, given the power of beliefs to drive actions. But let’s not forget the motives of the secular terrorists of the bad old days of the 1970s, when their attacks were nearly a daily feature on the nightly news, and during which there were so many different organizations that Monty Python could spoof them in *Life of Brian’s* routine about the “People’s Front of Judea” versus the “Judean People’s Front.” Marxism is a *faux* religion, and as such Torres’s descriptors “cosmic struggle between good and evil,” “culmination of world history,” and “exaggerated sense of moral urgency” apply equally well to yesterday’s Marxist terrorists as they do to today’s Islamist terrorists.

to build? Our national security agencies are doing their job? Terrorists are too incompetent to pull it off? No, says Torres. The only reason we escaped the projected decade unscathed by nuclear fallout is . . . luck! Plain old dumb luck, the same reason we narrowly escaped thermonuclear doomsday for the forty-five years of the Cold War.

The “luck” explanation implies that it is only a matter of time before the die come up snake eyes (or double sixes, if you prefer) and mushroom clouds rise above our cities. This is a “just you wait” explanation that doomsayers offer when their predictions fail. It’s a timeframe problem—move

History is our database, and as such there is much reason for optimism in the decline of violence and the bending of the moral arc, as Steven Pinker and I each track in our respective books. Still, what Torres has outlined is not impossible, and even though the threat is not governed by iron laws of probability, it is under the sway of human emotion and irrationality—so there is ample reason we must remain vigilant. The undisputed terrorist threat today is Islamist *jihadists*, and as such it is they from which we must never divert our attention. **FI**

There's No Time to Wait Phil Torres

First, I'd like to thank Michael Shermer for his immensely thought-provoking article about the threat of terrorism. Distorted thinking about apocalyptic scenarios is far easier than clear thinking, and that makes exchanges such as the current one tremendously important.

This being said, I believe that Shermer's criticism is misguided for several reasons. He claims that my analysis is reducible to "just you wait," since it "implies that it is only a matter of time before the die come up snake eyes. . . . Move the time horizon out far enough and the laws of probability must strike against us." But this isn't my position. My argument doesn't say, "Sure, the apocalypse didn't happen last November, but don't get complacent, people! The new date is next March!" Rather, I identify three phenomena—environmental degradation, disruptive technologies, and destructive technologies—that all point toward a future in which the threat of terrorism, especially apocalyptic terrorism, could significantly grow. This is an empirical argument based on checkable evidence and logical inferences. I don't know if its conclusion will turn out to be true, but that's not the point: the best that any one of us can do in life is to hold the most reasonable beliefs possible about the past, present, and future. I believe my argument is reasonable; therefore, it ought to be taken seriously.

Shermer also writes that I attribute the fact that a nuclear attack has never before occurred to mere luck. As he puts it, "No, says Torres, the only reason we escaped the projected decade [of 2005 to 2015] unscathed by nuclear fallout is . . . luck! Plain old dumb luck, the same reason we narrowly escaped thermonuclear doomsday for the forty-five years of the Cold War." But this misstates my view. In the original article, I wrote: "While an attack did not, of course, occur before 2015, we may have to thank the same thing that got us through the Cold War without a nuclear holocaust: luck" (italics added). The key word here is *may*, as it indicates uncertainty combined with plausibility. Am I *sure* that luck is to thank for a good outcome? No, not at all. Do I think that there are reasons for *suspecting* that luck played a nontrivial role? Yes, definitely.

Why? Because many experts say so. Consider, for example, the following statement from Graham Allison and Andrei Kokoshin in an article about nuclear terrorism: "The mystery before us is not how a nuclear terrorist attack could possibly occur, but, rather, why no terrorist group has yet

combined motive, means, and opportunity to commit a nuclear attack. We have been lucky so far, but who among us trusts luck to protect us in the future?"¹ Similar claims can be found throughout the scholarly literature, and it is this literature that I've drawn upon in building my argument. As the Irish Republican Army (IRA) eerily declared after nearly killing Margaret Thatcher: "We only have to be lucky once. You have to be lucky all the time."

As for the Cold War, I don't discount the strategic decisions of Kennedy and Khrushchev. But neither do I ignore the many chance events that led to a peaceful resolution. Was it not luck that two thermonuclear bombs failed to detonate after being released by a B-52 that crashed in Goldsboro, North Carolina? Was it not luck that Stanislav Petrov happened to be in the right place at the right time to stop a retaliatory attack on the United States after early-warning systems malfunctioned? Was it not luck that the 1972 Great Daylight Fireball was deflected off the atmosphere rather than barreling into North America with the force of a small nuclear bomb (thereby resulting in a false alarm)? As an "Editor's Note" in the *Bulletin of the Atomic Scientists* states, "We look back at the 1950s and the decades that followed with wonder. There were terrible wars, local wars, brutal wars, but no global nuclear holocaust. Dumb luck? Undoubtedly."² The point is that (a) I'm not *certain* that luck deserves *all* the credit, and (b) there is good reason for thinking that luck played *some* role in preventing a nuclear catastrophe.

Shermer writes that "what Torres has outlined is not impossible." This is true. But my position goes a step further: not only is it *possible* that terrorism morphs from a semi-existential threat today to a full-blown risk tomorrow, but given the best available evidence about the climate, biosphere, and exponential development of advanced technologies, this outcome may be quite *probable*. So, yes, "all the more reason we must remain vigilant." ■

Notes

1. A. Graham and A. Kokoshin, "The New Containment: An Alliance Against Nuclear Terrorism," in *First To Arrive: State and Local Responses to Terrorism*, edited by Juliette Kayyem and Robyn Pangl (Cambridge, Mass.: MIT Press, 2003).

2. M. Moore, "Pugwash at 40," *Bulletin of the Atomic Scientists* 53, no. 4 (1997): 2. The article adds that "the non-use of nuclear weapons had a lot to do with scientists who, over the years, successfully made the case that these weapons . . . had truly made war between great powers 'unthinkable.'"