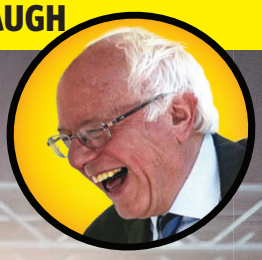
THE AGE OF DESIGNER PLAGUES • THEDA SKOCPOL ON BERNIE'S LAST LAUGH



The American Interest

Policy, Politics & Culture

VOL. XII, NO. 2 | NOVEMBER/DECEMBER 2016

TECHNOGLOBALISM & THE DÉCLASSÉ

The Roots of Rage

NILS GILMAN | HAROLD JAMES

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Giraudoux's Lament

As far as I am aware, America is the only place in the world where the phrase "that's history" means "that's irrelevant." Not surprisingly, therefore, also as best as I can tell, we have the most historically ignorant political class of any great power in post-Westphalian times—and when I use the phrase "political class" I mean to include the vast majority of those who consider themselves professional journalists as well as politicians and "high" bureaucrats. Indeed, the American political class and its media adjuncts reinforce an ignorance even of modern history, let alone anything that happened before about the 16th century, that is sufficiently profound as to lead to both generative and cumulative error in the apprehension of what it going on in the world at any given time—not to exclude the present time. (Our European associates arguably make fewer mistakes along such lines, but they also have fewer excuses than do Americans for the errors they do make.)

It was one thing, for example, when, after 9/11, the senior figures of both major U.S. political parties found their reservoir of analogies much too shallow to define what had just happened. The Cold War was about as far back as most could go. So, typically, those left-of-center identified "root causes" in poverty, injustice, and inequality in the Muslim world, and those right-of-center contrarily identified a democracy deficit. Neither was even remotely correct.

Neither side evinced so much as a hint that al-Qaeda represented the then-most-recent manifestation of chiliastic religious violence, whose precursors included the Jewish zealots fighting Roman power in the 2nd century CE, the Crusaders in Jerusalem in 1099, the Peasants' Revolt of 16th-century Germany, the Taiping Revolt in 19th-century China, and also in that century, on North America's own soil, the Ghost Dances of several American Indian tribes. The analysis being wrong, the policies based on it turned out to be unavailing, to put it gently. The policies are still mainly wrong for the most part, and for the same reason.

And now we are at it again. From the sound of what our political leaders say and what the mainstream media chooses to chatter about these days, one might think that rapid technology propelled economic dislocation, the consequent social churn it produces, and the populist-tinged political bitterness that invariably comes in train are happening now to Western societies for the first time. The deepest analogy one can find amid all the superficial banter on offer, and this with difficulty, is Weimar—and that is as misleading as it is useful. Look in mainstream sources for any mention of the Industrial Revolution linked to the Revolutions of 1848, or of the concept of the *déclassé*—the phenomenon that made Karl Marx's career (as well as that of many others)—and you will probably look in vain.

Unless you look in *The American Interest*, that is. We have been pounding at these themes for going on a dozen years now, and we're doing it still. Read it all, of course, but take special note, if you would, of the couplet of essays in this issue's lead section.

We have no illusions that this will do much good on behalf of the history-challenged American body politic. One tries, of course, because to sit idle at times like these is to invite spiritual morbidity. Alas, Jean Giraudoux's remark from *Tiger at the Gates* cannot be silenced: "The privilege of the great is to watch catastrophes from a terrace." You may or may not have a real terrace, dear reader, but at least you have *TAI*.

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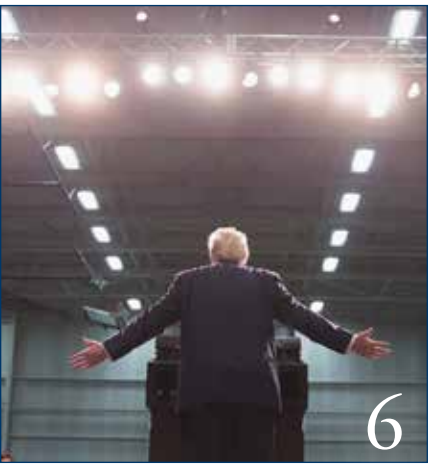

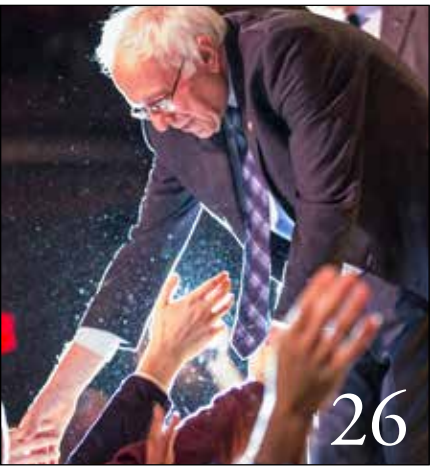

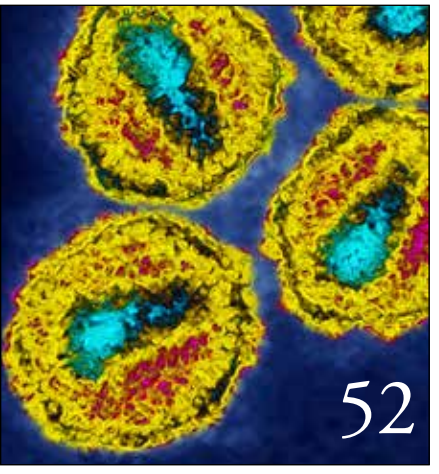

THE POLITICAL ECONOMY OF ILLIBERALITY

ELECTION 2016

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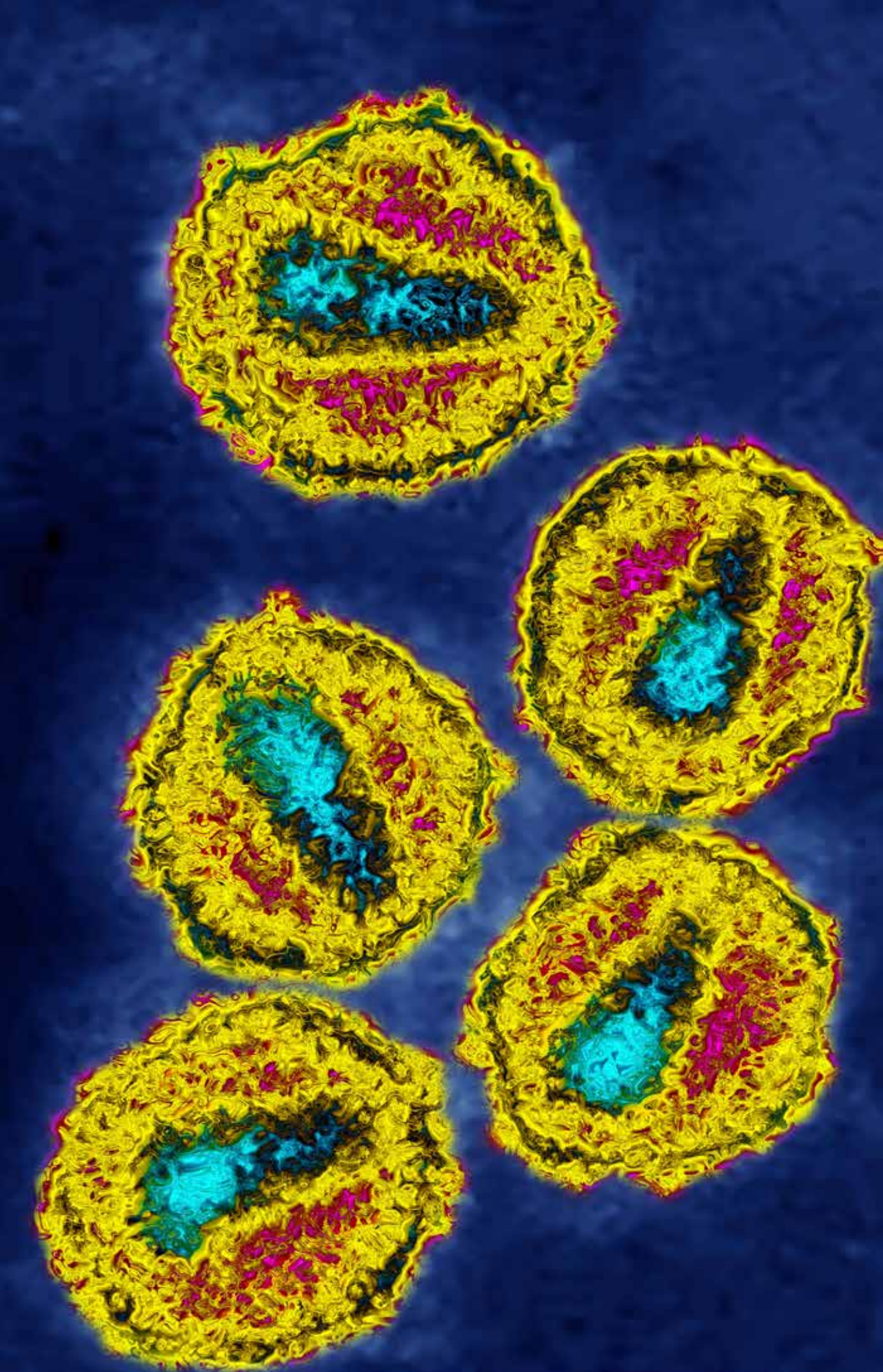
START WORRYING

REVIEWS



The growing ease of genetically modifying bacteria and viruses presages real trouble ahead.

The Age of Designer Plagues

Drew Miller

The world is likely entering the age of bioengineered viral pandemics and collapse—BVPC for short. New technologies like bioengineering enable terrorist groups, or even one dedicated individual, to modify and release new viruses that could cause both a pandemic and, as people react, a likely collapse in economic activity and possibly even of law and order. Many experts say natural or bioengineered viral pandemics (BVP) are inevitable as it becomes increasingly easier to modify an existing pathogen, making it more lethal and transmissible. Should there be a deliberately loosed pandemic, revolutionary changes will flood our economy, military, foreign policy; we will not live as before during the Age of Bioengineered Viral Pandemics and Collapse.

This bleak age may be unavoidable, but we can prepare ourselves to minimize its dangers. Yet the specter of biological attack, especially by hard to identify and hold to account (let alone deter) non-state actors, is little addressed by the media or even inside the U.S. government. Nuclear terrorism we fear and try to deal with, no doubt because we have mental images of nuclear weapons going off to provide a sense of dark possibility. But we seem to suffer from a near total failure of imagination when it comes to bioterrorism, even though for a host of technical and other reasons—simpler engineering, much lower cost, quicker critical mass generation, smaller cadre of workers, smaller facilities for concealment purposes and ordnance delivery—it would be vastly easier for bad non-state actors to master a bio-attack than a nuclear one. We need to overcome that failure of imagination.

In December 2011 national media reported that scientists had created a human-transmissible form of the deadly avian flu virus, previous versions of which have had 60 percent lethality. Since then, new "CRISPR" technology makes it much easier to manipulate DNA—with kits as cheap as $130 available.

Genetic engineering, or bioengineering, is the manipulation of an organism's genetic material. Scientists have been creating genetically modified organisms (GMO) since the 1970s, and in 2010 the first synthetic new life form

BSIP/UIG Via Getty Images

Drew Miller *is a former intelligence officer, former senior executive service member in the Office of the Secretary of Defense, and retired Air Force Reserve Colonel. He holds a Ph.D. from Harvard University and currently serves as director of Advanced Analysis Applications.*

was created. Genetic modifications are common in nature—that's why we continuously get new strains of flu and have had viral pandemics (like the 1918 Spanish Flu) on account of some of them. Now it is possible to accelerate genetic change, creating viruses and bacteria that never existed. With newer techniques, a simple, cheap lab (perhaps in a neighbor's garage) can generate millions of recombinants in minutes. Through bioengineering a lone terrorist or a Revolutionary Guards lab in Iran can intentionally create a human-to-human transmissible version of avian flu, or modify a lethal virus to have a longer latency period, which would facilitate its undetected spread.

While biotechnology promises great new treatments and advances in medicine, it will also likely be used to design deadly new viruses. It is too late to stop the spread of this technology and its misuse. We have been so cavalier about this mounting problem that we have never bothered to assemble a national or a global data base so that we have some sense of what kind of experimentation is going on for what purposes and under whose aegis. The only good news is that well-prepared people and nations should be able to survive and adapt.

As Tara O'Toole, former director of Johns Hopkins University Center for Civilian Biodefense Strategies, warned in congressional testimony: "We are in the midst of a bioscientific revolution that will make building and using biological weapons even more deadly and increasingly easy."[1] The Director of National Intelligence has added bioengineering technology like CRISPR to the list of mass-destruction threats. If a lone terrorist or lunatic launches the virus, it may not spread far before we detect it and limit the devastation. But if an enemy nation spreads a bioengineered virus with high lethality and transmissibility, plus a long period when carriers are contagious but not suffering from the illness or symptoms, it might kill hundreds of millions. This scenario could leave survivors in a radically disrupted social, political, economic, and security environment for years.

A bioengineered virus, launched in our crowded, interconnected world by an enemy working to spread it widely before it is detected, could yield a more devastating pandemic than anything experienced in the past. Smallpox killed as many as 90 percent of the Aztecs, Mayans, and Incas during the European conquest of the New World, and it killed 500 million people in the 20th century. A smallpox outbreak could be even worse now, since our immunity has expired and our populations are far more vulnerable. For example, Stanford Professor Nathan Wolfe warns that, "if terrorists ever got their hands on one of the few remaining vials of smallpox, the results would be devastating."[2] Smallpox has been found in recent years in laboratories, and its genetic code has been posted on the internet.

Eckard Wimmer, who headed the team of researchers at SUNY Stonybrook that made live polio virus from scratch as part of a Defense Department project to prove the threat of synthetic bioweapons, said that any one of thousands of members of the American Society for Virology could figure out how to do the same. Rob Carlson, a physicist-turned-biologist, like many others in the biotech field, warned that developing lethal viruses is increasingly cheap and easy. There is no need for a national program, a big lab, expensive equipment or specialized expertise. With a human-to-human transmissible virus there is no need for difficult weaponization efforts—the malefactor could readily find a simple means of infecting people in crowded public transportation centers and let them spread the virus. A virus released in multiple airports would reach every city and probably most small towns in the United States within a few days. Moreover, if the virus is genetically modified, the limited supply of vaccines we have for smallpox may not even work.

If smallpox is too difficult to obtain or synthetically create, someone can use a deadly virus like Ebola or avian flu—which are still

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[1]United States Congress, House of Representatives, Subcommittee on Health of the Committee on Energy and Commerce, *Project Bioshield Reauthorization Issues* (Government Printing Office, 2006). 109th Congress, 2nd Session, House Report No. 109-97.

[2]Nathan Wolfe, *The Viral Storm: The Dawn of a New Pandemic Age* (St Martin's Griffin, 2011), pp. 124–5; and Donald Henderson *et al.,* "Smallpox as a Biological Weapon," *Journal of the American Medical Association*, June 9, 1999.

active in areas of the world. Donald Henderson and other scientists, writing about biosecurity, warned that H5N1 avian influenza kills about 60 percent of its victims, compared to just 2 percent for the 1918 Spanish flu pandemic, which killed about fifty million:

> Like all influenza strains, H5N1 is constantly evolving in nature. But thankfully, this deadly virus does not now spread readily through the air from person to person. If it evolved to become as transmissible as normal flu and results in a pandemic, it could cause *billions* of illnesses and deaths around the world."[3]

In 2011, Ron Fouchier of the Erasmus Medical Center in Rotterdam turned the H5N1 virus into a possible human-to-human flu by infecting ferrets repeatedly until a form of H5N1 that could spread through the air from one mammal to another resulted. This was not high-tech bioengineering, but simply swabbing the noses of the infected ferrets and using the gathered viruses to infect another round.

A team of scientists at China's National Avian Influenza Reference Laboratory combined H5N1 with genetic attributes found in dozens of other types of flu. Some of their "man-made super-flu strains" could spread through the air between guinea pigs, killing them. This was condemned by scientists around the world as "appalling irresponsibility" since the new viral strains created by mixing bird-flu virus with human influenza could escape from the laboratory and cause a global pandemic—killing millions of people. With researchers tampering with H5N1 to make it human-to-human transmissible, we should not be surprised if terrorists and some state regimes are doing so as well.

The Soviet Union's biological warfare program, with far less sophisticated equipment and knowledge than we have today, produced a host of biowarfare agents. This effort included 65,000 researchers in a vast network of secret laboratories, each focused on a different deadly agent. They produced traditional biological weapons and may have successfully combined smallpox, Marburg, Ebola, and other viruses. If someone could combine the 90-percent-lethal Ebola virus with highly contagious smallpox, one might indeed create an existential BVP. A former leader of the Soviet biowarfare program believes his colleagues still work in Russia and many other nations, and predicts that bioweapons "in the coming years will become very much a part of our lives."[4]

BVP will come not only from accidents in professional labs, but also from do-it-yourself (DIY) biologists in their garages or basements. In 2001 Australian researchers attempting to make a contraceptive vaccine for pest control inserted a "good" gene into mousepox virus and accidentally created a lethal new virus that resisted vaccination. Other legitimate lab accidents have likely occurred, but were not publicized. We shudder to imagine what DIY biologists and biohackers are doing. There are more than 2,000 members of a website called DIY Bio. Some work alone at home, others in small rent-a-lab spaces around the world

Advances in DNA-manipulation technology, cheap lab equipment, and information posted on the internet enable a single person to make artificial smallpox or worse. With "professional" scientists in controlled labs accidentally making human-transmissible forms of highly lethal avian flu and publishing the instructions, we must expect that DIY bio folks in their garage, biohackers, lunatics, terrorists, or countries like Iran and North Korea will either accidentally or intentionally unleash a BVP.

If the first bioengineered virus comes from an accident or is unleashed by one madman it may fail to spread to pandemic status. A worse threat is North Korea, Iran, or a terrorist group bioengineering a virus they release against us in multiple locations, perhaps after they've developed a vaccine to protect themselves. For new, bioengineered viruses, however, there likely will be no immunity or treatment. So if a state were to task even a small lab to develop a GMO with the "cubed" power of high lethality, high transmissibility, and

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[3]Thomas Inglesby, Anita Cicero, and D.A. Henderson, "The Risk of Engineering a Highly Transmissible H5N1 Virus," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice and Science* (March 2012).

[4]Ken Alibek, *Biohazard: The Chilling True Story of the Largest Covert Biological Weapons Program in the World—Told from the Inside by the Man Who Ran It* (Random House, 1999), p. xi.

long latency period, along with a vaccine for the state's use only, this state could have the capability to destroy many enemies. Delivered "correctly," the devastated population would not even know whom to blame for the attack.

It may seem irrational for a state to unleash a contagious agent. But it's more understandable given the ability to launch the attack secretly, without any identification of responsibility. One could foresee many cases, none of which is as irrational, say, as the world going to war after a terrorist assassinated the archduke of a declining state in August 1914.

While we cannot forecast the odds of a BVP, a host of experts believes it is inevitable. A National Defense University study of the GMO threat found that "the tools and information required for genetic modification of microorganisms are readily available worldwide." They are also very cheap, and "the work can be successfully accomplished by a small cadre [of three people]." This study estimated that the materials and facilities to weaponize a bioagent would cost about $250,000. "Compared to other projects that might be undertaken by governments or private organizations, the cost of equipping and staffing a laboratory scale bioprocessing facility is trivial." They concluded that "the potential for corruption of biotechnology to catastrophic malevolent use is considerable," with "tangible opportunities for many potential adversaries to acquire, modify, and then manufacture to scale a potential GMO pathogen."[5]

A BVP or other triggering disaster need not be all that effective in killing infected victims to generate a collapse that kills additional people and destroys the nation's strength. "Collapse" is defined here as a cessation of most economic activity and the widespread lack of law and order, for a prolonged period of time, with very high fatalities (millions, more than 10 percent of the population). Indeed, GMOs pose an "existential threat," meaning a risk not just of killing millions of people, but potentially billions, wiping out civilization as we know it. An existential threat is defined here as one that could kill most of the population (more than 90 percent), causing a collapse that lasts beyond a few years, with the level of pre-collapse civilization not returning for generations.

Despite a largely rural population and relatively little international travel, the bubonic plague wiped out about a third of Europe's population in the mid-14th century. Today, over half of the world's seven billion people live in cities visited daily by international travelers. We are more urbanized and densely packed, sustained by food and water that arrives from distant locations, relying on delivery systems and economic operations that may shut down if there is a lethal contagious virus spreading and people understandably do not report to work. Even those with the courage to face the risk may change their mind when they realize they could bring a fatal virus home to their families.

Those that do keep working, medics and police in particular, are likely to catch the virus. We should expect that most economic activity, public services, production of essential goods, and transportation may cease. To minimize inventory costs, businesses, even hospitals, now have "just-in-time" delivery of supplies, sourced from lowest-cost providers on the other side of the world. Even if your local trucker decides to continue working, with multiple long-distance suppliers and shippers involved in moving foodstuffs, a contagious pandemic would certainly disrupt the flow of essential goods. Panic-buying and hoarding will add to the problem of getting food to the population. How long will our public water supplies continue functioning when maintenance personnel fail to report for work? Our highly interdependent, just-in-time delivery economy is very vulnerable to disruptions. Nassim Nicholas Taleb, an expert in risk and thinking about rare events, points this out: "Our connected world appears to be more efficient. But when there is a disturbance, the setback is much harder to handle. Not only are we building riskier systems, but also the risks involved in failure are a lot larger."[6]

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[5]Jerry Warner, James Ramsbotham, Ewelina Tunia, and James J. Valdes, "Analysis of the Threat of Genetically Modified Organisms for Biological Warfare," Center for Technology and National Security Policy, National Defense University (May 2011).

[6]Nassim Nicholas Taleb, quoted in Brian O'Keefe, "What's Next for Nuclear Power: Nassim Nicholas Taleb," *Fortune*, March 24, 2011.

When the availability of food and water is threatened, widespread marauding may occur. In 1977, New York City suffered a lightning strike that caused a power failure for one night. Over 3,000 arrests were made for looting, 400 policemen were injured, 500 fires were started. In 2005, after Hurricane Katrina, looting rapidly spread throughout New Orleans, often in broad daylight and in the presence of police officers. One third of New Orleans police officers deserted their posts. Given the example of these and other, relatively small disasters, what should we expect in the event of the far more serious scenario of a deadly viral pandemic? Pandemonium.

There are many more reasons why we are far more likely to suffer when a widespread disaster hits tomorrow. For example, despite rising population, we have fewer hospital beds and emergency rooms in the United States today than even a few decades ago. Between 1990 and 2009, emergency rooms in non-rural U.S. hospitals declined 27 percent from 2,446 to 1,779.

Some may not wait to exploit a disaster, they may loot and maraud immediately. UK riots in 2011 showed that law enforcement can break down and violence spread without a disaster to trigger them. Prime Minister Cameron called it "pure criminality." Others said it was inevitable violence from youth fed up with unemployment or family breakdown. The attacks on police and looting started in London, but spread quickly to other cities across the United Kingdom. Looting and violence grew as more people took advantage of the opportunity and "marauding gangs" formed. Police lost control of many areas. Innocent people were shot dead in cars and robbed on streets. Thugs in Birmingham killed three men trying to protect their businesses. The riots continued the following night—and the next. Violence continued in London for four nights until an extra 16,000 police officers moved in to restore order.

Criminal syndicates and gangs can accelerate the breakdown in law and order and magnify marauder threats. The number of gang members in the world is estimated at several million. The United States has tens of thousands of gangs and perhaps a million gang members. The Salvadoran MS-13 gang alone, known for brutal murders, has tens of thousands of members dispersed throughout most U.S. states. Many people, not just gang members, will use the disaster and the distraction of police as an opportunity to loot.

A major disaster could lead to economic and societal shutdown that escalates in ways we cannot foresee, but we can assume they may be even worse than the losses from the trigger event. A Defense Science Board study warned that even a relatively benign cyber attack could trigger collapse:

> "[F]ood and medicine distribution systems would be ineffective, transportation would fail or become so chaotic as to be useless. Law enforcement, medical staff, and emergency personnel capabilities could be expected to be barely functional in the short term and dysfunctional over sustained periods."[7]

The nation's leading agency for protecting against WMD, the Defense Threat Reduction Agency, warns that we face the "inevitable emergence of a new threat from biological and chemical agents." The Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, the international police agency INTERPOL, the former president of the Royal Society of London all warn that bio-terror attacks could kill millions. When Dr. Henderson, who led the World Health Organization's global smallpox eradication campaign, predicts that a human transmissible form of avian flu could injure and kill billions, that's a credible warning of an existential threat. But none of this generates as much public attention or political action as North Carolina's transgender bathroom dispute.

As for why we are blind to this pending disaster, Nassim Taleb's *The Black Swan: The Impact of the Highly Improbable* offers insights. A "Black Swan" is an extreme impact event that is outside the realm of regular expectations; nothing in the past can convincingly point to its possibility. Concerning such events, Taleb warns that "things have a bias to appear more stable and less risky in the past, leading us to surprises. . . . The history of epidemics, narrowly studied, does not

[7]Defense Science Board, "Resilient Military Systems and the Advanced Cyber Threat" (January 2013), p. 5.

suggest the risks of the great plague to come that will dominate the planet."[8]

Taleb cites 27 widespread errors in human thinking processes and misapplications of statistics to explain why we neglect Black Swan disasters like a coming BVP. People cling to current truths and past experiences that new technologies and changing conditions may soon render wrong or irrelevant. We often fool ourselves with stories and anecdotes, and even invent memories that calm us—but also demobilize us. What we don't see regularly, we tend to ignore. We learn by repetition, react and decide by gut feeling, thinking that we've thought it through and made a rational choice when we often have not. "We are made to be superficial, to heed what we see and not heed what does not vividly come to mind." Taleb cites as examples the diaries of people prior to World War II—few had any inkling that something momentous was taking place, that large-scale war was coming. And indeed, while we hear much about Churchill's warnings (and less about Lord Vansittart's even earlier and more consistent warnings), his was a rare voice and ignored.

BVP "disaster blindness" may be stronger in the United States because we, with the mightiest military, feel immune to attack. This is precisely why a BVP is a likely weapon of choice for attacking the United States. It could kill more people than even a large nuclear attack, cause more lasting devastation and economic collapse, and best of all for the attackers—they may get away with no retaliation since we may never be able to determine or prove who released the virus.

Our government spends tens of billions of dollars every year to counter nuclear threats because it's a long-standing, very obvious threat. The threat of bio attack is much worse, both in terms of likelihood and of the damage it will probably cause, yet relatively little is done to try and counter or prepare. In 2012 a National Research Council committee on chemical and biological defense scolded, "The United States probably has not yet adequately embraced the opacity of the threat. It will be much, much more difficult to prepare for and defend against than prior threats."[9] Indeed, when I interview biologists and researchers who should be troubled by the coming BVP, their more immediate worry is that their research will be curtailed or over-regulated. They believe that biotechnology promises great advances in medicine and is a huge economic opportunity—a belief echoed by business executives. Scientists I've interviewed fear that warnings about BVP will lead to more regulations, which would drive the research to other parts of the world where it's not regulated. They also argue that it is too late to stop misuse of this technology.

The Federal government is certainly aware of the bioterrorism risk, but it is not a top priority. The lead agencies dealing with biotechnology fund and promote the research. Until the first instance of disaster, it is doubtful there will be strong action to prepare for the threat of a BVP-induced collapse. Nothing major happens in Washington, DC, without laws to direct the action, budgeting, and the commitment of top elected officials. All are lacking now. There are no special interests and lobbyists pushing for bioterrorism preparedness.

The initial or "triggering" Black Swan disaster may not be the biggest thing to worry about. The "cascading effects" of an economic shut down, the loss of law and order, looting and marauding, and the disruption of health, sanitation, water, and transportation systems triggered by the initial disaster may deliver much worse, longer-lasting damage. What cascading problems will result when the electrical grid goes down? Can nuclear reactors remain safely shut down when no one reports to work because they don't want to risk viral exposure, and local water and electric systems aren't functioning? With the police force overwhelmed and ravaged by casualties (first responders are

[8]Taleb, *The Black Swan: The Impact of the Highly Improbable*, 2nd edition (Random House, 2010), p. 354.

[9]Committee on Determining Core Capabilities in Chemical and Biological Defense Research and Development, Board on Chemical Sciences and Technology, Division on Earth and Life Studies, National Research Council, "Determining Core Capabilities in Chemical and Biological Defense Science and Technology," pre-publication uncorrected proofs (The National Academies Press, 2012).

more likely to get the virus), many officers will abandon their jobs to protect their families from exposure. An explosion in violent crime could be worse even than the virus.

The real uncertainty is not whether a BVP or other Black Swan disaster will occur, but how bad it will be and how deep of a collapse will result from it. After the first pandemic and collapse, it will likely be impossible to prevent repeat bio attacks. It may be the next epoch of warfare and terrorism that defines the next era of "civilization." Most writers covering the Biotech Age emphasize the great advances in medicine and new means of production. But in a time when individuals can wield the power to kill millions and cause a collapse, the outlook for mankind may be more bleak than rosy. The destructive power of deliberately malign GMOs and the uncontrollable ability of individuals to unleash a BVP may yield a reversal in mankind's fortunes: shorter life spans, crueler lifestyles, and perhaps a collapse of civilization entirely.

A BVP may yield a reversal in mankind's fortunes: shorter life spans, crueler lifestyles, and perhaps a collapse of civilization entirely.

Whether the first bioengineered virus comes from an accidental release or is spread by some regime, the key point Taleb makes is that "Black Swans being unpredictable, we need to adjust to their existence (rather than naively try to predict them)." Estimating, assuming, hoping that accidents, lunatics, terrorists, or enemy states won't release a GMO, or that we can always detect and stop them, is a mistake. As a nation, we must adapt to the existence of the BVP threat now and change the protocols of our strategy, military forces, economy, and preparedness to ensure the consequences do not cascade into societal collapse. We need to be prepared to deal with the consequences of a viral pandemic that produces horrific numbers of casualties that cannot be stopped with a simple quarantine. This problem deserves far more attention and resources. While we likely can't stop the release of lethal new GMOs, we can survive if we are ready.

Many of the obvious preparations are relatively low-cost. Households need to have not days of stored food and water, but months. While the Federal government won't recommend something so politically incorrect, wise citizens should stockpile and know how to use guns and ammo. The National Guard should train and equip its forces to implement quarantines and support local law enforcement, and add a "Civil Ground Patrol" (modeled on the Air Force's Civil Air Patrol) to train and build a force of volunteers to help in disaster recovery and response efforts.

After the first pandemic hits there will be support for making bigger, more wide-sweeping changes in every aspect of our foreign and defense policies, economy, culture, and society. Nuclear weapons may no longer be seen as the most threatening weapons that should be eliminated, but a vital instrument for prompt strikes to incinerate a bioweapon threat. An exodus from large cities may result as people conclude that rural areas are safer. International travelers would not enter the country within an hour of arrival, but after days spent in quarantine communities where they can work and recreate, but remain in a controlled state.

From the Stone Age through the Bronze, Iron and Industrial Ages to today's Information Age, humans have enjoyed longer lifespans and improving quality of life and civilization. Every major technological advance has also been applied to new means of killing, such as the mass-produced weapons and chemical agents developed in the World Wars of the 20th century. Nuclear weapons were very difficult to make or hide, and are held today still only by states. But new computer, nanotechnology, and other technological advances give individuals the power to severely damage states and the societies they govern. Bioengineered viruses created and released by an individual could destroy a country and, perhaps, our species. The more we do now to adjust to the threat of biotechnology and prepare for the Age of Bioengineered Viral Pandemics and Collapse the more likely we are to survive.