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THESIS

**THE ETHICAL IMPERATIVE OF REASON: HOW
ANTI-INTELLECTUALISM, DENIALISM, AND
APATHY THREATEN NATIONAL SECURITY**

by

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March 2016

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ANTI-INTELLECTUALISM, DENIALISM, AND APATHY THREATEN
NATIONAL SECURITY**

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ABSTRACT

This thesis explores the roots and manifestations of anti-intellectualism, denialism and apathy. Philosophical in its design, this research explores the following question: What are the potential effects of cultural anti-intellectualism on the construction and execution of national security and homeland security policy? Specifically, it focuses on how anti-intellectualism can affect how a course of action is created, presented, messaged, supported, and executed. The thesis amasses a review of previous research on the nature and manifestations of this issue and offers an account of the prospective implications for the securities field. Utilizing a case study model, this research explores three examples to highlight the manifestation of this current problem. The findings indicate that anti-intellectualism impacts the highest levels of the political, media, and security processes and, as such, requires practitioners to acknowledge and address its influence. This thesis concludes by arguing that widespread ignorance of objective reality poses a threat to the democratic process. It provides three overarching strategies designed to limit the impact of anti-intellectualism in the policy process and demonstrates that, in the intricate and dynamic matters of our nation's security, there is an ethical imperative for "reason" and factual discussion to rule the policy process.

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CDC	Centers for Disease Control
DHS	Department of Homeland Security
DOD	Department of Defense
F	Fahrenheit
FBI	Federal Bureau of Investigation
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
HAZMAT	hazardous materials
ISIS	Islamic State of Iraq and Syria
MMR	measles, mumps and rubella
NASA	National Aeronautics and Space Administration
RCRT	request to conduct realistic training
USMC	United States Marine Corps
UV	Ultra-violet

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Dare Mightily.

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I. INTRODUCTION

The complex issues that shape our world move with a pace and capacity that is unmatched in human history. We exist in a world where robots are now capable of performing brain surgery; the most reputable names in journalism deliver news in near-real time in 140 characters or less; and billions of dollars are traded daily on the world markets by algorithms that analyze risk, buy, and sell in milliseconds.¹ Our current availability and access to information—often only seconds away via nearly 2 billion smartphones on the planet—is unprecedented.²

As scientist Carl Sagan eloquently noted, the problem with this unmatched accessibility and capacity is that in a world so “exquisitely dependent on science and technology ... hardly anyone knows anything about science and technology.”³ It is, indeed, an odd juxtaposition that despite the nearly incalculable volume of available information, wide swaths of the American public are ill informed about many issues. While it is easy to cherry-pick the more sensational misunderstandings—for instance, 74 percent of Americans can name the three stooges, but only 42 percent are able to list the three branches of the federal government—data suggests that similar trends are present when discussing issues of public policy and national priorities as well.⁴

For example, some elected officials have stated that the oft-debated U.S. foreign aid, and its associated diplomacy and development, “are vital to our national security.”⁵

¹ Kyle Hill, “Robots Can Now Perform Brain Surgery...On Fruit Flies,” Nerdist, May 28, 2015, <http://nerdist.com/robots-can-now-perform-brain-surgery-on-fruit-flies/>; “BBC on Twitter,” accessed December 29, 2015, <https://twitter.com/BBC>; “The New York Times on Twitter,” accessed May 29, 2015, <https://twitter.com/nytimes>; Bryant Urstadt, “Trading Shares in Milliseconds,” *MIT Technology Review*, December 21, 2009, <http://www.technologyreview.com/featuredstory/416805/trading-shares-in-milliseconds/>.

² Sophie Curtis, “Quarter of the World Will Be Using Smartphones in 2016,” *Telegraph*, December 11, 2014, <http://www.telegraph.co.uk/>.

³ Carl Sagan, “Why We Need to Understand Science,” *Skeptical Inquirer* 14.3 (Spring 1990).

⁴ Clyde Haberman, “NYC: Good Thing We Citizens Aren’t Tested,” *New York Times*, December 5, 2006, <http://query.nytimes.com/gst/fullpage.html?res=9C03E4D61F3EF936A35751C1A9609C8B63>.

⁵ Ben Kamisar, “Obama: Foreign Aid Key Part of ISIS Strategy,” *Hill*, March 17, 2015, <http://thehill.com/blogs/blog-briefing-room/news/235877-obama-foreign-aid-necessary-part-of-isis-strategy>.

President Obama stated directly that an increase in foreign aid would help defeat the violence caused by the Islamic State of Iraq and Syria (ISIS).⁶ In order to understand the ramifications of that suggestion, and subsequently to make informed voting decisions, one must first understand the elemental data of foreign aid. Many Americans think we spend 10 percent of the federal budget on foreign aid.⁷ One in five believes that the federal government spends 30 percent or more helping others abroad.⁸ The actual figure, however, is approximately 1 percent of the federal budget.⁹

Another example is the national discussion on vaccines and their legitimacy. This issue is discussed at length as a case study herein, but the topline summary is staggering. Despite nearly eradicating many deadly infectious disease (including diphtheria, measles, mumps and polio), a recent report from the American Academy of Arts and Sciences identifies that 20 to 30 percent of parents are still “vaccine hesitant.”¹⁰ The report bluntly states, “Growing numbers of parents believe that vaccine-preventable diseases present a negligible risk. History has shown this to be a dangerously false assumption to make.”¹¹ When identified, many of the reasons why a parent may choose not to vaccinate can be directly linked to anti-intellectualism, especially scientific apathy or illiteracy. The Academy of Arts & Sciences report identified several reasons for this. First, the report notes that some parents are unfamiliar with the diseases against which vaccines protect.¹² Others are “concerned about vaccine side effects or have stated that ‘natural immunity’ is

⁶ Kamisar, “Obama.”

⁷ “Does the U.S. Spend Too Much or Too Little on Foreign Aid?” DipNote, March 28, 2008, <https://blogs.state.gov/stories/2008/03/28/does-us-spend-too-much-or-too-little-foreign-aid>; “CNN Poll: Americans Flunk Budget IQ Test,” CNN, April 1, 2011, <http://politicalticker.blogs.cnn.com/2011/04/01/cnn-poll-americans-flunk-budget-iq-test/>.

⁸ “CNN Poll,” CNN.

⁹ “Foreign Assistance Data,” USAID, accessed 30 May 2015, <https://eads.usaid.gov/gbk/data/index.cfm>.

¹⁰ American Academy of Arts and Sciences, *Public Trust in Vaccines: Defining a Research Agenda* (Cambridge, MA: American Academy of Arts & Sciences, 2014), 5, 6, <https://www.amacad.org/multimedia/pdfs/publications/researchpapersmonographs/publictrustvaccines.pdf>; “Vaccine-hesitant” is defined by the Academy of Arts and Sciences as parents who not only selectively vaccinate or delay some vaccines, but also as those who have expressed some misgivings about vaccines.

¹¹ American Academy of Arts and Sciences, *Public Trust in Vaccines*, 3.

¹² *Ibid.*, 7.

preferable to vaccine-induced immunity” or, because the high vaccination rate in the general public, their children can avoid vaccination.¹³ Still others are “distrustful of the medical system, science, or anything recommended by government in general.”¹⁴

To be sure, the pediatric immunization debate is a serious public health issue. But what happens when the same vaccines-related concerns and ill-conceived reasoning are extrapolated to a homeland security or national security crisis? Take, for example, a bioterrorism attack. Because of breadth and scope, it is believed that this type of incident would be “a watershed event in American history.”¹⁵ Vaccines have been identified as “the most critical epidemic response tool” for managing an attack.¹⁶ But if 20 to 30 percent of the population is hesitant to take the government-issued vaccine, our own collective anti-intellectualism will have served as a force multiplier for those who wish us harm, and our remediation efforts will fail. Mistrust in reason and data has very real consequences for our collective security.

Finally, while a lack of knowledge and disconnect from factual information is concerning, a potentially more threatening stand of denialism and anti-intellectualism is the complacency and apathy in the *desire* to know more. The idea that “my ignorance is just as good as your knowledge” could have serious consequences for policy makers across the national and homeland security spectrum.¹⁷ For example, a 2006 National Geographic-Roper Survey found that nearly half of Americans between the ages of 18 and 24 did not think it was “absolutely necessary to know the location of other countries in which important news” was being made, despite being engaged in two wars in two separate countries.¹⁸ In that survey, nearly the same percentage was unable to correctly

¹³ Ibid.

¹⁴ Ibid.

¹⁵ *FEMA's Role in Managing Bioterrorist Attacks and the Impact of Public Health Concerns on Bioterrorism Preparedness: Testimony before the U.S. Senate Government Affairs Subcommittee on International Security, Proliferation and Federal Services* (2001) (statement of Tara O'Toole, M.D., M.P.H.).

¹⁶ *FEMA's Role in Managing Bioterrorist Attacks* (statement of Tara O'Toole).

¹⁷ Isaac Asimov, “A Cult of Ignorance,” *Newsweek*, January 2, 1980.

¹⁸ GfK Roper Public Affairs, *Final Report: National Geographic-Roper Public Affairs 2006 Geographic Literacy Study* (Washington, DC: National Geographic, 2006), <http://www.nationalgeographic.com/roper2006/pdf/FINALReport2006GeogLitsurvey.pdf>.

locate Iraq on a map.¹⁹ This, despite the fact that, at the time of the survey, the United States had been engaged in ground combat operations there for more than three years, and more than 2,400 American deaths had occurred.²⁰

The current cultural landscape—what the public and policy leaders know, and what they are willing to learn—has implications for national security professionals. For example, scientific, medical and geographical/cultural illiteracy, (i.e., the likelihood of ISIS building a nuclear bomb, vaccines for a bioterrorism attack, the tribal landscape in Afghanistan, respectively) affects how a course of action is created, presented, messaged, supported, and executed. It is not logical to expect the general public or even political decision makers to be experts in every nuanced issue with foreign or domestic security implications. Moreover, it is safe to assume that political, religious and celebrity ideology will continue to influence the conversation.²¹ In order to best protect our country, national security professionals must work to recognize and account for these knowledge gaps and, at times, willful ignorance.

This thesis explores the following question: What are the potential effects of cultural anti-intellectualism on the construction and execution of national security and homeland security policy? In exploring the roots, current state and potential future implications of anti-intellectualism (to include denialism and scientific apathy/illiteracy), this thesis argues that widespread ignorance of objective reality poses a threat to the democratic process, specifically as it pertains to an engaged and informed citizenry with regards to national and homeland security policy. It demonstrates that in the intricate and dynamic matters of our nation's security, there is an ethical imperative for "reason" and factual discussion to rule the policy process.

¹⁹ GfK Roper Public Affairs, *Final Report*.

²⁰ "Iraq Coalition Casualties: Fatalities by Year and Month," icasualties.org, accessed 29 May 2015, <http://icasualties.org/iraq/ByMonth.aspx>.

²¹ John R. Bolton, "To Stop Iran's Bomb, Bomb Iran," *New York Times*, March 26, 2015, <http://www.nytimes.com>; Kurt Eichenwald, "The Bible: So Misunderstood It's a Sin," *Newsweek*, December 23, 2014, <http://www.newsweek.com/2015/01/02/thats-not-what-bible-says-294018.html>; Adam Gabbatt, Adam Gabbatt, "'Texas Ranger' Chuck Norris Warns of Government Plot to Take over State", *Guardian*, May 4, 2015, <http://www.theguardian.com>.

II. LITERATURE REVIEW

The continuing concern for national and homeland security practitioners is that forms of anti-intellectualism will impact the policy process, producing less-than-optimal methods and results. While there is not a great deal of scholarly work on this topic specific to the practice of national and homeland security, there is an abundance of material that helps define the problem and draw pertinent conclusions.

This literature review addresses three areas of research related to cultural anti-intellectualism in America. The first section defines and addresses various forms, discussing their specific motivations and intents. In the second section, there is a review of “denialism,” a subset of anti-intellectualism. The last section discusses intellectual “apathy,” a second subset of anti-intellectualism.

A. ANTI-INTELLECTUALISM

Perhaps the most notable work on anti-intellectualism is the Pulitzer Prize winning *Anti-Intellectualism in American Life* by American historian Richard Hofstadter. In addition to taking a historically longitudinal approach to the topic, Hofstadter provides an efficient baseline for the term “anti-intellectualism,” defining it as “resentment and suspicion of the life of the mind and of those who are considered to represent it; and a disposition constantly to minimize the value of that life.”²² He posits that this trait stems from a mistrust of the intellectual community’s “character.” Hofstadter goes on to argue that while anti-intellectualism has always been present in American culture, its intensity is subject to cyclical fluctuations.²³

Hofstadter’s personal experiences as an academic and with national events in his lifetime (from the rise of fundamentalism in the 1930s through McCarthyism and Adlai Stevenson’s presidential candidacies) shape the construction of his argument. He asserted that by the mid-20th century, anti-intellectualism was pervasive in the national culture,

²² Richard Hofstadter, *Anti-Intellectualism in American Life* (New York: Knopf Doubleday, 1963), 7.

²³ Hofstadter, *Anti-Intellectualism in American Life*, 6.

but not dominate. He claimed “the greater part of the public...has an ingrained distrust of eggheads, but also a genuine yearning for enlightenment and culture.”²⁴

Finally, Hofstadter notes that with the evolution of education away from humanities-based subjects to more “practical” and “utilitarian” career training (i.e., business, accounting, etc.), anti-intellectualism has increased. Business, he lamented, is “the most powerful and pervasive interest in American life,” adding, “since the mid-nineteenth century, businessmen have brought to anti-intellectual movements more strength than any other force in society.”²⁵ The 19th century industrial revolution, coupled with the rising popularity of the “self-made man” myth, increased the disdain for formal education and those who sought it.²⁶ While Hofstadter’s work is the most dated of any in this literature review, it continues to serve as the leading body of material in defining and tracking the markers of anti-intellectualism. Academically robust, and exhaustively reviewed, his work offers non-partisan insight on this subject at a level and depth unmatched since.

While not as politically impartial, Susan Jacoby’s *The Age of American Unreason* mirrors the depth that Hofstadter’s work offered. Jacoby argues, “During the past four decades, America’s endemic anti-intellectual tendencies have been grievously exacerbated by a new species of semiconscious anti-rationalism ... leaving no room for contemplation or logic.”²⁷ While agreeing with Hofstadter that anti-intellectualism is cyclical in nature, she argues that our modern version is “inflicting vastly greater damage” on our culture and politics than its historical predecessors.²⁸ Jacoby contends

²⁴ Ibid., 19, 9. A pejorative term for intellectual, “egghead” was first used during the presidential campaign of 1952 (Adlai Stevenson v. Dwight Eisenhower) when, as Hofstadter notes, “the country seemed to be in need of some term to express that disdain for intellectuals which had by then become a self-conscious motif in American politics. The word *egghead* was originally used without invidious associations, but quickly assumed them, and acquired a much sharper tone than the traditional highbrow.”

²⁵ Ibid., 237.

²⁶ Susan Jacoby, *The Age of American Unreason* (New York: Knopf Doubleday, 2008), xv; “The Self-Made Man: The Story of America’s Most Pliable, Pernicious, Irrepressible Myth,” *Slate Magazine*, September 29, 2014, accessed August 25, 2015, http://www.slate.com/articles/news_and_politics/history/2014/09/the_self_made_man_history_of_a_myth_from_ben_franklin_to_andrew_carnegie.html.

²⁷ Jacoby, *The Age of American Unreason*, xi.

²⁸ Ibid., xii.

that America is now “ill” with “the unwillingness to give a hearing to contradictory viewpoints.”²⁹ She asserts that this more intense embrace of “anti-rationalism” is at odds with our nation’s founding ideals and “represents a departure from the best side of American popular and intellectual traditions.”³⁰ More timely, however, is Jacoby’s statement that “every shortcoming of American governance, in foreign relations and domestic affairs is related in some fashion” to an accidental or willful knowledge deficit.³¹

Hofstadter (and, to an extent, Jacoby) show the traits of anti-intellectualism to be character driven. It is woven into an individual’s mentality through cultural norms, driven by social status, personal desires, religious influence or a combination thereof. Charles Pierce, however, suggests that modern-day anti-intellectualism, while propagated by social cues, is actually profit driven. In his book *Idiot America*, Pierce contends that in the present day and in the name of profit and political advantage, the American populous is subjected to the willful “breakdown of the consensus that the pursuit of knowledge is good.”³² In an effort to sow a narrative of influence, Pierce argues, there has been a concerted effort to over saturate the environment with “experts,” or in cases where this is not possible, create an environment in which the “expert” is viewed as an elitist and not “one of the people.” In this quest for higher ratings, more profit or greater influence, the author asserts that reason and evidence-based philosophy can be sidelined by any theory, so long as it sells units, can be said loud enough or can somehow validate itself.³³

Finally, moving away from culturally driven and influence/profit-driven models of anti-intellectualism, we revisit Hofstadter to discuss one other form, the “paranoid style.” In this model, anti-intellectualism is not the intent; rather, it is the means to justify the theory of a “vast and sinister conspiracy that is set in motion to undermine and

²⁹ Ibid., xx, xix.

³⁰ Ibid., xi, xix.

³¹ Ibid., 297.

³² Charles Pierce, *Idiot America: How Stupidity Became a Virtue in the Land of the Free* (New York: Knopf Doubleday, 2009), 8.

³³ Pierce, *Idiot America*, 35, 41, 47.

destroy a way of life.”³⁴ Educated “experts,” along with mainstream news outlets and other cultural institutions, are dismissed and discredited as being complicit in a larger master plan controlled from afar.³⁵ Hofstadter, noting specific examples like Senator Joe McCarthy, dutifully points out that “a fundamental paradox of the paranoid style is the imitation of the enemy.”³⁶ For in the paranoid style, an effective way to discredit the dutiful expert is to “outdo him in the apparatus of scholarship, even of pedantry.”³⁷ The historian claims that the paranoid style, while not new, is often found when issues involving technological revolution or world power are on display.

B. DENIALISM

A related subset of anti-intellectualism is denialism. As author Michael Specter wrote, “Denialists replace the rigorous and open minded skepticism of science with the inflexible certainty of ideological commitment.”³⁸ They work to “conflate similar but distinct issues and treat them as one,” often invoking logical fallacies to buttress unshakable beliefs.³⁹ They use arguments that contain fractions of accurate information that are taken out of context and wildly selective.⁴⁰ Denialism, Specter argues, occurs when a portion of the populous, struggling with change, turns away from reality toward a more comfortable lie.⁴¹

While true that denialists will often wander toward Hofstadter’s paranoid style in decrying scientific community collusion with the government, unlike Pierce’s argument that mistrust of intellectualism and intellectuals is willful and intentional, denialism is

³⁴ Richard Hofstadter, *The Paranoid Style in American Politics, and Other Essays* (Chicago: University of Chicago Press, 1979), 29.

³⁵ *Ibid.*, 32.

³⁶ *Ibid.*

³⁷ *Ibid.*

³⁸ Michael Specter, *Denialism: How Irrational Thinking Hinders Scientific Progress, Harms the Planet, and Threatens Our Lives* (New York: Penguin, 2009), 3.

³⁹ Specter, *Denialism*, 3.

⁴⁰ *Ibid.*, 7.

⁴¹ *Ibid.*, 3.

“rarely malevolent.”⁴² Furthermore, though there are certainly more grand and bombastic denialists in the world (i.e., those who contend that the Holocaust and AIDS are both imaginary), the majority of denialism is less sinister but more pervasive.⁴³ It is, as Specter contends, the combination of “decency, a fear of change, and the misguided desire to do good” that inflates the dangers of scientifically accepted advancements like vaccines and genetically modified organisms (GMOs).⁴⁴ Ultimately, Specter contends, denialism is a response to a loss of control.⁴⁵ He notes that it is “an attempt to scale the world to dimensions that the user can comprehend.”⁴⁶ It is not designed to be anti-intellectual; anti-intellectualism is simply a byproduct of its manifestation. Furthermore, denialism claims no particular affiliation, crossing religious, political and socio-economic factions.⁴⁷ Despite being relatively non-aggressive in its use (especially when compared with other manifestations of anti-intellectualism), denialism is a major hindrance to progress and scientific discovery, representing a “fundamental shift in the way we approach the world in the twenty-first century.”⁴⁸

C. SCIENTIFIC APATHY

Scientific apathy (also known as scientific illiteracy) is the casual or intentional circumspect of scientific content. In their book *Unscientific America*, authors Chris Mooney and Sheril Kirshenbaum credit contemporary apathy to an oversaturation of information, where citizens can “happily try on information sources as they see fit.”⁴⁹ The trouble often is not that these individuals have an aversion to science or intellectualism; rather it is that they are “highly informed, and deeply wrong.”⁵⁰ They

⁴² Ibid., 5, 6.

⁴³ Ibid., 4.

⁴⁴ Ibid., 6.

⁴⁵ Ibid., 12.

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ Chris Mooney and Sheril Kirshenbaum, *Unscientific America: How Scientific Illiteracy Threatens Our Future* (New York: Avalon, 2009), 6.

⁵⁰ Mooney and Sheril Kirshenbaum, *Unscientific America*, 15.

cherry-pick opinions that fit their ideology. Entrenched in their claims but not fully understanding the totality of the science behind the position, they will often couch their claims in sophisticated language, citing peer-reviewed articles as evidence of their positions.⁵¹ The research indicates that this style of illiteracy, while unique in its own right, draw parallels to Hofstadter’s paranoid style and Specter’s denialists.

One of the most concerning issues with scientific apathy is that a serious appreciation of science and technology—in a complex, science- and technology-driven world—will become confined to a small group of “already dedicated elites, when it should be a value we all share.”⁵² In a world where scientists are pushing the envelope of what is knowingly possible, they often encounter a public indifference to their discoveries or progress. Prominent national publications are marginalizing or eliminating their science coverage, and polls suggest that while respondents are not “anti-science,” they far more interested in other topics (crime, sports, religion, etc.).⁵³ If this trend continues, Mooney and Kirshenbaum posit that our nation will miss “fundamental advances and dynamics that will shape the coming decades,” resulting in “repeated failure as a nation to take forward-looking actions before it is too late.”⁵⁴

D. CONCLUSION

In conclusion, the research presented here lays the foundation for the case studies to follow. From global warming to domestic military exercises and bioterrorism vaccines to space exploration, national and homeland security practitioners will find elements of this type of thinking across a wide variety of policy initiatives and mandates. Recognizing and moving to minimize its ability to influence the national discourse is important. While honest, data-driven dissent toward our nation’s security priorities should always be welcomed for debate and discussion, malicious, willful discrediting of reasoned actions is a distraction and ultimately weakens our republic.

⁵¹ Ibid., 14, 15.

⁵² Ibid., 7.

⁵³ Ibid., 19; Donald Kennedy and Geneva Overholser, *Science and the Media* (Cambridge, MA: American Academy of Arts and Sciences, 2010).

⁵⁴ Mooney and Sheril Kirshenbaum, *Unscientific America*.

Furthermore, it is important to note that although we have identified the main strands and subsets of anti-intellectualism, specific cases can (and very often will) straddle the specific types noted herein. For example, Specter's denialism proves the biases associated with Hofstadter's paranoid style. The same denialism can be used to justify scientific apathy. As the case studies in this work demonstrate, anti-intellectual and anti-educational reasoning do not occur in a vacuum. They come packaged in a variety of multifaceted issues and should be acknowledged accordingly by national and homeland security professionals.

Finally, it is critical that in these discussions centered on policy options, proper weight be given to claims. The validity of competing arguments is often not a one-to-one correlation of competing views. While public debates around these issues often give even weight given to all sides of the argument, the idea that "my ignorance is just as good as your knowledge" places incorrect value on sustainable options, and is ineffectual in crafting policy.⁵⁵ In many cases, measurable and repeatable scientific, medical, geographical, or social evidence is often overwhelming in favor of a studied option. While anecdotal declarations may, in some few examples, indicate the need for further study or debate, on their own merit they are generally unreliable and insufficient to warrant a change in action. Any serious conversation about the options surrounding quality policy should first include a discussion about the veracity, measurability, and efficacy of such options.

⁵⁵ Asimov, "A Cult of Ignorance."

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III. PHILOSOPHY AND LIMITATIONS OF THE SCIENTIFIC PROCESS AND REASON

Before reviewing specific cases, it is important to define the “philosophy of the scientific process” and “reason” and to appreciate their limitations. For its part, “reason” is the capacity for consciously making sense of things in the world.⁵⁶ It involves the imperfect practice of applying logic, while seeking out established and verified facts.⁵⁷ It requires the user to change or justify existing practices, institutions, and beliefs as new information becomes available.⁵⁸ The “scientific method” is the process by which an observation is noted, a hypothesis and predictions are crafted, and tests are performed in order to modify the hypothesis to better understand the results.⁵⁹ By virtue of its nature, the process repeats these steps “until there are no discrepancies between theory and experiment and/or observation.”⁶⁰

As it is most assuredly known, as both bodies of work and as processes, reason and science are far from perfect.⁶¹ They are, however, the most efficient way humans have discovered to build knowledge. From the Copernican revolution, through Galileo and Einstein, to the current studies in neuroscience, tentative ideas about how the world works are tested and retested in different ways.⁶² This iterative process, coupled with Aristotle’s discursive reasoning, allows for ideas to be modified, expanded and combined

⁵⁶ Robert Girod, *Logical Investigative Methods: Critical Thinking and Reasoning for Successful Investigations* (Boca Raton, FL: CRC Press, 2015).

⁵⁷ Girod, *Logical Investigative Methods*.

⁵⁸ Ibid.

⁵⁹ Jose Wudka, “What Is the ‘Scientific Method?’” University of California, Riverside, September 24, 1998, http://physics.ucr.edu/~wudka/Physics7/Notes_www/node6.html.

⁶⁰ Wudka, “What Is the ‘Scientific Method?’”

⁶¹ “What Is Science?” Berkeley University of California, accessed December 22, 2015, http://undsci.berkeley.edu/article/whatisscience_01.

⁶² “Benefits of Science,” Berkeley University of California, accessed December 22, 2015, http://undsci.berkeley.edu/article/0_0_0/howscienceworks_18; Samir Okasha, *Philosophy of Science: A Very Short Introduction* (Oxford: Oxford University Press, 2002).

into more complete explanations as understanding moves across time and available processes.⁶³

The scientific method, and its application with reason, is subjected to several limitations. First, ideas can only be tested to the limits of known knowledge and the available technology and data.⁶⁴ Scientists and researchers themselves can become siloed in their thinking and criticality relative to their interests or disciplines, leaving gaps in their theories.⁶⁵ Second, science and reason must be able to correctly interpret results.⁶⁶ Data can be accidentally or maliciously misinterpreted based on the understanding of the problem and/or the researcher's conscious or unconscious biases. Third, both processes exist in a dynamic world, where results can become outdated or inapplicable under varying circumstances.⁶⁷ Finally, science alone cannot answer questions of morality.⁶⁸ The assignment of "good or bad is outside of the determination of science," leaving results to be understood through the lenses of the social identities, dogmas and biases that all people bring with their appreciation of an issue.⁶⁹

Furthermore, by virtue of testing the unknown, scientific theories are often proved wrong. While many inaccuracies are uncovered by initial or subsequent testing, some scientific or reasoned failures promulgate across disciplines for years. This can lead to large swaths of inaccuracies that require correction. For example, prior to astronomer Edwin Hubble's observations in the 1920s, scientists believed Albert Einstein's 1917

⁶³ Okasha, *Philosophy of Science*; Aristotle, *Aristotle: Nicomachean Ethics*, ed. Roger Crips (Cambridge, UK: Cambridge University Press, 2011).

⁶⁴ Biology.ie, *Biology and the Scientific Method* (Ireland: Biology.ie, 2007), http://www.biology.ie/docs/WEB_SM.pdf.

⁶⁵ Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 2012).

⁶⁶ Biology.ie, *Biology and the Scientific Method*.

⁶⁷ Ibid.

⁶⁸ "The Limitations of Science," College of DuPage, last updated September 25, 2004, <http://www.cod.edu/people/faculty/fancher/Limits.htm>.

⁶⁹ "The Limitations of Science," College of DuPage.

theory that the universe was static, neither expanding nor contracting.⁷⁰ In his process of gathering new information to better understand the problem, Hubble found that objects in the far distance of the universe were moving significantly more quickly away than nearby ones, thereby supporting the theory that the universe was expanding, and proving Einstein's theory incorrect.⁷¹

While being wrong about an idea is not an inherently bad thing (often “negative results can be extremely exciting and useful—sometimes even more useful than positive results”), the scientific world is also subject to the same human influences that impact other endeavors.⁷² There have been cases in which results have been inflated in an effort to increase funding for a department or project.⁷³ Scientists, in a desire for prestige or intellectual idolatry, have overreached on a theory or collected data.⁷⁴ There are further examples in which the social culture among scientists is structured so that colleagues do not contradict a fellow scientist's incorrect findings, lest it damage their own career aspirations.⁷⁵

As demonstrated, the use of science and reason can be a daunting and imperfect undertaking. It is not immune to groupthink, over-reliance and confirmation biases. Fortunately, these processes are not a belief system. They are dynamic. They have flexibility and important safeguards built into their core that allow for a continuous cycle of challenging and testing believed understandings. Science and reason, by the very nature of their processes, circle back for reinvestigation and testing.⁷⁶ As famed scientist Carl Sagan again noted, greater understanding occurs when there is “vigorous support for

⁷⁰ Eric Berger, “The Top 10 Most Spectacularly Wrong Widely Held Scientific Theories,” Chron, November 24, 2010, <http://blog.chron.com/sciguy/2010/11/the-top-10-most-spectacularly-wrong-widely-held-scientific-theories/>.

⁷¹ Berger, “Top 10.”

⁷² Marcus Woo, “Scientists Are Wrong All the Time, and That's Fantastic,” Wired, February 27, 2015, <http://www.wired.com/2015/02/scientists-wrong-time-thats-fantastic/>.

⁷³ Woo, “Scientists Are Wrong.”

⁷⁴ Ibid.

⁷⁵ Ibid

⁷⁶ “The Real Process of Science,” Berkeley University of California, accessed December 22, 2015, http://undsci.berkeley.edu/article/0_0_0/howscienceworks_02.

the expression of unpopular views, widespread literacy, substantive debate, a common familiarity with critical thinking, and skepticism of pronouncement of those in authority—which are all also central to the scientific method.”⁷⁷

In discussing matters of national and homeland security policy, it is paramount that professionals work to have an understanding of the problem, ask the right questions of the right experts, and subsequently focus their policy suggestions, implementations and executions on the best available data for the problem at the given time. Policy makers should be aware of the scientific process’ limitations and be cautious of worshipping at “the altar of science,” as it offers no absolute truths.⁷⁸ Finally, it is critical that the practitioner not assign ethical overtones to scientific data. Science cannot say what is ethical, moral or just in a specific instance. Attempting to extrapolate these philosophical meanings onto data does a disservice to both science and philosophy. While we can infer a course of action based upon the science, it is done with our overlaid national (or personal) interests, cultural norms or ethical frameworks.

In the following case studies, the majority consensus, the minority opinion and the national security implications are presented not as guarantees or absolutes, but rather, as Aristotle described, a “truth roughly,” being only as precise as our current understanding allows.⁷⁹

⁷⁷ Carl Sagan, *Billions and Billions* (New York: Random House, 1999).

⁷⁸ Martin Weigel, “Beware the Altar of Science: We Are More than Data and Chemicals,” *Canalside View*, July 12, 2013, <http://martinweigel.org/2013/07/12/beware-the-altar-of-science-we-are-more-than-data-and-chemicals/>.

⁷⁹ Aristotle, *Aristotle: Nicomachean Ethics*; Eric Greitens, *Resilience: Hard-won Wisdom for Living a Better Life* (Boston: Houghton Mifflin Harcourt, 2015).

IV. CASE STUDIES

The following three case studies have significant elements of anti-intellectualism, scientific denialism, or apathy as part of the debate around strategic policy and implementation. While these issues can be politically volatile, they are presented here as plainly as possible. They adhere to the following structure: primary issue, majority consensus, minority opinion, and potential implications for national security policy practitioners. While it is beyond the scope of this thesis to assign validity to the scientific process used to construct the presented arguments, all reasonable measures were exhausted in utilizing sources that were known, reputable, and published for public consumption of their information.

A. CASE STUDY—CLIMATE CHANGE

1. Primary Issue

Climate change is significantly weighty and often convoluted issue. At its most elemental level, it involves the warming of Earth's temperatures and its subsequent effect on all life on the planet. The earth's temperature is determined by the balance of incoming solar radiation from the sun (both UV and visible "light") and its loss as it returns back out into space.⁸⁰ This interplay of heat entering and escaping provides a relatively consistent temperature pattern.

While some changes in the average temperature of the planet are cyclical, the earth has seen a significant and, scientifically speaking, rapid rise in average temperatures since the start of the industrial revolution.⁸¹ The U.S. average temperature has increased 1.9° Fahrenheit (F) since 1895.⁸² The year 2012 was the hottest year on record for both

⁸⁰ Mark A. Maslin, *Climate Change: A Very Short Introduction* (Oxford: Oxford University Press, 2014).

⁸¹ "A Blanket around the Earth," NASA, last updated March 2, 2016, <http://climate.nasa.gov/causes/>.

⁸² Jerry M. Melillo, Therese (T.C.) Richmond, and Gary W. Yohe, Eds., *Highlights of Climate Change Impacts in the United States: The Third National Climate Assessment* (Washington, DC: U.S. Global Change Research Program, 2014), <http://nca2014.globalchange.gov/>.

the United States and the world.⁸³ Research suggests that temperatures will rise “another 2°F to 4°F in most areas of the United States over the next few decades.”⁸⁴ This is attributed primarily to the human use of fossil fuels that, when burned, release carbon dioxide and other greenhouse gases into the atmosphere. This increase in greenhouse gases has created a barrier that traps heat close to the Earth’s surface, thereby increasing average global temperatures.⁸⁵

The importance of climate change cannot be overstated. It is a far-reaching issue that affects not only national security and global stability, but also the continued existence of our species.⁸⁶ It affects a wide variety of essential natural and manmade systems, including water resources, energy supply and usage, transportation, agriculture, ecosystems and biodiversity, land use, urban systems and infrastructure, and human health.⁸⁷ Models show that climate change will have broad implications on our nation’s economic stability, energy supplies to communities, increasingly devastating natural disasters (wildfires, flooding, etc.), and the ability for some communities to obtain drinking water on demand.⁸⁸ Scientists posit that while these changes will continue to worsen if not addressed, their impact (and threat) is not a dilemma we will face in the future; it is the scientific consensus that we are *currently* being impacted by climate change.⁸⁹

2. Majority Consensus

As one of the defining scientific challenges of the last quarter century, climate change has been extensively studied by scientists around the world.⁹⁰ Multiple studies

⁸³ Melillo, Richmond, and Yohe, *Highlights of Climate Change*.

⁸⁴ *Ibid.*

⁸⁵ “A Blanket around the Earth,” NASA.

⁸⁶ Richard A. Muller, *Physics for Future Presidents: The Science behind the Headlines* (New York: W. W. Norton, 2008).

⁸⁷ Melillo, Richmond, and Yohe, *Highlights of Climate Change*.

⁸⁸ *Ibid.*

⁸⁹ *Ibid.*

⁹⁰ “List of Worldwide Scientific Organizations,” California Governor’s Office of Planning & Research, accessed December 18, 2015, https://www.opr.ca.gov/s_listoforganizations.php.

published in peer-reviewed scientific journals, including the *Proceedings of the National Academy of Sciences*, demonstrate that “97 percent or more of actively publishing climate scientists agree that climate-warming trends over the past century exists,” and are very likely due to human activities.⁹¹ In fact, more than 200 international scientific academies and organizations hold the public position that climate change exists, and “has been caused by human action.”⁹²

A coalition of International Science Academies (consisting of the national academies of the United States, Great Britain, Italy, India, Brazil, France, Japan, Germany, Canada, China, India and Russia) have released a joint statement on climate change, noting:

Climate change is real. There will always be uncertainty in understanding a system as complex as the world’s climate. However, there is now strong evidence that significant global warming is occurring. The evidence comes from direct measurements of rising surface air temperatures and subsurface ocean temperatures and from phenomena such as increases in average global sea levels, retreating glaciers, and changes to many physical and biological systems. It is likely that most of the warming in recent decades can be attributed to human activities.⁹³

Individual statements from scientific organizations note that “the evidence is incontrovertible: Global warming is occurring” and that “it is clear from extensive scientific evidence that the dominant cause of the rapid change in climate of the past half century is human-induced.”⁹⁴ They have stated that climate change requires “urgent

⁹¹ W. R. L. Anderegg, “Expert Credibility in Climate Change,” *Proceedings of the National Academy of Sciences* 107, no. 27 (June 21, 2010): 12107–12109; Peter T. Doran and Maggie Kendall Zimmerman, “Examining the Scientific Consensus on Climate Change,” *Eos Transactions American Geophysical Union* 90, no. 3 (2009): 22–23, doi: 10.1029/2009EO030002; Naomi Oreskes, “Beyond the Ivory Tower: The Scientific Consensus on Climate Change,” *Science* 306, no. 5702 (December 3, 2004): 1686, doi: 10.1126/science.1103618; John Cook et al., “Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature,” *Environmental Research Letters* 8, no. 2 (June 2013).

⁹² “List of Worldwide Scientific Organizations,” California Governor’s Office.

⁹³ “Joint Science Academies’ Statement: Global Response to Climate Change,” International Science Academies, 2005, <http://nationalacademies.org/onpi/06072005.pdf>.

⁹⁴ “National Policy: Climate Change,” American Physical Society, accessed December 18, 2015, http://www.aps.org/policy/statements/07_1.cfm; “Climate Change: An Information Statement of the American Meteorological Society,” American Meteorological Society, accessed December 18, 2015, <https://www2.ametsoc.org/ams/index.cfm/about-ams/ams-statements/statements-of-the-ams-in-force/climate-change/>.

action” and that “rapid societal responses can significantly lessen negative outcomes.”⁹⁵ Furthermore, they have stated that without any changes to our human processes, “significant disruptions in the Earth’s physical and ecological systems, social systems, security and human health are likely to occur.”⁹⁶

3. Minority Opinion

Despite a statistically significant consensus from the scientific community, nearly 30 percent of Americans believe that climate change either does not exist, or is so relatively insignificant to the course of human events that it does not merit a global response.⁹⁷ Their arguments can largely be summarized into one of four central themes.

1. “There is nothing happening.”⁹⁸
(Also presents as “no evidence,” “contradictory evidence,” “no consensus” or “we aren’t sure why this is happening.”)
2. “Climate Change is Natural and not due to human activity.”⁹⁹
3. “If global warming is occurring and it is due to human activity, then it is not going to be damaging.”¹⁰⁰
4. “Climate Change cannot be stopped.”¹⁰¹
(Also presents as “too late,” “economically infeasible,” “humans should evolve to keep pace,” etc.)

⁹⁵ “Human-Induced Climate Change Requires Urgent Action,” American Geophysical Union, last modified August 2013, http://sciencepolicy.agu.org/files/2013/07/AGU-Climate-Change-Position-Statement_August-2013.pdf.

⁹⁶ “National Policy: Climate Change,” American Physical Society.

⁹⁷ Arthur Aron and Elaine N. Aron, *Statistics for the Behavioral and Social Sciences*, 2nd edition (New York: Pearson Education, 2001); Anthony Leiserowitz, *American Opinions on Global Warming* (New Haven, CT: Yale, 2015).

⁹⁸ “Global Warming Skeptic Organizations,” Union of Concerned Scientists, accessed December 15, 2015, http://www.ucsusa.org/global_warming/solutions/fight-misinformation/global-warming-skeptic.html#.VnGEs-MrJsM; Joe Weisenthal, “The 10 Most-Respected Global Warming Skeptics,” *Business Insider*, July 30, 2009, <http://www.businessinsider.com/the-ten-most-important-climate-change-skeptics-2009-7?op=1>; Clive Hamilton and Christian Downie, *Scorcher: The Dirty Politics of Climate Change* (Melbourne, Australia: Schwartz Publishing, 2007).

⁹⁹ Hamilton and Downie, *Scorcher*.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

While there has always been some opposition to environmental movements, the majority of issues were often relegated to local or regional matters. The global impact of climate problems, however, has moved the topic to one of national and international importance.¹⁰² Politically divisive, climate change has been subjected to stern, and often immovable, policy positions from national political figures. For examples of the political nature of the minority opinion (and the often explicit separation between politicians and scientists—a nod to Hofstadter’s theory of an “ingrained distrust of eggheads”), one need only look at public statements made by politicians in the 2016 American election for president:

- Donald Trump (billionaire, investor, author, television personality), appearing on a major cable news network, referred to the situation as “this whole global warming hoax.”¹⁰³
- Jeb Bush (former governor of Florida), when asked if he believed global warming is primarily man-made, answered, “I’m a skeptic. I’m not a scientist.”¹⁰⁴
- Rick Santorum (former U.S. senator from Pennsylvania) flatly stated, “There is no such thing as global warming.”¹⁰⁵ He has also stated that the study of the earth’s warming “is a really beautifully concocted scheme” and “junk science.”¹⁰⁶ In a separate interview, Santorum was asked, “Is there anything the United States can do about [climate change]?” to which he replied, “Is the climate warming? Clearly over the past, you know, 15 or 20 years, the question is yes. The question is, is man having a significant impact on that, number one. And number two, and this is even more important than the first, is there anything we can do about it? And

¹⁰² Issie Lapowsky, “How Climate Change Became a National Security Problem,” *Wired*, October 20, 2015, <http://www.wired.com/2015/10/how-climate-change-became-a-national-security-problem/>.

¹⁰³ Donald Trump, interview by Fox News for Fox & Friends, 2014.

¹⁰⁴ Tucker Carlson, “Jeb Bush: The Future of the Republican Party,” *Esquire*, July 8, 2009, <http://www.esquire.com/news-politics/a6027/jeb-bush-interview-0809/>.

¹⁰⁵ “Rick Santorum: ‘There Is No Such Thing as Global Warming,’” *Huffington Post*, August 25, 2011, http://www.huffingtonpost.com/2011/06/25/rick-santorum-glenn-beck-global-warming-oil_n_884646.html.

¹⁰⁶ Jillian Rayfield, “Rick Santorum: The Idea of Climate Change Is a Liberal Conspiracy,” *TPM*, June 9, 2011, <http://talkingpointsmemo.com/dc/rick-santorum-the-idea-of-climate-change-is-a-liberal-conspiracy>.

the answer is, is there anything the United States can do about it? Clearly, no.”¹⁰⁷

- Marco Rubio (sitting U.S. senator from Florida) stated, “I’m not a scientist.” and “I don’t agree with the notion that some are putting out there, including scientists, that somehow there are actions we can take today that would actually have an impact on what’s happening in our climate.”¹⁰⁸
- Ted Cruz (sitting U.S. senator from Texas, and chairman of the U.S. Senate Commerce Subcommittee on Space, Science, and Competitiveness), appearing on a late-night TV show, stated, “There’s been zero warming, none whatsoever.”¹⁰⁹
- Rick Perry (former governor of Texas) stated, “I’m not a scientist,” but continued to hold the position that the relationship between carbon dioxide and climate change is not “settled science.”¹¹⁰
- Scott Walker (sitting governor of Wisconsin), when asked if he believed in climate change, stated he was “not a scientist” and that “if you look even [at] the last 15 to 20 years, I think most scientists, regardless of what their belief is in the larger question, would say there hasn’t been a noticeable change in recent times.”¹¹¹

In an appeal to the 30 percent of voters who do not believe in climate change, or the 50 percent worried “only a little” or “not at all” about its effects, these claims delegitimize both the scientific community and the peer-reviewed data on the topic.¹¹²

¹⁰⁷ “Santorum: ‘Record Levels of Legal Immigration’ Hurting Jobs & Wages,” CNN, January 25, 2015, <http://cnnpressroom.blogs.cnn.com/2015/01/25/santorum-record-levels-of-legal-immigration-hurting-jobs-wages/>; Marco Rubio, interview by George Stephanopoulos for *This Week with George Stephanopoulos*, American Broadcast Company, 2014.

¹⁰⁸ Beth Reinhard, “Rubio Now Assails Cap-and-Trade Plan, Though He earlier Backed Legislation,” *Tampa Bay Times*, December 10, 2009, <http://www.tampabay.com/news/politics/stateroundup/rubio-now-assails-cap-and-trade-plan-though-he-earlier-backed-legislation/1057950>.

¹⁰⁹ “Committees,” Ted Cruz, accessed January 11, 2016, <http://www.cruz.senate.gov/?p=committees>; Ted Cruz, interview by Seth Myers for *Late Night with Seth Meyers*, National Broadcasting Company, 2015.

¹¹⁰ Rick Perry, *California Republican Primary Debate*, 2011; Todd J. Gillman, “In DC, Gov. Rick Perry Talks 2016, Ted Cruz, Climate Change, Border Security,” *Dallas Morning News*, June 19, 2014, <http://trailblazersblog.dallasnews.com/2014/06/in-dc-gov-rick-perry-talks-2016-ted-cruz-climate-change-border-security.html/>.

¹¹¹ Josh McElveen, “Commitment 2016 Conversation with the Candidate: Scott Walker,” WMUR, December 16, 2015, <http://www.wmur.com/politics/conversation-with-the-candidate/commitment-2016-conversation-with-the-candidate-scott-walker/34223130>.

¹¹² Leiserowitz, *American Opinions on Global Warming*.

Adding weight to their claims, many of these candidates are current or former governors or senators, relative heavyweights on the political landscape. The insistence that climate change is fabricated or of minimal concern promotes the idea that it is not a serious national threat to several sectors, and therefore not deserving of governmental action.

4. Potential Implications for National Security

In contrast to this minority opinion, the U.S. military and the Department of Defense (DOD) have invested significant effort in addressing the impact of climate change on national security. Based on the scientific consensus currently available, the DOD has noted that climate change will “aggravate problems such as poverty, social tensions, environmental degradation, ineffectual leadership and weak political institutions,” thereby threatening the stability of U.S. economic and security interests across the globe.¹¹³ Former Secretary of Defense Chuck Hagel has stated that climate change is a “threat multiplier,” noting that “rising global temperatures, changing precipitation patterns, climbing sea levels and more extreme weather events will intensify the challenges of global instability, hunger, poverty, and conflict.” Hagel expects that this will likely lead to “food and water shortages, pandemic disease, disputes over refugees and resources, and destruction by natural disasters in regions across the globe.”¹¹⁴ He went on to note, “Our first step in planning for these challenges is to identify the effects of climate change on the department with tangible and specific metrics, using the best available science.”¹¹⁵

TIME magazine echoes the secretary’s sentiment, stating, “Climate change is the ‘Mother of All Risks’ to national security.”¹¹⁶ It goes on to note that “climate change acts as a threat multiplier, exacerbating threats in already unstable regions of the world.”¹¹⁷ This

¹¹³ “DOD Releases Report on Security Implications of Climate Change,” Department of Defense, July 29, 2015, <http://www.defense.gov/News-Article-View/Article/612710>.

¹¹⁴ John Banusiewicz, “Hagel to Address ‘Threat Multiplier’ of Climate Change,” Department of Defense, October 13, 2014, <http://www.defense.gov/News-Article-View/Article/603440>.

¹¹⁵ Banusiewicz, “Hagel to Address ‘Threat Multiplier.’”

¹¹⁶ Jon Powers, “Climate Change Is the ‘Mother of All Risks’ to National Security,” *TIME*, November 6, 2015, <http://time.com/4101903/climate-change-national-security/>.

¹¹⁷ Powers, “Climate Change.”

sentiment is echoed in a strongly worded statement filed by a bipartisan group of 48 national security and foreign policy leaders—including three former secretaries of defense and two former secretaries of state.¹¹⁸ Their plea notes that climate change will lead to resource disputes, ethnic tensions and economic discontent.¹¹⁹ They have urged “the highest levels of American government and business to take domestic and international action to fight climate change.”¹²⁰

The policy discussion around climate change and climate sciences is not new. The topic has been discussed for decades, appearing in every presidential election cycle since 1988.¹²¹ It has been framed as a public health issue, an environmental issue and as an economic issue.¹²² It has only been relatively recently, however (with the construction of a 2003 NASA report titled *An Abrupt Climate Change Scenario and its Implications for United States National Security*), that climate science has been framed as a national security threat.¹²³ The latest report from the Pentagon offers little room for debate on the security issues they perceive. The report notes that climate change is “an urgent and growing threat to our national security” and that it is “contributing to increased natural disasters, refugee flows, and conflicts over basic resources such as food and water.”¹²⁴ Moreover, the report states that the impacts of climate change are a current threat, noting that “these impacts are already occurring, and the scope, scale, and intensity of these impacts are projected to increase over time.”¹²⁵

This Pentagon report is in addition to the branch-specific reports filed by the U.S. Army, Navy, and Coast Guard. The Army, for example, notes that global warming will

¹¹⁸ “Bipartisan Foreign Policy and National Security: Climate Action,” Partnership for a Secure America, accessed December 24, 2015, <http://www.psaonline.org/climateaction>.

¹¹⁹ “Bipartisan Foreign Policy,” Partnership for a Secure America.

¹²⁰ *Ibid.*

¹²¹ Suzanne Goldenberg, “US Presidential Debates’ Great Unmentionable: Climate Change,” *Guardian*, October 6, 2014, <http://www.theguardian.com/>.

¹²² Lapowsky, “How Climate Change Became a National Security Problem.”

¹²³ Peter Schwartz and Doug Randall, *An Abrupt Climate Change Scenario and its Implications for United States National Security* (Pasadena, CA: National Aeronautics and Space Administration, 2003).

¹²⁴ Department of Defense, *National Security Implications of Climate-Related Risks and a Changing Climate* (RefID 8-6475571) (Washington, DC: Department of Defense, 2015), <http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf?source=govdelivery>.

¹²⁵ Department of Defense, *National Security Implications*.

“include both direct and indirect effects on humans, built infrastructure, and the natural environment” relative to the Army’s strategic missions.¹²⁶ The Navy is studying this issue as a matter of “projecting U.S. undersea dominance in light of the changing physical properties of the oceans” and the Coast Guard notes climate-related environmental changes are changing economic incentives and geopolitical relationships in the Arctic region.¹²⁷ Their report specifically notes that the “risks posed or exacerbated by extreme weather, including recession of sea ice, droughts, severe storms, and diminishing river levels transcend national borders and impact DHS missions in new and uncertain ways.”¹²⁸ In fact, the DOD and U.S. military branches have filed more than 30 major reports about the serious impact of climate change in the last five years.¹²⁹ These reports expand upon similar themes found in President Obama’s commencement address to graduates of the United States Coast Guard Academy. In his address to the new officers, the president noted, “Climate change constitutes a serious threat to global security ... [which will] impact how our military defends our country.”¹³⁰ This is especially true when considering the Pentagon estimates that climate change can impact institutional effectiveness, making it difficult for governments (both foreign and domestic) to have the “capacity to respond constructively to the changing service demands.”¹³¹

The domestic impact of climate change offers similar projection to the international outlook. As the Pentagon report notes, though individual regions of the world may have more specific impacts based on geography and climate, they all “share a

¹²⁶ Timothy J. Hayden et al., *High-Level Climate Change Vulnerability Assessment* (Washington, DC: Department of the Army, 2013).

¹²⁷ National Research Council, *National Security Implications of Climate Change for U.S. Naval Forces: Letter Report* (Washington, DC: National Academies Press, 2010), doi: 10.17226/12897; United States Coast Guard, *Arctic Strategy* (Washington, DC: Department of Homeland Security, 2013), http://www.uscg.mil/seniorleadership/DOCS/CG_Arctic_Strategy.pdf.

¹²⁸ United States Coast Guard, *Arctic Strategy*.

¹²⁹ “Defense,” The Center for Climate Change & Security, accessed December 24, 2015, <http://climateandsecurity.org/resources/u-s-government/defense/>.

¹³⁰ “Remarks by the President at the United States Coast Guard Academy Commencement,” The White House, June 16, 2015, <https://www.whitehouse.gov/the-press-office/2015/05/20/remarks-president-united-states-coast-guard-academy-commencement>.

¹³¹ Department of Defense. *National Security Implications*.

common assessment of its significance.”¹³² While the Department of Homeland Security “continues to investigate program areas that could be affected by climate change, including human migration, workforce health, and infrastructure protection,” it is logical that some foreign issues (such as resource scarcity) can be extrapolated onto the domestic front.¹³³ Based on the available data, it is reasonable to assume that natural disasters, including the destabilizing effects of storms, droughts and floods, will have both operational and economic impacts on our country.¹³⁴ Projected domestic impacts are focused on the significant connection climate changes will have relative to critical infrastructure and key resources in communities.¹³⁵ As Acting Assistant Secretary for the Department of Homeland Security Thomas Smith recently testified before Congress, “To disregard natural disasters, pandemics, and climate change would be ignoring how these factors may indirectly act as ‘threat multipliers’; and neglect our shared responsibility to strategically manage risk and build a more prepared, resilient Nation.”¹³⁶

B. CASE STUDY—VACCINES AND IMMUNIZATIONS

1. Primary Issue

Originating in 1884, vaccines are products that produce immunity from diseases.¹³⁷ They consist of a dead or weakened germ, which enables a body’s defense system to build antibodies in order to fight off stronger versions of that particular type of

¹³² Ibid.

¹³³ Center for Climate and Energy Solutions, *Climate Change Adaptation: What Federal Agencies Are Doing* (Arlington, VA: Center for Climate and Energy Solutions, 2012), <http://www.c2es.org/docUploads/federal-agencies-adaptation.pdf>.

¹³⁴ Joshua Busby, *Climate Change and National Security: An Agenda for Action*, (New York: Council on Foreign Relations, 2007), <http://www.cfr.org/climate-change/climate-change-national-security/p14862>.

¹³⁵ “U.S. Department of Homeland Security (DHS) Climate Change Adaptation Roadmap,” Georgetown Climate Center, June 2012, <http://www.georgetownclimate.org/resources/us-department-of-homeland-security-dhs-climate-change-adaptation-roadmap>.

¹³⁶ *U.S. Department of Homeland Security Testimony for Acting Assistant Secretary Thomas P. Smith, Office of Policy—Strategy, Plans, Analysis, and Risk before the Committee on Homeland Security Subcommittee on Oversight and Management Efficiency, U.S. House* (2015), <http://docs.house.gov/meetings/HM/HM09/20150708/103703/HHRG-114-HM09-Wstate-SmithT-20150708.pdf>.

¹³⁷ “Vaccines Basics,” Department of Health and Human Services, accessed December 27, 2015, <http://www.vaccines.gov/basics/>; “Historic Dates and Events Related to Vaccines and Immunization,” Immunization Action Coalition, accessed December 27, 2015, <http://www.immunize.org/timeline/>.

germ.¹³⁸ Medical professionals introduce them into the body at specific intervals through needle injections, by mouth, or by aerosol.¹³⁹ Acting as a proactive agent against naturally acquired diseases, vaccines provide artificially acquired immunity.¹⁴⁰ They work to “prevent a disease from occurring in the first place rather than attempt a cure after the fact.”¹⁴¹

The use of vaccines has the mutual benefit of being good for both the individual who is immunized and the community at large.¹⁴² Essentially, “if a critical number of individuals within a community are vaccinated against a specific illness, the entire collective becomes less likely to get the disease.”¹⁴³ This herd immunity reinforces the community’s resiliency, making it more robust in the face of natural and man-made challenges.¹⁴⁴ Conversely, if too few people in a community receive vaccinations, diseases can reappear, acting “like a spark in tinder” and impacting the security of the larger group.¹⁴⁵

2. Majority Consensus

The majority consensus of both scientists and medical professionals is that, since coming into widespread use in the 20th century, “immunizations have saved billions of lives around the world.”¹⁴⁶ Many variations of severe and potentially deadly diseases, including smallpox, rabies, diphtheria, tetanus, measles, mumps, and rubella, have been

¹³⁸ “What Is a Vaccination and How Does it Work?” Public Health Agency of Canada, last modified January 20, 2014, <http://www.phac-aspc.gc.ca/im/vs-sv/vs-faq01-eng.php>.

¹³⁹ Department of Health and Human Services. “Vaccines Basics.”

¹⁴⁰ National Institutes of Health, *Understanding Vaccines: What They Are and How They Work* (Bethesda, MD: Department of Health and Human Services. 2008).

¹⁴¹ National Institutes of Health, *Understanding Vaccines*.

¹⁴² *Ibid.*

¹⁴³ *Ibid.*

¹⁴⁴ Department of Health and Human Services, “Community Immunity,” accessed December 28, 2015, <http://www.vaccines.gov/basics/protection/>.

¹⁴⁵ National Institutes of Health, *Understanding Vaccines*; Karla Lant, “Pathologist Warns Measles Outbreak Threatens Herd Immunity,” *Science Times*, May 7, 2015, <http://www.sciencetimes.com/articles/6138/20150507/pathologist-warns-measles-outbreak-threatens-herd-immunity.htm>.

¹⁴⁶ “The Effectiveness of Immunizations,” Department of Health and Human Services, accessed December 28, 2015, <http://archive.hhs.gov/nvpo/concepts/intro6.htm>.

controlled in many parts of the world thanks to their widespread use.¹⁴⁷ Per the Centers for Disease Control and Prevention (CDC), vaccines have “enhanced the quality of life, eliminated a huge burden of suffering and disability, and contributed to the length of life.”¹⁴⁸ Data specific to the impact of immunizations in the United States shows a sharp reduction in “the number of cases of, or deaths from, vaccine-preventable diseases, based on data from the National Immunization Program.”¹⁴⁹

It is important to note that long before a vaccine is licensed by the Food and Drug Administration (FDA) and available to the public, it goes through a rigorous trial and approval process.¹⁵⁰ A multiphase testing process must demonstrate both effectiveness and safety.¹⁵¹ Furthermore, vaccines are subject to continued scrutiny and reporting of use, side effects, indications, and contraindications throughout the life of the product license by the Vaccine Adverse Event Reporting System, a national vaccine safety surveillance program co-sponsored by the FDA and the CDC.¹⁵²

3. Minority Opinion

The most prevalent vaccine and immunization minority opinion surfaced in 1998, when British surgeon and medical researcher Andrew Wakefield published a fraudulent research paper. In Wakefield’s article, he claimed that autism spectrum disorders are linked to the combined measles, mumps and rubella (MMR) vaccine.¹⁵³ During subsequent medical, scientific, and journalistic inquiries, it was determined that Dr. Wakefield had intentionally manipulated evidence and did not disclose numerous

¹⁴⁷ Geoffrey A. Weinberg and Peter G Szilagyi, “Vaccine Epidemiology: Efficacy, Effectiveness, and the Translational Research Roadmap,” *Journal of Infectious Diseases* 201, no. 11 (June 1, 2010): 1607–1610, doi: 10.1086/652404.

¹⁴⁸ Weinberg and Peter G Szilagyi, “Vaccine Epidemiology.”

¹⁴⁹ Ibid.

¹⁵⁰ Department of Health and Human Services, “Vaccines Are Effective,” accessed December 28, 2015, <http://www.vaccines.gov/basics/effectiveness/index.html>.

¹⁵¹ “Vaccine Testing and the Approval Process,” Centers for Disease Control and Prevention (CDC), last modified December 28, 2015, <http://www.cdc.gov/vaccines/resdev/test-approve.htm>.

¹⁵² “Vaccine Testing,” CDC.

¹⁵³ Andrew Wakefield et al., “Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children,” *Lancet* 351 (1998): 637–41, doi: 10.1016/S0140-6736(97)11096-0.

conflicts of interest relative to his area of study.¹⁵⁴ The journal that carried the fraudulent article issued a partial retraction in 2004 and a full retraction in 2010.¹⁵⁵ Dr. Wakefield was found guilty of “serious professional misconduct” in May 2010 and barred from practicing as a doctor in the United Kingdom.¹⁵⁶

Despite extensive reviews and rebuttals of Wakefield’s manufactured evidence by the CDC, the Institute of Medicine at the U.S. National Academy of Sciences and the U.K. National Health Service, public fear took hold.¹⁵⁷ Although the public record was eventually corrected and Dr. Wakefield disbarred, a significant amount of damage to the public trust in medicine and science occurred. The false claims heralded dropping vaccination rates in the several countries.¹⁵⁸ In Britain, the rate of vaccination fell at a “breathtaking rate,” from 92 percent to 73 percent, and even to 50 percent in some areas of London.¹⁵⁹ This sharp drop was followed by a scientifically predictable increase of measles and mumps. Expectantly, this increase resulted in deaths as well as severe and permanent injuries.¹⁶⁰ In England and Wales, for example, more cases of measles were reported in 2006 and 2007 than the previous ten years combined.¹⁶¹

¹⁵⁴ Brian Deer, “MMR Doctor Andrew Wakefield Fixed Data on Autism,” *Sunday Times*, February 8, 2009, <http://www.thesundaytimes.co.uk/sto/public/news/article148992.ece>; Brian Deer, “The Wakefield Factor: Part 2: The Dispatches Film,” accessed December 28, 2015, <http://briandeer.com/wakefield-deer.htm>.

¹⁵⁵ Sarah Boseley, “Lancet Retracts ‘Utterly False’ MMR Paper,” *Guardian*, January 14, 2015, <http://www.theguardian.com>.

¹⁵⁶ Nick Triggle, “MMR Doctor Struck from Register,” BBC, May 24, 2010, <http://news.bbc.co.uk/2/hi/health/8695267.stm>.

¹⁵⁷ “Common Vaccine Safety Concerns,” CDC, last updated August 28, 2015, <http://www.cdc.gov/vaccinesafety/concerns>; The National Academies Institute of Medicine, *Immunization Safety Review: Vaccines and Autism* (Washington, DC: National Academies Press, 2004); “MMR the Facts,” Department of Health, March 1, 2003, http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002972.

¹⁵⁸ Peter McIntyre and Julie Leask, “Improving Uptake of MMR Vaccine,” *BMJ* 336, no. 7647 (April 5, 2008): 729–730, doi: 10.1136/bmj.39503.508484.80.

¹⁵⁹ Specter, *Denialism*.

¹⁶⁰ Mark B. Pepys, “Science and Serendipity,” *Clinical Medicine* 7, no. 6 (December 2007): 562–578, doi: 10.7861/clinmedicine.7-6-562.

¹⁶¹ Specter, *Denialism*.

While originating in the United Kingdom, the public hysteria over major vaccine-related medical issues quickly spread to the United States. In the decade-and-a-half since the fraudulent study was released, the concern has only increased. In 2001, despite scientists saying that it was “clear there was no connection between vaccines and autism,” U.S. newspapers made mention of the link more than four hundred times.¹⁶² In 2009, newspapers mentioned it three thousand times.¹⁶³ Compared to 2001, the evening news in 2010 had five times the number of stories on the link.¹⁶⁴ Physicians note that, absent direct scientific reasoning over what does cause autism, public fears are hard to quell.¹⁶⁵ They note that “the concepts around scientific testing are difficult to understand,” and concerned parents are bombarded with unverified information online, “making it tough to separate good science from bad.”¹⁶⁶

An example of this is the popular website “Health Impact News.” The site, which promises to deliver “news that impacts your health that other media sources may try to censor!” and to cover “the truth regarding the dangers of prescription medicines and vaccines” is formatted with a user interface that makes it appear like an online news agency.¹⁶⁷ Articles feature intentionally vague, hyperbolic titles, like “30 Scientific Studies Showing the Link between Vaccines and Autism” and “Is Your Unborn Baby Part of a Vaccine Experiment?”¹⁶⁸ Articles are often unattributed, offer no citations, are not peer reviewed, and many end with a promotional sale of products featuring “the

¹⁶² Elena Conis, “Jenny McCarthy’s New War on Science: Vaccines, Autism and the Media’s Shame,” Salon, November 8, 2014, http://www.salon.com/2014/11/08/jenny_mccarthys_new_war_on_science_vaccines_autism_and_the_medias_shame/.

¹⁶³ Conis, “Jenny McCarthy’s New War on Science.”

¹⁶⁴ Ibid.

¹⁶⁵ “Autism-Vaccine Link: Evidence Doesn’t Dispel Doubts,” WebMD, accessed December 28, 2015, <http://www.webmd.com/brain/autism/searching-for-answers/vaccines-autism>.

¹⁶⁶ “Autism-Vaccine Link,” WebMD.

¹⁶⁷ “About Health Impact News,” October 23, 2014, <http://healthimpactnews.com/about-health-impact-news/>.

¹⁶⁸ Lisa Joyce Goes, “30 Scientific Studies Showing the Link between Vaccines and Autism,” Health Impact News, March 22, 2013, <http://healthimpactnews.com/2013/30-scientific-studies-showing-the-link-between-vaccines-and-autism/>; Christina England, “Is Your Unborn Baby Part of a Vaccine Experiment?,” Health Impact News, October 8, 2015, <http://healthimpactnews.com/2015/is-your-unborn-baby-part-of-a-vaccine-experiment/>.

truth” about a common medical procedure or offering to sell the user a higher-quality “natural remedy” for a specific medical ailment.¹⁶⁹ The information offered on this style of website is characteristic of three major anti-intellectual models. First, noting the website’s tagline, is Hofstadter’s “paranoid style,” in which “experts,” along with mainstream news outlets and other cultural institutions are dismissed and discredited as being complicit in a larger master plan controlled from afar.¹⁷⁰ The ads for products can find a home in Charles Pierce’s model, which thrives on sowing a narrative of influence for profit by oversaturating the environment with perceived “experts.”¹⁷¹ Finally, Mooney and Kirshenbaum’s position on scientific apathy is present, as “news” stories are often couched in sophisticated language and cherry-picked datasets that support the website’s position.¹⁷²

In addition to the variety of pseudoscience websites like Health Impact Now, public fear has been guided into the mainstream discussion by way of celebrities and politicians. While not necessarily malevolent in their intent, celebrities and politicians often drift into scientific denialism in their search for understanding. As Specter contends, these types of public alarmists often share a combination of “decency, a fear of change, and the misguided desire to do good.”¹⁷³ One example of this type of individual in the vaccine debate is actress and former Playboy Playmate and MTV star Jenny McCarthy. Since appearing on *Oprah* to say she believes that a vaccination caused her son’s autism, McCarthy has been among the most vocal celebrities fueling the public outcry.¹⁷⁴ While appearing on *Larry King Live* to discuss the issue with three physicians, McCarthy shouted “Bulls***!” when the physicians presented medical information presented contrary to her claim.¹⁷⁵ Regarding McCarthy’s appearance on *Larry King*,

¹⁶⁹ England, “Your Unborn Baby.”

¹⁷⁰ Hofstadter, *Paranoid Style*, 29.

¹⁷¹ Pierce, *Idiot America*, 8.

¹⁷² Mooney and Sheril Kirshenbaum, *Unscientific America*, 6.

¹⁷³ Specter, *Denialism*, 6.

¹⁷⁴ Michael Hiltzik, “Jenny McCarthy: Anti-Vaxxer, Public Menace,” *Los Angeles Times*, January 27, 2015, <http://www.latimes.com/business/hiltzik/la-fi-mh-jenny-mccarthy-antivaxxer-public-menace-20150127-column.html>.

¹⁷⁵ Specter, *Denialism*, 6.

Specter noted, “Data, no matter how solid or frequently replicated, seems beside the point.”¹⁷⁶ McCarthy’s impassioned campaign has been called “actually harmful” for “spreading dangerous misinformation.”¹⁷⁷ During an exchange with another celebrity regarding the validity of her claims, she supported her position by stating, “There is an angry mob on my side.”¹⁷⁸ McCarthy is not alone in her distrust of science and celebrity status. Other notable stars who join McCarthy’s cause and who are featured in major box-office movies or internationally syndicated programming include the star’s ex-husband Jim Carrey, Alicia Silverstone, Charlie Sheen, Kirstie Alley, and Bill Maher.¹⁷⁹

The outcry is not limited to celebrities. Politicians have made similar statements of distrust with regards to vaccines and immunizations. In addition to the national prestige and influence these members carry in the public debate, they have the capacity to even more directly impact policy and funding to support their claims. It is also important to note that many of the following statements were made five to ten years after physicians and scientists at the National Academy of Sciences performed an exhaustive analysis of available data, conferred with an independent panel, and concluded that there was no evidence to suggest the existence of any relationship between vaccines and autism.¹⁸⁰

- John McCain (sitting U.S. senator from Arizona, chairman of the Senate Armed Services Committee and member of the Committee on Homeland Security and Governmental Affairs, and the Republican nominee for President in 2008) said he thought there was “pretty strong evidence that some vaccines cause autism.”¹⁸¹
- Barack Obama (in 2008, then sitting U.S. senator from Illinois and member of the Senate Committees on Health, Education, Labor, and Pensions and Homeland Security and Governmental Affairs) said, “We’ve

¹⁷⁶ Ibid.

¹⁷⁷ Arthur Allen, “Why Is Oprah Winfrey Promoting Vaccine Skeptic Jenny McCarthy?” Slate, May 6, 2009, http://www.slate.com/articles/health_and_science/medical_examiner/2009/05/say_it_aint_so_o.html.

¹⁷⁸ Specter, *Denialism*.

¹⁷⁹ Anna Merlan, “Here’s a Fairly Comprehensive List of Anti-Vaccination Celebrities,” Jezebel, June 30, 2015, <http://jezebel.com/heres-a-fairly-comprehensive-list-of-anti-vaccination-c-1714760128>.

¹⁸⁰ National Academies Institute of Medicine, *Immunization Safety Review*.

¹⁸¹ “Vaccine Safety: What Barack Obama, Rand Paul, Hillary Clinton, Chris Christie Say,” *Wall Street Journal*, February 2, 2015, <http://blogs.wsj.com/washwire/2015/02/02/vaccine-safety-what-barack-obama-rand-paul-chris-christie-say/>.

seen just a skyrocketing autism rate. Some people are suspicious that it's connected to the vaccines. The science right now is inconclusive, but we have to research it.”¹⁸²

- Donald Trump (2016 Republican presidential candidate, billionaire, investor, author, television personality) said in a televised interview, “I’m all for vaccinations, but I think that when you add all of these vaccinations together and then two months later the baby is so different ... I’ve known cases.” When the TV host interrupted Trump to note that “most physicians disagree with this position,” he dismissed the idea, casually noting, “Yeah, I know they do. ... I couldn’t care less.”¹⁸³
- Hillary Clinton (Former Senator from New York, who held positions on the Senate Committee on Health, Education, Labor and Pensions and the Armed Services’ Subcommittee on Emerging Threats and Capabilities; also former First Lady to President Bill Clinton) replied, “I am committed to make investments to find the causes of autism, including possible environmental causes like vaccines” when asked if “vaccines should be investigated as a ‘possible cause’ of autism.”¹⁸⁴
- Chris Christie (2016 Republican presidential candidate, sitting governor of New Jersey) has stated that it is “more important what you think as a parent than what you think as a public official. Not every vaccine is created equal, and not every disease type is as great a public-health threat as others.”¹⁸⁵
- Ben Carson (2016 Republican presidential candidate, retired neurosurgeon) stated in a presidential debate that “vaccines are very important. Certain ones. The ones that would prevent death or crippling. There are others, there are a multitude of vaccines which probably don’t fit in that category ... but, you know, a lot of this is—is—is pushed by big

¹⁸² “Vaccine Safety,” *Wall Street Journal*.

¹⁸³ Torie Bosch, “Donald Trump Enters Anti-Vaccine Quack Territory,” *Slate*, April 3, 2012, http://www.slate.com/blogs/xx_factor/2012/04/03/donald_trump_enters_anti_vaccine_quack_territory.html.

¹⁸⁴ “Vaccine Safety,” *Wall Street Journal*; “Senate Temporary Committee Chairs January 20–June 5, 2001,” University of Michigan, last updated May 24, 2001, <https://web.archive.org/web/20060807035520/http://www.lib.umich.edu/govdocs/congress/sncom012.html>; Jeff Gerth and Don Van Natta, “Hillary Rodham Clinton,” *New York Times*, February 8, 2015, http://www.nytimes.com/2007/05/29/magazine/03Hillary-t.html?_r=0.

¹⁸⁵ “Vaccine Safety,” *Wall Street Journal*.

government. And I think that's one of the things that people so vehemently want to get rid of, big government."¹⁸⁶

- Rand Paul (sitting U.S. senator from Tennessee, member of the Senate Committee on Homeland Security and Governmental Affairs, and a board-certified physician) noted that parents should have the freedom to opt out of vaccinating their children as a matter of liberty, saying, "I have heard of many tragic cases of walking, talking normal children who wound up with profound mental disorders after vaccines."¹⁸⁷

By reputable medical accounts, Wakefield's misrepresentation of data had serious ramifications.¹⁸⁸ Medical professionals, health journals, and science-based editors have described Wakefield's actions "as fraudulent and tied them to epidemics and deaths."¹⁸⁹ A 2011 journal article went so far as to describe the vaccine-autism connection as "perhaps the most damaging medical hoax of the last 100 years."¹⁹⁰

4. Potential Implications for National Security

Wakefield's lies also had a serious impact on the public trust of science, the medical professions and the government's involvement in providing for the health and

¹⁸⁶ Julie Beck, "How Donald Trump and Ben Carson's Vaccine Comments Play to Republican Fears," *Atlantic*, September 17, 2015, <http://www.theatlantic.com/health/archive/2015/09/ben-carson-donald-trump-republican-presidential-debate-vaccine-autism-science-government/405901/>.

¹⁸⁷ "Vaccine Safety," *Wall Street Journal*; "Sen. Rand Paul," GovTrack, accessed January 11, 2016, https://www.govtrack.us/congress/members/rand_paul/412492.

¹⁸⁸ John Gever, "BMJ Lifts Curtain on MMR-Autism Fraud," *Medpage Today*, January 5, 2011, <http://www.medpagetoday.com/Pediatrics/Autism/24203>; Fiona Godlee, "The Fraud behind the MMR Scare," *BMJ* 342 (2011): d22, doi: 10.1136/bmj.d22; Brian Deer, "Piltown Medicine: The Missing Link between MMR and Autism," *BMJ*, January 6, 2011, <http://blogs.bmj.com/bmj/2011/01/06/brian-deer-piltown-medicine-the-missing-link-between-mmr-and-autism/>; "Link between MMR Vaccines and Autism Conclusively Broken," *International Business Times*, November 28, 2012, <http://www.ibtimes.com/link-between-mmr-vaccines-autism-conclusively-broken-253071>; "BMJ Declares Vaccine-Autism Study 'an Elaborate Fraud,'" *WebMD*, January 6, 2011, <http://www.webmd.com/brain/autism/news/20110106/bmj-declares-vaccine-autism-study-fraud>.

¹⁸⁹ "BMJ Declares Vaccine-Autism Study 'an Elaborate Fraud,'" *WebMD*.

¹⁹⁰ Dennis K. Flaherty, "The Vaccine-Autism Connection: A Public Health Crisis Caused by Unethical Medical Practices and Fraudulent Science," *Annals of Pharmacotherapy* 45, no. 10 (October 2011): 1302-1304, doi:10.1345/aph.1Q318.

security of its people.¹⁹¹ According to the most recent research, just 19 percent of Americans say they can trust the federal government “always or most of the time.”¹⁹² As Pew Research notes, this is among the lowest levels in over 50 years.¹⁹³

Following trends that show a general distrust of institutions, the medical profession is currently experiencing a similar crisis of participant confidence.¹⁹⁴ A *New England Journal of Medicine* article reported, “Public trust in the leaders of the U.S. medical profession has also declined sharply over the past half century.”¹⁹⁵ In 2012, only 34 percent of Americans expressed “great confidence” in the leaders of the medical profession (down from 73 percent in 1966).¹⁹⁶ While the study notes that, on an individual basis, consumers often communicated trust in their primary care physicians, a lack of trust in the collective system can be impactful when discussing national issues like vaccines or pandemics.¹⁹⁷ The long-term erosion of public trust is exacerbated by world events like the vaccine-autism connection and mirrors a steep decline in the belief that the government is run for the benefit of all Americans.¹⁹⁸ When specifically asked about the government’s role in immunization, “trust” continues to be an issue. In interviews, respondents have stated that factors contributing to their skepticism include

¹⁹¹ Brian Shilhavy, “Can We Trust the CDC? British Medical Journal Reveals CDC Lies about Ties to Big Pharma,” Health Impact News, June 4, 2015, <http://healthimpactnews.com/2015/can-we-trust-the-cdc-british-medical-journal-reveals-cdc-lies-about-ties-to-big-pharma/>; Claire McCarthy, “Who Do You Trust about Vaccines: Your Doctor or Your Friends?” Boston.com, January 22, 2015, http://www.boston.com/lifestyle/health/mdmama/2015/01/who_do_you_trust_about_vaccines_your_doctor_or_your_friends.html; “Why You Trust the Internet More than Your Doctor,” Daily Beast, February 26, 2015, <http://www.thedailybeast.com/articles/2015/02/26/why-you-trust-the-Internet-more-than-your-doctor.html>.

¹⁹² George Gao, “15 Striking Findings from 2015,” Pew Research Center, December 22, 2015, <http://www.pewresearch.org/fact-tank/2015/12/22/15-striking-findings-from-2015/>.

¹⁹³ Gao, “15 Striking Findings.”

¹⁹⁴ Robert Blendon, John Benson, and Joachim Hero, “Public Trust in Physicians—U.S. Medicine in International Perspective,” *New England Journal of Medicine* 371 (October 23, 2014): 1570–1572, doi: 10.1056/NEJMp1407373.

¹⁹⁵ Blendon, Benson, and Hero, “Public Trust in Physicians.”

¹⁹⁶ Ibid.

¹⁹⁷ Ibid.

¹⁹⁸ “The Limitations of Science,” College of DuPage.

the fact that “the press is an unreliable source of information, that the government is inept, and that big pharmaceutical companies are corrupting medicine.”¹⁹⁹

Lack of “public trust” can be a nebulous concept, but it has very real consequences. If the same anti-intellectualism, denialism and scientific illiteracy are applicable in the pediatric vaccine debate, it is reasonable that similar strands would be present in other public health emergencies, including bioterrorism. As the *New England Journal of Medicine* noted, the vaccine-related distrust resulted in a high cost to society, “including damage to individual and community well-being from outbreaks of previously controlled diseases, withdrawal of vaccine manufacturers from the market, compromising of national security (in the case of anthrax and smallpox vaccines), and lost productivity.”²⁰⁰ Statistical data from a non-malicious public health event supports this theory. During the winter of 2009–2010, the World Health Organization “declared the first worldwide pandemic in more than 40 years.”²⁰¹ In the United States alone, the swine flu virus killed 12,500 people and sickened 61 million, 275,000 of whom required hospitalization.²⁰² A vaccine was developed, and the CDC handled information regarding immunization nationally.²⁰³ A Pew Research study, however, noted that “only 50.4 percent of Americans indicated that they would take the vaccine.”²⁰⁴ Survey respondents indicated that “confidence in the government was the driving force in individual vaccination views.”²⁰⁵ Those distrusting the government’s ability were “more likely to be

¹⁹⁹ Beck, “How Donald Trump and Ben Carson.”

²⁰⁰ Gregory Poland and Robert Jacobson, “The Age-Old Struggle against the Antivaccinationists,” *New England Journal of Medicine* 364 (January 13, 2011), doi:10.1056/NEJMp1010594.

²⁰¹ “Pandemic (H1N1) 2009,” World Health Organization. Accessed December 28, 2015. <http://www.who.int/csr/disease/swineflu/en/>.

²⁰² Jeff Grabmeier, “Confidence in Government Linked to Willingness to Vaccinate,” The Ohio State University, February 2, 2015, <https://news.osu.edu/news/2015/02/02/confidence-in-government-linked-to-willingness-to-vaccinate/>.

²⁰³ “The 2009 H1N1 Pandemic: Summary Highlights, April 2009–April 2010,” CDC, last updated June 16, 2010, <http://www.cdc.gov/h1n1flu/cdcresponse.htm>.

²⁰⁴ “Growing Interest in Swine Flu, Many See Press Overstating its Danger,” Pew Research Center, October 15, 2009, <http://www.people-press.org/2009/10/15/growing-interest-in-swine-flu-many-see-press-overstating-its-danger/>; Grabmeier, “Confidence in Government.”

²⁰⁵ Grabmeier, “Confidence in Government.”

older, middle income, identify as politically conservative and less likely to follow media reports about the outbreak.”²⁰⁶ Additionally, those who “watched more news were more likely to want the vaccine.”²⁰⁷

As evident in the swine flu pandemic, the relationship between science and public trust has tangible impacts in our collective security. While the decision to immunize is a personal one, immunizations work on the theory of collective protection.²⁰⁸ If “a sufficient number of individuals make the decision not to seek a known vaccine, the protection levels in the community decline, the herd immunity effect is lost, and the risk of transmission rises,” increasing our collective exposure to that which does us harm, and those who wish to do us harm.²⁰⁹

C. CASE STUDY—JADE HELM

1. Primary Issue

In accordance with long-standing practices, the U.S. military conducts training and readiness exercises throughout the world, including on domestic soil.²¹⁰ In the summer of 2015, a training exercise titled “Jade Helm 15” took place across the mostly rural landscapes of seven states. The event was organized and planned by the United States Army Special Operations Command.²¹¹ According to the unclassified “Request to Conduct Realistic Training: JADE HELM 15” (RCRT), the exercise was to be “a challenging eight-week joint military and interagency (IA) unconventional warfare (UW) exercise conducted throughout Texas, New Mexico, Arizona, California, Nevada, Utah,

²⁰⁶ Ibid.

²⁰⁷ Ibid.

²⁰⁸ Kevin Malone and Alan Hinman, *Vaccination Mandates: The Public Health Imperative and Individual Rights* (Atlanta, GA: CDC, 2003), http://www.cdc.gov/vaccines/imz-managers/guides-pubs/downloads/vacc_mandates_chptr13.pdf.

²⁰⁹ “Confidence in Government,” The Ohio State University.

²¹⁰ Joint Chiefs of Staff, *2015–2018 Chairman’s Joint Training Guidance* (Washington, DC: Department of Defense, 2014), http://www.dtic.mil/doctrine/training/cjcsn3500_01.pdf.

²¹¹ U.S. Army Special Operations Command, *Request to Conduct Realistic Military Training (RMT): JADE HELM 15* (Fort Bragg, NC: U.S. Army Special Operations Command, 2015), <http://wtaw.com/wp-content/uploads/2015/02/BrCoComm021015ArmySpecialOpsCommand.pdf>.

and Colorado.”²¹² Exercise participants featured in the training were from across the DOD and U.S. government, and included U.S. Army Special Forces Command (Green Berets), U.S. Navy SEALs, U.S. Air Force Special Operations Command, U.S. Marine Corps Special Operations Command, U.S. Marine Corps Expeditionary Units, 82nd Airborne Division, and interagency partners.²¹³

The RCRT states that the goals of the exercise included training “to improve the unconventional warfare capability of U.S. special operations forces as part of the national security strategy,” and to “determine the pros and cons associated with the exercise.”²¹⁴ Specifically, the U.S. military noted that they chose locations based on their ability to help hone advanced skills associated with “large areas of undeveloped land with low population densities with access to towns.”²¹⁵ These locations offered “the conditions conducive to quality training because of real obstacles to challenge Joint and IA personnel during planning and execution of their tasks.”²¹⁶ In their pre-event briefings, the military noted that this training would allow service members to work on “challenges” including “operating outside the normal support mechanisms and adapting to unfamiliar terrain.”²¹⁷

2. Majority Consensus

To most, the training exercise was in line with acceptable standards of routine force readiness.²¹⁸ Army officials stated that the specific exercises were directly related to understanding “new warfare tactics and procedures in a landscape similar to combat

²¹² U.S. Army Special Operations Command, *JADE HELM 15*.

²¹³ *Ibid.*

²¹⁴ *Ibid.*

²¹⁵ *Ibid.*

²¹⁶ *Ibid.*

²¹⁷ *Ibid.*

²¹⁸ “Exercise Readies SOF for Threats Abroad,” U.S. Army Special Operations Command, March 24, 2015, <http://www.soc.mil/UNS/Releases/2015/March/150324-03.html>; Manny Fernandez, “As Jade Helm 15 Military Exercise Begins, Texans Keep Watch ‘Just in Case.’” *New York Times*, July 16, 2015. <http://www.nytimes.com/>.

zones in the Middle East and Afghanistan.”²¹⁹ The Army projected minimal day-to-day disruptions in the chosen locations, as the specific training areas were remote.²²⁰ “The most noticeable effect the exercise may have on the local communities,” A *Los Angeles Times* article explained, “is a slight increase in vehicle traffic and the limited use of military aircraft and its associated noise.”²²¹

The U.S. Army noted in their request for training that the United States Special Operations Command “has conducted numerous exercises in Texas, because Texans are historically supportive of efforts to prepare our soldiers, airmen, marines and sailors to fight the enemies of the United States.”²²² Former Texas Lieutenant Governor David Dewhurst echoed that support, writing in an impassioned plea that Texans “stand together and open our arms in grateful support for U.S. Special Forces and the other units who will participate in their training. When they arrive, they should be greeted by a freshly-swept welcome mat, not suspicion and angry protest.”²²³ He further noted the importance of this exercise, stating that in order “to maximize their effectiveness and protect their lives, our military must train continually. Texas, with our network of bases, has long been a preferred site for that training.”²²⁴ Finally, he noted that the soldiers involved in Jade Helm “love their country and they’re willing to die to defend your liberties.”²²⁵

The U.S. Army Special Operations Command executed the Jade Helm 15 training exercise from July 15, 2015, through September 15, 2015.²²⁶ The exercise ended after

²¹⁹ Molly Hennessy-Fiske, “Why Some Texans Are Suspicious of a Massive Military Operation Called Jade Helm 15,” *Los Angeles Times*, July 14, 2015, <http://www.latimes.com/nation/nationnow/la-na-nn-texas-jade-helm-military-20150714-story.html>.

²²⁰ Hennessy-Fiske, “Why Some Texans Are Suspicious.”

²²¹ *Ibid.*

²²² U.S. Army Special Operations Command, *JADE HELM 15*.

²²³ David Dewhurst, “Suspicion of Our Own Troops Must Stop,” *Dallas Morning News*, April 30, 2015, <http://www.dallasnews.com/opinion/latest-columns/20150430-david-dewhurst-suspicion-of-our-own-troops-must-stop.ece>.

²²⁴ Dewhurst, “Suspicion.”

²²⁵ *Ibid.*

²²⁶ U.S. Army Special Operations Command, *JADE HELM 15*.

two months of operations. The Army said that the operation was a success, and that any lessons learned would be shared following after-action debriefs.²²⁷

3. Minority Opinion

According to the minority opinion, the Jade Helm exercise took on a much more sinister and conspiratorial role toward U.S. citizens. This opinion was led by conspiracy theorist Alex Jones, who has been described by *New York* magazine as “America’s leading conspiracy theorist,” and whose other conspiracies include, but are not limited to, government control of hurricanes, homosexuality-inducing juice boxes, and shape-shifting lizard people from outer space.²²⁸ With Jones’ help, the seemingly routine military exercise became a hotbed of unfounded ideas based on violent actions by the government against their own citizens. In the months prior to the event, and through the eight weeks of the active exercise, several alternative theories for the training surfaced. Ranging from general to specific, citizens began to believe the exercise was truly intended to:

- impose martial law²²⁹
- acclimatize people to martial law in America²³⁰

²²⁷ Dan Lamothe, “Remember Jade Helm 15, the Controversial Military Exercise? It’s over,” *Washington Post*, September 14, 2015. <https://www.washingtonpost.com/>.

²²⁸ Joe Coscarelli, “An Interview with Alex Jones, America’s Leading (and Proudest) Conspiracy Theorist,” *New York Magazine*, November 18, 2013, <http://nymag.com/daily/intelligencer/2013/11/alex-jones-americas-top-conspiracy-theorist.html>; “Flashback: ‘Father of Weather Weapons’ Exposes Secrets to Climate Warfare,” *InfoWars*, October 5, 2015, <http://www.infowars.com/flashback-father-of-weather-weapons-exposes-secrets-to-weather-warfare/>; Bob Cesca, “Alex Jones: The Government Is Trying to Make More Gay People,” *Daily Banter*, January 24, 2013, <http://thedailybanter.com/2013/01/alex-jones-the-government-is-trying-to-make-more-gay-people/>; Jim Ashby, “Alex Jones Pretends to Be a Lizard Man from Space in Epic Display of Insanity,” *Bob & Chez Show*, December 21, 2015, <http://www.bobcesca.com/blog-archives/2013/10/alex-jones-pretends-to-be-a-lizard-man-from-space-in-epic-display-of-insanity.html>.

²²⁹ “Jade Helm 15: Decoded,” *Oathkeepers*, April 22, 2015, <https://www.oathkeepers.org/jade-helm-15-decoded/>; Fernandez, “Jade Helm 15.”

²³⁰ “Jade Helm 15 Is NOT a Martial Law Takeover,” YouTube Video, posted by “The Alex Jones Channel,” January 2, 2016, <https://www.youtube.com/watch?v=Oe1YHswZ33U>.

- mobilize the military so the federal government could then take control of Texas²³¹
- implement dramatic gun control and/or remove weapons from citizenry²³²
- utilize area Wal-Mart stores as FEMA concentration-style camps for political prisoners²³³ (a tributary of this theory involved the transportation of prisoners to camps around the country by train cars that had been equipped with restraint shackles.)²³⁴
- coordinate U.S. troops with an “ISIS base camp” slightly south of the Mexican–American border.²³⁵ Suspicion surrounded the belief that U.S. troops would cooperate with ISIS to impose their combined communist-Sharia ideology on the Texas population.²³⁶

The predominant themes of these theories fit into Hofstadter’s model of the “paranoid style” of anti-intellectualism.²³⁷ In this model, anti-intellectualism is not the intent; rather, it is the means to justify the theory of a vast and sinister conspiracy that is set in motion “to undermine and destroy a way of life.”²³⁸ Credible experts (in this case the secretary of defense and senior military commanders), along with mainstream news

²³¹ Wade Goodwyn, “Texas Governor Deploys State Guard to Stave off Obama Takeover,” NPR, May 2, 2015, <http://www.npr.org/sections/itsallpolitics/2015/05/02/403865824/texas-governor-deploys-state-guard-to-stave-off-obama-takeover>.

²³² Paul Helinski, “Is Jade Helm about Firearm Confiscation?” Guns America, April 19, 2015, <https://www.gunsamerica.com/blog/is-jade-helm-about-firearm-confiscation/>; Dave Hodges, “This Purpose of Jade Helm Is the Most Dangerous of All,” Freedom Outpost, June 18, 2015, <http://freedomoutpost.com/2015/06/the-4th-purpose-of-jade-helm-is-the-most-dangerous-of-all/>; Fernandez, “Jade Helm 15.”

²³³ Dave Hodges, “Closed Walmarts to Be Guerilla Warfare Staging Areas in Response to Invasion,” The Common Sense Show, April 30, 2015, <http://www.thecommonsenseshow.com/2015/04/30/closed-walmarts-to-be-guerilla-warfare-staging-areas-in-response-to-invasion/>.

²³⁴ Mac Slavo, “Texas Ranger Drops Jade Helm Bombshell: ‘There Are Trains with Shackles on Them,’” April 29, 2015, http://www.shtfplan.com/headline-news/texas-ranger-drops-jade-helm-bombshell-there-are-trains-with-shackles-on-them_04292015.

²³⁵ Dave Hodges, “The Connection between Jade Helm and ISIS,” The Common Sense Show, August 27, 2015, <http://www.thecommonsenseshow.com/2015/04/17/the-connection-between-jade-helm-and-isis/>; Amy Davidson, “Unclear Dangers,” *New Yorker*, May 18, 2015, <http://www.newyorker.com/magazine/2015/05/18/unclear-dangers>; FBI Director James Comey addressed the rumors of an ISIS base near Ciudad Juárez, which the government was said to be trying to cover up. “Nonsense,” Comey said. “We do run out every tip to make sure there isn’t something to it. There is nothing to it.”

²³⁶ Sean Collins Walsh, “Texas Labeled as ‘Hostile’ Territory in Army’s Jade Helm Training,” Statesman, April 28, 2015, <http://www.statesman.com/news/news/national/bastrop-critics-on-armys-jade-helm-training-come-a/nk454/>.

²³⁷ Hofstadter, *Paranoid Style*, 29.

²³⁸ Ibid.

outlets and other cultural institutions, are dismissed and discredited as being complicit in a larger master plan controlled from afar. Also present in these theories is Jacoby's "new species of semiconscious anti-rationalism ... leaving no room for contemplation or logic."²³⁹

Conspiracy theories surrounding the federal government and military are not new.²⁴⁰ Relatively unique to Jade Helm, however, was the fervor and reach of this theory beyond the typical conspiratorial audience and into mainstream public and political discussions; Jade Helm was discussed on a wide range of international outlets, including the *New York Times*, the *Wall Street Journal*, the *Los Angeles Times* and *The Daily Show*.²⁴¹

Like the discussions around global warming and vaccines, celebrities added their influence into the mix as well. Movie and TV star Chuck Norris penned an op-ed for the Christian-focused website WND, stating, "The U.S. government says, 'It's just a training exercise.' But I'm not sure the term 'just' has any reference to reality when the government uses it."²⁴² Coincidentally (and similar to the for-profit product placement found in many anti-intellectual vaccine/immunization websites) in the middle of Norris' online op-ed, there is a link for a site that sells Chuck Norris's book *Black Belt*

²³⁹ Jacoby, *Age of American Unreason*, xi.

²⁴⁰ "Conspiracy Theories," *TIME*, accessed January 6, 2016, <http://content.time.com/time/specials/packages/completelist/0,29569,1860871,00.html>.

²⁴¹ Manny Fernandez, "Conspiracy Theories over Jade Helm Training Exercise Get Some Traction in Texas," *New York Times*, May 7, 2015, <http://www.nytimes.com/2015/05/07/us/conspiracy-theories-over-jade-helm-get-some-traction-in-texas.html>; Gordon Lubold, "U.S. Defense Secretary: No Texas Invasion," *Wall Street Journal*, May 7, 2015, <http://blogs.wsj.com/washwire/2015/05/07/u-s-defense-secretary-no-texas-invasion/>; Patt Morrison, "Operation Jade Helm: Crank Up the Conspiracies," May 22, 2015, *Los Angeles Times*, <http://www.latimes.com/opinion/opinion-la/la-ol-operation-jade-helm-crank-up-the-conspiracies-20150522-story.html>; Dan Lamothe, "Watch Jon Stewart Rip Reaction to Jade Helm 15, the Military Exercise Spawning Conspiracy Theories," *Washington Post*, May 5, 2015, <https://www.washingtonpost.com/news/checkpoint/wp/2015/05/05/watch-jon-stewart-rip-reaction-to-jade-helm-15-the-military-exercise-spawning-conspiracy-theories/>.

²⁴² Chuck Norris, "Jade Helm 15, Crime Stoppers and KSK," March 5, 2015, WND, <http://www.wnd.com/2015/05/jade-helm-15-crime-stoppers-and-ksk/>; Mr. Norris later stated that the mainstream media outlets misquoted his comments, stating in a second WND op-ed, "I never ever said that a seven-state U.S. military operation intended to take over Texas."

Patriotism, which promises to provide “real solutions to our county’s problems and a way to reawaken the American dream.”²⁴³

Politicians at the highest state and national levels also waded into the malicious theories:

1. Ted Cruz (2016 Republican presidential candidate, sitting U.S. senator from Texas, member of the Subcommittee on Emerging Threats and Capabilities) stated, “My office has reached out to the Pentagon to inquire about this exercise. We are assured it is a military training exercise. I have no reason to doubt those assurances, but I understand the reason for concern and uncertainty, because when the federal government has not demonstrated itself to be trustworthy in this administration, the natural consequence is that many citizens don’t trust what it is saying.”²⁴⁴ Cruz, speaking later at a conference, referenced the Jade Helm 15 exercise, noting, “Just because you’re paranoid, doesn’t mean they’re not out to get you.”²⁴⁵
2. Greg Abbott (sitting governor of Texas) ordered the Texas State Guard to “keep an eye” on the federal troop involvement.²⁴⁶
3. Louie Gohmert (sitting U.S. congressman from Texas, vice chair on the House Subcommittee on Crime, Terrorism, and Homeland Security, and former officer in the U.S. Army) said that he “understood the concerns” about the Army “preparing for a modern-day martial law.”²⁴⁷ Gohmert also noted that he was upset about the usage of a hypothetical map that depicted some areas as hostile, permissive, or uncertain but leaning hostile or permissive.²⁴⁸

²⁴³ Chuck Norris, “Jade Helm 15”; “Black Belt Patriotism: How to Reawaken America (hardcover),” WND Superstore, accessed January 3, 2016, <http://superstore.wnd.com/Black-Belt-Patriotism-How-to-Reawaken-America-AutographedHardcover>.

²⁴⁴ “Committees,” Ted Cruz; David Weigel, “Ted Cruz Says He Has Asked the Pentagon for Answers on Jade Helm 15,” *Bloomberg*, May 2, 2015, <http://www.bloomberg.com/politics/articles/2015-05-02/ted-cruz-says-he-has-asked-the-pentagon-for-answers-on-jade-helm-15>.

²⁴⁵ Weigel, “Ted Cruz Says.”

²⁴⁶ Kyle Jahner, “Jade Helm 15: Controversial Military Exercise Starts Wednesday,” *Army Times*, July 15, 2015, <http://www.armytimes.com/story/military/2015/07/14/jade-helm-starts-army-special-operations-exercise/30144561/>; Mr. Abbott later walked back his comments, saying the guard’s role was advisory, and would serve as a conduit for better communication between soldiers and the community. He also reaffirmed the state’s history of support for the military.

²⁴⁷ “Gohmert Statement on Jade Helm Exercises,” Louie Gohmert, May 5, 2015, <http://gohmert.house.gov/news/documentsingle.aspx?DocumentID=398216>; “Committees,” Louie Gohmert, accessed January 11, 2016, <http://gohmert.house.gov/biography/committees.htm>.

²⁴⁸ “Committees,” Louie Gohmert.

The political banter about Jade Helm 15 became so consistent that sitting Secretary of Defense Ash Carter came to the exercise's defense. When asked by a reporter, "In terms of Jade Helm, can you say clearly, is the U.S. military planning to overtake Texas, as is being asserted by [Senator Ted Cruz]?" Secretary Carter replied bluntly, "No."²⁴⁹ When pressed again, Carter elaborated further, "We have given information to authorities in Texas, any information that they've requested. We're very open and up front about our training activities in the United States, and I should say that we're very grateful for the support of communities around the United States in all of our training facilities. ... It's very important."²⁵⁰

4. Potential Implications for National Security

While conspiracy theories involving the government are not new, the marked difference in Jade Helm is twofold. First is the level of intensity and reach that the theory ultimately achieved. Coverage across major news networks, notable national print publications and thousands of digital platforms required a direct response from both the director of the FBI and the secretary of defense. That such a response from senior-most officials was warranted demonstrates the reach and fervor of the fear.

The notable second element relative to Jade Helm is the non-direct implication that the military would be complicit in operations directed at citizenry. While public polling shows favorable support of the U.S. military continues to hold strong at 72 percent nationally in 2015 (leading all other institutions in the sample, including police officers, religious organizations and schools), the theories behind Jade Helm 15 demonstrate a glaring distrust.²⁵¹ They show a concern that, while the public appreciates service in uniform, our fellow citizens must be viewed with distrust when operating domestically.

²⁴⁹ "Transcript: Department of Defense Press Briefing by Secretary Ash Carter and General Martin E. Dempsey in the Pentagon Briefing Room," Department of Defense, December 22, 2015, <http://www.defense.gov/News/News-Transcripts/Transcript-View/Article/607048/departement-of-defense-press-briefing-by-secretary-ash-carter-and-general-martin>.

²⁵⁰ "Press Briefing by Secretary Ash Carter," Department of Defense.

²⁵¹ "Confidence in Institutions," Gallup, June 17, 2015, <http://www.gallup.com/poll/1597/confidence-institutions.aspx>; In this same poll, "The Presidency" and "Congress" ranked 33% and 8%, respectively, when asked if they supported the institution a "Great deal or Quite a lot."

During the build up to Jade Helm, political officials and commentators were quick to issue statements that endorsed the individual soldier, while attacking the “government,” “this administration,” or the hyperbolic “Gestapo.”²⁵² Chuck Norris offered a prime example of this sentiment, stating, “Concerned Texans and Americans are in no way calling into question our brave and courageous men and women in uniform. They are merely following orders. What’s under question are those who are pulling the strings at the top of Jade Helm 15 back in Washington.”²⁵³ Despite how carefully the words in these statements are chosen to avoid appearing unpatriotic, the underlying implication is that the nation’s most elite military personnel are capable and willing to impose unmerited martial law against their own fellow citizens across seven states.

This distrust of not only government, but by association the military—which serves as the acting agent of government decisions—can be extrapolated beyond non-training domestic situations. From large-scale HAZMAT responses after a terrorist incident, to search and rescue operations after a natural disaster, to involvement in mass casualty events, the military often has domestic roles in the nation’s safety and security.²⁵⁴ When the public is prepared to turn from reasonable outcomes to suspicions of their fellow citizens who serve in uniform, there is a tangible impact to our collective security. As Jade Helm was in progress, this suspicion manifested itself in a credible threat against the U.S. military.²⁵⁵

In August of 2015, three weeks into the Jade Helm operation, three men were arrested in North Carolina for intent to harm U.S. military personnel. According to the

²⁵² Patrick Svitek, “Now Rick Perry’s Weighing in on Jade Helm,” *Washington Post*, May 5, 2015, <https://www.washingtonpost.com/>; Weigel, “Ted Cruz Says”; Ashley Feinberg, “Rand Paul Vows to ‘Look into’ Insane Martial Law Conspiracy Theory,” *Gawker*, May 1, 2015, <http://gawker.com/rand-paul-vows-to-look-into-insane-martial-law-conspi-1701579407>.

²⁵³ Chuck Norris, “Jade Helm 15.”

²⁵⁴ Matthew Wilson, “Guard’s 7th Civil Support Team at FLW Preps for its External Evaluation on Pulaski County Daily News,” *Pulaski County Daily*, April 15, 2009, <http://www.pulaskiountydaily.com/guard-s-7th-civil-support-team-at-flw-preps-for-its-external-evaluation-cms-757>; “U. S. Coast Guard Office of Search and Rescue, “United States Coast Guard, February 12, 2012, <http://www.uscg.mil/hq/cg5/cg534/>; Eric Elster, Frank Butler, and Todd Rasmussen, “Implications of Combat Casualty Care for Mass Casualty Events,” *Journal of the American Medicine Association* 310, no. 5 (August 2013): 475–6.

²⁵⁵ Abby Phillip, “How Federal Agents Foiled a Murderous Jade Helm 15 Retaliation Plot,” *Washington Post*, August 5, 2015, <https://www.washingtonpost.com/>.

FBI, the men were arrested on conspiracy charges.²⁵⁶ In addition, the group was “amassing weaponry to combat their belief that the government planned to impose martial law through the multistate military exercise.”²⁵⁷ According to the FBI, the arrested individuals purchased military equipment, including ammunition, handheld radios, Kevlar helmets and body armor.²⁵⁸ In addition, they were in possession of “pipe bombs and handmade grenades, large amounts of gunpowder and dozens of rounds of ammunition for a military-grade sniper rifle.”²⁵⁹ The intent, according to the criminal complaint, was for the trio to set up camp on a 99-acre plot of land near Clover, South Carolina.²⁶⁰ There, they allegedly planned to “booby-trap the camp and draw government’s forces into the camp and kill them.”²⁶¹ The group, court documents note, was “preparing to use lethal force against United States government forces in order to defend against the imposition of martial law or other infringements on their rights.”²⁶² With an FBI informant, the men “discussed their belief that Jade Helm 15 was actually a cover for the implementation of martial law.”²⁶³

As evident in the inflammatory rhetoric and the credible physical threat demonstrated by the individuals in North Carolina, anti-intellectual reasoning can be a hindrance not only in our understanding of information, but also in how we perceive the intention and purpose of our fellow citizens. While an engaged democracy should welcome and encourage a discussion about the role of its military in domestic operations, unsubstantiated theories that lead to fear, hatred and violence toward service members are ineffectual to the national discourse and can undoubtedly be dangerous and harmful, and

²⁵⁶ Phillip, “How Federal Agents Foiled a Murderous Jade Helm.”

²⁵⁷ Ibid.

²⁵⁸ Leada Gore, “Jade Helm 15: 3 North Carolina Men Arrested for Plotting to Ambush U.S. Military,” Alabama Media Group, September 15, 2015, http://www.al.com/news/index.ssf/2015/08/jade_helm_15_3_north_carolina.html.

²⁵⁹ Phillip, “How Federal Agents Foiled a Murderous Jade Helm.”

²⁶⁰ United States of America v. Christopher Todd Campbell, 4th Cir. Ct. (2015).

²⁶¹ United States of America v. Christopher Todd Campbell.

²⁶² Catherine Thompson, “Feds Bust Wingnuts Who Plotted to Lure Jade Helm Troops into Ambush,” TPM, August 5, 2015, <http://talkingpointsmemo.com/muckraker/literal-barker-campbell-jade-helm>.

²⁶³ Thompson, “Feds Bust Wingnuts.”

potentially subversive. Anti-intellectual rhetoric and baseless claims take time, attention, and training away from credible, substantive threats.

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V. ANALYSIS

As the case studies show, the impact of anti-intellectualism, denialism, and scientific apathy is a significant challenge in both the practical and theoretical applications of domestic security. These multifaceted issues can complicate, or even stall, every stage of the policy process, potentially harming our national security. While decision-making on complex national and global threats will never be devoid of political, ideological, and economic influencers, practitioners can work to bypass and minimize anti-intellectual biases, and focus on forging substantive debates on best courses of actions.

This chapter comprises three overarching pillars for the national or homeland security practitioner to discuss and act upon when attempting to combat anti-intellectual influences. While not all applicable in every circumstance, they provide a tools with which practitioners can build arguments and precipitate action on specific issues.

A. CLASSIC ETHICAL MODELS FOR AN IMPRECISE FUTURE

At an elemental level, national and public security professionals have a responsibility to protect their fellow countrymen. Regardless of a sworn oath, service in or out of a uniform, in the public or private sector, or any number of other social constructs surrounding a particular role, security professionals have a collective ethical obligation to protect each other. While never completely free from personal, political or social biases, this obligation mandates that, regardless of the outcome, decision-making begins by acknowledging the best data on the subject.

The basis for this imperative can be found in both Kantian and Rossian ethics. At the purest theoretical application of this duty, Immanuel Kant's deontological ethics, specifically his "categorical imperative" is pertinent.²⁶⁴ That is, those in the national or homeland security disciplines should always act "in such a way that the maxim of their

²⁶⁴ Immanuel Kant, *Groundwork for the Metaphysics of Morals*, ed. Thomas E. Hill (Oxford: Oxford University Press, 2003).

actions could become a universal law.”²⁶⁵ For example, in policymaking, we should aspire to implement standards that require practitioners to start with the best and most complete information on a subject. This imperative applies equally, to everyone, regardless of the subject matter.²⁶⁶ While it is certainly possible (and probable) that personal, political or ideological narratives will frame the context of the decisions that follow, a rudimentary understanding of the issue should not be based on accidental or willful lack of reason. One could chose to be amoral, dishonest, greedy or otherwise fraudulent, but that action would only come by personal choice, not by virtue of soliciting weak information for mere confirmation of a preexisting cognitive bias. Kant also includes the importance of duty in his categorical imperative. That is, “the moral obligation to do the right thing for the right reason, because it is the right thing to do.”²⁶⁷ For policy makers and practitioners, this duty can be extended to the onus of making decisions with best information available, and with the interests of the republic leading the process.

In the more practical space of real-world function, the ethics from 20th-century moral realist W.D. Ross can be applied.²⁶⁸ Ross contended that we are governed by both “prima facie” duties and by “actual duties.”²⁶⁹ The prima facie duties, Ross noted, are those with “sufficient mental maturity and [that] have given sufficient attention to the proposition it is evident without any need of proof, or of evidence beyond itself.”²⁷⁰ Ross listed seven prima facie duties that “give us genuine (not merely apparent) moral reason to do certain actions.”²⁷¹ Ross’ proposed set of guidance for moral actions includes fidelity, reparation, gratitude, justice, beneficence, self-improvement, and non-

²⁶⁵ Kant, *Groundwork for Metaphysics*.

²⁶⁶ “Duty-Based Ethics,” BBC, accessed January 14, 2016, http://www.bbc.co.uk/ethics/introduction/duty_1.shtml.

²⁶⁷ Kant, *Groundwork for Metaphysics*.

²⁶⁸ W. D. Ross, *The Right and the Good*, ed. Philip Stratton-Lake (Oxford: Oxford University Press, 2002).

²⁶⁹ Ross, *The Right and the Good*.

²⁷⁰ Ibid.

²⁷¹ Ibid.

maleficence (avoiding actions that do harm).²⁷² The “actual duties” are those that remain after an individual has weighed the particulars of a decision against all the conflicting prima facie duties that apply.²⁷³ In this way, Ross’ philosophy appeals directly to the individual’s ordinary, day-to-day experience to make ethical decisions.²⁷⁴ A rational morality based on the known nature of things, and framed in the general context of the prima facie duties, is accepted as generally good by society.²⁷⁵

Ross’ model of prima facie and actual duties is considerably more conducive to the day-to-day, dynamic application of security.²⁷⁶ The focus can remain on valuing best information and understanding, while limiting malicious intent in the process. Ross’ structure allows more consideration for nuances like parochial legal precedent, national interests, and foreign policy directives. As is highlighted in the following section, this flexibility and agility will be crucial to the scientific and technological challenges before us.

B. TRAVELING THE EXPONENTIAL ARC

The current rate of technological and scientific change is leading a pace of innovation unmatched in human history.²⁷⁷ We are living in a time when the “very fabric of human society is being rewoven.”²⁷⁸ Our world sits precariously at the dawn of a new future, where self-driving cars, digital currencies, chemically synthesized DNA and debates over cyber nationalism versus cyber internationalism all exist, today, not in

²⁷² “W. D. Ross’s Moral Theory,” Michigan Tech, accessed January 14, 2016, <http://www.hu.mtu.edu/~tlockha/hu329ov8.htm>.

²⁷³ Ross, *The Right and the Good*.

²⁷⁴ Ibid.

²⁷⁵ Ibid.

²⁷⁶ “Ross, William David,” The University of Tennessee, accessed January 14, 2016, <http://www.iep.utm.edu/ross-wd/>.

²⁷⁷ Tim Mattson, “Invisible Computers with Dissociative Identity Disorder: Understanding Trends in Computer Design,” University of Florida, October 16, 2015, <https://www.cise.ufl.edu/content/tim-mattson>.

²⁷⁸ David Rothkopf, “How Fear Drives American Politics,” TED, January 14, 2016, https://www.ted.com/talks/david_rothkopf_how_fear_drives_american_politics?language=en#t-404504.

theory, but in actuality.²⁷⁹ Moreover, the technology just on the horizon will likely be nothing compared to what will come in ten years, or in fifty. Transformational trends across technology, science, economics, and geopolitics are expected to be unlike anything we have seen before.²⁸⁰ The impacts associated with this transformation will fundamentally alter life on this planet, including security policy, regional stability, threat patterns, and national resiliency.²⁸¹

Yet standing on the precipice of this new world, one that will be ushered in come regardless of how prepared we are to receive it, we continue to have national debates about science and technology that in many cases are twenty-five, fifty, or, as is the case of vaccines, more than one hundred years old. Often, as emerging technology and science enter our lives, governments prove ill equipped to manage their advent.²⁸² More concerning than a sluggish regulatory structure is that the public's (and policy makers') understanding of this exponential growth is not keeping pace with the reality of the moment.²⁸³ If this failure continues, the cost of our continued collective anti-intellectualism will remain far too high for the coming challenges. It is reasonable to expect that our economic, physical, and digital security will all be vulnerable.

²⁷⁹ "Google Self-Driving Car Project," accessed January 14, 2016, <https://www.google.com/selfdrivingcar/>; "The Trust Machine," *Economist*, October 31, 2015, <http://www.economist.com/news/leaders/21677198-technology-behind-bitcoin-could-transform-how-economy-works-trust-machine>; "Chemical DNA Synthesis Cycle Chart," Stanford Medicine, accessed January 14, 2016, http://med.stanford.edu/sgtc/resources/chemical_DNA_synthesis.html; David Rothkopf, How Fear Drives American Politics, September 14, 2015, posted January 14, 2016, https://www.ted.com/talks/david_rothkopf_how_fear_drives_american_politics?language=en#t-404504.

²⁸⁰ Rothkopf, How Fear Drives American Politics."

²⁸¹ Ibid.

²⁸² Ryan Mac, "Amazon Hammers FAA for Lack of 'Impetus' over Drone Policy," *Forbes*, March 24, 2015, <http://www.forbes.com/sites/ryanmac/2015/03/24/amazon-hammers-faa-for-lack-of-impetus-over-progressive-drone-policy/#2715e4857a0b2e4c634e6b48>.

²⁸³ National Science Foundation, "Science and Technology: Public Attitudes and Understanding," in *Science and Engineering Indicators* (Arlington, VA: National Science Foundation, 2004); Konstantin Kakaes, "Why Politicians Don't Affect Science and Technology as Much as They'd like You to Think," *Slate*, October 5, 2012, http://www.slate.com/articles/technology/future_tense/2012/10/politicians_dont_understand_science_so_they_expect_it_to_do_too_much_.html; Natasha Geiling, "Nearly 90 Percent of Americans Think Political Candidates Should Understand Science," ThinkProgress, October 9, 2015, <http://thinkprogress.org/climate/2015/10/09/3711122/americans-want-politicians-to-understand-science-poll/>; Jeff Nesbit, "Science Is Important, So Why Aren't Politicians Talking About It?," *U.S. News & World Report*, October 15, 2015, <http://www.usnews.com/news/blogs/at-the-edge/2015/10/15/american-public-wants-elected-leaders-to-understand-science>.

The type and scope of threats that our country currently faces are no longer linear. We must rethink the principles of security to be more responsive to the expanding, exponential growth of technology. In order to combat this looming intellectual void, national and homeland security practitioners should insist on substantive investments in not only understanding the challenges, but in how to best communicate their respective parts to both politicians and the public. This includes an increase, not a decrease, in monetary investments for both public and private institutions engaged in novel work.²⁸⁴ It includes investments in academic programs for senior command officers and staff that teach not only current theory but also anticipated trends in the security space.²⁸⁵ It involves nimble collaborative partnerships dedicated to long-term, strategic modeling of potential threats.²⁸⁶ Finally, even with all these considerations, practitioners must accept that it still may not be enough.

C. EMBRACING UNCERTAINTY

Notable in some cases of anti-intellectualism is the “paralysis of analysis” that can occur by those who serve as knowledgeable authorities on the topic.²⁸⁷ The traditional, deliberate nature of rigorous inquiry is structured to discourage brash comment or hypothesis. With this intellectual muscle memory, it can be alluring to informed professionals in science, law, government, defense, and policy to be slow in their public statements and actions. A desire for more rigorous study, collegial counsel or community consensus can impair, and even halt, reasonable, robust defenses of anti-intellectual rhetoric.

²⁸⁴ Philip Ross, “NASA Budget Cuts 2015: Scientists Criticize House Spending Bill That ‘Threatens’ Climate Change Studies,” *International Business Times*, May 3, 2015, <http://www.ibtimes.com/nasa-budget-cuts-2015-scientists-criticize-house-spending-bill-threatens-climate-1906459>.

²⁸⁵ “Executive Program,” Singularity University, accessed January 14, 2016, <http://singularityu.org/executive-program/>; “Center for Homeland Defense and Security,” Naval Postgraduate School, accessed January 14, 2016, <https://www.chds.us/c/>; “Center on the Future of War,” Arizona State University, accessed January 14, 2016, <https://futureofwar.asu.edu/>.

²⁸⁶ Michael O’Hanlon, *Revisiting the Roles and Missions of the Armed Forces* (New York: The Brookings Institution, 2015), <http://www.brookings.edu/research/testimony/2015/11/05-future-of-war-ohanlon/>; “Future of War,” *New America*, accessed January 14, 2016, <https://www.newamerica.org/future-of-war/>.

²⁸⁷ “What Martin Luther King Jr. Said to Us,” St. Ambrose University, January 2013, https://www.sau.edu/News_and_Events/N130117_MLK_Pacem_in_Terris.html.

An example of this “analysis paralysis” by the scientific community can be found in the years following published studies that showed fraudulent vaccine claims.²⁸⁸ In the two years immediately after Wakefield’s deeply flawed and dishonest vaccine autism publication, there was little debate or dissent in the scientific or medical community that the MMR vaccine was, in fact, safe and effective. Outwardly, however, these informed, knowledgeable communities were found to be in a period of “neutrality.”²⁸⁹ A review of the published materials concluded that “this postponement of a robust defense of MMR may have contributed to undermining confidence among health professionals, particularly ... [regarding] MMR safety once the issue was raised in the popular press.”²⁹⁰ Bluntly, the authors concluded that this collective silence by informed individuals may have represented “a missed opportunity to promote evidence-based practice” that potentially could have saved lives by limiting the impact and scope of the misinformation.²⁹¹

National and homeland security professionals must remember that inaction in the face of uncertainty can be just as detrimental as the wrong action. The threat palette that challenges our country is dynamic and nonlinear. In discussing complex issues, like climate change, it is difficult to point at defining start dates, best effective measures or the nuances of a defined “success” at the conclusion of action. However, the ambiguity of complex issues cannot be used as an excuse for delaying action, to include the thoughtful, time-conscious study and debate of the problem. Many of these threats, as Carl von Clausewitz notes in *On War*, “are hidden more or less in the clouds of great uncertainty.”²⁹² It is in that uncertainty, he notes, that “all action must, to a certain extent, be planned in a mere twilight.”²⁹³

²⁸⁸ Jeff Boss, “How to Overcome the ‘Analysis Paralysis’ of Decision-Making,” *Forbes*, March 20, 2015, <http://www.forbes.com/sites/jeffboss/2015/03/20/how-to-overcome-the-analysis-paralysis-of-decision-making/>.

²⁸⁹ Shona Hilton et al., “Reporting of MMR Evidence in Professional Publications: 1988–2007,” *Archives of Disease in Childhood* 94, no. 11 (November 2009): 831–833, doi: 10.1136/adc.2008.154310.

²⁹⁰ Hilton et al., “Reporting of MMR Evidence.”

²⁹¹ *Ibid.*

²⁹² Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984).

²⁹³ Clausewitz, *On War*.

While many organizations' natural inclination is to postpone decisions pending more complete information, the skill and ability to make decisions in the face of uncertainty should be encouraged.²⁹⁴ As noted in the Marine Corps' *Warfighting*, "To delay action in an emergency because of incomplete information shows a lack of moral courage."²⁹⁵ The idea is never to make rash decisions, but also that opportunities for effectual action—based on the best data available—should not be squandered while trying to gain more information.²⁹⁶ Finally, and especially when discussing actions against threats, practitioners must remember the axiom "a good plan violently executed now is better than a perfect plan executed next week."²⁹⁷ The world is far too dynamic to seek a "perfect" solution, so practitioners should focus on the best available plan of mitigation, rather than failing to act and allowing a threat to exacerbate.²⁹⁸ This sentiment is shared by Italian philosopher and politician Niccolò Machiavelli, who wrote, "All courses of action are risky, so prudence is not in avoiding danger (it's impossible), but calculating risk and acting decisively."²⁹⁹ Courage, resolve, and an unwavering commitment to the ideals of the republic are needed to face uncertainty. National and homeland security professionals must be encouraged to develop the strength to do bold things, taught the skills to make the best choices possible in the current threat environment, and inspired to have the courage to readjust strategies as results, additional information or new technologies emerge.³⁰⁰

²⁹⁴ U.S. Marine Corps, *Warfighting: The U. S. Marine Corps Book on Strategy* (New York: Bantam Doubleday Dell, 2002).

²⁹⁵ U.S. Marine Corps, *Warfighting*, 86.

²⁹⁶ *Ibid.*

²⁹⁷ *Ibid.*, 87.

²⁹⁸ *Ibid.*

²⁹⁹ Niccolò Machiavelli, *The Prince* (Mineola, NY: Dover, 1992).

³⁰⁰ Machiavelli, *The Prince*.

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VI. CONCLUSION

In a world of often filled with hyperbolic headlines, it is easy to downplay the issues around anti-intellectualism as a sideshow of the foolish. It is easy to believe that those who stake seemingly farcical beliefs are non-serious people who only occupy the fringe of political or ideological spectrums. After all, when speaking of conspiracy theorists who profess the dangers of shape-shifting lizard people from outer space, one can become cynical about the level of danger anti-intellectualism really poses. We must remember, however, that while the bombastic claims are the most visible, it is the lesser and more accepted manifestations that chip away at the production of quality policy. The biggest danger that anti-intellectualism, denialism, and apathy pose (usually) is not the specificity of what a singular claim professes, but rather the spirit of distrust and fear that it embodies.

A foundational element in the governing ideals of the United States has always been a sense of unbridled freedom, to include intellectual freedom. Vigorous dissent and healthy debate is not only a national lifeblood, but beneficial to the rigor of theories, models and policy. To be sure, civil and reasoned assertions should be heard and discussed. We cannot, however, allow our policy process and national discussions to be guided by the fear or distrust of known information. Our national and homeland security must be guided by those committed to reason and substantive, rigorous discussion, not by those who drag opposing viewpoints down by way of angry confrontation, misrepresentation and personal attacks.³⁰¹ Rabid anti-intellectualism, in which all facts are suspect, the authority on a subject is sinister and “critical thinking is the devil’s tool,” has no place in deciding how to best face the challenges of the stormy present.³⁰²

As noted throughout the case studies, unbridled anti-intellectualism, denialism, and apathy have the potential to serve as a force multiplier to known threats, weakening

³⁰¹ Ray Williams, “Anti-Intellectualism and the ‘Dumbing down’ of America,” *Psychology Today*, July 7, 2014, <https://www.psychologytoday.com/blog/wired-success/201407/anti-intellectualism-and-the-dumbing-down-america>.

³⁰² Williams, “Anti-Intellectualism.”

our collective security. Without a measurable or provable methodology, their insidious roots foster distrust and cynicism in the very organizations charged with protection of the public. Ultimately, they serve to weaken the republic and the ideals upon which it was founded.

Practitioners have an obligation to limit this impact by understanding its root causes, mounting full-throated defenses of reason and measured debate, and working vigorously to curb intentionally misleading misinformation. They must act ethically and boldly to anticipate the rapidly approaching, life-altering changes on the horizon. Finally, they must eschew the idealistic narratives of the past that often lead to an unwillingness to change, and instead embrace the uncertainty of what lies ahead.

Our world and our nation sit precariously upon the dawn of new epoch. With it comes the promise of our greatest advancements, coupled, undoubtedly, with our greatest challenges. In a time of multifaceted threats, we must demonstrate a willingness to cast off the false comfort that comes with unknowing. We must move beyond fear, emboldened by what can be accomplished when the fortitude of the human spirit is coupled with a country inspired. If America is to remain secure and serve as an advocate for the advancement of all people, we must welcome debate of the known facts, however uncomfortable they may be. The true testament of a country's resiliency is measured not in the moments of prosperity it enjoys, but rather in those moments that require a collective unity behind worthy endeavors. In the face of growing anti-intellectualism, we must be willing do what is hard if we hope to achieve what is great.

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