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**BIO+TERROR: SCIENCE, SECURITY, SIMULATION**

by

**MELANIE ARMSTRONG**

B.A., Communications, Brigham Young University, 2001

M.A., Telecommunications, Ohio University, 2003

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Doctor of Philosophy**  
**American Studies**

The University of New Mexico  
Albuquerque, New Mexico

**December, 2011**

**DEDICATION**

To Kay Reimschuessel, for autonomous learning.

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**BIO+TERROR: SCIENCE, SECURITY, SIMULATION**

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**ABSTRACT**

The United States government has spent more than \$125 billion since 2001 to prepare the nation for bioterrorism. This dissertation examines the emergence of bioterrorism as a credible threat in the contemporary moment, considering how the preparedness practices of the security state constitute new biopolitical formations. To explore how changing ways of knowing disease and risk are reshaping communities, this multi-sited study investigates the material outcomes of biosecurity in people's lives. It shows how complex histories of disease and terror are remade in the modern age to bring about new spaces and forms of biological citizenship.

Through interview, observation and detailed historical research, this research considers three sites where bioterrorism is reshaping public life. At Montana's Rocky Mountain Laboratory, the community protest of the first high-security Biosafety Level-4 facility built in the 21st century exemplifies how public fear of microbes reshapes laboratory spaces and constructs environmental geographies around new conceptions of life, risk, and disease. The creation and implementation of new biopreparedness programs at the Centers for Disease Control and Prevention in Atlanta show how the alliance of



public health practices with the nation's security complex brings a new level of militarism to everyday practices of health and wellness. Finally, a case study of bioterrorism simulation exercises in New Mexico considers how the public rehearsal of terrorism events creates a perpetual state of emergency as governments and citizens publicly perform their responses to a crisis.

By studying the technoscientific extensions of war in the modern age, this research questions how the care-giving acts of governance have been militarized and how enlisting the bioscience industry in the "War on Terror" is changing societal norms of knowing life, death, nature, and disease, grounded in these re-articulations of life itself. The emerging spaces and economies of terrorism preparedness exemplify how the fusion of new genomic biologies with national security practices brings material change to the spaces where people live and work. This research aims to convince scholars as well as policymakers and activists that the ways in which bioterrorism has been produced have consequences in how people live.

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## Introduction

“Bioterrorism Seen as Top Threat” headlined a February 23, 2007, report from United Press International. More than one-third of the 10,000 respondents to the UPI-Zogby International poll ranked the fear of biological attack as the number one health risk facing Americans, exceeding the fear of Avian Flu or AIDS by more than 10 percentage points.<sup>1</sup> Though more than 600,000 people have died of AIDS in the United States, only five people have died in bioterrorist acts in modern US history.<sup>2</sup> In spite of the rarity of biological attacks, everything from government spending to prime-time television drama frames bioterrorism as one of the greatest threats to American life and society, demanding action in the present to resolve a catastrophe located in an imagined future. Biosecurity, the movement to protect the nation from such biological threats, has become a multibillion dollar industry in the 21st century. In 2005, the federal budget for biodefense was eighteen times greater than in 2001, and the total biosecurity expenditures since 2001 have now exceeded \$125 billion. This outpouring of funds is fundamentally reshaping American communities.<sup>3</sup>

This dissertation examines the emergence of bioterrorism as a national security concern, asking how bioterrorism has become a credible threat in the modern age and what outcomes biosecurity practices have in the lives of citizens. With the synchronous rise of a new kind of biology and a new brand of terrorism, the practices of science, media and government have been deeply imbued with fear. Bioterrorism has been made intelligible through the fusion of the genomic life sciences and the “War on Terror.” This research seeks to understand how the bioterrorist threat attains form and tenacity in modern life and what new spaces, societies, and forms of citizenship are made possible

through biosecurity practices. How do political histories of disease coalesce with modern bioscience practices to create an understanding of bioterrorism cohesive enough to mobilize against bioterrorist threats? What new forms of biological citizenship and collective life are constituted through the bioterrorism preparedness practices of the national security state? Careful attention to the practices that define bioterrorism and its social relations reveals emerging systems of governance predicated upon the production of vulnerable bodies and exposing unseen life forms and communal webs of contagion. How, then, does the national security state claim authority in terms of biology to care for its citizens and mitigate biological risk, and what is at stake in people's lives through national mobilization against unknown biological threats? Indeed, whether there exists a biothreat or not, bioterrorism preparedness practices are changing how people relate to the state; perhaps the elusiveness of the bioterrorist threat is precisely what makes it a potent tool of governing.

Bioterrorism is a crisis without an event. To our knowledge, no terrorist has laced L.A.'s water with salmonella or dusted Detroit with anthrax powder. No single time or place marks the origins of the bioterror crisis. Rather, countless daily acts by scientists, politicians and citizens sustain the idea of a bioterror threat. This dissertation studies how individual lives and communities are changing in relation to this threat, while attending to the national discourses and economies which bind distant times and places under the banner of biosecurity. Complex histories of disease and violence are remade in the contemporary moment to give form and tenacity to the bioterror threat. The geographic sites described herein are places where people work today to know, act, or react to the specter of bioterrorism. How does their work participate in the ongoing work of nation-

building, particularly through the articulation of biological risk and performance of preparedness? Thus, this research endeavor strives to produce a deeper understanding of how people incorporate new conceptions of life, biology, and risk into their ways of knowing their world and living in it.

When citizens invest in “national security” with their labor, taxes, and votes, it is critical to question military-type actions that give authority over life itself to the state. Biosecurity is molding modern life, producing a future in which biological warfare seems certain. This research sees the bioterror crisis, not as an inevitable product of the genomic age, but as a produced event which performs a particular function within a modern politic. The objective of this dissertation is to delineate what work bioterrorism does in order to better understand its function within the neoliberal state. In other words, how does the movement to secure the national body bind citizenship to new biological knowledge of life, body, and disease?

### **Germination of a Crisis**

Bioterrorism is a particular class of terrorism in which living organisms are modified from their naturally-occurring state in order to inflict harm on a population and bring about fear. The fear of biology—the betrayal of nature—has a complex history, crescendoing through the blending of deadly microbes and sophisticated technology. Advances in science and technology have expanded the arsenal of the terrorist, opening the possibility that anyone from Islamic extremist to adolescent science geek might be building bioweapons in the basement. Even the spectacular images of the World Trade Center collapse in 2001 fell short of framing the real fears of the new millennium. In nearly perfect theatrical timing, the opening scene of airplanes, skyscrapers, fires, and



explosions transitioned to the subtle and silent threat of white powder passed through the US postal system. The anthrax scare located the drama in the lives of anyone who opened mail or inhaled air. President Bush called this the “second wave of terrorism,” a rhetoric marking bioterror as the threat of the future and enabling swift government action to be directed towards establishing a biosecurity plan.<sup>4</sup>

Biological weapons are the ultimate living weapon. Germs can wipe out entire populations, and historically they have, with no assistance from technology. Fear of pandemics is not new to the modern era, but human relations to disease have transformed over the past century, culminating with the mechanisms for genetic alteration and biological weapons. Tools of science, such as vaccines and antibiotics, have fallen short of the promise to eradicate disease from the planet. The AIDS crisis of the 1980s rekindled fears of emerging infectious diseases, and the inability of the science community to rapidly identify the biological agent startled and outraged citizens. In the new millennium, cases of SARS and Swine Flu brought the fear of disease into the age of globalization, stirring public concern that transportation networks would rapidly spread the diseases of the third world into sanitized first-world nations. Even the eradication of naturally-occurring smallpox in the 1970s has reproduced vulnerability in terms of people’s ability to harness the destructive power of disease. Before the United Nations declared smallpox to be dead, vials of frozen virus were quietly stashed in UN-sanctioned freezers, and now the suspicion that rogue governments also harbor smallpox raises fears that the germ will be used to prey upon a population no longer vaccinated and once again susceptible to the smallpox virus. Further, laboratory research has raised concern that smallpox could be artificially recreated from its DNA sequence or spliced with other

genes to create a smallpox “Superbug.”<sup>5</sup> The fear of smallpox is no longer the fear of how an organism can destroy human life, but how scientists and politicians can bend a germ to their bidding. Thus, the germ is imbued in new ways with a politics of life and death.

Transforming a germ into a tool of terror pushes the bounds of scientific knowledge, but for now the possibilities of biological warfare remain far greater in imagination than in lived experience. Only two significant acts of bioterrorism have been recorded in modern US history. Anthrax killed five people in 2001, and sickened at least 17 others. In 1984, a religious cult in Oregon gave 750 people stomachaches by sprinkling salad bars with salmonella brewed in a secret, underground laboratory. No one died from those tainted greens, but incidents such as these have clearly captured the popular imagination. Because microbes are invisible to the human eye and the war they wage does not take down buildings or leave similar material effects, dramatizations of disease events render the outcomes visible and therefore knowable in more emotional and moving ways. From their couches, Americans view bioterrorist attacks on primetime television dramas, like *Alias* and *24*, and feature films like Steven Seagal’s *The Patriot*. Such programs remake history around the idea of bioterrorism, compensating, in part, for the absence of attack by providing believable enactments of bioterror scenarios.

These fictional presentations have material effects in producing the cultural milieu for fear and science. Further, the imagined outcomes of bioterrorist events presented in fiction, like the elaborate acts of simulation and rehearsal, point to sites of “weakness” or vulnerability in preparedness systems, providing impetus for political response. Most famously, journalist Judith Miller recounts President Clinton receiving a copy of novelist

Richard Preston's *The Cobra Event*, which he reportedly stayed up all night reading and then ordered copies as required texts for his cabinet. Not long after, Clinton assembled the country's first bioterrorism taskforce and made the first large-scale funding allocations dedicated specifically to bioterrorism preparedness. Notably, this allocation preceded the attacks of 9/11 and the following months when bioterror assumed the form of anthrax, exemplifying how material change follows engagement with the science fiction of disease.<sup>6</sup>

In the 1990s, popular novels like *The Hot Zone* and epics like *The Coming Plague* kept concern over pandemics within the popular imagination and produced a terrain upon which the terrorist concerns of the new millennium could be mapped.<sup>7</sup> Bioscientists continue to speculate on the terrorist uses of microbes and the likelihood of bioterror attack, authoring their own books and essays or supplying information to journalists reporting on bioterror topics.<sup>8</sup> This practice aligns expertise on microbes with authority on political systems of terror and human social behavior. In other words, knowing the potential of a germ to act in predictable ways as learned through scientific methods becomes accepted basis for identifying the possibilities of bioterrorist attack, whether that knowledge is input into a computerized simulation, a newspaper column, or a Hollywood film. The consultation of science experts on smallpox or Ebola rationalizes the mere knowledge of such organisms as the motivation for social action. The case of bioterrorism exemplifies how the science complex fuels powerful social movements, naturalizing political acts by producing a material world which must at all times be managed and controlled.

Certainly, the global science complex has produced abundant knowledge of microbes, knowledge which changes daily alongside the mechanisms for studying the nature of life itself. The rise of the new life sciences is producing potent and abundant sources for the production of new systems of governance, predicated upon a widespread cultural fear of nature. The mobile, malleable, and mutable microbe proffers innumerable calculations of risk to citizens' life and health. In this landscape of microbes, people are perpetually vulnerable to unseen and unspecified threats and therefore turn to the state to mitigate harm. The belief that nature can be contained and controlled through acts of governance sustains the bioterror crisis and rationalizes the many individual acts which comprise security in the broadest and most personal sense. The policing of social interactions, such as handshaking, for the sake of national security, exemplifies the reach of these governing bodies in the name of citizens' collective health.

Biosecurity naturalize the fears which have long underlain the national security state, for microbes contain the potential for awful destruction to human life when manipulated by modern technologies. Moreover, because germs are life forms with their volition the threat is never fixed, creating an endless state of vulnerability which sustains ongoing and unending acts of social control. The biological nature of the threat also taps into the apparatuses of public health and medicine, expanding these systems for the sake of the crisis and in the name of dual-use efficiency. The outcomes mirror the security practices of the Cold War, with the objective to ensure continued social life following a catastrophic nuclear event, only this time troubled by the simultaneous endurance of microbial life alongside humans.

In many ways, the current anxiety over biological attack recalls the climate of fear created around nuclear weapons following World War II. Through propaganda and policy, the United States built a civil defense program around the desire for a preemptive response to protect citizens from a perceived future risk.<sup>9</sup> Rather than fighting an enemy in combat, military strategy involved building infrastructure and implementing programs to anticipate an attack and increase human survival in the homeland. The national security programs of the 1950s and 1960s called for individual communities to rehearse their evacuation plans, and these drills were followed by public discussion of who would have died had the attack been “real.” Participating in these exercises, down to the basic duck and cover drills rehearsed by school children, was a patriotic duty, a part of public life during the nuclear age. Joseph Masco calls the reenactment a “formidable public ritual—a core act of governance, technoscientific practice, and democratic participation ... a civic obligation to collectively imagine, and at times theatrically enact through ‘civil defense,’ the physical destruction of the nation-state.”<sup>10</sup> Not only did these scenarios imagine a post-nuclear world, but they imagined the specific practices people would have to undertake to survive and just how the state would emerge from the apocalypse. Public rehearsal of the disaster response continues in the 21<sup>st</sup> century as a state-building strategy and public performance of citizenship. Less focused on infrastructure than nuclear defense, bioterrorism preparedness uniquely attunes to the individual body through vaccine production, antibiotic distribution, and social vulnerability.

While the Cold War had a clear enemy in the Soviet Union and the weapon was presumably nuclear, in the bioterrorism crisis neither the enemy nor the weapon is so readily identified. Before citizens can act against bioterrorism, the uncertain bioterror

threat must be made certain in the present moment.<sup>11</sup> Biosecurity demands new spaces and places where risk is knowable and bioterrorism can be managed and mitigated. The influx of capital to control risk fractures old systems of science and governance, reconstituting them in ways that work for the crisis and sustain the belief that human intervention can deter the event. As during the Cold War, discussions over preparedness are the figurehead for broader discussion about the powers of science over human lives.<sup>12</sup> In this dissertation, I will explore how debates and discourses about bioterrorism preparedness stand in for broader deliberations of the role of biological and technological science in people's lives. As people make sense of their genomic selves, they reevaluate the risks to their life and health, along with the expectations of government to protect those qualities, offering access to citizens' bodies at levels heretofore unexplored.

### **Bio+Citizens**

The "bio" prefix has been liberally tacked on to a range of political terms, from "bioterror" to "biodefense," uniting agencies and interests under the banner of life, biology, and the human body. Similar prefacing in critical theory with terms like "biopolitics" and "biopower" draws attention to the ways knowing and controlling life itself sustains systems of power and citizenship. Scientific explanations of life play into contemporary fears, building a crisis from which science also offers protection and salvation. Thus, the political response to bioterrorism is not limited to counter-terrorism measures, but extends to scientific research, public health systems, community response plans, and personal preparedness, all aimed to strengthen individual and national bodies against bio-threats.

As bioterrorism lingers in the public imagination, studies of the methods and motivations of national biosecurity are taking shape, producing a substantial multidisciplinary scholarship. What began with a few timely studies of the 2001 anthrax attacks has expanded as government advisors, journalists, and scientists attempt to assess the possibilities and likelihood of bioterrorist attack.<sup>13</sup> Significantly, this dissertation project does not aim to determine whether bioterrorism is likely, but investigates the social impacts of bioterrorism, regardless of whether there exists an actual threat. The chapters that follow illuminate how bioterrorism can be understood in diverse contexts emerging from wide-ranging histories and socialities. The world is changing because of bioterrorism, and this dissertation makes a wide sweep in an attempt to capture the breadth of those impacts, while seeking the commonalities which produce common ways of thinking about the biological risks of the modern age.

Along this vein, Hartmann, Subramaniam, and Zerner collected multidisciplinary works to argue that since there is no single explanation of how fear is produced, multiple methodologies must be employed to interrogate specific biofears.<sup>14</sup> Lakoff and Collier's anthology similarly considers the range of science, government, and health practices that articulate biosecurity in the modern age.<sup>15</sup> These studies of bioterror resonate with a collection of cultural studies of disease, such as Priscilla Wald's study of the contagion narrative, or Nicholas King's global study of disease in a worldwide system of capital.<sup>16</sup> Such works situate the issue of bioterrorism in a broader discussion of life, science, and governmentality, but do not specifically question the direct impacts of bioterrorism in the lives of citizens.<sup>17</sup> Through its localized approach, the present research contributes to existing literatures by delineating the material outcomes of bioterrorism in people's lives.

By talking to people and recording their narratives, this dissertation aims to give voice to biological subjects, understanding how bioterrorism is framed by individuals in a world of incalculable risk.

Anthropologists have raised compelling questions concerning the emergence of national biosecurity. Some situate the issue in the study of risk and fear, including Collier, Lakoff, and Rabinow who question the assumption that it is the nation's responsibility to mitigate harm.<sup>18</sup> Relegating fear into a future condition creates a state of risk, bringing fears into the realm of human intervention.<sup>19</sup> This places the "burden of survival" upon individuals and institutions working within and against the state and its agencies.<sup>20</sup> Lakoff selects the term "preparedness" to define behaviors that ascertain future threats and intervene in the present moment, proposing that people tolerate state interventions upon their bodies because they generally agree that some future risk demands present action on the part of the state.<sup>21</sup> This dissertation builds upon this idea by attending particularly to the social systems that produce common ways of knowing bioterror threats, as well as the practices that assuage the state's responsibility and shift the burden of preparedness to the individual body.<sup>22</sup> This government cares for its citizens by demanding that they police their present risky behaviors in anticipation of a future event. What is at stake in a crisis which can be synchronously addressed by building new laboratories and incident command centers and by running television ads with Muppets reminding children to wash their hands? How do vaccine stockpile programs simultaneously resonate on the most basic biological level of injecting foreign substances into human flesh, and the logistical level of efficiently moving objects, such as vaccines and medical materials, through time and space? These biopolitical notions of



care emerge through the bioterror crisis and challenge current notions of biological citizenship.

Though many scholars investigate the work of the modern security state as it arises from the Cold War and neoliberal politics, this project is guided by the particular question of how life and death are governed when the gap between biology and the political life of citizens grows indistinct.<sup>23</sup> The contestation over human biological rights defines biological citizenship, for while all citizens may claim the right to life, the demand for social welfare based on science and medicine correlates that claim with the scientific and military complexes that act "against" the threat of bioterrorism. By producing threats that are living, contagious, and unpredictable, the contemporary biosciences enable a conceptualization of both microbial and human life forms as a national security risk. The genomic body is part of a global economy and has been "thrown into a chaotic and unpredictable molecular world filled with emergent yet unspecifiable risks."<sup>24</sup> At the same time, the relatively recent acknowledgement of humans as vectors of disease continues to increase the values of biological risk through social behaviors which spread germs. Studies of bioterrorism must seriously consider how Foucault's biopolitics, so thoroughly grounded in the corporeal, are impacted by new conceptualizations of human life. Paul Rabinow predicted that genetics would radically transform people's identities; Nikolas Rose writes of how molecular understandings of the body have altered social systems embodied in human biology.<sup>25</sup> Following these authors, this research will show how institutions produce vulnerable bodies in this climate of risk, where new knowledge of the body brings new knowledge of harm to the body.

With other scholars of science and culture, I seek ways of understanding the complex scales of the modern age. King contends that framing a biological discourse at the molecular level reduces the practices of intervention to a similar scale, justifying a variety of large- and small-scale responses to a health crisis.<sup>26</sup> Braun calls for an infusion of geopolitics into contemporary studies of biopolitics, broadening discussion from an internal and bounded biology (managed individually, for instance, in the realm of medicine) to a larger consideration of the places and powers of governance.<sup>27</sup> Bioterrorism demands the consideration of biopolitics on precisely these two scales: the intimately microbial and the broadly geopolitical.

Bioterrorism diverges from other classes of terrorism through its direct attack on the human body: no buildings fall in a bioterrorist attack and no bullet holes are left behind. This scene of life destroying life raises complex questions about biology, technology and disease in modern society, demanding a reconsideration of biopolitics on the scale of the micro and the global. Interdisciplinary science studies scholars are pushing beyond Foucauldian biopolitics to consider how the new genomics are "embedded throughout the social fabric at the micro-level by a variety of biopolitical practices."<sup>28</sup> This dissertation deals with confounded biopolitics in which one life form is managed to control another, for the lives affected here are not just human, but are viruses, bacteria and insects. By producing threats that are living, contagious, and unpredictable, the contemporary biosciences enable a conceptualization of national security as both biological and individual. Furthermore, the biological revolution has so thoroughly revived interest in the politics of life that scholars have failed to account for the role of death in political life.<sup>29</sup> Bioterrorists use new knowledge of life to bring about fear, and

while this act is biopolitical, one must not forget that the ultimate fear is one of death.<sup>30</sup>

### **Bio+Risk**

Closely entwined with conceptions of risk lies a theorization of the nature of fear itself. As Joanna Bourke writes, “Fear has a physiology, albeit a contested one.”<sup>31</sup> Fear is neither inevitable nor universal, but is an apparatus for shaping society, and thus intensely political.<sup>32</sup> Relegating fear into a future condition creates a state of risk, a transformation that brings fears into a realm of human intervention.<sup>33</sup> However, this transference also necessitates that humans take responsibility in the present for a future event. In the case of bioterrorism, the production of fear and risk provides critical justification for acts which claim to minimize the threat.

Notions of risk are rooted in the temporality of political life, calculations of the past and imaginations of the future. Anthony Giddens wrote, “It is a society increasingly preoccupied with the future (and also with safety), which generates the notion of risk.”<sup>34</sup> Both Giddens and Ulrich Beck saw a crisis in the rise of modernity, which creates “a gulf between the world of quantifiable risk in which we think and act, and the world of non-quantifiable insecurities that we are creating.”<sup>35</sup> Events like Chernobyl and Bhopal, Beck argues, have effects that are global, invisible, and not temporally bound, creating a crisis in which modern society cannot manage the very risks it creates. As technologies advance, human power seems to extend into reaches unimagined just years ago, and society becomes increasingly aware of its potential for self-annihilation. In the case of bioterrorism, not only do technologies spread the gulf, but the autonomy of microbial life forms pushes into the world of the unquantified and therefore unknowable through accepted scientific mechanisms.

The belief that humans are agents in bringing about harm characterizes the concept of risk. Niklas Luhmann contrasted risk to danger, claiming that the latter expresses harm from an external force (such as a natural disaster) while risk comes about because of people's actions.<sup>36</sup> In response to Luhmann and Ian Hacking, Collier, Lakoff, and Rabinow ask whether human responsibility for mitigating harm is also inherent to the definition of risk.<sup>37</sup> In his studies of national biosecurity, Lakoff sees the genesis of the US preparedness policy in the Cold War, when combined economic, political, and military efforts sought to keep the country continuously ready for Soviet attack.<sup>38</sup> The history of the Cold War suggests that people tolerate acts of social control because they perceive that preparedness can only be achieved by acts of governance. By attending to the social systems that produce common ways of thinking about bioterrorism, this research particularly questions whether producing consensus in regards to a future risk creates the potential for militarization without a threat and brings harm to citizens in the present moment.<sup>39</sup>

Being alive does not simply give access to the rights of citizenship, for social systems of power are predicated upon conceptions of life itself. In the modern age, scientific advances produce new knowledge of life and remake the possibilities for biological citizenship. Critical science studies counter the claim that science contains privileged access to life by pointing to systems of power operating within the science industry, and the inherent capitalist acts of labor in science itself, exposing the effects of the scientist's tools upon the material landscape.<sup>40</sup> Science takes place within a political context in which it is both subject and object of power relations. As Adriana Petryna writes, "The processes of making scientific knowledge are inextricable from the forms of

power those processes legitimate and even provide solutions for.”<sup>41</sup> In the crisis of bioterrorism, the desire for knowledge demands that scientists simultaneously produce both evidence of and solutions for the crisis. Thus, science practice sustains security practice, and vice versa. Further, Hugh Gusterson contends that as “anticipatory knowledge” of the future is created through the calculation of the past, scientists build models of the future which offer the public particular scenarios which are often scientifically ambiguous and tainted by the persuasive acts of proponents and opponents of new technologies.<sup>42</sup> To better understand the material outcomes of these social imaginings, I examine preparedness exercises as bridges between science and security practice, as well as bridges between past behaviors and imagined futures.

Discourse proves itself by material effects: when lived experience aligns with the words of political speeches or the images of television programming, the meanings are confirmed. The shared meanings of bioterrorism cannot be divorced from the material base of cultural forms.<sup>43</sup> There is a critical distinction between the belief that media reflect the social milieu, and the claim that media work to build a particular type of society. This research argues that the bioterror crisis could not exist without mass communication forms. Global communication networks allow the timely sharing of scientific knowledge; computer modeling systems act out scenarios that substitute for an event in emergency planning; and popular fiction sustains the fear of bioterrorism which maintains a high demand for counterterrorism measures. Lipschutz and Turcotte explain the political economy of discourse as “the production of truth claims in ways that help to generate specified outcomes and develop the material base.”<sup>44</sup> They argue that the discourse of bioterrorism creates demand for biosecurity, which then gives evidence for

the need for counterterrorism services. This research recognizes specific practices that sustain an economy of bioterror by always increasing the demand for products and services, staking their own success upon the fact that no one will ever know how many attacks were diverted by preparedness measures.

Bioterrorism is not an inevitable outcome of the genomic age, but it functions within a social system to produce particular types of citizens. This research questions why certain ways of being have come about in this time and place, while others have not. Modern science participates in a risk society in which social fears are abundant and people turn to institutions to mitigate harm. This creates a type of biological citizenship, in which individuals depend upon science and the state to protect their bodies, whether through the arrangement of physical space, such as border controls, or the production of new technologies, such as stronger and more effective vaccines. How do people use their bodies to claim rights and act politically for them? How are those claims grounded in definitions of life and risk emerging during the bioterrorism crisis? Through these acts, people produce a bioterror threat, defining the parameters of risk and affirming the threat even as they seek to eliminate it. What do citizens stand to gain through this new biology, and how might the perpetuation of the bioterror crisis bring benefits that outweigh the risks? This dissertation was conceived of as a way to access subjects in order to discover how people use their personal biology to claim rights of citizenship. By attending to the daily acts of citizens dealing with social and political change, I seek a better understanding of how biological citizens are empowered through new conceptions of life.

**Bio+Terror**

This research is concerned with questions of citizenship, particularly what it means to be a biological citizen under the bioterror crisis. The breadth of the bioterror crisis demands a research design that acknowledges that biosecurity is produced locally, nationally and globally, within expansive systems of science and capital. Every day, modern subjects perform political, scientific, and discursive acts that constitute biosociality at the local level. Through close attention to daily practice and the research techniques of observation, interview, historical and textual analysis, this research shows how policymaking practices of science and government manifest in the informal spaces where people negotiate and legitimate state practice. This research details “the elements that unsettle and entangle people’s lives,” with the further goal of “maintaining a prospective sense of the contingencies of human existence, such that its forms find a place within the discipline of observation.”<sup>45</sup> Bioterrorism takes form as citizens rearrange their lives in response to social fears. Furthermore, the biosecurity state brings together science, the market, and government in new ways, producing new institutions and spaces where citizen-making takes place. By attending to how these practices emerge and find legitimacy within the public, this dissertation recognizes how citizens make sense of the possibilities presented to them within subtle and changing systems of power.

The cultural forces of bioterrorism produce subjects who are as diverse and far-reaching as global networks allow, and the challenge of this research is to identify the meaningful connections that give bioterrorism form and tenacity in people’s lives. A multitude of myths, images, events, and lifestyles—not always dependent upon whom one knows and where one lives—cohere around modern subjects, and global systems

heighten the “presence-availability” of ideas to form and fix diverse subjects.<sup>46</sup> In other words, biological citizens in the 21<sup>st</sup> century live in a world where they can access a range of meanings through global markets and bring a wider array of experiences into the process of subject making. The blurring of boundaries between local subjects and global systems demands a reconceptualization of ethnographic projects to account for the multiplicity that arises when a range of agents in diverse places and contexts have access to subjects.<sup>47</sup> An “ethnography of global connection” asks how a site exists within a global system of exchange, where macro-interdependencies in market, media and science are evident in complexly entwined micro worlds, such as a small disease laboratory which is shaped by new cultural formations of fear and contagion along with a political War on Terror.<sup>48</sup> The goal of this research is to identify how biological citizens produce the macro-systems of security through their daily practices. In turn, I look for “zones of awkward engagement” where the instability of the bioterror encounter facilitates deeper understanding of modern modes of governance and possibilities of citizenship.<sup>49</sup> Following Tsing, Fortun, Petryna, Rajan, Moore, and others, I use ethnographic methods to expose points of connection and entanglement that have brought about the bioterror crisis in the modern age, with the intent to understand how bioterrorism rearranges the possibilities for political subjects.<sup>50</sup>

This dissertation does not undertake the in-depth cultural history of a single place which traditionally characterizes ethnographic projects. Shorter site visits and movement between places limited the duration of contact with subjects, resulting in fewer face-to-face relations with a community or observations of long-term politics and practices. The multi-sited approach sacrifices regional specialization in hopes of gaining broader



understandings of the global forces which shape citizens' lives. This research is not a history of a particular place, but a study of how bioterrorism finds form and stability within society. Juxtaposing multiple geographies and histories shows how bioterrorism works across time and space to bring about correlated outcomes and consensus among populations. This dissertation presents complex narratives which might not be seen through a lens focused on a single community and aims to show how they emerge from pervasive understandings of life, risk, and nature which characterize the contemporary crisis. Because I propose that particular ways of connecting science and terror in the modern age have produced the phenomenon of bioterrorism, I followed a research method which could probe for connectivity by following the movement of knowledge through society.

The multi-sited study of places and people retains ethnography's systematic attention to the practices of science and society, while increasing the method's ability to deal with the rhizomatic networks that complicate social relations in a global society. Sarah Franklin proposes that the multi-sited approach facilitates the study of how "technoscientific artifacts make sense in a kind of cultural hyperstack," where the scale and velocity of global powers rapidly move ideas across borders.<sup>51</sup> Kaushik Rajan argues that the world is made in the image of the American market and that the ethnographer's traditional objective to "correct" hegemonic and universalizing social theories by drawing attention to sites on the fringe falls short of describing precisely what those hegemonic forces are and the role they play in cultural formation.<sup>52</sup> Such ideologies can only be understood as they are used in subject making, and interview and observation still offer a means to understand how individuals produce the narratives that dominate the modern

globalized market. This research assumes that biosecurity practices have emerged precisely *because* science is rapidly producing new knowledge which, when engulfed by global markets and consumed by citizens, reorders the world. This research attempts to study the artifacts of the modern era as knowledge-producing mechanisms which have emerged from the cultural conflation of the War on Terror, genomic science, communications technologies, and emerging infectious diseases. I study the work of individuals—scientists, citizens, presidents, emergency planners, activists, journalists—which gives bioterrorism prominence among the many messages of science, technology, health, risk, and fear that global citizens encounter on a daily basis. That the attempt to recognize the rapid saturation of knowledge in the modern world is an ambitious task does not lessen its import and the value of scholarly inquiry.

While traditional notions of fieldwork demand isolated, place-based study, new methodologies argue for a reconsideration of “the field” in a time when the local production of subjects may have as much to do with an individual on the opposite side of the globe as with the person next door.<sup>53</sup> In this study, the field is constituted by places across North America where bioterrorism has risen as a dominant narrative. These sites include nonphysical sites where meanings of bioterrorism are stabilized through discursive practices. Some sites studied in this project seem apparent, such as the Centers for Disease Control and Prevention (CDC), but there are also sites of contradiction, like a high-tech research facility in a remote Montana town. I also incorporate the analysis of policy documents and media campaigns to expose the connections forged by the flow of meaning from places of production to places where information becomes practice. Notably, any one of these research sites could be the subject of a lengthy, in-depth

ethnography. I do not assert a thorough knowledge of all the practices of the CDC or Department of Homeland Security. What I hope this dissertation shows, however, is that certain practices and beliefs are common to all sites, giving evidence to larger claims about the social impacts of bioterrorism.

### **Overview of the Dissertation**

In this dissertation, I aim to demonstrate how, even in the absence of an event, certain practices make bioterrorism intelligible as a threat and bring about particular forms of governance and biological citizenship, thereby creating a crisis of war and science for the 21<sup>st</sup> century. Bioterrorism is a potent tool for reconstituting the modern security state, which stakes a great deal in the production of the crisis. The emergence of bioterrorism as a cultural fear is only possible through the advancement of a new biology which alters the very ways people know life and death, as well as the threats to their personal and national security. Moreover, through bioterror, the politics of national security and advances in the biosciences meld into a unified and powerful cultural identity. By surveying sites where bioterrorism manifests in people's lives, I aim to understand the material outcomes of biosecurity practices, giving evidence to the claim that the bioterror crisis was not an ephemeral tool of a particular administration, but rather is the creation of a deep and far-reaching political apparatus grounded in particular ideas of nature and citizenship.

At the core of this crisis are the microbes themselves. The case studies presented here show how people make sense of the risk that microbes present as they move or might move through the landscape. Whether conceptualized as an enemy to be battled, a threat to be contained, or a circulation to be controlled, the relations between humans and

microbes are negotiated through a range of daily practices which are the subject of this inquiry. Next, the dissertation considers how new ways of knowing microbial risk plays out in individual lives, particularly through the production of new spaces where risk can be mitigated. These cases raise the question of how the government cares for its citizens by mitigating the fears presented by new and dangerous microbes, and the particular consequences of this type of care upon citizens' lives.

War and science, two great pillars of modernism, remake each other through bioterrorism. The dissertation begins by examining theorizations of life, disease, and risk as they are negotiated in the modern age. In the first chapter, I argue that bioterrorism is known today through the blending of specific histories of disease and violence with modern biological science. When people talk about bioterrorism, in order to create a cohesive understanding of bioterrorism and its risks, they draw upon particular conceptions of life, science, war, and security, produced over time. The crisis depends upon the infusion of science into political conflict and vice versa. The cultural history of smallpox explored in this chapter considers how one of the deadliest diseases in human history was targeted by science and politics to bring about eradication. I show how this "battle" against disease raged internationally in the language and images of warfare, infusing the work of public health with the discourse of war. Despite eradication of the disease itself, the contemporary milieu continues to draw upon the risk of smallpox in order to sustain political ideas of terrorism risk. Thus, the power of the disease narrative surrounding smallpox creates a potent tool for national security actions, even in the absence of the naturally-occurring virus. By studying the cultural production of smallpox,

this chapter aims to illuminate how the particular histories of homeland security and genomic science give meaning to the contemporary crisis.

The remainder of the dissertation considers three case studies of communities preparing for bioterrorism, considering the findings of ethnographic fieldwork in Hamilton, Montana, the Centers for Disease Control and Prevention, and the New Mexico borderlands. Chapter two takes place in Hamilton, site of the Rocky Mountain National Laboratories (RML), a division of the National Institutes of Health (NIH). The first part of the RML case study considers how the physical presence of a first-class disease laboratory in rural Montana came about because of a particular need for public health control in the area and has continued as a boon to a changing local economy. The cultural history of Rocky Mountain spotted fever shows how public health action in the field transformed into a laboratory study of disease. This section considers the situation of a laboratory within a community of citizens, questioning how the risk of contagion posed by the physical presence of germs has been mitigated by constructing laboratories in particular ways. This chapter particularly considers the emergence of the contemporary biolab from a contested relationship between citizens, scientists, and disease, showing that the laboratory was made in particular ways to mitigate citizens' fear of disease, and posing the question of whether laboratories can be spaces where nature is subdued and contained, and technologies can eliminate human fallibility.

The contestation over the laboratory space introduced in the beginning of chapter two is further explored in a second section, which shows the continued shaping of laboratory spaces by citizen protest. In 2002, RML announced it would build a high-security, biosafety-level 4 laboratory in Hamilton, igniting a six-year protest which would

culminate in a formal lawsuit against the lab. Citizens debated issues of safety, disease, science, and risk, positioned against the claim that laboratory expansion would bring vital economic growth. In this debate, they defined new forms of citizenship, claiming particular rights to security and disease protection along with transparency in the practices of science. In the post-9/11 security society, RML had to prove anew that bringing microbes into a contained environment for study would not endanger people who lived outside the laboratory walls. Chapter Two asks how, in this new security culture, laboratories prove to be “secure” spaces where threatening microbes are contained. How do scientists communicate microbial risks, particularly regarding how technologies that isolate the lab from the community mitigate risk? Further, how do citizens negotiate the risk of pathogens in a culture of biological innovation, bioterrorism, and emerging infectious disease? Through a close read of policy documents, this chapter shows explores the modes of contestation available to citizens, and how cultural fears and their antidotes are expressed in the mechanisms of government. By studying how RML worked to alleviate local anxieties through public meetings, Environmental Impact Statements, and the settlement of a lawsuit with community activists, this ethnography shows how science and government assume the responsibility to arrange physical spaces and produce new technologies which will protect individual bodies from harm. Laboratories look different in the 21<sup>st</sup> century, a material outcome of the bioterrorism crisis.

The nation’s premier public health laboratory, the Centers for Disease Control and Prevention is also remaking itself under the bioterror crisis, building new buildings and developing new programs in order to produce a population which exists in a perpetual

state of readiness. Chapter Three considers CDC practices of surveillance, scientific study of disease, and public health communication to show how the bioterrorism crisis brings the everyday social interactions which produce contagion into the domain of national security. I argue that the work of the CDC to produce the nation as a collection of vulnerable bodies which can be secured against microbial threats by individual practices, such as hand washing and social distancing, consolidates authority over public health at the federal level and has consequences in sustaining a risk society in which people turn to the state to mitigate disease threats. Through its work, the CDC sustains the security state by producing bodies that are always vulnerable to some biological threat and creating constant demand for new knowledge of the hazards that threaten citizens' lives. Modern science fully participates in a risk society, in which social fears are abundant and people turn to large institutions to mitigate harm. As they turn to the state to protect their bodies from disease threats, citizens ratify the constant surveillance and watchfulness of the healthy population which characterizes the modern security state.

The danger of militarization without a threat arises when the work of preparing the national body falls upon the same groups that stand to benefit from the continued existence of the threat. CDC depends upon the perception of disease risk to justify its labor and receive its federal allocations. The following chapters return to local communities to explore how national funding for bioterrorism preparedness is used locally, particularly to rehearse a response to terrorism events. Chapter Four travels through the borderlands of New Mexico, exploring the continued militarization of this state with a complex nuclear history. Here, the constant rehearsal of terrorism events, in combination with the ongoing work to secure the nation's border, creates a perpetual state

of emergency. By capitalizing upon the influx of security funding, communities are building a local security economy, dependent upon the perception of risk. This economy is reshaping the borderlands, and its effects upon citizens' lives are as real as the impacts of the nuclear bomb in the same region during the Cold War.

Finally, the concluding chapter proposes that the daily practices of bioterrorism preparedness are producing a security community in which citizens are bound together by common biological risk, access to care during times of crisis, and the ability and authority to provide care in an emergency. Through the study of national-level exercise programs and city-wide preparedness planning in Albuquerque, New Mexico, this chapter asks how communities are materially and ideologically organized around the idea of mitigating biological risk. The dual acts of planning for bioterrorism events and simulating bioterrorist attacks prescribe a distinct role for government in caring for a population, and not just during times of crisis. Publicly rehearsing the care practices of government through bioterror simulation confounds the specter of war with life-giving acts of health care. All of the acts of governance described in this dissertation, from the eradication of smallpox to the regulation of biolabs to bioterrorism preparedness programs, are implemented in the name of caring for citizens' lives. In this work, I aim to show how these practices developed in anticipation of a bioterrorism crisis are changing people's lives in the present moment, in the absence of a bioterrorist event. Will the fusion of biology and terror endure the contemporary moment? If the knot can be loosened, what alternative futures might arise?



## **Why Bioterror?**

This following study represents a grounded, humanized approach to the study of national biosecurity, telling the story of biosecurity through the narratives of citizens and showing how bioterrorism touches down in people's lives in meaningful ways. As a counter to popular, flag-waving books about bioterrorism, I aim to show that bioterrorism is already changing people's lives, whether or not the bioterror threat is real. Policy actions impact communities, industrial growth sways economies, and science research changes our very notions of life itself. These outcomes have material impacts in the lives of modern citizens.

The contemporary moment has been shaped by the rise of a genomic biology and the rise of a war on terror. Reports on these social phenomena fill our newspapers daily, becoming grounds for everything from race relations to global warming. Though these movements seem to emerge separately, they are deeply infused. The political events of our day center on war, and modern science is at the core of contemporary warfare. Bioterrorism exemplifies the ways the new biology coalesces with fear to transform social relations. Science does not just produce knowledge, but through specific practices such as genetic engineering or DNA mapping, science has created new definitions of life and new understandings of the self, and in this production science has created fear.

The belief that the world and its inhabitants are in grave peril has grown with the emergence of a new biology in the 20<sup>th</sup> and 21<sup>st</sup> centuries. The attempt of the biological sciences to account for threats to human life has led to campaigns against CFCs and the ban of DDT, as well as products like antibacterial hand sanitizers and smallpox vaccines. Fear of the new biology is transforming social relationships. It seems likely that fear—

fear of microorganisms, fear of global warming, fear of foreign dictators—will continue to be a motivating factor in contemporary politics. Fear and science have brought a wide range of potential threats before the public, but not all these threats find credibility within the dominant paradigm. The claim that social institutions can dictate which threats are taken seriously and which aren't draws attention to the systems that ultimately inform people of what they should fear. Together, fear and science have a particularly powerful social impact, yet the relationship between science and fear has been largely unexplored.

The bioterrorism crisis presents a compelling case for examining how science shapes public policy and with what outcomes in the lives of citizens. Biosecurity is a defining political agenda of our day, and also a phenomenon that has entered the public imagination in ways that generate public support for the allocation of resources to protect the nation. The question of who benefits from these resources and who does not shows the inequities of an unbalanced political agenda shaped by a single threat. Bioterrorism is changing social relationships spatially, economically, and politically. It is a powerful idea in modern American society, demanding scholarly attention beyond that which it has received. This research is designed to account for the far-reaching effects of bioterrorism, but also to show how the complex blending of science, media, and politics shapes social relationships in an age of globalization.

Ultimately, the blending of fear and science has the potential to shape a worldview in which fear is subdued and life is protected through interminable scientific progress. Because economies are built and governments are elected around these security agendas, much is at stake in the rise of a particular social fear. When dominant social groups and institutions benefit from the existence of a particular threat, there is little

motivation to minimize or discredit that threat. In due course, the acts done to prevent harm may themselves harm the nation or its citizens; the danger is militarization without a legitimate threat. Citizens and policymakers will continue to be bombarded with messages about various threats to human life and security in the 21<sup>st</sup> century; studying how science sustains fear offers a means to make sense of those threats and separate the significant from the imagined.

## Chapter 1

### Smallpox Citizens in a Time of Terror

Disease has long been the deadliest enemy of mankind. Infectious diseases make no distinctions among people and recognize no borders. We have fought the causes and consequences of disease throughout history and must continue to do so with every available means. All civilized nations reject as intolerable the use of disease and biological weapons as instruments of war and terror.

--“Strengthening the International Regime against Biological Weapons,”  
Statement by President George W. Bush<sup>1</sup>

In February 2002, President George W. Bush announced \$6 billion of federal spending for bioterrorism defense. This largest single bioterrorism allocation in US history triggered an allocation of resources which would grow ever more expansive during the next decade as the fear of biological attack gripped the political systems which oversee the care of populations. Following the terrorist attacks of September and October 2001, President Bush declared war on disease, calling it “the deadliest enemy of mankind,” a ruthless killer that does not discriminate between people and nations. He claimed that “we”—perhaps the United States, perhaps “all civilized nations,” or perhaps all “mankind”—“have fought the causes and consequences of disease throughout history and must continue to do so with every available means.”<sup>2</sup> To garner public support for the redistribution of resources, the president situated the new framework of bioterrorism within the long cultural history of disease, accessing ancient value systems and remaking them to sustain a new governmentality. The deliberate fusion of the War on Terror with the practices and motivations of disease prevention enables the narratives of vulnerability, fear, and the right to bare life to be harnessed in support of the security state. In this dissertation I argue that the modern age has been characterized by the

creation of a War on Terror and the rise of a new genomic biology, two movements which seem to emerge separately, but which are deeply entwined. The national security state operates through the continual production of risk; the dynamic and volatile qualities of nature, reinvigorated in the new millennium by biotechnologies and microscales of life, provide a potent source for subjects to rethink the requirements of government in a world of unspecified risk. What histories, ideologies, and motivations are reworked in the contemporary moment to rationalize the largest biosecurity allocation in the nation's history? The management of disease on the scale of the nation as well as the intimate locus of the body has characterized the relationship of states and citizens over time. The current crisis draws upon these cultural formations to rationalize certain acts of governance which are increasingly militant and corporeal, even as they target the nonspecific threat of terror and biology.

When he announced the bioterrorism preparedness expenditures, President Bush claimed, "History has called us into action." Because there are no significant bioterrorist events in US history, excepting perhaps the anthrax attacks which were just four months past at the time of the speech, the president is must draw upon broader stories of disease, contagion, and military might to craft the call to action.<sup>3</sup> The specificity is insignificant in the context of the speech, for the experience of a bioterrorist event is less important than the experience of the political institutions which will be constituted in order to mitigate risk. For example, the president proposes that domestic surveillance technologies, traditionally reserved for times of war, be turned upon the homeland: "During the Korean War, we created what was called an Epidemic Intelligence Service to help defend America if any of our Cold War enemies tried to use bio-weapons against us. Now we

need to adapt the EIS to a new era and to a new mission.” The use of wartime technologies is rationalized because they will provide additional public health service, funding “new test protocols and new treatments... (which will) deliver great new advances in the treatment of many other diseases... (and) provide some incredible cures to diseases that many years ago (people) never thought would be cured.”<sup>4</sup> A positive public health outcome is a laudable side-effect of the government’s adaptation of military surveillance policies to watch over its citizens. The cultural histories of war and disease normalize these new technologies, disguising questions of privacy and liberty which might arise when examining state surveillance as quotidian practice.

These histories of biology and terror matter because they are at the forefront of the many narratives available to citizens in the task of estimating future threats. Citizens, too, are trying to make sense of the bioterror crisis, drawing from a range of personal and collective experiences to assess their vulnerability to biological threats. Sheila Jasanoff defines the human effort to calculate risk as “our paradoxical attempts to cope with the irrational in rational terms.”<sup>5</sup> She argues that people rely upon their experiences of the past to extrapolate our known misfortunes into the future. More than simply imaginations of the future, “risk is a disciplined projection of archived historical memory onto the blank screen of the future.”<sup>6</sup> In exploring the historical memories which sustain the bioterror crisis, I propose that imaginings of nature—in this case, the nature of disease—present powerful narratives for the establishment of risk. The intimate location of disease within the human body, the collective experience of vulnerability, the communal qualities of contagion, and the powerful potential of integrating nature with technology create a compelling backstory for bioterror. Further, as I aim to show in this chapter, the disease

control practices used concurrently with the rise of the national security state during the Cold War have created a story of nationalism that has invested the microbe with global politics, transforming disease into an object of governance. How is nature made into the preeminent threat of the modern age? How have changing understandings of life itself been used to change the institutions, economies, and socialities of American life, creating spaces and worldviews ready for the emergence of the bioterrorist threat?

The particular ways in which bioterrorism is produced as a national security threat have outcomes in creating the institutions of the modern age. In the absence of a major historical bioterror event, stories of disease and civil defense converge to explain the crisis to the public. In turn, the narratives which enable bioterrorism to take root in the cultural imagination are ongoing stories of life and risk, malleable in the hands of government. Thus, new technologies can be integrated into longstanding world views to sustain existing narratives even while opening possibilities for new configurations of the social order. An organism like smallpox contains a priori meanings of vulnerability and contagion, while still being open to new understandings produced by laboratory science or new forms of globalization. By considering how an organism like smallpox is imbued with the politics of life and death, this chapter explicates the cultural referents that give bioterrorism tenacity in the contemporary moment. In these cultural configurations, the literal existence of the threat subsumes in importance beneath the reality of past events as they are imagined in a biological future.

### **A Mutant Virus**

“A virus that kills every one of its victims” describes the lead of a 2001 New Scientist article. Under the headline “Killer Virus,” reporter Rachel Nowak discloses how

two Australian scientists “accidentally created” a lethal mousepox virus and were plotting to publish their findings in an academic journal. “How do you stop terrorists taking legitimate research and adapting it for their own nefarious purposes?” she asks. In answer to the question, the article quotes D.A. Henderson of the Center for Civilian Biodefense Studies: “I can’t for the life of me figure out how we are going to deal with this.”<sup>7</sup> Nowak avoids the full irony of Henderson’s statement by using his current title; formerly Henderson led the World Health Organization’s Global Smallpox Eradication Campaign, the public health crusade that wiped the 20<sup>th</sup> century’s most deadly virus from the face of the earth. Thirty years later, the disease threat had changed so fundamentally that this authoritative spokesperson for disease elimination couldn’t imagine how to retain human control. Media outlets took flight with the fantasy of scientists concocting deadly superbugs through the emerging practices of genetic engineering.<sup>8</sup> The frenzy surrounding an obscure laboratory incident in 2001—prior to the anthrax attacks in the United States—reveals the emerging climate of fear surrounding the genetic modification of germs for bioweapons. The fundamental limitations of disease as a “naturally” occurring entity had been challenged when humans increased the virulence of a virus in the laboratory. The very terms of vulnerability had to be recalculated in light of this new biological threat. Examining the events surrounding the incident shows the particular role of the science industry in defining risk, and the managerial controls which regulate the flows of information in the name of national security.

The day after Nowak published her exposé in the magazine, and a month before he published his findings in an academic journal, scientist Ron Jackson heard a television news reporter claiming Jackson had “re-created smallpox” and built the “ultimate



weapon” in his laboratory. Though he had noted the implications of his virus research early on, Jackson marveled at the ominous twist the media spun on his research.<sup>9</sup> Jackson is essentially a well-equipped exterminator at the Pest Animal Control Cooperative Research Center in Canberra, Australia, using laboratory science for pest control in the island’s ecosystem.<sup>10</sup> When six dead mice propelled him into the media spotlight, Jackson was exploring a theory that he could create “contagious sterility” by injecting a common virus with the proteins from the female mouse’s unfertilized eggs, causing the mouse’s immune system to kill her own eggs.<sup>11</sup> Jackson and his partner from Australian National University, Ian Ramshaw, spliced a mousepox virus with an Interleukin-4 gene to boost the virility of a sterilizing virus/gene-protein so it would immobilize the hearty immune system of selectively bred “Black 6” mice. They injected the test virus into ten Black 6 mice and after six days, one of the Black 6 was not only sterile, but dead; two days later, three more died. Eventually, all ten mice would die from the injection, evidence that the IL-4 gene dramatically increased the virulence of the virus.

Jackson and Ramshaw had been working with the strain of the poxviruses which causes mousepox, which like its smallpox cousin is highly contagious but can be limited by a vaccine.<sup>12</sup> In the next research phase, they first immunized the mice to the mousepox virus, then injected them with the same combination of virus+protein+IL-4. Despite immunization, six of the ten mice still died from the injection. This was the result that, according to one reporter, “fundamentally altered the world’s terror equation.”<sup>13</sup> Jackson and Ramshaw had found a way around the first line of pox-defense: vaccination. The experiment undermined the cultural belief that cheap and highly effective vaccines could secure bodies from contagious disease, producing a new state of life in which scientists

can engineer viruses that can overthrow vaccines and infect vulnerable bodies. Now, the scientists had dead mice and a dilemma: should they publish their results, sending this secret of virulence into the public domain?

The strategy employed by these scientists and their affiliated laboratory in handling these findings exemplifies the ethical debate in the science community regarding the dual-use potential of new biotechnologies, and whether scientists should publish results which might provide a blueprint for building bioweapons. Jackson and Ramshaw consulted their peers and instigated an inquiry which eventually reached the Australian Department of Defence.<sup>14</sup> All organizations said to publish, and believing that open discussion of the topic would best serve the public, the scientists submitted a manuscript to the *Journal of Virology*. They made no reference to weapons potential in the article, and none of the scientists who reviewed the article commented on the warfare implications. A month before the journal article was printed, Nowak's "Killer Virus" article defined new terms for the debate.<sup>15</sup>

In the weeks that followed, then later that year when white powder flooded the postal system in the United States, the media perpetuated a story of bumbling scientists who slipped up in the lab, produced a deadly disease, and then fearfully withheld their data because of its implications. "Everyone was overwhelmed," Jackson recalled, "Normally science is a one-day issue.... (The media attention) went on for so long that the organization I worked with just wanted rid of it."<sup>16</sup> The Australian mousepox experiments might have caught the media fancy for a number of reasons, including a waxing public interest in bioterrorism. However, transgenic microbe research had been ongoing for nearly three decades, and the suggestion that IL-4 could be used to make a

virus stronger had been circulating in science publications for about five years. This research had a critical difference from all these former experiments: mousepox. The virus is part of a family of poxviruses which co-evolve with their hosts to attain a level of virulence which works most effectively upon the host species—cowpox, camelpox, monkeypox, sheeppox, swinepox, and so on.<sup>17</sup> While mousepox is harmless to humans, its cousin *Variola* evolved with humans to become one of the most deadly viruses in human history. Jackson's experiment raised alarm, not because it killed mice so well, but because the virus with which he worked recalled generations of death and horror among human populations. When the work of this scientist was viewed through the lens of the cultural history of smallpox, it seemed less productive, for though the virus no longer exists in nature it still carries potent meanings of vulnerability and human conquest over disease. Cotemporary anxieties about bioterror cannot be separated from such circulations of meaning that comprise the experience of disease in wide-ranging cultural, economic, and political contexts.<sup>18</sup>

### **A Deadly Virus**

Smallpox was always present, filling the churchyard with corpses, tormenting with constant fear all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover.

--Lord Thomas Babington Macaulay,  
*The History of England from the Accession of James II, 1800*<sup>19</sup>

Better known as smallpox, *Variola major* killed 300-500 million people in the 20<sup>th</sup> century alone. Named for the obvious rash and pockmarks displaying on carrier's bodies ("small" in size when compared to the larger pox of syphilis), smallpox has been responsible for much of the suffering, blindness, scarring, and death in human history.<sup>20</sup>

Smallpox is only moderately contagious, requiring close contact with an infected body to spread to a new host, but is fatal to 30 percent of people who contract the disease. Flu-like symptoms emerge within two weeks of exposure to the virus, and then lesions appear in the mouth, starting small, then growing and rupturing, spewing the virus into the body through the saliva. After this surge of infection, the characteristic rash develops, beginning the final phase, descriptively named either “ordinary,” “flat,” “modified,” or “hemorrhagic.” If the body recovers from the attack, it will bear the scars of the disease for life, and pockmarks on a person’s face mark those who have hosted *Variola major* and survived.<sup>21</sup>

The corporeal experience of smallpox evokes strong feelings of disgust, as the body is inhabited and overwhelmed by a foreign entity, one which cannot be avoided or expelled. Jessica Stern categorizes bioterror as a “dread risk” because its assessment of the future hinges upon visceral experiences of infection which evoke horror, both through their physiological effect and their invisible, arbitrary, unpredictable modes of dispersion.<sup>22</sup> As one of the most fearsome human enemies of all time, smallpox produces just such a history of fear and horror. Furthermore, the worldwide campaign to eradicate smallpox and the integration of smallpox prevention into the public health economy have produced a modern knowledge of smallpox in terms of social control and the management of collective life. As contemporary science practice revives these narratives with a new sense of uncertainty, the primal experiences of disgust rise again, shedding the illusion of control and containment produced in the 20<sup>th</sup> century in favor of a transgenic mutation of smallpox which escapes the calculus of control.

Perhaps no history reveals how disease debilitates vulnerable bodies as dramatically as the blight of smallpox on the American continents during European occupation. Cortez conquered the Aztec empire in the 1520s because the Tenochtitlan warriors contracted smallpox from Spanish corpses. Scholars estimate that, along with measles and flu, smallpox killed up to 95% of the native populations who carried no genetic resistance to the disease.<sup>23</sup> From 1520 into the 1800s, the disease spread throughout the continents, leaving behind defeated empires—Aztec, Incan, Cherokee, Eskimo, and others—where people decimated by disease could not defend their homeland. Native vulnerability to European diseases was read by some as an unfortunate consequence of cohabitation, but to others it embodied divine will. As one general wrote, “Providence designed the extermination of the Indians and that it would be a good thing to introduce the small-pox among them!”—an opinion he claimed reflected that of “most white people living in the interior of the country.”<sup>24</sup> Vulnerability to disease equated to weakness and the devaluing of human life, ascribing power to the population which better resisted the ravages of disease.

In this biologically situated power dynamic, smallpox could be manipulated more directly for social control. The legend of British soldiers passing blankets infested with smallpox to native tribes in the Ohio Valley during the French and Indian War is often cited as an early use of biological weapons. Though historians question whether a deliberate strategy of biological infection was ever used successfully as an act of war, for smallpox was already sweeping through native populations, the British likely made the attempt. In 1763, when the Delawares laid siege on Fort Pitt for more than a month, British General Jeffrey Amherst suggested, "Could it not be contrived to send the small

pox among the disaffected tribes of Indians? We must on this occasion use every stratagem in our power to reduce them."<sup>25</sup> Colonel Henry Bouquet offered to "try to inoculate the bastards with some blankets that may fall into their hands, and take care not to get the disease myself."<sup>26</sup> Notably, the flight of people from nearby communities to Fort Pitt for refuge had created cramped quarters and facilitated the spread of disease. The officer in command of the fort wrote, "We are so crowded in the fort that I fear disease...; the smallpox is among us."<sup>27</sup> In times of despair brought by the combination of war and disease, the refugees sought a measure of justice by inoculating the enemy with the very disease that was crippling them.

While taking advantage of a truce to pass an infected blanket to an enemy seems a reprehensible and inhumane act, the frequent retelling of this incident in the narratives of bioterrorism history indicates that the circumstances resonate with contemporary notions of biowarfare. The bioweapon was an act of desperation, undertaken by a group under siege. They saw a weakness in their enemy and exploited it. When policymakers describe the United States as vulnerable to bioterrorist attack, they too presume that terrorists in oppressive situations with no other weapons will see vulnerability in the nation's inevitable susceptibility to disease. The narrative of the smallpox blankets circulates into the cultural history of bioterrorism with two additional effects: first, it associates bioterrorism with the colonizing of America and the succession of native tribes by European governments, providing longevity to the bioterror crisis while entrenching it in notions of nationalist identity. Second, it relies upon the rudimentary form of a blanket as a weapon, suggesting that biological warfare does not require privileged science or technology to construct systems of delivery, but is accessible to primitive people.

## **A Hopeful Vaccine**

The worldwide spread of smallpox exemplified that disease does not act upon all populations equally, creating the potential for disease to target vulnerable populations while others remain immune. This expression of power would not truly be effective, however, until those genetic variations which provided immunity by happenstance could be reproduced and deliberately distributed to populations. Vaccination would shift the dynamics of disease, bringing immunity into political calculation by creating a commodity which would circulate unequally throughout the population producing hierarchies of health.

Society has long organized to protect citizens from pathogens, using mechanisms ranging from domestic remedies targeting individual bodies to militant quarantines organizing populations. In Asia, people inhaled or swallowed powdered smallpox scabs to produce a degree of immunity. European pursuit of “variolation” was based upon reports from Turkey where people were inoculated by rubbing the liquid from a smallpox pustule over a scratch made on the arm with a needle.<sup>28</sup> Milkmaids and farmers who worked closely with their cattle claimed immunity to the smallpox virus, a bit of folk lore that led an apprentice physician, Edward Jenner to develop the first truly effective prevention of smallpox. Jenner performed an ethically-questionable experiment in which he injected his gardener’s son with liquid taken from a cowpox blister on a milkmaid’s hand, then, a few weeks later, variolated him with smallpox. The 8-year-old developed a cowpox lesion, but never contracted smallpox. The boy, it seemed, was immune. Jenner continued his research with cowpox, injecting children throughout his neighborhood and eventually publishing his limited, but conclusive, evidence in a self-financed pamphlet,

*An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England Particularly Gloucestershire, and Known by the Name of "Cowpox" (1798).*<sup>29</sup> That Jenner was allowed, even encouraged, to experiment on his neighbor's children, intentionally exposing them to a deadly virus, testifies to the blight that smallpox was on the population. If children were likely to contract smallpox anyways, why not expose them while they were healthy and stood a better chance of survival?<sup>30</sup> Jenner named the disease showing up on dairy farms "Variolae vaccinae," meaning pox of the cow, and called his inoculation process "vaccination."<sup>31</sup> Though Jenner's work was received with skepticism by his peers, and has more recently been criticized as unscientific or even unnecessary, within ten years the technique had spread throughout Europe, Asia, and the Americas, and because of its lower fatality rate, vaccination quickly replaced variolation as the preferred immunization for smallpox.<sup>32</sup>

Within three years of Jenner's publication, 100,000 people had been vaccinated in Britain, but problems with distribution surfaced quickly.<sup>33</sup> The smallpox vaccine continues to be unique among vaccines in its use of a live virus. Consequently, the vaccine has to be extracted from an active rash and has limited viability in storage. For the first half of the 19<sup>th</sup> century, the vaccine was passed from one vaccinated individual to the next, occasionally boosted by an injection of fresh pox straight from the cow. Around 1840, a technique for producing large amounts of vaccine in cows became popular, to the extent that doctors brought infected calves into their offices and scraped the live vaccine right off the animal's flanks.



Human bodies, however, enabled the global distribution of the smallpox vaccine. After receiving the vaccine in Geneva in 1800, King Charles IV of Spain sent his personal physician, Dr. Francis Xavier de Balmis on an expedition to take the vaccine to Spanish America. Dr. Balmis brought 22 orphan boys on the voyage, vaccinating two boys every ten days during the Atlantic voyage.<sup>34</sup> Where bodies had once served solely as vectors of disease, human and animal bodies now carried the vaccine, offering the cure through the transmittal of live virus in living flesh, but requiring the deliberate transportation of infected bodies through time and space. Only when vaccines were separated from bodies could the practices of immunity work within the economy, distancing vaccination from its origins in nature and transforming it into a tool for governing citizens in the security state.

In the early 1800s, attempts to sell the smallpox vaccine for profit in the United States proved unviable, because the vaccine came from a living virus and could be harvested from anyone expressing the characteristic rash. All a physician needed to provide the vaccine was a body recently vaccinated or an infected cow, along with the knowledge of how to transfer hosts. The government became involved in the vaccination project in 1813, when Dr. James Smith was appointed Federal Vaccine Agent and charged with “the preservation of the genuine vaccine matter for the use of others.”<sup>35</sup> An incident involving the mislabeling of smallpox scabs as vaccine which resulted in the death of ten individuals, however, brought scrutiny to the government’s involvement in vaccine distribution. North Carolina Congressman Hutchins G. Burton began a campaign to repeal the 1913 act establishing the National Vaccine Agency, calling the agency “a mere nuisance, of the most dangerous kind,” which brought about “suffering, under the

authority of our laws, hundreds to be slaughtered with indifference." Burton attacked the agency as a monopoly where the government was enabling one man "to accumulate wealth, by levying contributions from all parts of the union."<sup>36</sup> When a smallpox epidemic struck Baltimore, Smith's hometown, a local periodical claimed, "The act of congress to encourage vaccination, has rather, in our opinion, tended to encourage small pox, by making a matter of individual profit out of what had better been left to the general care of medical gentlemen," and later, "There is something wrong or rotten in this business."<sup>37</sup> The controversy eventually brought about the repeal of the 1913 act and the dissolution of a federal authority over vaccination, effectively returning the responsibility for vaccination to medical professionals and individual citizens. More than a century would pass before government again asserted authority over the mass vaccination of citizens through programs aimed at eradicating smallpox worldwide.

Such exclamations surrounding medical interventions in biological immunity illustrate how conceptions of nature, government, and even God circulate through public discourse of disease. Ed Cohen contends that these collusions categorize medical interventions as an example of Latour's "hybrid networks," the material formations which bind nonhuman nature and human culture in such a way as to render invisible their very connectivity.<sup>38</sup> Indeed, as physicians stopped scraping scabs off living bodies to inoculate patients sitting in the room with the cow, the natural sources of immunity became disguised, allowing the medical protocols which prevent disease to assume a cultural position in opposition to the natural sources of disease. Further, through the hybridity of immunity, vaccination locates both "nature" and "culture" within the human body, bringing the cultural forms of science production into the vulnerable body in order

to further isolate it from the natural environment with its inherent natural threats.<sup>39</sup> This hybridity confounds the origins of biological threat as well as the mechanisms for overcoming it, for the threat is both intimately individual and vastly global, and the antidotes can be accessed by managing both bodies and environments.

Cohen's study of immunity asks how people came to believe that our bodies separate us from other humans and the world around us rather than binding us to our environments and each other. He proposes that "only with the advent of biological immunity does a monadic modern body fully achieve its scientific and defensive apotheosis."<sup>40</sup> The atomized body requires new scientific explanations of the self, not as a contiguous whole with the environment, but as an assemblage of many parts which can be acted upon independently with great effect upon the whole. "After the advent of immunity-as-defense, bioscience affirms that living entails a ceaseless problem of boundary maintenance."<sup>41</sup> Maintaining the sense that our bodies are separate and distinct from the world which sustains our very life opens the opportunity to locate threats to life within the world upon which we materially depend for our existence. Indeed, while the essence of human social living which brings bodies into proximity with each other produces risk through the transmission of disease, the politics of disease eradication reveal that the organization of immune bodies can bring about a "herd" effect to manipulate the circulation of disease within society. Thus, the separation of bodies from material lifeworlds enables the policing of bodies through political systems for the survival of the population over the individual.

### **A Global Campaign**

But, now when...the human frame, when once it has felt the influence of the genuine cow-pox in the way that has been described, is never afterwards at any

period of its existence assailable by the smallpox, may I not with perfect confidence congratulate my country and society at large on their beholding, in the mild form of the cow-pox, an antidote that is capable of extirpating from the earth a disease which is every hour devouring its victims; a disease that has ever been considered as the severest scourge of the human race!

--Edward Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England Particularly Gloucestershire, and Known by the Name of "Cowpox"*<sup>42</sup>

In the closing lines of his vaccination proclamation, Jenner forecasted that the science of vaccination might be used to eradicate smallpox. Access to the vaccine rapidly reduced the abundance of smallpox across the globe, and mandatory vaccination programs eliminated the disease in most countries by the mid-twentieth century. However, the scourge persisted, and in the early 1950s, at least 50 million cases of smallpox still occurred every year, motivating the World Health Organization's Intensified Smallpox Eradication Program. The WHO campaign has been lauded as a lesson in global disease control and an example of innovative thinking, cooperation, and goodwill coming together to alleviate worldwide suffering without regard to borders or politics. Disparagers claim smallpox was already on its way out and the campaign was simply a means to turn a biological process of natural selection into a means of social control. Regardless, the WHO campaign mobilized people to act against disease, using science and technology to destroy the viable habitat of a microscopic enemy. Throughout the campaign smallpox was reproduced as an enemy to be fought, controlled, and eliminated, establishing the rites of a modern war against disease, producing the weapons, strategies, tools and attitudes that would ensure victory, and testing mechanisms which reemerge in the current struggle against bioterror and emerging infectious disease.

In 1958, under pressure from the Soviet Union, the World Health Assembly adopted a resolution calling for mass vaccination to produce herd immunity within the majority of the population, thereby inhibiting the spread of the disease.<sup>43</sup> The plan to vaccinate millions of people in endemic countries held much appeal from the perspective of governance: many countries had infrastructures in place for vaccinating, increasing the number of vaccinations would provide an economic boost, and it was a clear show of government engagement in a public health situation. Interest in the program waned, however, as mass vaccination proved to be expensive and time consuming. The WHO passed several other resolutions over the next decade, but the next one that stuck was another Soviet-sponsored proposal more than ten years later. World Health Assembly Resolution 20.15 differs from previous smallpox bills in that it lays out an economic rationale for smallpox eradication. Pointing to the billions of dollars spent in developed countries to keep their population immune and their borders secure, the resolution endorses eradication, not on moral grounds, but by presenting a strong economic incentive to countries where smallpox was already extinct.<sup>44</sup> If it were to be successful, the campaign would require access to the bodies of millions of people living in more than 40 countries, many of whom were also tormented by poverty, civil war, and a range of other health concerns.

Reports of the campaign borrow generously from the dictionary of war, describing the public health task as if planning a military invasion and producing a corpus of combat terminology which framed the campaign as an act of war. Director D.A. Henderson emphasized out that “WHO had no authority, other than that of moral suasion, to compel any country,” rationalizing acts of public health as moral imperatives which

exceeded any political constraints.<sup>45</sup> Those enlisted with the charge to eliminate the disease certainly felt like they were going to war—and losing the battle.<sup>46</sup> Volunteers, government support, and vaccines had been attained, but the plan to vaccinate every body did not produce lasting results. A new strategy was evolving, one to target and break the chain of transmission. As one WHO official recalled,

It was on a hot, blistering June afternoon in 1973 that the ‘war plan’ that eventually spelt victory over smallpox in India was set in motion. Till then, the relentless war against an enemy that knew no mercy had not been going on too well. If anything, it had become a general’s nightmare. Though there was no dearth of ‘troops’ or ‘ammunition’, the problem was to get them to the right place at the right time. Naturally, the casualties were heavy—over 16,000 reported dead and more than five times this number maimed and disabled.<sup>47</sup>

The new “war plan,” involved a ring approach, in which outbreaks were detected in a particular area, then a ring of resistance was created around the infected locale by quarantining and vaccinating the surrounding areas. In the words of Dr. Basu, the Indian National Smallpox Eradication Programme Officer, “We decided then that instead of expending our resources against the entire enemy forces simultaneously, we would concentrate on their strongholds.”<sup>48</sup> The restructured program recruited “officers” and “advance teams” who were put through “highly intensified training courses to qualify ... as experts” in detecting smallpox.<sup>49</sup> These teams conducted “reconnaissance trips” to identify “enemy” areas.<sup>50</sup> When an outbreak was reported, the team would “blitz” the area with “vaccination devices and vaccine—the guns and bullets of the campaign.”<sup>51</sup> Reports from the field such as these suggest that both WHO officials and local workers felt like they were at war. Significantly, the campaigners themselves had been immunized against smallpox, so while the virus could “wage war” on other people’s bodies it could not infect the public health “soldiers.” In reality, the WHO campaign was a strategy to

access bodies and control populations, for the physical battle with smallpox was waged inside people's bodies as the vaccine stimulated their immune systems to produce antibodies.

For more than a decade, the world was at war with smallpox. In this state of exception, acts of surveillance, secrecy, and civic duty shaped the daily experience of disease. Detecting and isolating infected populations before the disease broke out widely was the key to stopping the spread of smallpox. Containment by vaccination required that populations be trained to report the disease to authorities. Thus, citizens had to be persuaded to act upon a moral imperative, often violating relationships of trust and privacy associated with the sick and dying on behalf of some "greater good." Jitendra Tuli reports going into classrooms to explain the campaign to children, then asking them to report any diseases at home to their teachers.<sup>52</sup> In later years, officials offered a reward to individuals reporting cases of smallpox. The monetary incentive turned up hundreds of false leads in these poverty-stricken countries, but successfully cultivated a climate in which people would expose their neighbor's disease.

Self-reporting and voluntary vaccination were encouraged in posters and pamphlets—and even hand-scrawled messages painted on the backs of busses or slung over elephants. "Join the fight," encourages one poster, as if recruiting troops for battle. The poster shows three Africans in various modes of traditional attire facing off with a personified smallpox monster. Marked with an identifying "SP" on its chest, the monster has distinct human features: arms, legs, fingers, toes, eyes, and hair. Its skin is black with white pockmarks, imitating the way smallpox marks the skin, and it holds a spiked club. Visually, the virus is rendered human, or at least human-like, but even larger than the

people pictured on the poster. The individuals facing the monster wield bows and arrows, one of which has been driven into the “heart” of the disease, squarely between the S and P. The poster depicts an attack on a foreign body, people casting weapons away from their own bodies and killing a monster with projectile points. In reality, bows and arrows won’t stop smallpox, and the only way to join the fight is to project a sharp object on one’s own body and “be vaccinated today.”

Other posters published between 1968 and 1977 depict the vaccination itself, a direct act upon a human body. In early posters, the injection gun is clearly displayed, poised to shoot a vaccine into the victim’s arm. Sometimes the person holding the gun is identified as a medical professional, wearing a stethoscope or a red cross; sometimes the gun is held by a uniformed officer, identified by a hat or badge. Typically, the vaccine-giver is a man, and the recipient is a woman, often a woman with a small child. The message is consistent: “be vaccinated.” These posters depict the individual, physiological approach of the smallpox eradication program, for smallpox was ultimately eliminated by one-on-one meetings between healthy people and officials bearing vaccine. These depictions of the public health encounter establish a power structure in which the unvaccinated individual is under the control of the person administering the vaccine, underlining the vulnerable state of the unvaccinated body. The recipients are women and children wearing some form of “native” attire; the vaccinators are men wearing uniforms. Furthermore, the vaccinator holds a gun to the exposed flesh of the individual, underscoring the authority of one over the other. Though written as an invitation to be vaccinated, the poster affirms a larger system of social control enacted through the vaccination program.





**Figure 1.1** Boys in West Africa line up for vaccination beneath a poster showing the use of jet guns. *Image courtesy of the Public Health Image Library, Centers for Disease Control and Prevention (#1987)*

Containment of the disease required broader community participation along with individual submission. Quarantine has long been used to contain disease, but must often be enforced through military-level control, for the rituals of death that function within a society may work to spread a contagious disease. During the WHO campaign, field officers reported traveling to the site of an outbreak only to find scores of people traveling back to their hometowns after coming to pay their respects to the dead and dying, carrying the virus from a relation's deathbed to their own homes.<sup>53</sup> In India, the spring outbreak of smallpox was welcomed as the annual tribunal of the goddess Shitala Mata, by which she would decide who was strong enough to live. Religious beliefs regarding animals, including the cow, drew skepticism of the medicine rumored to have bovine origins.<sup>54</sup> In reality, much of the smallpox campaign took place in communities

with little exposure to modern medicine, and a needle with a promise was understandably a hard sell. The vaccine does have risks and complications, including death, and produces an open wound that must be properly cared for in order to be effective. Furthermore, divine factors could just as easily explain positive outcomes to citizens who had never experienced vaccination or witnessed its effects. Without the systems of legitimation in place which had helped medicine ascend to its authoritative place in political decision-making in the world at large, these practices had to be sold to communities on the basis of the body itself. Thus, the field officers had to develop techniques of persuasion: “Often, before uneducated villagers would agree to submit, the vaccinators would have to jab themselves in front of the entire community, to prove that there was nothing harmful.”<sup>55</sup> As with the posters, the act of “submitting” one’s body to vaccination is demonstrated by the WHO representatives, this time by reenacting the rite upon oneself. In theorizing the medical responses to epidemics, Cohen claims, “When theories about epidemics simultaneously involve scientific, medical, political, and religious concerns, they locate medicine at the interstices of these domains and thereby invest its privileged subject-object, the human body, with their overdetermined values.”<sup>56</sup> The propaganda promoting smallpox vaccination exemplifies the pull upon wide-ranging cultural values to push particular bodily acts. Thus, when the medical establishment fails to elicit behaviors from individuals on the basis of bodily health, the broader political entity still has tools to bring about a social response to meet the necessities of governance. Medical practices are thereby integrated with other mechanisms of security by binding them to concerns of scarcity and community.<sup>57</sup>

Containment also depended upon identifying and marking the source of infection and the immune population. Because both the smallpox disease and vaccine leave visible scars, WHO officials read marks upon human bodies to distinguish the “at risk” population. There are no invisible carriers of smallpox: people who are infected wear the symptoms on their bodies. People who are immune can prove their immunity by showing scars on their arms (from the vaccine) or the scars left on their bodies from the disease itself.<sup>58</sup> In later years of the campaign, officials traveled from house to house in search of the unvaccinated and infected.<sup>59</sup> On these visits, they would mark each house with a number, logging the names of people living in that house, and then vaccinating everyone living within a quarter mile of an infected house, moving outward in concentric rings until they got ahead of the disease (Figure 2). Eventually, as in ancient Egypt, the Angel of Death would pass over the marked homes where immunization was shielding the bodies within from disease.<sup>60</sup>



**Figure 1.2** Paint marking a home where a person with smallpox lives. *Image courtesy of the Public Health Image Library, Centers for Disease Control and Prevention (#7524)*

As the blight of smallpox began to fade, WHO officials combed the planet for signs of any outbreak. Tentatively at first, then more emphatically, they began to suggest the disease had been contained. In 1977, a man in Somalia became the last person to catch contagious smallpox from the body of another human being. His antibodies fought off the virus, and without another vulnerable body to infect, the disease succumbed. For two more years, a commission of scientists waited and watched, searching for signs of one more outbreak, before submitting a report to the WHO providing evidence of ... nothing. They found no mark of vital *Variola* upon the world's population. The chain of contagion had been ruptured and the 10,000-year-old virus no longer passed freely from host to host.

WHO president Dr. Abdul Rahman Al-Awadi signed the death certificate for smallpox on May 8, 1980, declaring “solemnly that the world and its peoples have won freedom from smallpox, which was the most devastating disease sweeping in epidemic form through many countries since earliest time.”<sup>61</sup> Not only were people's bodies freed from the disease, but the global economy was freed from the burden of smallpox. The WHO declared that the total cost of the campaign was \$112 million, and predicted a worldwide savings of \$1 billion annually through the eradication of smallpox.<sup>62</sup> The fieldworkers were recognized as the “heroes who conquered smallpox.” At a celebratory parade in Sierra Leone, “the vaccination team members wore their field uniforms and displayed their jet injector guns for the public to see.”<sup>63</sup> Such displays helped people to commemorate a victory which was largely invisible, the elimination of a threat to which much of the population had been immune for generations. In the end, perhaps the most significant outcome of the WHO campaign was not the elimination of a disease, but the

worldwide expression of human control over a contagious disease. The metaphors of war, persisting to the very end in Al-Awadi's statement that people had "won freedom from smallpox," established disease as an oppressive enemy which could and should be battled with all the weapons of modern medicine and communications. Even its final victory shout, "Smallpox is Dead," reaffirmed that the war had been against a living enemy and that success was to be marked, not in healthy bodies, but in the obliteration of the smallpox virus. Such approbation further ratified the practices of the campaign, justifying the body-checks, quarantines, and martial law as necessary displays of force in order to protect the public's health. Smallpox eradication was a celebration of science knowledge, the authority of developed nations in the third world, and the subjugation of individual bodies to achieve political and economical goals.

Foucault proposes the history of smallpox eradication as an example of how the apparatus of security becomes acceptable in the minds of populations. He theorizes that vaccination made it possible to think about disease in terms of probabilities, which in turn developed notions of case, risk, danger, and crisis. In turn, diseases are no longer bound to particular geographies, but are assessed by the distribution of cases within a population at a particular moment in time and space.<sup>64</sup> Indeed, disease reorders the geopolitics of the world, for it moves by the associations of bodies, defying borders at the same time as it "provokes their fervent reaffirmation."<sup>65</sup> Furthermore, vaccination changes the categories of people from "sick" and "not sick," into shades of those who are likely to become sick, creating populations which account for all people in terms of "normal" morbidity. By these assessments deviant health situations can be assessed by acceptable limits rather by the rule of law, "revealing a level of the necessary and sufficient action of those who

govern.”<sup>66</sup> With these new calculations of health and risk, the materiality of microbes is no longer prerequisite to health risk, laying the groundwork for a bioterror crisis predicated upon massively vulnerable populations.

### **Smallpox is Un-dead**

The eradication of naturally-occurring smallpox produced a new category of disease vulnerability, in which viruses did not move freely within the population but were controlled exclusively by technology. Though the world was celebrating the “death” of smallpox, *Variola major* was still very much alive, held hostage in two freezers in the United States and the Soviet Union. WHO’s post-eradication program called for all countries to send their laboratory stocks of the various strains of the smallpox virus to two repositories, “to assure biosafety and security.”<sup>67</sup> Scientists would have a ten-year window to study the virus through WHO-approved research projects, then all remaining live virus was to be destroyed. Beginning in 1993, a series of resolutions passed by the World Health Assembly delayed the destruction of the stockpiles. New science technologies offered endless mechanisms for studying the virus and attaining new disease knowledge, rationalizing repeated delays.<sup>68</sup> The reluctance to destroy a germ—even the most deadly germ to present itself in human history—exposes a belief that scientific study will ultimately produce benefits that outweigh even the most substantial risks. WHO continues to deliberate the scale of risk and benefit associated with the smallpox stockpiles.<sup>69</sup>

The possibility that smallpox lives on in places unknown to WHO officials also shapes the contemporary assessment of the bioterror threat. WHO acknowledged this possibility in a 2007 resolution “recognizing that unknown stocks of live variola virus

might exist, and that the deliberate or accidental release of any smallpox viruses would be a catastrophic event for the global community.”<sup>70</sup> Some estimate that up to 17 countries are harboring live virus.<sup>71</sup> Policymakers are no longer willing to make stockpile-management decisions based on the assumption that smallpox is securely contained in two freezers. Plus, scientific advances in the last two decades raise the possibility that smallpox will live forever through its DNA. In 2002, scientists at a New York university successfully created a polio virus from 70-letter bits of its DNA sequence. While the smallpox virus is much more complex (185,000 letters to polio’s 7,000) their project shows the potential for artificially constructing viruses.<sup>72</sup> Much of the smallpox DNA sequence has become publicly available, as pieces have been doled out to research institutions involved in developing vaccines and antidotes. In 2006, a *Guardian* reporter ordered a smallpox sequence over the Internet, using a fake company, a cell phone, and a residential address.<sup>73</sup> Others worry that the virus might be captured in glaciers or cemeteries, set to reemerge in nature as global temperatures climb. In 2003, a librarian in New Mexico discovered smallpox scabs in an envelope inside a library book. Though the material contained no living virus, the genetic technologies of the 21<sup>st</sup> century might allow the production of live virus from raw matter. To public knowledge, smallpox does not exist in the material form of a live virus, but the disease continues to take shape by the imagined potential to emerge and infect a newly vulnerable population. The threat of disease can now be understood both in its unpredictable and uncontrollable “nature,” but also by the expanding ability of humans to harness the power of “nature” and control it to odious effects, infusing the cultural history of disease with new potency from the revolution of the life sciences.

Because smallpox does still exist, even under rigorously controlled circumstances, the disease continues to define the terms of vulnerability in the modern age. Because vaccination is the only known prevention of smallpox infection, unvaccinated bodies are perceived to be vulnerable. After the Smallpox Eradication Programme, medical professionals were discouraged (and at times, prohibited) from vaccinating individuals against smallpox, on the grounds that the personal risks associated with the vaccine posed a greater threat than the disease. An entire generation—in some countries two or three generations—has not been vaccinated against smallpox, and even those who bear the scar of the vaccine have lowered immunity today. The power of smallpox to shape current biosecurity practices draws upon the cultural understanding of smallpox as a brutal, deadly disease as well as the political production of a population made vulnerable, ironically, through the elimination of the threat.

### **Vaccinating for War**

When disease began to play upon the theater of war, the biological formations of soldiers changed. Noting the potential for the weaponization of smallpox, General George Washington ordered that his troops take measures to protect themselves against the disease during the Revolutionary War.<sup>74</sup> Fifteen months after the September 11 terrorist attacks on the United States, President George W. Bush announced a plan to vaccinate one million military and public health personnel against smallpox. Hours before vaccinations began at Walter Reed Army Hospital, the President delivered an incongruous speech describing a world where smallpox did not exist and posed minimal threat to citizens, but still posed enough of a threat to justify taking action upon the bodies of half a million soldiers:



In 1980, the World Health Organization declared that smallpox had been completely eradicated, and since then, there has not been a single natural case of the disease anywhere in the world. We know, however, that the smallpox virus still exists in laboratories, and we believe that regimes hostile to the United States may possess this dangerous virus. To protect our citizens in the aftermath of September the 11<sup>th</sup>, we are evaluating old threats in a new light. Our Government has no information that a smallpox attack is imminent. Yet it is prudent to prepare for the possibility that terrorists (who) kill indiscriminately would use diseases as a weapon.<sup>75</sup>

In this speech the known presence of smallpox in two laboratories (one of which is controlled by the American CDC), combined with a belief in the possibility of terrorist use, is grounds for reviving discussions of an “old threat.” Smallpox is not permitted to fade from the public health equation, for the cultural scars of such a deadly disease offer a potent rationale for national security policy. The memory of a disease with no cure, which kills 30% of its victims, still produces enough fear to rationalize government intervention.

Bush’s vaccination plan reproduced forms of social control used in the smallpox eradication campaign in the 1960s, targeting military and public health workers, then emergency responders. Mass vaccination was declared unnecessary, for the vaccination program was a military action “for the greater public good” and because “military missions must go on even if a smallpox outbreak occurs (and) vaccination is a wise course for preparedness and may serve as a deterrent.”<sup>76</sup> By vaccinating soldiers, the government was prioritizing the vitality of the military, but also producing immunized soldiers to deter enemies’ use of smallpox as a weapon. Soldiers impervious to disease were an asset of war.<sup>77</sup>

Vaccination, however, carries a risk. When smallpox presented a 30% chance of dying, this risk seemed small, but in an age when the chances of contracting a “natural”

or non-intentional smallpox virus are close to none, risks of 2 deaths in a million vaccinations are considerable. Like the WHO fieldworkers who stabbed themselves with the needles to exemplify the safety of the vaccine, President Bush claimed he, too would be vaccinated: “As Commander in Chief, I do not believe I can ask others to accept this risk unless I am willing to do the same. Therefore I will receive the vaccine along with our military.”<sup>78</sup> He then described that his family and staff would not be vaccinated, exemplifying the appropriate response for ordinary citizens.<sup>79</sup> In all phases, the government retained control of the smallpox vaccine. Tommy Thompson, Secretary of Health and Human Services, explained that doctors would not be allowed to stock the vaccine: “It will not be in your doctor’s office. We will not give it up out of our custody. It will not be willy-nilly handed out to doctors across America. We will retain custody of the vaccine.”<sup>80</sup> Control of the remedy was critical to retaining the state’s authority over disease.

In the end, not even phase one of the vaccination plan, the inoculation of one million bodies, was completed. Health care workers were skeptical of the risk, and only 38,000 volunteered for vaccination. Two individuals died of heart failure after receiving the vaccine. As public interest waned, some argued that the directive had already done its work, drumming up support for the war in Iraq.<sup>81</sup> Attention shifted from vaccination to stockpile stewardship and distribution plans. Within a year of the terrorist attacks in 2001, the United States had purchased enough vaccine to inoculate every American citizen. The timely distribution of the vaccine following an outbreak would be as effective as and less risky than mass vaccination. With stores of vaccine stashed away, the security apparatus could turn attention to the disciplining of bodies during a health

emergency. In so doing, bioterrorism preparedness programs drew explicitly from the archives of Cold War memory which produced vulnerable bodies in order to create subjects of the national security state.

### **A Cold War on Terror**

“Your body is under constant attack!’ Give your immune system the support it needs. Order Now!” Dr. Ken Alibek’s Immune System Support System offers an “Advanced Natural Health Formula” in capsule form, infusing the body with a regimen of vitamins, minerals, antioxidants and probiotics designed to boost immunity. Dr. Alibek’s website, [www.drkenalibek.com](http://www.drkenalibek.com), suggests that “\$1.34 a day is a small price to pay to support your immune system,” assigning a value to immune health, and a bargain deal at that. Borrowing language from the security industry, the site describes the immune system as “your body’s personal surveillance and security system (which) recognizes foreign substances that are constantly attacking your body and it helps defend against them.” Moving through an environment of foreign bacteria, viruses, and a polyvalence of pathogens places the human body in a perpetual state of war; stewards of personal health, it is presumed, will respond by bolstering personal preparedness and making the body continuously ready to battle biological threats.

In an intriguing metaphor for medical perspectives on immunity, Polly Matzinger describes popular conceptions of the human body as imitative of the political devices of civil defense: “For half a century we have studied ... models in which immunity is controlled by the adaptive immune system, an army of lymphocytes patrolling the body for any kind of foreign invader. Recently there has been a shift to include the cells and molecules of the innate immune system, an army of cells and molecules patrolling the

body for a subset of foreign invaders that are ancient enemies... Perhaps it is time to stop running a cold war with our environment.”<sup>82</sup> Indeed, the conception of a body under attack from outside and within characterizes the physiological subject of the national security state. If the ultimate biological threat is not yet located in the contiguous environment, then the duty of the present biological subject is to access the vulnerabilities already contained within the body and its physical surroundings, working always to mitigate risk. The languages of war when set upon the human body disarticulate persons from nature, sustaining the condition of modernity described by Latour through which separating the natural world from the cultural world seems to guarantee that humans can act freely for their own destiny.<sup>83</sup> In the emerging culture of biological insecurity, a body constantly under attack operates as a microcosm of the nation-state which is threatened by countless, unspecified threats in every aspect of collective life.

Dr. Ken Alibek, salesperson of healthy immune systems, is a self-described “biological and medical expert,” “internationally recognized for his groundbreaking research on the human immune system,” “consultant to the U.S. government,” contributor “to world peace” and “a U.S. citizen.”<sup>84</sup> While Dr. Alibek’s credentials as a natural healer may be questionable, the former head of the Soviet Union’s “Biopreparat” biological weapons program gained notoriety by exposing the Soviets’ secret bioweapons development which continued after international treaties were signed in the 1970s. Between 1998 and 2005, Alibek testified before Congress at least ten times, presenting stirring, first-hand accounts of the Soviet Union’s plans to genetically engineer pathogens under projects ominously titled “BONFIRE” and “PODLESHIK,” painting a vivid depiction of a foreign threat.<sup>85</sup>

Alibek's willingness to talk about Soviet weapons development provided a useful tool for the United States government in establishing bioterrorism as a credible threat in the 21<sup>st</sup> century. By confirming that it is possible to hide a large-scale bioweapons program, Alibek opened a broad field of nations and groups to be identified as potential threats to the United States. Alibek, however, defected from the empire known a generation ago as the greatest threat to American safety, health, and way of life, and every accented word he spoke stirred cultural memories of the Cold War and the looming Soviet threat. As a figurehead of the Soviet Union and an authority on microbial weaponization, Alibek bridged two worlds to bring Cold War ideologies to bear on the contemporary the bioterror crisis. Both Alibek's magic immune pills and his Soviet secrets resonated in the contemporary moment because the national security practices taking hold during the bioterror crisis were reinvigorated forms of Cold War governance. By reconfiguring the fears of the previous century in light of the revolutions in the life sciences, the War on Terror similarly works to produce a society which will emerge intact from a catastrophic biological event. Accordingly, the bioterror crisis of the present moment is predicated upon principles of preparedness, survival, and sacrifice emerging from the cultural formation of the Cold War. To understand how these ideologies coalesce with cultural histories of disease, it is useful to investigate conceptions of life and state grounded in the politics of the late twentieth century.

The Cold War was about "the state," but that state cannot be taken as a given. The "state of being" during the Cold War penetrated deeper than the institutions and provisions which delimited the political state, and while acts of governance may have brought about a particular type of security state, they also produced new experiences of

collective life. The production of the state is simultaneously and insistently the re-creation of its citizens. As Judith Butler suggests, discord between the state and the individual is an inevitable outcome of that very relationship:

The state then makes us out of sorts, to be sure, if not destitute and enraged. Which is why it makes sense to see that at the core of this ‘state’—that signifies both juridical and dispositional dimensions of life—is a certain tension produced between modes of being or mental states, temporary or provisional constellations of mind of one kind or another, and juridical and military complexes that govern how and where we may move, associate, work, and speak. If the state is what ‘binds,’ it is also clearly what can and does unbind.<sup>86</sup>

The Cold War burst with these tensions: How could citizens know the extent of the nuclear threat? What were the responsibilities of the government and individuals in protecting life? When should citizens surrender civil liberties for the sake of national security? Solidifying a national identity in a time when the United States was expanding its interests abroad produced further tensions within a liberal, democratic system of governance. The era might be understood by the ways people negotiated tensions between the nation-state and individual states of being in the presence of nuclear weapons; it was about how people realize mass death at home and abroad.<sup>87</sup> The state performed its work of binding and unbinding in part by producing common threats and governing people’s behaviors in the face of those threats. While hazards certainly existed long before the Cold War, David Campbell suggests that danger was being totalized abroad and individualized at home, inscribing danger itself into the very identity of the state and its citizens.<sup>88</sup>

The Cold War grew out of the materiality of the nuclear bomb. Nuclear weapons remade the world around the possibility of instantaneous mass death, and in so doing changed the nature of life itself. Joseph Masco proposes that the nuclear project of the

Cold War naturalized health as incipient death, bringing the possibilities for abrupt termination of life into formations of healthy citizenship. He shows how the Cold War chiseled away at the amalgamation of public health and national security which had sustained the development of the modern state prior to 1945. Security and health “became contradictory ideas” during the nuclear era, “which both underscored the reality of radical technological change and invalidated the state’s ability to regulate society at the level of health and happiness.”<sup>89</sup> In building and detonating nuclear weapons, the government was creating a landscape which was inherently unhealthy to its citizens. Unable to build the nuclear industry while caring for its citizens, the government instead worked to naturalize nuclearism as threat for which citizens themselves were responsible. Alleviated of the burden of protecting individual health, the state could focus on survival as the preeminent goal of citizenship. Through wide-ranging practices of emotional management, the Cold War state established “logics of survival and sacrifice” by which individual desires and responses were subsumed beneath the preeminent goal of preserving collective life beyond nuclear catastrophe.<sup>90</sup> The forms of citizenship made available during this era characterize daily life by individual acts which work against the potential for unprecedented forms of mass death.

The totalizing yet individualizing threat of disease provides a potent conception of risk alongside nuclear death, for disease has immediate effects upon the human body, but is still largely understood in terms of mass devastation within populations, as in the case of smallpox. While the nuclear threat has not disappeared in the new millennium, remaking disease through genomic science along with the potential for microbes to be weaponized has produced new biological threats as vital security risks. The

*consolidation of executive power, militarization of civilian life, and expansion of the science industry* instigated to counter nuclear threats during the Cold War have expanded in the contemporary moment to an all-hazards preparedness strategy sustained in part by the producing of a living, changing, mutating, and growing biological threat.

### **Surviving the Cold War State**

*Consolidation of Executive Power.* War plays an important role in the formation of state identity, but the great wars of the 20<sup>th</sup> century were waged in Europe and Asia, leaving the United States to find other ways to establish its place in the post-war era. The country had emerged from WWII as a powerful nation-state, ready to develop its interests abroad. To wage war overseas, the U.S. had greatly expanded its systems of governance in order to support U.S. troops and other interests far beyond its borders. Unable to reign in these bureaucracies, the state used these agencies to protect the expanding interests of the country, but the country was troubled in the post-war period by a lingering anti-statist attitude.<sup>91</sup> Without a war to sustain the power of the central-state, the country seemed ready to revert to the decentralized policies so vital to American capitalism. In order to satisfy the new state's ever-present need for war, the U.S. produced an "imaginary war."<sup>92</sup> The preemptive war was fought daily through a range of practices which, if successful, would eliminate the conflict itself. By building national security programs, the state extended its influence into the lives of its citizens and drew support for its broader post-war strategies. Every detail of that war had to be imagined in order to ensure that appropriate measures were being taken in the present to keep it from coming about. In a perpetual state of war, the particulars of the government's national security policy were more easily construed as plausible and rational.



To meet the post-war administrations' policy goals and mobilize the Cold War movement, the state had to remake its image and consolidate the power of the executive without breaking the ground rules of democracy, and also expand its power into the public and private lives of its citizens, while still upholding the democratic social order so valued in American society. Furthermore, the state had to convince its citizens to accept the ratcheted expansion of government as an innocuous consequence of practices done on behalf of the public good.<sup>93</sup> In guarding the private interests of citizens, the new politic allowed citizens to have whatever interests they democratically chose and the state would invest itself in protecting them. Foucault proposes that in a liberal state, liberty precludes security, for as a form of governance, national security protects liberties.<sup>94</sup> Bentham adds that prosperity breeds security, the desire to protect one's interests. Security, then, is a form of governance that comprises the future.<sup>95</sup> Ever watchful, the security state is concerned with possible and plausible events.<sup>96</sup>

In the wake of the bombings of Hiroshima and Nagasaki, worldwide nuclear war seemed a possible, if not completely plausible, event. The appearance of a weapon that could destroy life on an unprecedented, unimaginable scale changed cultural understandings of death. Nuclear war was a risk, not only to bodies and life, but to the balance of power that preserved life. In his thesis *Risk Society*, Ulrich Beck proposes that risk has been produced by modern societies, a necessary side effect of wealth and technology.<sup>97</sup> Risk works with material objects, in this case a bomb, to order the world and render it governable. For Beck, risk is uniform and calculable, and therefore under the care of a "risk society" designed to identify, calculate, and mitigate the risk. Certainly, this was much of the work of the Cold War regarding the risks of nuclearism.

Beck's thesis, however, hinges upon the idea that risk exists beyond society's ability to calculate it, for the ultimate products of modernization are catastrophic events with no limits, such as the nuclear meltdown at Chernobyl. Though they contain the potential for mass death and social disruption, the effects of biological weapons may better be compared to the impacts of infectious disease, characterized by contagion, mutation, and adaptation, which bring material effects which are incalculable and seemingly without limits.<sup>98</sup>

Mitchell Dean contends that Beck's society is in reality a "post-risk-calculation society" in which there can be no security for society cannot calculate, and therefore cannot plan for the worst imaginable disaster.<sup>99</sup> He proposes instead an understanding of risk as a way of presenting events in order to make them governable. For generations, science has been generating mechanisms to govern personal health, as evidenced by the development of a smallpox vaccine which facilitated the campaign to mitigate the risk of smallpox worldwide. Through science, the risk can be tempered, even contained at the individual level, particularly when partnered with political strategy, such as ring vaccination was used to fight smallpox. This type of risk is less-universal, grounded spatially and temporally by its attachment to objects located in a social context which can be dealt with through a range of strategies, both public, private, institutional, and governmental. As practices in the present moment work to mitigate future loss, the threat is technologized.<sup>100</sup> Security, then, is not about securing society, but securing the mechanisms that govern that society.

The national security state operates under the presumption that, given the necessary authority, resources, and access, risk can be controlled, thereby validating the

expansion of the state as a way to acquire the means to mitigate risk. Centralizing government power upon the executive is one way to fix the mechanisms of state security. Described as the “new normative reality” of the era, this consolidation of power resonated with the nuclear experience.<sup>101</sup> The “Red Button” perspective of a nuclear launch imagined an executive who could decide the fate of millions by merely flipping a switch. Living in a state where one person held such power demanded that citizens invest a good deal of trust in their President in particular. The national security program may not have belonged exclusively to the president, but throughout the Cold War, the executive branch retained extensive authority over risk control. Civil defense operated at the federal level, at first with the Federal Civil Defense Agency and later through the Office of Civil Defense. These agencies developed the nation’s security plan, controlled its distribution, and coordinated all state and local activities. In a nation built through deliberate efforts to distribute executive powers to individual states, civil defense gave federal agencies startling access to the lives of citizens. Many events of the new era, from the Patriot Act to the establishment of the Department of Homeland Security, exemplify the continued bestowal of executive power under the national security state and the changing mechanisms of governance in the United States.

*Militarization of Civilian Life.* The first formal articulation of U.S. “national security” came in legislation passed in 1947, establishing the National Security Resources Board. The NSRB proposed to keep the country in a perpetual state of readiness and, therefore, a war with no end. “We have adopted the concept of continuous mobilization planning—to assure continual adjustment to changes in strategy, tactics, and the weapons of

warfare.”<sup>102</sup> Interestingly, in laying out their mission statement, the NSRB vacillates between the self-referring term “we” and a broader “we” seeming to encompass the citizenship at large: “. . . war may come suddenly and may be launched through mass assaults on our strategic, industrial, and population centers with weapons of mass destruction. We can look forward to no respite; and there may be no one else to hold the line while we prepare.”<sup>103</sup> Even in its infancy, national civil defense policy was forming around the presumption of citizen participation and citizen responsibility. In the democratic state, when power consolidated around the executive, people would retain agency in their own defense, for “states are certain loci of power, but the state is not all that there is of power.”<sup>104</sup> To bring citizens into the civil defense project meant training them to participate actively in securing the nation, and particularly to act according to prescribed rules during times of crisis.

In *The Imaginary War*, Guy Oakes proposes that the Cold War strategy to protect American interests through “containment by deterrence” proved to be increasingly expensive, unprincipled, and dangerous in the nuclear age. Matching the Soviet nuclear threat required a particular economic and political environment, but Oakes argues that the public also had to be morally persuaded. Threatening nuclear war in order to assure world peace might actually lead to nuclear war, affecting Americans and Soviets alike. “If the price of freedom proved to be nuclear war, would Americans be willing to pay? The answer to this question depended on whether Americans believed that even if deterrence failed, the consequences would still be tolerable.”<sup>105</sup> The federal civil defense programs were designed to bring about precisely this suasion. The goal was to convince the public that they could survive the nuclear attack, rebuild, and return to their everyday lives.

Part of the Cold War project was producing the future as if it had already happened.<sup>106</sup> The future had to be a place where people still lived lives resembling the familiar lives of the present. Unable to change the future, people had to rearrange their present lives into a state more consistent with the post-nuclear life. Preparedness is thus a rationality that brings future peril into a space where it can be acted upon in the present.<sup>107</sup> Lakoff proposes that preparedness is concerned with creating the infrastructure that sustains the systems of social order, more than building the public health, assessing the vulnerability of the population at large, rather than personal weakness. Total preparedness might be achieved when the structures of the present so closely align with the structures of a crisis state that people are essentially living in the crisis in the present. Thus, as the practices of nuclear or biological crisis become the practices of everyday life, the “distinction between crisis and normality” collapses.<sup>108</sup> The Cold War might therefore be understood as a time when the public accepted living with crisis as the normal way of being.

In this nuclear future, survival had less to do with bodies than with infrastructure. Rather than saving people, successful civil defense produced a situation where people would save themselves. The psychological project of the Cold War required teaching people that they had to accept the risk of nuclear war in order to assure the country’s economic and social security.<sup>109</sup> Side effects of radiation were still largely unknown, and while some loss of life was presumed, the goal of civil defense was to ensure the continuation of society. If survival did not relate to bodies, it was separated from radiation and the bomb itself, and could be better handled in the present. “Survival was not an occurrence, something that would or would not happen, but an artifact, something

to be organized and produced by intelligent endeavor.”<sup>110</sup> This endeavor entailed the organization of America into a nuclear society.

After two decades of sending their soldiers abroad, Americans were invited to become a civilian militia in their homeland. As the country seeped into a continual state of war, the civic accepted the “quasi-militarization of civilian life.”<sup>111</sup> Under direction from the Commander in Chief, people dug bomb shelters, stockpiled food, and ran drills at home and work, performing the rituals of troops preparing for battle. The home became the front line, a civic garrison. From the perspective of the state, the public was vulnerable through its own fear. Nuclear bombs were not the enemy; panic was the enemy.<sup>112</sup> Civil defense strove to produce fear which would incite action, but still allow people to function.<sup>113</sup> The national security campaign encouraged the rehearsal of nuclear fear through films, drills, advertisements, education, and consumer purchasing. These rituals promised nuclear survival, staving off mass panic, while keeping the threat ever-present in the public mind.

Notably, the practices of civil defense could be performed at home by any citizen (though, if one takes the characters in defense films, advertisements, and pamphlets as example, presumably a white, middle-class citizen). The state called in a cadre of experts to address the particular challenges of the nuclear age. The nuclear problem was a technological problem, and therefore subject to a “scientific fix.” Colin Gray suggests that the appeal to science resonated with the “American engineering spirit.”<sup>114</sup> While part of the scientific endeavor entailed the production of deterrence through bigger, better, and more efficient nuclear weapons, the civil defense strategy sought confirmation from science regarding a range of domestic issues. What textiles would best protect against

nuclear blast? Should I build my home from sticks or bricks? Will the bomb reach me if I flee the city? Scientific modeling could provide answers to these questions, allowing the state to more efficiently organize its defense policies and effectively garner public support. Models could also imagine the range, impact, and duration of a nuclear blast, producing risk by connecting a future event to a predicted outcome. As the science industry grew, it became yet another expansion of state power, particularly as the state attempted to contain the knowledge produced by science in the interest of national security. The perception management practices of the era helped the state curtail the wide-ranging cultural understandings of nuclear threat and produce a singular strategy of defense. The increased role of science in risk management instigated broader discussions of the power of science over human lives, particularly as science translated into daily practices to imagine and bring about a post-nuclear society.<sup>115</sup> Francois Ewald contends that the Cold War love affair with science cannot endure the new paradigm of security emerging in the current crisis. A growing skepticism towards the ability of science to mitigate the panoply of cultural fears and insecurities of the present moment, for the rapidly evolving science of the day scarcely lingers has time to linger upon vital questions before being swept on to the next question or catastrophe. “While the language of risk, against a backdrop of scientific expertise, used to be sufficient to describe all types of insecurity, the new paradigm sees uncertainty reappear in the light of even newer science. It bears witness to a deeply disturbed relationship with a science that is consulted less for the knowledge it offers than for the doubt it insinuates.”<sup>116</sup> As mentioned earlier specific to the case of smallpox, when science does not contain the means to address the

crises of the day, the work of negotiating risk is assumed by the social politics which will ascribe qualities of risk based upon experiences and cultural histories.

### **A New Security State**

The Homeland Security Act of 2002 formally revived Cold War-type civil defense by establishing a federal agency nominally dedicated to securing the American homeland. Directly charged with preventing and responding to terrorist acts, the Department of Homeland Security models the Cold War state by consolidating authority and strengthening the power of the executive branch around the threat of terrorism and enlisting citizen participation in securing everyday life.<sup>117</sup> The mission of the new department was legislated as follows:

- (1) IN GENERAL.—The primary mission of the Department is to—
- (A) prevent terrorist attacks within the United States;
- (B) reduce the vulnerability of the United States to terrorism;
- (C) minimize the damage, and assist in the recovery, from terrorist attacks that do occur within the United States; ...
- (F) ensure that the overall economic security of the United States is not diminished by efforts, activities, and programs aimed at securing the homeland.<sup>118</sup>

References to “prevention,” “vulnerability,” and “securing the homeland” in these lines echo the Cold War ideology of deterrence and survival. “Assist in recovery” assumes survival and the continuation of life, while “ensure ... economic security” reassures that these executive efforts will not interfere with American capitalism. Notably, the mission of the DHS establishes an agency which operates because of terrorism threats, but not exclusively during terrorist events, for the executive is continually working to reduce vulnerability and rehearse the terrorism response, practices which must persist so long as a threat exists.



The Department of Homeland Security assembled 22 government agencies under a single authority, establishing a unified mission to achieve domestic preparedness. The largest restructuring of U.S. government since President Truman combined the War and Navy departments into the Department of Defense in 1947 brought agencies ranging from the Secret Service to the Coast Guard to Immigration and Naturalization Service into a new cabinet-level department.<sup>119</sup> Notably, under direction of the President, executive agencies are both “an executive agency and a military department,” a classification specifically referenced in the Homeland Security Act (USC 101, Intro, Sec 2.7). Through this Act, dozens of non-military agencies were assumed into a military department and given responsibilities to prepare to protect the homeland. This consolidation of power was rationalized as necessary to improve communication, coordination, and information-gathering.<sup>120</sup>

The first directive of the new DHS was “to carry out comprehensive assessments of the vulnerabilities of the key resources and critical infrastructure of the United States, including the performance of risk assessments to determine the risks posed by particular types of terrorist attacks within the United States,” thus beginning the calculation of risk and assessment of vulnerability assigned to the security state.<sup>121</sup> The DHS definition of critical infrastructure comes from the Patriot Act (section 1016(e) of Public Law 107-56), including “systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety.”<sup>122</sup> Here, vitality is measured not only in terms of survival and public health, but in the continuance of the national economy. As during the Cold War, national security governs all systems

and assets that sustain the nation, asserting authority over private resources deemed to be of value to the state: “The term ‘key resources’ means publicly or privately controlled resources essential to the minimal operations of the economy and government.”<sup>123</sup> Again, this language enables an expansive response to terrorism preparedness, where federal authority manages the health and wealth of the nation during an ongoing state of emergency.

While citizen militias are not the explicit strategy of DHS, the establishment of an ever-present War on Terror produces a climate of war during which citizens are more willing to surrender civil liberties to the state, ironically while retaining the civic duty of preparing for the crisis. Like the NSRB, DHS encompasses the citizenry in articulating its objectives of “preserving our freedoms, protecting America ... we secure our homeland.”<sup>124</sup> As the DHS strategic plan explains, “This exceedingly complex mission requires a focused effort from our entire society if we are to be successful.”<sup>125</sup> The DHS first situates itself as part of the society at risk, and then recruits all citizens to its mission to protect freedom. In the introduction to its Ready.gov program, DHS issued the following statement, now cited word-for-word on more than 100 local preparedness websites:

All Americans should begin a process of learning about potential threats so we are better prepared to react during an attack. While there is no way to predict what will happen, or what your personal circumstances will be, there are simple things you can do now to prepare yourself and your loved ones.

Citizens are then invited to take specific actions, like assembling a supply kit and developing a family emergency plan, for “preparing makes sense.” Again, preparedness is situated as a personal responsibility, overseen by the state from the executive level.

Though the narrative of national security produced in the years following the September 11 attacks mirrors Cold War civil defense strategies in several ways, the contemporary situation poses different challenges to the establishment of a security state. First, while the Cold War had an “identified” enemy in the Soviet Union, the War on Terror involves an unknown enemy in the form of an individual or a group rather than a superpower. In order to produce the requisite levels of fear to instigate social mobilization, the public must be convinced that terrorists pose a significant threat. On the other hand, if the enemy continues to be unidentifiable, the risk may slide into Beck’s realm of the incalculable, rendering the state’s deterrence programs inefficient and ineffective. As Wald proposes, the transmission of disease which defies boundaries troubles the effort to identify a particular nation as the Soviet-like enemy of the War on Terror, but may prove to be effective in reifying national borders through disease deterrence programs.<sup>126</sup> Somehow the state must ensure that terrorists have a face, a name, a religion, or a nationality—something that identifies them as a threat. Products like terrorist playing cards and programs of systematic racial profiling show the state’s continuous effort to put a face to the threat.

A second problem for the contemporary security state is the absence of a single, identifiable weapon. During the Cold War, the nuclear bomb gave the state a way to access and control citizens.<sup>127</sup> The bomb had particular characteristics that made it useful in establishing risk: it was deadly enough to pose a far-reaching threat to human life, but retained the illusion of control (it was contained in a casement, controlled by that Red Button, detonated in a single blast, and according to the science of the time, had limited lingering effects). As stated previously, as science made the bomb calculable, it brought

risk into the realm of human intervention, thereby rationalizing federal civil defense programs. I propose that the modern U.S. security state grouped biological threats with chemical and nuclear bombs under the label of Weapons of Mass Destruction—despite the qualities of bioterrorism which act more like infectious disease than singular blasts—because it needed to elucidate a singular threat like unto the Cold War’s nuclear bomb. Biological weapons present a threat which can be made by one person on a small scale, but has vast potential to grow, reproduce, and mutate. Furthermore, just as nuclear weapons matched the resources and political power of the Soviet Union, biological weapons match the resources of terrorists, for they can be shown to emerge from nature itself, a resource available to anyone including primitive and underfunded terrorists. As one researcher suggested, “As the might of the U.S. increases and the poverty of other nations increases ... what weapon do they have to strike back with? The only one they can afford and the only one we might not be protected against are biological weapons.”<sup>128</sup>

Not only are bioweapons broadly perceived to be cheap, available, and easy to disperse, but they continually reproduce individual vulnerability. As science expands people’s knowledge of microbes, vulnerability itself becomes an ever-changing state, a referent that can never be linked to a particular risk. The testimony of Dr. Roger Brent, director of the Molecular Sciences Institute, before the Subcommittee on Prevention of Nuclear and Biological Attack exemplifies the expansive, yet individualized, response imagined to prepare for biological events: “Because this threat has changed from the days of the Cold War germ war program, our defense posture needs to change. Although it is a good thing we now have enough smallpox vaccine ... it is important to remember that stockpiles of vaccines and drugs are fixed defenses against known threats.”<sup>129</sup>

Preparing for known threats might have finite solutions, but preparing for the unknown demands an expansive response, ever growing to meet the new threats made possible by science. Brent argues for uncontested support of this national science project: “Building a defense is a problem of real gravity and complexity; it will require R&D and policy efforts sustained over decades, which will mean that it will need to enjoy sustained consensus bipartisan support, as was true for Government support for science and technology during the Cold War.”<sup>130</sup> This direct reference to the nuclear era in support of an expansive science complex situates the government and science as co-creators of national security, a role formalized in the Science and Technology Directorate of DHS whose mission statement brandishes science and technology as tools to “enhance security and increase efficiency.”<sup>131</sup>

Restructuring governing agencies to facilitate science study and innovation is not new to this crisis, but the direct links to national security motivates technological fixes for security threats and drives the development of technologies which may not be scrutinized regarding their cultural value or implications for civil liberties. As in so many historical times, technological innovation infuses acts of war, as society continues in an endless War on Terror. In the words of President George W. Bush, “We refuse to remain idle while modern technology might be turned against us; we will rally the great promise of American science and innovation to confront the greatest danger of our time.”<sup>132</sup> When science and technology expand the enemy’s armory to include incalculable biological and chemical threats, it is a patriotic necessity to produce equal or greater innovation in the homeland.

Finally, the contemporary national security state must now deal with individual bodies as never before, particularly as they relate to the critical infrastructures of American society. A bioattack will not destroy buildings, but can still dismantle social systems. The Cold War civil defense narrative imagined a state of survival in which cities were destroyed but people survived; bioterrorism proposes the reverse. Bodies also stand in for the weapons themselves, both in deliverance and in contagion. In his testimony, Dr. Brent suggested that weapons can be removed from the scenario completely, for people could infect themselves in order to infect other people. The Committee Chair, Christopher Cox, explicitly alludes to the limitations of traditional security practices in his response to Brent's suggestion of "suicide coughers":

Mr. COX: And what you suggest, therefore, is that the Cold War model, or really the model of all prior history in warfare is out the window; we shouldn't be looking necessarily for weaponization, the terrorists themselves become the weapons. Is that what you are suggesting?

Dr. BRENT: That is correct, sir.<sup>133</sup>

In this world of biological risk, the national security program must treat bodies as both casualties and weapons of mass destruction, where victims become vectors of the weapon. Contagion also changes the duration of a single attack, which might continue as long as vulnerable bodies exist, further altering the scale on which biological threats must be addressed. These characteristics of biological weapons demand new knowledge of disease and rationalize the expansion of science research in the name of national security and the institution of new forms of governance.

### **Cultural Scarring**

In the last moments of the 2005 Congressional hearing on "Engineering Bio-terror Agents," Representative John Linder provoked the panel of bioterror experts: "What

would you say if I told you a scientist from Sweden said that Iranian children emigrating with their parents from Iran to Sweden have all been vaccinated for smallpox; what would that mean to you?"<sup>134</sup> Likely, a topic so ripe with hearsay and speculation would be troubling to panelists trained by the scientific method, though the hint at secret government knowledge was enough to create more than a murmur in online communities.<sup>135</sup> In itself, however, the question exemplifies the ongoing effort to make the nature of the biothreat visible in the contemporary moment, in this case by reading human bodies. The cultural history of smallpox brought into the bioterror crisis imbues a scar with political meaning. In proposed scenario, the scarred bodies also emerge from a cultural geography which labels them as Middle-Eastern, Iranian, emigrant, and foreign. The scar does not render them diseased, but rather the opposite, questioning the personal acts of citizens to produce immunity within a larger narrative of risk. The speaker is asking scientists to find evidence of state terrorism by reading the evidence of recent vaccination manifest on subjects' bodies. Cultural fears of Iranian terrorists and smallpox converge on the body of a child with a scar.

Sitting on the panel of expert witnesses, Dr. Alibek proposed that people in Iran simply are not convinced that smallpox has been eradicated and so continue the cultural practice of previous generations. The scars express a health fear, the lingering social impact of the world's deadliest disease in a developing nation. Representative Linder's question suggests at the multiplicity of narratives which could make sense of these scarred bodies, while strongly hinting at the answer which best serves the security objectives: do scars manifest a cultural fear of infectious disease or a political reaction to state terror? In asking whether the fear evidenced by the scarring of Iranian emigrants

should belong to Americans, the question constructs racialized statements about disease which have reverberated throughout the history of smallpox and continue to entwine with narratives of terror. The scars, imagined or not, keep smallpox bound to the present moment, producing a narrative of risk ridden with secrecy, foreign bodies, national migration, primitive health, and vulnerability.

The threat of bioterrorism has demanded the reconfiguration of national security practices based upon fear and knowledge of disease. It should not be assumed that “new” knowledge of disease will eliminate fear, for as seen with smallpox, even the eradication of disease does not erase vulnerability. When knowledge itself is rendered suspect, “only ideology and desire remain as the basis for action.”<sup>136</sup> As citizens project their archival memory of smallpox onto the blank screen of the future, they imagine risk based upon deeply personal conceptions of life and fear and well as the collective experience of disease brought into public discourse.<sup>137</sup> The objective of survival lies at the center of this paradigm, the protection of bare life prior to all other social institutions and civil liberties.

The forms of governance which attend to quotidian life itself enter vigorously into 21<sup>st</sup>-century society, responding to the variety of threats produced by the conflated histories of disease and national security. Because bioterrorism aligns closely with the history of infectious disease, close study of the narratives of smallpox illuminates the origins of the future imaginings of bioterror risk in the experiences of the deadly diseases of the past. The smallpox eradication campaign exemplifies how disease control harnesses cultural institutions to achieve state objectives during a war-on-biology. Jackson and Ramshaw’s publishing dilemma shows how the fear of disease disrupts the scientific production of knowledge with political concerns over terrorism, evoking the



culture of secrecy which shaped Cold War society. Even a cheap vitamin, guaranteed by an internationally-renowned bioterrorism expert to protect one's immune system, shows how individual pursuit of security against a natural world ripe with pathogens enters the market, aligning personal health with the concerns of the security state. Cultural fears are complicated, and bio-fears are no exception. Addressing the bioterrorism dilemma will demand broad reconsideration of the ways people know their bodies and how living entities, large and small, operate within the security state.

## Chapter 2

### **Building a Biolab: Negotiating Biological Citizenship in Hamilton, Montana**

#### *Part One: Building a Better Biolab*

On Valentine's Day, 2002, Mary Wulff read an announcement in the *Ravalli County Republic* about a meeting to be held regarding changes at Rocky Mountain Laboratories. A retired police officer, Wulff had lived in Los Angeles for fourteen years before settling Hamilton, Montana, a fateful relocation that would shortly bring the California native into conflict with one of the oldest institutions in the Bitterroot Valley. At the meeting, lab officials announced to the two dozen attending community members that a \$66 million grant from the federal government would be used to build an "Integrated Research Facility" (IRF), a swank new structure that would house several Biosafety Level-4 (BSL4) laboratories designed to study the most dangerous pathogens on the planet. Wulff recalls hearing the declaration, then looking around the room to assess whether anyone else was as startled to hear this as she was: "Until that day, I had never really thought about the lab before. I had never thought that this would happen in my town."<sup>1</sup> She sat through the meeting in a daze, sensing the enormity of the announcement, but unsure what to say or how to respond. She went home that night and started calling people. Within weeks she had established a nonprofit group, the Coalition for a Safe Lab, and was networking with other groups to discover what was going on in the red brick buildings west of 4<sup>th</sup> street.

Over the next four years, Wulff would become fluent in topics ranging from emerging infectious diseases to biocontainment, as well as the finer points of

Environmental Impact Statements and the Freedom of Information Act. While community activism against the BSL4 expansion did not stop its construction, both laboratory officials and grassroots protestors claim that the resistance movement played an important role in shaping the first BSL4 laboratory to be built since the terrorist attacks of September 11, 2001. Not only has the physical plan for the laboratory changed to address citizens' security concerns, but the protest set precedent for assessing the risk of cultivating deadly microbes within proximity of healthy citizens. The controversy affirmed that Rocky Mountain Laboratories (RML) is not just part of a national science community, but an integral part of a local community whose future is complexly invested in both the physical security and economic prosperity of the institution. Because of the protest, RML officials were forced to reexamine the responsibilities of the laboratory to the community, while Hamilton residents had to consider the economic and cultural impacts of RML upon their hometown. These discussions reiterated issues arising throughout the lab's 100-year history, for the Rocky Mountain Labs have been continuously remade by community resistance, national interest, and trends in disease science. In this post-9/11 contestation, the lab became a place where both scientists and citizens were stakeholders in the identification of risk.

This chapter explores how the Rocky Mountain Laboratories have been physically and ideologically remade in the contemporary moment in order to meet the new threats of bioterrorism. Through an ethnographic study of the Hamilton protest, I consider how citizens negotiate the risk of pathogens in an era characterized by bioterrorism and emerging infectious disease, and how scientists and nonscientists converse about the proximate threat of microbes within the broader work of governments to care for citizens.

This research is guided by questions of biological citizenship, asking how the contemporary climate of national biosecurity produces new forms of citizenship predicated upon notions of risk to a healthy population. Though theorizations of biocitizenship abound, the concept references people's ability to claim a universal right to life and demand protection of that life on the basis of their biological existence.<sup>2</sup> Rose and Novas explain that the emergence of a new genomic biology has brought new manifestations of citizenship, and along with it "new spaces of public dispute... new objects of contestation ... novel forums for political debate, new questions for democracy and new styles of activism" which are informed by unique cultural histories, forms of governance, and activist traditions.<sup>3</sup> Prior conceptualizations of biological citizenship have emerged from the study of unhealthy bodies damaged by environmental catastrophe or carrying genetic disease. This research builds upon these cases to consider how healthy citizens use these new spaces of public dispute to contest state actions and advocate for biosecurity.

The rise of the new genomic biology in an era of globalization brings new understandings of biological risk to healthy populations, such as those imagined by bioterrorism and emerging infectious diseases. The history of RML shows that people have long understood biological risk in terms of "what might happen" to their bodies, taking public actions to advocate for their biological security. Nikolas Rose has proposed that the pastoral role of state health care is diminishing, parceling out responsibility for collective health to individuals and corporations.<sup>4</sup> The case of Rocky Mountain Laboratories shows how citizens and scientists negotiate biological risk through the court system, public procedures, and personal interactions, bringing material change to the

spaces where science is done in the modern age. As the BSL4 laboratory in Hamilton is just the first of many high-security biolabs to be built in the post-9/11 world, this case provides insight into how citizens conceptualize and articulate the risks posed by the scientific study of deadly pathogens, while illuminating the discursive strategies and bargaining techniques brought to the table in order to acknowledge citizens' claims to biological rights, yet still pursue the objectives of the science industry. The situation in Hamilton, Montana, exemplifies how the expansion of the bioscience complex as a national security objective brings material outcomes to the lives of citizens, whether there exists a biological threat or not.

Through the case study of RML this two-part chapter explores how citizens assess disease risk and weigh the risk of disease in association with a range of political institutions, from the science industry to the local economy. In Hamilton, the risk of transmission of deadly diseases is proximate, because foreign microbes will be brought into the community, albeit in a facility isolated from its environs. Part one of this case study considers the Rocky Mountain Laboratory itself, where it sits in the landscape and participates in the exchange of goods and labor with the community. By exploring how the laboratory came into existence in this place, I investigate the geographies of disease which brought science to Hamilton and the practices of science which entrench it in the economic structures of the contemporary society. Throughout this history, citizens negotiate the question: Can the control of laboratory spaces mitigate risk?

In Part Two, I consider more broadly how Hamilton citizens assess the risks of biological diseases in the contemporary terrorism crisis. Directed by Rabinow's theorization of biosociality, this section examines the groupings of activists, scientists,

government, and community which form during the protest of the RML expansion questioning how they produce particular forms of citizenship in relation to the risks posed by the BSL4 lab. Throughout these two sections, I theorize that the particular circumstances of this modern age of bioterror have produced a crisis of citizenship in Hamilton, Montana, where a longstanding institution must be reconsidered under the new state of emergency. Both the material space of the laboratory and the political negotiations over the laboratory space form the basis of new forms of citizenship predicated upon emergent notions of disease and terror. Bioterrorism takes root in people's worldview through a sense of communal vulnerability to disease. This case considers what resources are available to citizens to mitigate risk and minimize their shared susceptibility to disease.

### **Laboratory Life**

Rocky Mountain Laboratories are known by several names in Hamilton, Montana: “the spotted fever lab,” “the tick lab,” or simply “the labs.” The word “laboratory” may conjure images of rooms lined with flasks, formaldehyde-filled jars, and Bunsen burners, but the stereotypes prompt few specifics about the exterior of the building. Situated in a neighborhood of Victorian houses set on wide, cottonwood-shaded streets, the red-brick façade of RML suggests turn-of-the-century boarding school as much as world-class biological laboratory. The events that take place within these brick walls, however, render a particular purpose for this space, turning it into the known cultural form of a laboratory.

A laboratory is a special site where resources are dedicated to specified work, namely the production of knowledge in the form of texts for publication. While all people

use observation and experimentation to make judgments and solve problems, in a laboratory all spaces, practices, and materials are dedicated to this work.<sup>5</sup> In his landmark ethnography of the laboratory, *Laboratory Life*, Bruno Latour sketches the laboratory as a square box in which animals, chemicals, and energy are input and “articles” are output.<sup>6</sup> He argues that this process leaves “inscriptions” on its outputs, the traces of actions done in the laboratory which can be represented in publication, until they eventually strip scientific statements of their situated origins, thus producing “facts.” With all its resources of material and energy, as well as devices of inscription, the laboratory gains authority over knowledge. Though nearly erased through the practices of publication, the materiality of the laboratory itself structures the work of knowledge-making. The laboratory space is a site of power, for it sustains the belief that truth exists outside its situated context, and in turn explains what that truth is. As Donna Haraway described, “The laboratory for Latour is the railroad industry of epistemology, where facts can only be made to run on the tracks laid down from the laboratory out. Those who control the railroads control the surrounding territory.”<sup>7</sup>

The bioterror crisis of the 21<sup>st</sup> century is reshaping the science community down to its laboratory spaces. In the last decade, at least five new BSL4 level laboratories have been announced, more than doubling the square footage devoted to this type of research in the United States. A new campus for studying the most dangerous pathogens planned for the US Army Medical Research Institute of Infectious Diseases in Frederick, Maryland, will house two new BSL4 facilities, including the Department of Homeland Security’s own National Biodefense Analysis and Countermeasures Center. Political attention and funding for bioterrorism preparedness has recreated local laboratories, such

as CDC's Local Response Network (see Chapter 4), and established new collaborations, such as the Homeland Security Centers for Excellence, which group scientists from public and private laboratories together to problem-solve security concerns.

Knowledge of new biological risks requires spaces for the production of knowledge. Latour argued, "For the world to become knowable, it must become a laboratory."<sup>8</sup> For the "facts" of bioterrorism to become knowable, the crisis must be processed by the science laboratories. The expansion of the bioscience complex in the last decade has put more laboratories in more places and brought more citizens into physical and ideological proximity with bioscience labs than ever before. The quest for knowledge about bioterrorism has created risk, for it requires scientists to manipulate the biological agents of disease within the laboratory space, and building new laboratories for these practices multiplies the sites where killer viruses can be found. The materiality of knowledge production poses a risk, not only to the scientist, but to those who live near the laboratory space. The perceived risks of the expanding bioscience industry drive citizens to demand intervention by science institutions to mitigate risk, particularly through the control of laboratory spaces. Thus, these laboratories which study bioterror threats have a particular materiality which focuses upon containing the risk created by the physical presence of deadly microbes.

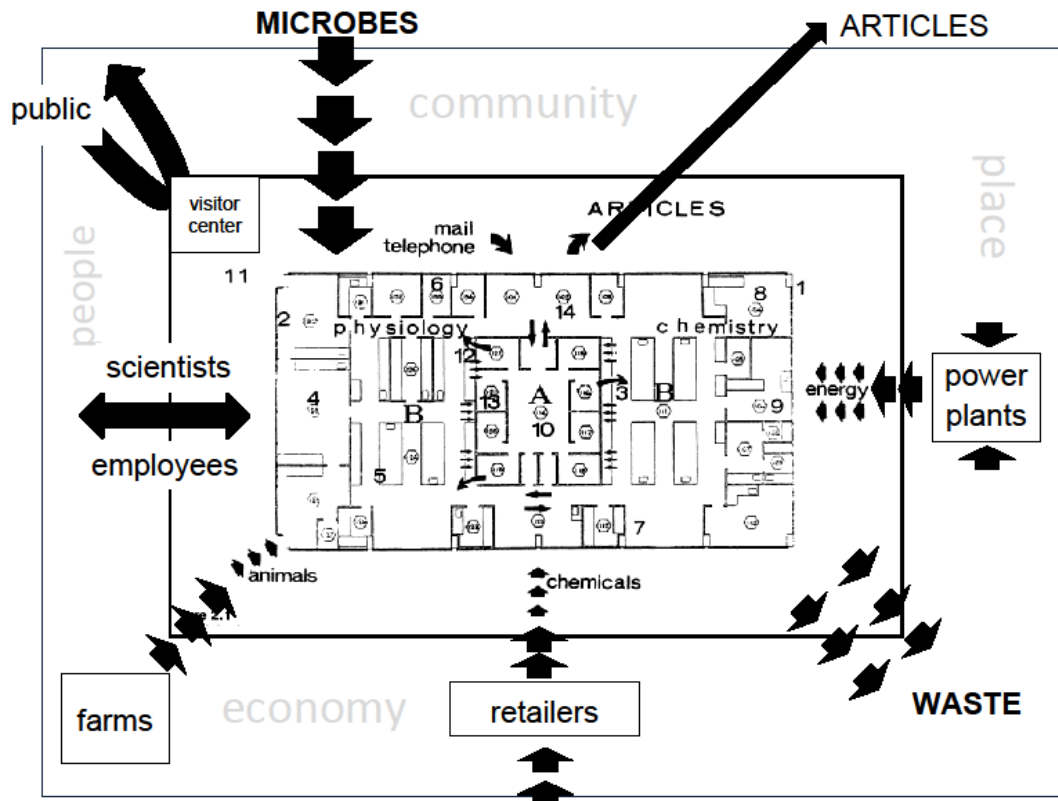
As the first such lab to be built since the terror attacks of 2001, the laboratory at Hamilton has been the frontrunner in negotiating these laboratory risks with contemporary citizens who are continuously rethinking their biosociality. Investigating the 100-year history of Rocky Mountain Laboratories, however, shows that the negotiations over the BSL4 laboratory are reworking ideologies and community relations



which have been contended since the lab's creation. By exploring how these motifs were established and then reworked in the modern era, this chapter investigates the situated origins of contemporary biosciences, asking how citizens impact science knowledge by shaping the laboratory spaces that lay down the tracks for knowledge production. This case study of the protest against RML expansion in the 21<sup>st</sup> century shows how laboratories exist simultaneously as scientific and political institutions, borrowing from both sides to claim authority over citizens' lives.

### **Laboratory Community**

To theorize the role of the community in the scientific production of knowledge, I propose telescoping out from Latour's map to consider the laboratory's situation within a surrounding geography (see Figure 2.1). To illuminate flows implied by Latour, but outside the focus of his anthropological inquiry, I have highlighted, for example, the role of local farmers in raising animals and feed for animals or the role of community power companies in producing or attaining energy for the laboratory. Using two-way arrows, this diagram depicts the repeated movement of scientists and laboratory staff moving between the lab and the surrounding geography which would include their homes and social and economic centers like stores and restaurants. Because articles—the primary output in Latour's diagram—target the broader scientific and world community, I have extended that arrow through and beyond the geographic boundary. Similarly, to capture the crux of concern in Hamilton, the diagram shows microbes being imported from foreign areas and passing through the community before entering the laboratory.



**Figure 2.1** Situating Latour's Laboratory in the community.

Two key ideas emerge from this depiction of the laboratory: First, the inputs which fuel the production of knowledge (energy, supplies, labor) are largely supplied by a local environment, showing the investment of a community in the work of science knowledge-making. Second, this depiction challenges the nearly one-way flows of Latour's illustration, where the laboratory collects inputs from many tributaries, but releases just a small trickle of output. Depicting the two-way flows of people and materials reduces the tendency to perceive the laboratory wall as a barrier which protects work done behind closed walls from outside contamination. Contemporary biosecurity practices must confront these multiple circulations, for microbes move on flesh and through air. The goal of biosecurity is to construct an environment where the necessary materials for science practice can move easily while dangerous items are contained.<sup>9</sup> The

production of BSL4 laboratory space attunes to the regulation of every flow into and out of the laboratory space, including the flow of scientific knowledge into the hands of those who would use information to inflict terror upon populations.

In Hamilton, Montana, the laboratory complex is set apart from the community by a black steel fence with sculpted, but menacing points—the same type of fencing that frames and secures the White House. The fence was built in 1995, but for most of its history, Rocky Mountain Laboratories had an open campus, where local farmers could stroll into the labs with their diseased chickens in hopes of finding a diagnosis, and high school students could congregate in the library to study after school. Today, when visitors come to the RML campus, they are stopped at the newly-constructed visitor center, set outside the fence at some distance from the main facilities. Though nominally a public space, the visitor center is clearly little more than a guard station, a gatekeeper of the laboratory space. By building a visitor center, RML suggests it wants to communicate with the public, but the center does not receive guests to escort them into the laboratory so much as it turns them away from the lab itself. Visitors who wish to read the brief history of the lab presented in displays in the center must show a driver's license and undergo security screening, sacrificing anonymity even to explore this public space. Thus, the visitor center sets up layers of control that will discourage visitors from pursuing entry.

RML's fence may fend off terrorists, but it also filters out the farmer with his chickens, the curious high school students, as well as some of its own. Dr. Willy Burgdorfer, famous for discovering the bacteria that causes Lyme disease, was granted emeritus status with the laboratories when he retired in the mid-1980s. Now, Burgdorfer

must have an escort when he comes to work. Unwilling to work in a place where he can't enter "without being accompanied by someone who controls you," one of the lab's best-known scientists refuses to set foot on campus today. Acknowledging that there is work that should "stay hush," this soft-spoken scientist worries that the new security measures send a particular message about the science itself: "If you put police at the entry to the lab, you are saying that you need police protection to make sure (outsiders) don't do things with the equipment. That's no good. That's automatically an invitation to do so."<sup>10</sup>

Another retired scientist, Dr. John Swanson, now identifies himself as a "neighbor" of the lab. As a neighbor, Swanson has specific complaints about the "shrieking" of the laboratory's incinerator and the loud air handling systems installed to meet biosafety requirements. Latour's map conspicuously lacks "waste" as an output from the laboratory. The work to securely manufacture scientific knowledge results in byproducts like noise and fumes which easily traverse barriers and travel into the community. Further, RML's standing in the community has long been tainted by its handling of physical waste, including toxic specimens and animal carcasses, recently culminating in a lawsuit requiring the NIH to pay for the cleanup of a local landfill.<sup>11</sup> The output of waste and pollution puts the laboratory in the center of community relations. Indeed, Swanson feels that the protest of the IRF was fueled by preexisting concerns over the noise and the seemingly limitless expansion of the laboratory, and in 2002 unrest which had simmered for years surfaced in accusations that the laboratory was not concerned with its impacts upon the Hamilton community.

Recognizing the location of a bioscience laboratory within a community and documenting the flow of goods surrounding the laboratory helps to elucidate the high

stakes held by all parties in the contestation of citizen's biological rights. The work done within a laboratory matters to a community because the institution draws economic gain through employment and production of goods, exports waste and pollution as well as knowledge, and poses some level of risk to the health and well-being of community members. As laboratory science expands in the 21<sup>st</sup> century, the question of how citizens can negotiate these risks in relation to questions of economy and environment will arise in more and more communities. The bioterror crisis has imbued disease with a new politics of risk and fear, further confounding such debates. This case study of Rocky Mountain Laboratories aims to show how the risk of disease has been negotiated in the public sphere in order to better understand how the fears of the contemporary moment emerge from the reconfiguration of longstanding cultural understandings of disease. Accordingly, the study begins by exploring the disease history which led to the erection of a science laboratory in the Bitterroot Valley, asking how communities form around shared disease risk. The case explores the transformation of a social program of disease control into a formal science laboratory for disease study, considering how science practice changes in response to political ideologies, economic resources, and expanding knowledge. This provides a basis to study the modern protest of the RML expansion in depth in order to theorize the notion of a biological community as a group of citizens united by shared perception of biological risk.

### **Geography of Disease: Hamilton, Montana**

Down the length of a seventy-five-mile valley in Montana runs a river of mystery.... A hundred years ago Indians believed that the western side of this river and especially the mountain canyons were inhabited by evil spirits. When white settlers came they observed that, although dwellers on the east side were immune, those who built their houses on the west ran the danger of falling victims to a strange illness.

It began with chills, an aching head, and painful joints and muscles; then a raging fever developed, and a red rash flamed out on chest, back, arms and legs. Rocky Mountain spotted fever was the name that was given to this terrifying and usually fatal sickness.

--*Saturday Evening Post*, November 15, 1941<sup>12</sup>

The river that bisects the Bitterroot Valley was once an inexplicable demarcation of life and death. At the end of the 19<sup>th</sup> century, a deadly disease emerged in the population, a disease that seemed to be localized on one side of the river. The mysterious plague killed four out of five people who contracted the “black measles,” and as people watched their neighbors succumb to the “mountain fever,” their community was further divided by fear and suspicion. As one resident said, regarding property on the west side of the river, “I wouldn’t have it and live on it if they would give it to me—it’s in the Spotted Fever District.”<sup>13</sup> The disease cast a pall over the valley and was identified as “one of the biggest factors in retarding the growth of this part of the country.”<sup>14</sup> The river, though it was shallow and regularly traversed by humans and animals, seemed to contain the majority of infection on its western shores, offering a geographical boundary for the plague. The chilled streams flowing from the western mountains seemed the only plausible carrier of the fever, until a pathologist in Missoula proved that a pin-sized wood tick, rising from the earth in the spring in search of a blood feast, was the carrier of the deadly, microscopic bacterium, *Rickettsia rickettsii*.

Though early Montana settlers did not know the source of the spotted fever, they still produced a geographical knowledge of disease. Like modern citizens recognize malaria or yellow fever as diseases of the tropics (and take certain precautions when entering those areas), Bitterroot residents ordered their world and modified their behavior

according to their understanding of the land as half-diseased, half-secured, with the river running down the middle. Later work of scientists in the Bitterroot Valley laid new landscapes atop the old, producing new ways of knowing the disease, its spaces, and its movements. Still, conventional geographic understandings persisted, influencing both control measures and public sentiment for several decades.

From such circumstances as existed in the Bitterroot Valley at the turn of the century emerges the cry for security. Foucault theorizes that shared susceptibility to disease defines populations in terms of risk and establishes a level of action acceptable by the governing entity.<sup>15</sup> In Montana, the river demarcated a territoriality of the disease which enabled citizens to feel secure even in the face of the plague. As theorized by Charles Maier, the bounded geographies of territory “assure a stable sense of community” by bringing “identity space” into alignment with the “turf that seems to assure physical, economic, and cultural security.”<sup>16</sup> Thus, the very notion of community is partially predicated upon the belief that being geographically proximate to other community members will increase social and economic benefits without bringing risks to physical security. Governance becomes acceptable to keep this relationship in balance.

To make Rocky Mountain spotted fever knowable, the Bitterroot Valley would be transformed into a laboratory. The state of Montana began sending scientists to the Bitterroot as early as 1903, and for a decade sent a new specialist each season to study the problem. Eventually, Dr. Robert A. Cooley set up a semi-permanent laboratory in an abandoned log cabin on Sweeney Creek, where he and his three assistants studied the life cycle and habit of the Rocky Mountain wood tick, undressing every two hours for a head-to-toe tick inspection to assure their personal security.<sup>17</sup> Their research produced

knowledge of an insect whose eight legs do very little to move it about in the world, waiting perhaps an entire season to drop from a blade of grass onto a passing mammal for a blood feast which will feed the next generation of ticks. The movement of the tick on the landscape follows the movement of its carriers. Wherever a person can walk, a tick can travel, which means a tick can cross the Bitterroot River or accompany a scientist home from work.

When a scientist infected with Rocky Mountain spotted fever hopped a train to Washington, D.C., arriving at the capital just 24 hours before the disease took his life, national interest in the blight grew, accompanied by increased funding for public health interventions.<sup>18</sup> The employment of a public health response to a disease epidemic shifts the locus of disease away from territory and onto the population itself. As Foucault describes, public health interventions do not seek to simply nullify the disease in individual subjects, but work to minimize disease within the population to serve the greater public interest.<sup>19</sup> The early records of the state's new Entomology Board show the employment of a range of traditional public health strategies, such as quarantine and species extermination, giving way to more innovative land management techniques. Only after 10 years of tick-control proved unsuccessful in completely eradicating the fever would the board call for more scientific study of the disease and its transmittal.<sup>20</sup>

Though public health officials promised to “completely ... clean up the entire Bitter Root (sic) valley,” they often met with opposition from the community, for their programs asserted state control over land and livestock, the livelihood of Bitterroot citizens.<sup>21</sup> “Dunbar! Dunbar! He done it with a crowbar!” became the rallying cry of public protestors when John Dunbar was arrested on June 16, 1913, for destroying a



cattle dipping vat near Stevensville.<sup>22</sup> The first arm of the state tick control program was the “destruction of adult ticks on domestic animals,” accomplished by driving cattle through an arsenic-laced solution.<sup>23</sup> Owners were required to bring their own animals to the vat, and those who refused to bring their livestock to be dipped had to show they had handpicked ticks from their animals, or their farms were subject to quarantine, an authority granted to the Board of Entomology by the Law of 1913.<sup>24</sup> Both dipping and handpicking required a substantial input of time and labor on the part of the farmer, perhaps accounting for its unpopularity among locals. While the large, steel vats gave a visible face to the tick control program and demonstrated the government investment in community welfare, the death of livestock and eventually two vat workers brought an end to the mandatory arsenic baths.<sup>25</sup>

As dipping large mammals became increasingly unpopular, the state concentrated on killing the tick in the nymph phase through rodent control. For a fee of five to ten cents per acre, state workers would spread poison on farmers’ land, enticing hungry ground squirrels when they emerged from hibernation.<sup>26</sup> This method, however, failed to reach the vast expanses of land which harbored the wood tick. In the face of so many failed methods, the Board concluded that the most effective way to control the tick, and therefore the disease, was to manage the land itself. If stock could be kept away from tick-areas in the spring, the spread and survival of the tick might be inhibited. Even in these early years, however, the Bitterroot community was characterized by part-year residents, and the absence of these community members was a constant hassle for the Entomology Board: “At present the persons residing on the agricultural areas ... are bearing the burden of the control work, while those owning the most dangerous land are

doing nothing except that, by their inaction, they make the work of the residents and of the State Board more difficult, more long-drawn out and more expensive.”<sup>27</sup> Those who were absent from the community threatened the well-being of the whole through their inattention to the civic responsibilities for disease control. Despite the acknowledgement in their reports that the scourge could likely be stopped by land management practices which would keep livestock out of the mountains during tick season, the Board seemed unwilling to fight the legal battles that would force cooperation between landowners, part-year residents, and government agencies like the forest service, favoring instead visible acts like cattle dipping and poisoning.

The early public health programs in the Bitterroot Valley exemplify how the security apparatus works as an instrument of governance, responding to a disease crisis through acts to minimize harm. The health workers in Hamilton could not guarantee a method to eliminate disease, only to mitigate risk. Significantly, citizens did not yield responsibility entirely to the state, clinging to simple acts like staying on one side of the river as expressions of individual autonomy. As one resident explained, “If I believe that it’s the snow water, I can carry my own well water with me and not worry. If I had to believe it was ticks, I’d just be scared all the time.”<sup>28</sup> Similarly, citizens living in the contemporary bioterror crisis cling to personal behaviors, however unsubstantiated by science, as means to build their own security. It is in the moments when people feel like their biological security is completely outside their control, as residents of Hamilton felt when the lab announced it would study deadly level-4 pathogens, that citizens begin to question the authority of the state.

After five years work in Hamilton, the State Board reported that, “Based on good, substantial reasons, the residents, both on the farms and in the towns, have a greater confidence in the future of the valley (and) there is less apprehension concerning the disease.”<sup>29</sup> The work of the public health system appeared to have reduced citizens’ fear. Through this work, the government also increased its authority over the land and resources, with most residents accommodating the state efforts as necessary for citizens’ health and the economic prosperity of the region. The scientific work also produced an understanding of insects as vectors of disease, propagating the perception that citizen’s health was connect to the control of their environment. The most enduring outcome, however, would prove to be the presence of the scientists themselves. The work with spotted fever had brought leading scientific researchers into a place where most people’s livelihood depended upon the material resources of the land itself. As the fight against spotted fever faded, the scientists, the workers, and the disease science economy of the Bitterroot would remain.

### **A “Suitable” Laboratory**

When Dr. Ralph Parker came to the Bitterroot to assist the spotted fever effort, he shunned Dr. Cooley’s tent-lab and set up in a woodshed behind his house. He began by preparing the world to be represented in symbols, charts, and diagrams, the preliminary work in transforming the world into a laboratory.<sup>30</sup> As indicated by the acts of the Entomology Board during the 1910s, early laboratory work centered on understanding the vector of disease and its habitat. As wildlife biologists might study grizzly bears in their environment, disease scientists study organisms that, though invisible to the naked eye, can be known by their marks upon the visible world. Parker mapped the disease

landscape through a tick census, sweeping large flannel flags along animal trails and then counting the ticks clinging to the fabric. Back at the woodshed, Parker sorted, tested, and catalogued the population, using live guinea pigs to identify *rickettsia* carriers. In this makeshift laboratory, Parker quantified the occurrence of disease in the landscape; or following Latour, by running ticks through an inscription device in the laboratory, the scientist “transform(ed) pieces of matter into written documents.”<sup>31</sup>

The laboratory also became a place where controlling disease could take a new, personal formation. While testing the infection rates of ticks in various phases of development, Parker stumbled upon evidence of immunity. Guinea pigs infected by juices extracted from ticks carrying *Rickettsia rickettsii* which had not taken an adult blood meal did not contract spotted fever; later, these pigs expressed immunity if injected with infected blood. The existence of the organism in less deadly phases suggested the possibility of a vaccine. Parker focused his work on the development of a spotted fever vaccine, turning a field-based control operation into an experimental program involving test subjects and equipment. Parker’s vaccine work replicated the tick/host interaction in a setting removed from the site where infections would “naturally” take place.<sup>32</sup>

The promise of a vaccine and a particularly deadly spotted fever season in 1921 prompted the U.S. Public Health Service to enlist Parker as a federal employee, allocating \$27,000 and a team of scientists from Washington for vaccine research (field control work would still fall under Montana state jurisdiction.) With additional funds raised by the local Chambers of Commerce, Parker’s first task under the new administration was to find a “suitable” laboratory.<sup>33</sup> He settled on an abandoned school building northwest of Hamilton, cramming the “schoolhouse lab” with collections of ticks and rodents and vials

of serum. Because vaccine preparation required the handling of infected ticks, grinding them down with a mortar and pestle into a virulent serum, laboratory workers came into contact daily with virulent spotted fever. A 100-percent fatality rate among lab workers who contracted the disease produced a public image of the schoolhouse lab as a dangerous and unsafe site, full of cracks and crevices where infected ticks could hide.

Despite the limits of the facility, Parker produced a spotted fever vaccine in 1925. Over the next three years, more than 2,000 individuals in the Bitterroot Valley would receive the vaccine, demand which challenged workers already dealing with cramped conditions.<sup>34</sup> In 1927, the Montana State legislature appropriated \$60,000 “to build and equip a laboratory for the purpose of conducting experiments and other work for the control of Rocky Mountain spotted fever and insect-borne diseases.”<sup>35</sup> The Board of Entomology selected 28 acres of land adjacent to the city of Hamilton as the site for a new laboratory. Significantly, the proposed laboratory would sit on the eastern banks of the Bitterroot River.<sup>36</sup> Rough though they were, the previous three laboratories were located west of the river, on land already presumed to be tick infested. The new lab would bring ticks over the river, violating the geographic barrier which protected eastern residents from the risk of spotted fever. Though scientists had discredited the myth of the river barrier, the continued fortitude of public perception was displayed in June 1927, when Hamilton residents filed suit in the 4<sup>th</sup> District Court, contesting the selection of the site. The cultural knowledge of disease risk in the Bitterroot Valley which took root long before scientists mapped a new territory for spotted fever held firm in citizens’ world view. A space deemed “safe” by the cultural imaginary (the east side of the river) was threatened by bringing agents of disease (ticks) from outside the community. The

proposed site located the work of disease scientists within a new community, and the laboratory now bore the responsibility of proving to that community that the circulations of people and matter which turn the apparatus would not put citizens at risk.

### **Laboratories on Trial**

In 2004 when the Coalition for a Safe Lab, Friends of the Bitterroot, and Women's Voices for the Earth filed a suit in U.S. District Court against the National Institutes of Health, they were accused of being "against" Rocky Mountain Labs. Called a fear monger, unpatriotic, leftist, and "unpatriotic leftist fear monger," Wulff grew tired of explaining that the lawsuit was filed to demand that an environmental impact statement be written before proceeding with the building, not to stop the lab altogether.<sup>37</sup> Jim Miller, with Friends of the Bitterroot, claims "it was never our intention to stop the lab. We could have delayed it, but stopping it was never our intention. It was never a possibility that the lab would not be built."<sup>38</sup> Similarly, in the 1927 suit, the plaintiffs argued that they were not "complaining of the law for the building of this laboratory... (for) there has been wonderful work done there for this community."<sup>39</sup> However, both legal cases were formulated on the idea that Plot 19 in Hamilton, Montana, might not be the best place for the type of science being done in the labs.

In 1927, scientists went up against citizenry in a court of law to prove that laboratory work did not threaten the health of those who lived in proximity to the laboratory, an argument another team of scientists would revive in court some years later. In both cases, the scientists and their lawyers describe the laboratory as a safe, contained, and managed space, while citizens consistently view the space in terms of the unknown and the "what ifs?" In these courtrooms, the varied responsibilities of scientists,

governments, and individuals in securing the health of the population was delineated, contested, and sustained. Examining the arguments presented in two courtrooms nearly a century apart gives insight into the deeply instilled values which emerge in the formation of a biological community. The narratives developed in these legal battles also show how citizens articulate their biological rights in terms of the state responsibility to mitigate risk and provide biosecurity.

One of many venues for the negotiation of biological rights, judicial systems provide means for citizens to seek redress for biological injury. Petryna's investigation of how Chernobyl victims petitioned for social welfare through the legal systems shows how these systems in turn established categories of citizenship and mechanisms for creating a "stark order of social and economic exclusion."<sup>40</sup> In Hamilton, however, citizens did not seek redress for injury but sought to deter future injury. The litigation demanded specific government action in the present moment which would enable citizens to endure the biological risks of everyday living. Contemporary living brings countless unspecifiable biological risks with which humans must come to terms. As Petryna writes, "daily life is characterized by overwhelming uncertainty and unknowability. It is in this social, scientific, and legal arena that defining and acquiring a biological citizenship takes on central interest."<sup>41</sup> The legal cases against Rocky Mountain Laboratories exemplify how citizens use this arena to establish the parameters of risk and the expectations of government in assuring biological security.

One notable difference between the 1927 and 2004 lawsuits is that the threat of Rocky Mountain spotted fever used to rationalize the 1927 expansion was intimate and local, while the expansion in the 21<sup>st</sup> century was designed to deal with organisms that,

by definition, are not localized. Though both eras were characterized by some popular concern over disease threats, the first expansion of RML brought microbes from across the river, while the BSL4 laboratory brings microbes that would otherwise only enter the area through deliberate biological attack. Still, both lawsuits were settled at the most local level, by directing how the laboratory space would be managed for the security of local citizens, a notable material outcome showing the sway of the community in regulating the circulations of laboratory space.

### **Testimonies of Risk**

“(T)he building of a laboratory is a violation of the rights of citizens without due process of law,” stated the plaintiffs in their opening statement on July 27, 1927, arguing that an act by the legislature is illegal if it interferes with individual rights to safety, health, and happiness in a clean and healthful environment.<sup>42</sup> In its deliberations the court would weigh these rights claimed by citizens who lived near the laboratory against the rights of a broader group of citizens to have better health through the study of disease. In respect to the laboratory, the court had authority to define the place as either a threat to citizens or a contained space in which threats might exist internally but did not pose an external threat great enough to violate human rights. The case hinged on the connection of fear to “fact” and the jurisdiction of the court. As the defendants suggested, “it is hardly within the province of a court of equity to enjoin the operation of a laboratory the work of which constitutes an obviously innocent and harmless purpose.”<sup>43</sup>

The plaintiffs faced the challenge of claiming biological rights in the case of an unknown, unpredictable entity like disease. Testimonies ranged from heartfelt pleas on behalf of innocent children and chilling accounts of deadly laboratory accidents to



commendations of scientists saving lives and descriptions of “tick-proof” facilities. Both sides struggled with the task of transforming fear into a measurable entity, to bring it into the realm of intervention. In the courtroom, through personal testimony and witness accounts, the notion of fear attains potency unavailable in discussions with scientists. While scientific discourses can quantify the risk in fractions of a percent, thereby equating “minimal risk” with “no risk,” some members of the public translate that fraction of a percent into cause for fear. In the court transcript, their sentiments are weighted alongside the numbers and figures, showing how fear of future injury factors into citizenship claims.

When he took the witness stand in 1927, Dr. G.A. Gordon was identified as a physician who had practiced in Hamilton for 18 years and as a resident living a block and a half from the proposed laboratory site. Though Dr. Gordon mentioned his experience treating spotted fever cases, the majority of his testimony was directed at establishing a communal fear of the new laboratory. In direct examination, the lawyer for the plaintiff prodded, “What do you say of the attitude and the talk of the people in that community, the twenty or thirty families with reference to their feelings regarding this institution?”

Gordon responds:

Well, the general impression of the people of that vicinity is one of fear; fear of the presence of the laboratory; fear of its being built there. We have a laboratory on the west side and they know how it is conducted, and the general impression on even that community, where it is, and even myself is one of disgust. And the people of this community, where they are proposing to erect this building, they can't understand why anybody or any body of men would want us, would ask us, to have it near us. Even though there were no danger from contamination; even though the grounds and building were conducted as it should be. Yet in the minds of everybody in that neighborhood there is fear to such an extent that they do not consider they can live in ease and peace of mind with a laboratory of that kind in the vicinity.<sup>44</sup>

In re-direct examination, Gordon lists by name individuals he has spoken with who have expressed fear, and in cross-examination, the attorney presents a list of other community members, exchanges aimed to draw boundaries around fear, connecting fear to proximity to the laboratory and communication with like-minded people. They also put on the court record names of individuals who possessed this fear and whose fear was an indicator that they had been wronged. Is fearlessness a human right, a state-of-being that should be protected by the court?

The defense worked to undermine the peoples' fears by showing them to be unjustified or unavoidable. In one cross-examination, the defense lawyer referred to the folk wisdom of the disease carried in the snowmelt, asking the witness if he thought those rumors were groundless:

A. I would say so.

Q. You don't think that drinking the water causes Rocky Mountain spotted fever?

A. I would hardly think so.

Q. You have heard people say that is the case though? A. I have heard it, yes.

Q. That did not make you afraid, did it? A. Well, not exactly.

Q. Mr. Hagens, don't you exercise your own judgment when you hear rumors about the water of the Bitter Root river? A. I certainly would.

Q. Would not you exercise the same judgment with reference to these rumors with reference to possible danger from the tick laboratory?

A. The dangerous element there is so much more dangerous than the drinking of the Bitter Root River water....

Q. You would be afraid of rumors no matter whether they were groundless or not—rumors from the tick laboratory? A. About the ticks, I certainly am afraid.

Q. I am trying to find out now, whether this is your judgment or just being afraid.

A. I would worry a great deal over such rumors as to whether they were true or not....

Q. If you found out that this was a cement building, tick proof, rodent proof and vermin proof, that would allay your fear to a considerable extent, would it not?

A. Well, somewhat. Not very much.

Q. You would still worry about the rumors, even though you found they were groundless? A. Anything as dangerous as that, I surely would.<sup>45</sup>

While claiming the right to rely on his own assessment of danger, Hagens establishes a hierarchy in which his evaluation of the risk creates a special case and truthfulness is less important when the risk is high enough. Not only that, but such claims establish fear as an inexplicable entity, predicated upon subjective assessments of the environment. If knowledge is the antidote to fear, but no knowledge is strong enough to overcome the fear, no action can be taken to eliminate fear:

Q. I understand you to say Mr. Hagens that no matter what you might learn from authoritative (sic) sources about the precautions that will be taken to serve the public health in connection with the operation of this laboratory, you would still be afraid, you would still have the same fear?

A. Yes, I would.

Q. That is all.<sup>46</sup>

The defense rests—and throws up its hands at the impossibility of countering such an argument: “it is not humanly possible to answer the person who says he is afraid and cannot give a reason for his fear.”<sup>47</sup> Fear must be quantified, rationalized in order to be argued against, and yet the fear was real enough to citizens that they took their arguments to court to fight for the right to live without fear.

While the plaintiffs brought to court a case for fear, the defense used the courtroom to build a case for science. They sought to discredit the citizens’ claims as ungrounded and unscientific, while proving that the proposed laboratory posed no quantifiable risk to nearby residents. When Dr. George McGrath expressed that the west side of the river is commonly regarded as the infected area, the examiner launched into a discussion which did not discredit the myth as much as the local physician’s authority to speak on the matter:

Q. (D)oes the Bitter Root River stop the transmission of spotted fever—the virulent ticks—from one side of the Valley to the other?

A. I can only tell you what has been in the past. Our spotted fever has been on the west side entirely, to my knowledge, except these two cases. But as for that the tick is a, that the bridge is a barrier, that a tick cannot be carried across there, I cannot say that.

Q. Have you made any study to determine whether ticks may migrate from one point to another? A. I should say not.

Q. You have no idea of what the carriers of the tick are? A. Except what I have read about them. I have never seen a tick on a rodent in my life....

Q. Have you made any research or study along the general line of tick carriers and what causes them to get from one point to another? A. No.

Q. Then, of course, you would not know the means by which an infected tick might be introduced from the west side of the Valley to the east side?<sup>48</sup>

Seeing, studying, and researching are the path to knowing, and Dr. McGrath's secondhand reading on the subject is given less credibility because he has not handled the rodents who carry the ticks, unlike the scientists who had conducted the study to document this movement firsthand.<sup>49</sup>

Next, the plaintiffs paraded a handful of janitors and caretakers across the witness stand to testify to the numerous accidents and incidents at the schoolhouse lab, challenging the security of the laboratory space and positioning the materiality of the building as a biological threat. An animal handler told of a goat that escaped its pen and a porcupine that climbed through the roof. Others remembered broken bottles and tick-sacks with gaping holes in the bottom, or scientists scrambling about the yard with white cloths, attempting to flag the ticks that had escaped the laboratory. A janitor told how his son had contracted spotted fever while visiting his father at work, a custodial job which included inoculating guinea pigs when the lab was short of staff. These testimonies painted a picture of the scientists running a haphazard operation, unable to control the larger animals, let alone the ticks, and exploiting untrained personnel to do deadly work. Janitors and caretakers were portrayed mopping up messes left by careless scientists, common citizens acting as "the sole protector of the community."<sup>50</sup>

The defendants contended that scientists were not to blame for these incidents, but the laboratory space itself. They proposed that a new, tick-proof, fire-proof, rodent-proof laboratory would eliminate these risks, a promise met with skepticism by the residents:

Q. If this laboratory is properly constructed, and according to the best scientific knowledge of the day, and if it is operated according to the best knowledge for the protection of laboratory workers, you do not think there is a real danger of infection being carried.

A. There is a danger. Why would it be any different where they are working now, and where they will work. (sic)

Q. You think that the new laboratory cannot be so constructed as to minimize the danger that may exist from the operation of the present laboratory.

A. Well, it may minimize the danger, but it will not exclude any possibility. You will have a case of spotted fever out there, then you will wake up to what we are saying.<sup>51</sup>

The question of where biolaboratories are secured lies at the heart of this debate. Can space be managed in a way to completely compensate for human error? More precisely, can physical security eliminate fear, if that fear comes from the belief that humans make mistakes? In this case, witnesses described fear based upon on the fallibility of the scientists, not the quality of the building. Thus, in exchanges like the one above, spatial modifications are given as the solution for a problem understood to be in the humanity of the workers—a square peg in a round hole. The implication is that secure spaces are the best way to compensate for human error, but the task remains of convincing fearful citizens that a problem perceived to be located in human “nature” can be solved without changing that human.

The director of Rocky Mountain Laboratories in 2008 recognizes that he has to tackle the question of human error head-on. In describing the layers of security features of the BSL4 laboratory, Dr. Marshall Bloom explains that administrative oversight, trainings, and standard operating procedures become more stringent as the need for safety

increases, and employees risk losing clearance to work if protocols are ignored. Thus, the modern biosafety laboratory regulates its human scientists by categorizing behaviors, writing detailed prescriptions for safe behavior, and punishing behavior considered unsafe.<sup>52</sup> While citizens in 1927 were primarily concerned with the risk of internal human error, the terrorist attacks of the 21<sup>st</sup> century further confound these concerns: what security breaches might be possible with human intent to inflict harm? Even if the laboratory could guarantee it had designed a space and established protocols that would compensate for all possibilities of human error, could it guarantee that the laboratory was secured against external breaches such as a plane crashing into the building or a truck plowing through the gate? RML's multi-volume binder of SOPs shows that the human causes of risk are being managed in detail, an administrative plan monumentally longer than the six words scrawled on a sign above the old schoolhouse lab warning visitors and employees to "Enter here at your own risk."

After three days of testimony, Gordon, Hagens, and the other plaintiffs failed to convince the judge that the laboratory was infringing upon their rights, and the judge dismissed the case, saddling the plaintiffs with all legal costs. The presumption that knowing "fact" should eliminate fear was reiterated in the "Findings of Fact and Conclusions of Law" submitted by the judge, and the anecdotal evidence presented by the plaintiffs diminished beneath the argument that a better facility could contain insects with limited mobility.<sup>53</sup> Notably, throughout the hearing, the lawyer for the defense sought to discredit the authority of the plaintiffs' witnesses, who were primarily citizens of Hamilton residing near the lab site, questioning the purview of a doctor to address anything outside of his medical practice, or a resident to claim any knowledge of property

values. The citizenry were presumed ignorant, and their means of producing knowledge rudimentary when compared to the scientists’.

Three outcomes of this court case come to bear in the future case at RML as well as broader discussions of how citizens can navigate the legal system to advocate for biological rights. First, the defense convinced the judge not to interpose in a case where the plaintiffs were “seeking to enjoin through the imaginary future condition.”<sup>54</sup> Persons advocating for protection against anticipated biological harm must convince courts that the existent risk of future biological harm warrants directives in the present moment. Second, the outcomes of the 1927 case clarified the court’s jurisdiction over the laboratory space, affirming the authority of the judicial branch in regulating the laboratory on behalf of the community. Finally, the 1927 judge used a relative assessment of danger on the barometer of tick-related harm, comparing the risk posed by the laboratory to the existing environmental risk of living in Hamilton. In this court, the right to health did not include the right to not be exposed to diseases one could “naturally” pick up walking down the street, a danger which “cannot be eradicated by any known means.”<sup>55</sup> By living near an area where Rocky Mountain spotted fever occurred naturally, and by interacting with community members who entered that area, the citizens had already relinquished their rights to live without the disease. Indeed, because the tick in the lab was in a structurally-controlled space, the laboratory space actually minimized the danger. This localized scientific agenda at RML would change radically over the next few decades, and by 2002, when it was announced that BSL4 agents would be brought to the laboratory, RML was studying dozens of diseases that could not be found in the Bitterroot Valley. By definition, BSL4 pathogens do not occur locally, meaning that the

2004 court case was predicated upon a different understanding of risk in which pathogens were brought into proximity with citizens who could not contract those diseases from their local environment

In 1927, the work of the laboratory was aimed solely at researching and treating an illnesses which was dramatically affecting the local population, work identified by the defense as an “obviously innocent and harmless purpose” which promised benefits to both scientists and community members.<sup>56</sup> Within the next generation, the work of scientists would expand as the laboratory attempted to stay afloat in the field of emerging infectious diseases. In a statement which would come to be ironic, the defense lawyer proclaimed that the work at RML was far safer than the work in other biolabs which “handle organisms too small to be seen by the human eye.... (T)here is far greater danger from the handling of these than from the handling of an insect that can be seen by the human eye.”<sup>57</sup> By World War II, RML would be involved in typhus and yellow fever research, diseases which were far less of a local threat, indicating that RML was entering a global field of disease science. Ironically, with the expansion of the laboratory, its “obviously innocent and harmless purpose” would also fall under scrutiny as citizens had to remake the value of the laboratory in their lives in order to rationalize the risk of living near these foreign pathogens.

### **Building a Disease Economy in the Bitterroot**

International interest in insect-borne diseases and a steady supply of national funding brought more and more scientists to the laboratory, which in 1941 employed 97 people.<sup>58</sup> These scientists came for work, bringing their families and settling into long careers laboring in the Bitterroot Valley. At the same time, citizens of Hamilton were



culturally and economically integrating the laboratory into their community. Maurine Hughes remembers her brother raising guinea pigs in cages behind their shed, which he would sell to the laboratory to make money to support the family. When an egg-based vaccine replaced the tissue-based spotted fever vaccine, the guinea pig-economy evolved into an egg-exchange between locals and the laboratory. Partially due to its isolated location, Rocky Mountain Laboratory relied upon local production for most of its supplies. RML employed animal handlers, machinists, woodworkers, glassworkers, clerks, janitors, and a cartoonist, most of them born in the Bitterroot and trained to do their specific job well. Dr. Bill Hadlow remembers putting his head together with machinist Frank Tolman to develop a jig to inoculate minks, a tool not available on the market. Though they were not a diagnostic lab, scientists developed connections in the community and when a farmer thought her chickens might have TB or a forest ranger found a bighorn sheep that met a peculiar death, Hadlow would come into work to find a sheep skull on his worktable or a dead chicken strung over the back of a chair.<sup>59</sup>

Dr. Willy Burgdorfer contends that these connections between laboratories and their communities are critical for “good science.” “When you hear of an infection, you can’t just drive your car into an area and solve the problem. You have to establish a contact. You’ll learn more about the area by contact with a farmer than with a scientist.” The Swiss-born scientist, once president of the local bowling association, worries that today’s scientists come to Hamilton to work in the labs, but not to be a part of the community. As we converse in a booth at the Coffee Cup diner, folks wave hello or pause to chat as they pass by, inquiring after health and family and life during retirement. Burgdorfer laughs at the memory of friends coming to him for advice regarding every

headache, sneeze, and fever: “I would tell them, ‘I am not a physician, so I will give you a layman’s diagnosis: it is the end of tick season, we had a lot of Colorado tick fever this year; it is not Rocky Mountain spotted fever, so it must be viral. You will recover by yourself.’” Residents of Hamilton clearly know RML through their personal acquaintances with the scientists who form their community, who carry their expertise beyond the walls of the lab and embody science practice during the interactions of daily life.

Drs. Burgdorfer and Hadlow, now both in their 90s, have been meeting for coffee every Thursday for almost 50 years. Both renowned scientists, Dr. Burgdorfer for his discovery of the pathogen which causes Lyme disease, *Borrelia burgdorferi*, and Dr. Hadlow as one of the leading scholars on prions and “mad cow disease,” these soft-spoken gentlemen describe a RML as a communal workplace, recalling their colleagues and technicians by name, and fondly reliving the comedy and lore of the laboratory through tales of escaped lab rats and near-misses while working with a smorgasbord of infectious diseases. Humbly demurring to talk about their own accomplishments, they talk about their era of science as a time of asking questions, following threads, and formulating new problems—work they worry may be disappearing in an era of electron microscopes and scientists who are trained to do, not ask. Their narratives describe a laboratory situated at the cultural heart of the Bitterroot Valley, as much as it formed the economic center of the community faced with limited natural resources. In order to understand the high stakes of a debate concerning the risk and value of RML to the Hamilton community, it is useful to return again to an examination of the flows into and

out of the laboratory that anchor it within a community, as well as the economic value of the bioscience industry in the 21<sup>st</sup> century.

“After the 1920s, there was no reason for the labs to be here,” says Dr. Swanson. By the end of that decade, the spotted fever disease did not threaten the community as it had previously, but a small economy had been built around disease control. Members of the community earned a living running dipping vats, flagging for ticks, or caring for animals at the laboratory. When the federal government expanded RML, the construction of new buildings drew close to a million dollars into the community in the 1930s.<sup>60</sup> Expansion brought new jobs, for every scientist who came from outside needed a support team of technicians and caretakers, most of whom were hired locally. The community which had once depended upon the laboratory work for biological survival now relied upon it to sustain the economy. City planners continue to see the economic prosperity of the community as entwined with the success of the labs, a position that brought the local government into the heart of the expansion debates of the past several years. The following discussion aims to show the materiality of the circulations of capital which sustain Rocky Mountain Laboratories, and how they are animated by complex interactions between the modes of production, cultural ideologies, and government apparatuses, as well as the land of the Bitterroot itself.

Hamilton resident Jani Meuchel’s grandparents were on a cross-country road trip when their car broke down in Montana’s Bitterroot Valley. The family never left. Her grandfather dabbled in most of the local industries, lending a hand to the local dairy, the sugar beet farm, and “Copper King” Marcus Daly’s stock farm. “Daly logged the lower half of the mountains to run the smelter at his copper mine (the Anaconda Mine near

Butte, Montana),” Meuchel explains. “He liked it here, so he stayed.”<sup>61</sup> These last seven words reverberate through the stories of most Bitterroot residents, who seem not unhappily entrapped in this long, narrow valley. Driving around her father’s cattle ranch, Meuchel points to a two-story house with white siding set back from the gravel road. “Selling that land paid for a new tractor,” she explains. Next comes a lot sold when the ranch had a bad year, and then a lot that bought a new truck, both now summer homes for families Meuchel has never met. The land is her father’s insurance policy, savings account, and retirement plan. When times get tough, he’ll carve out another half-acre to sell to a California businessman looking for a place to dock a fishing boat. More and more, Bitterroot landowners stake their economic futures on the tourist economy, leading to bitter zoning disputes throughout the valley. Conflict with environmental groups and the US Forest Service have slowed timber extraction in the mountains, forcing the closure of all but one of the Darby mills. As in many rural communities across the nation, a diminishing resource economy has driven towns to seek out industries which might be sustained without timber or minerals or oil. In Hamilton, the preexistence of RML along with the generally expansive bioscience industry has led the community to stake its economic future in disease science.

The bioscience industry has an attractive profile to communities courting economic growth. Not a smokestack industry, biotechnology brings high-paying jobs which “elevate” employees’ skills and appears environmentally clean. A 2002 economic needs assessment of the Bitterroot Valley highlighted the tremendous growth of the county along with the low per capita income and high poverty rate, urging the county to focus on assets it already had, such as RML, while maintaining the “high quality natural

environment and setting in the Bitterroot Valley (as) one of the area's key economic advantages."<sup>62</sup> In June 2008, the Ravalli County Economic Development Authority announced plans to build a \$1.6 million small-business "incubator" in Hamilton, designed to "grow" and "nurture" community-oriented businesses in the Bitterroot Valley.<sup>63</sup> Blueprints for the Ravalli Entrepreneurship Center (REC) envision eighteen laboratories space, encircling a courtyard with tables and benches to encourage meeting and intermingling, networking the local scientists into a community in addition to providing space to run experiments. While modern imaginings of the "scientific community" are increasingly free from the bounds of time and space due to email, FedEx, and videoconferencing, this arrangement of space emphasizes the advantages of living and working in a place near other scientists where ideas can be swapped and resources can be combined.

The proposal contains elaborate promises of future economic gain, suggesting that 35 companies will be "graduated" from the facility in the first ten years, and that 30 of those will set up permanently in the county. If each of these companies builds its own 1500-square-foot facility, they will invest another \$10 million into the community, a substantial return on the initial investment in the REC. The modern age of bioscience is characterized by such belief in limitless opportunities for economic expansion through the study of ever-smaller forms of life, and the growth of the national security complex has similarly brought economic change to communities once sustained by resource extraction. (Another example is the establishment of terrorism training facilities, explored in detail in Chapter 5.) These new economies directly inform the citizenship claims available to community members.

Through the REC, Ravalli County is investing in a future in which growing the bioscience economy is presumed to bring prosperity without cutting down the forests or polluting the clear skies that drew people to the Bitterroot to begin with. Julie Foster, head of the REC project, is quick to point out that this type of development possible only through the presence of Rocky Mountain Laboratories, which provides a base of human capital.<sup>64</sup> Most rural communities would not be able to attract scientists to work on their own in a community that was not attuned to their work and research. Hamilton, however, already boasts one successful offshoot of the RML industry, a glassy, prefab factory on the north edge of town, site of GSK Biologicals. In 1981 four scientists left RML to seek their fortune in the private sector, converting three chicken coops into a vaccine laboratory specializing in immune stimulators or adjuvants. Edgar Ribí's ImmunoChem Research, Inc., was bought by the pharmaceutical giant in 2005, and two subsequent expansions have grown 300 jobs and brought a \$3 million increase in tax base to the county<sup>65</sup>

Kent Meyers, director of Adjuvant Development, claims that RML doesn't have the career growth offered by GSK, whose business model allows entry-level employees to develop skills that will allow them to advance within the company. To community planners, GSK exemplifies what they hope will happen with the new bioscience center: postdocs will come to RML and, during their tenure, fall in love with the Bitterroot Valley. When their short-term appointment is up, instead of leaving the valley, they will choose to stay, using the REC space to nurture their research ideas and develop business acumen. Ideally, like Edgar Ribí, they will come up with a highly successful product, expanding their company and bringing even more jobs and money to the community.

From this perspective, one of the valued exports from Rocky Mountain Laboratory is its temporary employees, scientists who work in the laboratories for a few years but have limited prospects for long-term employment there. Unlike larger urban areas, where scientists could move from lab to lab without relocating, Hamilton has but one major laboratory. Thus, self-employment is the only alternative for bioscientists outside of RML or GSK.<sup>66</sup> City planners believe that the draw of the location is strong enough to pull scientists away from the government research machine and transform them into Ribi-like entrepreneurs. Where decades ago one might have said that Hamilton needed scientists to save lives, city planners now say that the community needs RML to save its quality of life.

Interestingly, the REC building plan did not receive the public outcry that rippled when RML announced expansion, though both buildings will similarly bring jobs into the community and will taxing the city's water and power resources. Certainly the risk factors are unequal because REC will not contain BSL4 pathogens, but it is also a locally-engineered plan, which does not have the air of national government acting without the input of Hamilton residents. RCEDA developed the plan after researching the economic patterns of the county, taking into account values expressed by people residing in the area and giving them a sense of agency in planning for their futures. Where the RML project led citizens to believe their opinions were not heard, let alone valued, this project emerged from a bottom-up approach to assessing what the community needed and how city planners could meet citizens' needs.

While many sustain the idea that through the new biosciences "life is productive of economic value," the question of who can access that value remains a bit more

obscure.<sup>67</sup> Studies of the science complex ask who benefits and who participates in the bioscience industry, showing that the industry has largely been driven by government funding and medical or pharmaceutical corporations.<sup>68</sup> The economy of Hamilton shows that populations also stand to benefit from the capitalization of life. Communities are placing hope for economic survival in economies built around bioscience work, and in Montana's fastest-growing county with its lowest per-capita income and diminishing material resources, few citizens seemed to question the sustainability or the limitations of such an investment, imagining instead an endless line of Edgar Ribis who need little more than a chicken coop to start a million-dollar enterprise. Rose and Novas call this the "economy of hope," made possible as all "aspects of life ... become subjects of deliberation and decision," fueling an industry which thrives on the production of healthier futures.<sup>69</sup> Rajan adopts the term "Biocapital" to elucidate the ways in which the life sciences operate by the systems of exchange and circulations of capitalism, at the same time as modern forms of capitalism have taken on explicitly biopolitical aspects.<sup>70</sup>

In addressing the question of how biocapital changes the materiality and value of life through its commodification, Rajan proposes that entirely new forms of capital emerge alongside the new biology, leading to the question of how capitalism looks when viewed from the vantage point of the biological. Here, I contend that the life science laboratory sits at the center of a dynamic modern economy, its circulations part of broader capitalist structures and its materiality part of a contiguous geographic community—and vice versa. In conceptualizing the modern laboratory and its value and risks, one cannot ignore these circulations which ascribe meaning to the space and form the basis of communal claims to biological citizenship.



Once, a plague had to be lifted to lure people to Hamilton; now, jobs must be found to support the people who come eagerly to reside there, despite the tick-infested woods. Today, bioscience labs represent jobs with health benefits, jobs that don't smog up the air, and jobs that might bring college-educated children back home to the Bitterroot. That hope is perhaps as significant to Bitterroot residents today as the promise of a spotted fever cure was three generations ago.

Spotted fever may no longer be a death sentence in the Bitterroot Valley, but deliberate decisions on the part of local and federal governments have brought diseases into the region in ways incomprehensible a century ago. While supporters laud the clean technology, global interest, and high pay of bioscience industry, some citizens see risk in acts of science which threaten their bodies. Bioterrorist attack is but one threat of the new biology; the expansion of the life science industry in response to perceived biological threats brings other risks to citizens, including the importation of foreign microbes into domestic science laboratories. How will citizens negotiate this risk in the midst of the many fears brought by the contemporary security state? The continuation of the bioterror crisis will keep this question at the forefront of the public imagination, demanding serious consideration of the mechanisms of science and care in the age of genomic biology. In this chapter, I have attempted to show how Rocky Mountain Laboratories attained its vital place in the cultural identity of Hamilton residents, while repeatedly challenging them to evaluate the risks posed by disease and disease science as it pertained to their own biosecurity. Further, I contend that the laboratory is at the center of the political economy of the Bitterroot Valley, offering a hopeful as well as a fearful future to residents. These values are inscribed through the circulations of information, goods, and

people through the laboratory space. In the section which follows, I particularly examine the political contestation over the expansion of the Rocky Mountain Laboratories from 2002 to 2008, asking how the material space of the laboratory is ascribed with fear and risk through the legal and scientific negotiations of biological citizenship.

*Part Two: Building a Biolab for the 21<sup>st</sup> Century*

One side would say that that the probability of something happening is 0.0000037. From a scientific view, that's bombproof. But on the other side, the emotional side, that number is a measurable thing, something that could happen. The argument raged because neither side could hear each other talking.

*--Russ Lawrence, Hamilton resident<sup>1</sup>*

For much of the first decade of the 21<sup>st</sup> century, public discourse in Hamilton, Montana, hummed with quantifications, articulations, speculations, and imaginations of biological risk. As local bookstore owner Russ Lawrence remembers, people found polar meanings within the same calculations, displaying the wide-ranging values which sustained their unique understandings of security. While some focused on probability, others pondered possibility. Collectively, the community was unwilling to leave any aspect of their future open to chance, whether they were quantifying every unknown or envisioning every worst-case scenario. In their refusal to accept any measured or imagined threat, these modern subjects rendered risk incalculable. In such circumstances, proposes Sheila Jasanoff, risk can no longer be managed but must be governed. Because governance garners power through the aggregation of preference, experience, and beliefs which reside beyond the calculation of science, it makes room for imaginations and hypotheticals to enter discussions of risk.<sup>2</sup> By acknowledging the limits of expertise, risk governance might be better able to incorporate past experiences and perspectives of the public than a management strategy entrenched in probabilities.

To be effective, this strategy for mitigating risk demands continuous collaboration with the authorizing public while maintaining a foundation of trust and transparency. Jasanoff contends that if done well, policing risk through systems of governance will

build a resilient population as well as “political environments in which risk morphs into reality,” offering more hopeful futures to engaged citizens.<sup>3</sup> Witnessing the events surrounding the Rocky Mountain Laboratories expansion, however, exposes a less optimistic picture of governance, in which citizen efforts to participate in discussions of risk were initially ignored and then repeatedly undermined in the face of a technocratic system determined to calculate risk. Citizens’ cravings for transparency could not be satiated by the governing entities; confounded communications led to confusion and anger in a debate that raged for five years. Though the governance of risk may not have produced subjects empowered in producing their own biological futures, these years of negotiations elucidated the need to rethink how biological risks can be governed in an age of ever-increasing genomic possibilities.

In this chapter I consider how citizens come to know risk in an era of bioterrorism and emerging infectious disease, and how scientists and nonscientists converse about the proximate threat of microbes as well as the responsibility of governments to secure citizens’ bodies. What strategies were employed by residents of Hamilton to advocate for their individual and collective health in opposition to the expansive security apparatuses of the 21<sup>st</sup> century? How did the National Institutes of Health (NIH) work to convince citizens that the laboratory could “contain” the risk of pathogens? The protest of the laboratory expansion at Rocky Mountain Laboratories shows how people use public institutions to negotiate the risk of disease, and in so doing surrender some control of their own biological futures. The public debates in Hamilton exemplify how systems of government, such as Environmental Impact Statements and court hearings, assume the responsibility for delineating the value of individual and collective lives, as well as the

terms of biological risk—what is possible within the bioterror crisis and what is not. Finally, this section will consider how the bioterror crisis has created biological communities around shared perceptions of health risk, a peculiar form of biosociality predicated upon the calculation of a future state of being. Contemporary forms of biological citizenship are both individualizing and collectivizing, and the crisis in Montana shows that even when united in a biosocial group, people struggle to articulate their personal and collective experiences of biological risk in ways that attain potency in the larger public discourse so dominated by the growing national security complex.

Paul Rabinow calls the situation in which the genomic biology brings about new social orderings “biosociality.”<sup>4</sup> He proposes that as people discover new “truths” about their bodies, they will form groups and identities around these genetic understandings of themselves. These biosocial groupings have outcomes in producing subjects whose corporeal experiences substantially inform their ways of living in the world. Certainly biology has long played an important role in identity formation, but in this biosocial world alliances formed around biological identities will engage in collective practices that remake the world along the lines of biology. More than just shared experiences, the regrouping of society through biosociality raises new questions for democracy, accompanied by new spaces and mechanisms to contest the biological politic.<sup>5</sup> Adriana Petryna proposes that these alliances will bring health into the political and economic domain, placing individual biology at the center of citizenship.<sup>6</sup> As people engage with each other on the basis of biology, life “is embedded throughout the social fabric at the micro-level by a variety of biopolitical practices and discourses.”<sup>7</sup>

Scholarly study of these biosocial groupings seeks to uncover how the new molecular understandings of the self enable people to align themselves culturally to bring about some outcome, whether it be access to AIDS treatment, the formation of support groups with sympathetic sufferers, or attaining redress for health injury.<sup>8</sup> Such studies of biological citizenship have largely considered biology in the form of an inscribed genetic code, an environmental harm, a medical condition, or some particular biological state of being which subjects have in common. In biological collectives brought about under bioterrorism, the subjects in alliance may not necessarily share a common biological identity in the present moment. In other words, their shared identity is not based upon common understandings of their bodies as they are now, but upon shared perceptions of how they might be in the future, a risk that not only comes from outside the body, but from outside the present. Biosociality in the age of bioterrorism involves the production and consumption of information in the present moment to bring about shared ways of knowing biological threats, and then collective ways of acting on behalf of those threats.

As the ability to see life on the molecular level changes the ways people know their own bodies, it changes the ways people know threats to their bodies. In the biosociality of bioterrorism, these claims to biological rights are being made by individuals with “healthy” bodies who perceive health risk because of scientific and political practice. Further, because few individuals have experienced bioterrorism events firsthand, the perception of risk does not emerge from people’s environmental present or experiential past, but is constructed through social behaviors. As a form of biosociality, bioterrorism preparedness groups together people of different biological pasts, with no particular biological similarity, in order to advocate for a shared biological future.

Finally, when dealing with biopreparedness, not only do pain and suffering become rationalized, but the potential for pain and suffering is rationalized such that value can be ascribed and utilized even though an event has not actually taken place. The controversy surrounding Rocky Mountain Laboratories following the announcement of the expansion shows how citizens attempted to rationalize the risk of a BSL4 laboratory, using a variety of political instruments, from Environmental Impact Statements to town hall meetings. The alliances formed during this controversy brought a new type of biosociality to Hamilton, institutionalizing conceptions of science and risk long associated with the laboratory and rethinking the situation of the laboratory within a post-9/11 world. In the end, however, the biosocial alliance of citizens proved unable to establish its claims to common biological risk in the face of powerful discourses produced by the science establishment. This picture is less optimistic than Rose's politics of hope, for the biosocial movement also remakes citizens in the eyes of authorities, and in Hamilton the claims of future harm faded beneath the high value ascribed to the science industry locally and within the massive national security complex. A close read of the scientific, legal, and social criteria of citizenship presented by this community activism reveals the struggles of citizens negotiating a new world of unspecified biological risks.

### **Montana, Biocitizens Unite!**

Now little bitty Hamilton—little picturesque Hamilton, the Bitterroot Valley—is facing a nightmare they have never seen before. How do you contain a nightmare? It is impossible. Foolish men have throughout time stated that it is possible to contain, it is possible to keep ships from sinking, and every time they are proven wrong. Ships do sink. And biosafety hazard level four containment areas do get breached. It happens. And that's just, that's just too much for this little community. It's too much.

*--Matthew Lemax*

If there are risks I want to hear about them—in detail. If there are alternatives, I want to hear about them—in detail. I want to be able to make an intelligent decision in my own heart about this lab, because I know you all do wonderful work over there. But I don't believe that we've been treated as the intelligent people that we are in this community. And I don't like being condescended to. I don't like snide comments back on my comments. I made a comment in another meeting, 'Is this a done deal? Should we just all go home? Is it already a done deal?' And I was told I hadn't been listening. I have been listening. I have been paying attention. But we're not getting answers. And I will go back to my very first comment, the very first meeting that I went to. I can tell you one thing: People back in Washington, D.C., in Bethesda, Maryland, do not give a damn about people in Hamilton, Montana. There are only a few of us, but they don't care about us. And I tell you, you're naïve if you believe that they care about you. They don't. So, my question, Marshall: Is this a done deal?

--Joan Perry

*--Comments made at the first public hearing for the  
Draft Environmental Impact Statement, June 2003*

How do you measure the impact of a laboratory upon its environment? Under the National Environmental Policy Act of 1969 (NEPA), any project involving federal funding is subject to environmental review, a process designed to expose not only environmental but also social and economic impacts of infrastructure development in the United States. When the National Institutes of Health initially proposed the BSL4 expansion at RML, they assessed the environmentally impacted area to be 100,000 square feet, roughly the amount of dirt that would be disturbed by the building itself. The project timeline indicated that the agency would do a basic Environmental Assessment, which would lead to a "Finding of No Significant Impact," allowing construction to proceed without undertaking a lengthier and more-rigorous Environmental Impact Statement (EIS). Recalls one activist, "There was literally no acknowledgement (at the time) from NIH that this lab would have any more potential impact on the community than a large office building would."<sup>9</sup> While this building did have offices, it would also contain Biosafety Level-4 laboratory space, housing deadly microbes and rendering the space



unlike any other facility to be built under the NEPA guidelines. In the contemporary political climate, the laboratory space was being evaluated against new standards of environmental risk, one increasingly focused on worst-case scenarios and struggling to find mechanisms to assess the extent of microbial threats. By demanding a full EIS, the community demanded that the NIH rationalize all the ways that the building, its systems, and employees interacted with the physical and social environment surrounding it, showing the reach of biological impact to extend deeply into the community.

NEPA procedures also require opportunities for public comment, providing a space for citizens to determine whether the assessment of risk presented in the EIS identifies all perceived sites of risk and harmonizes with their own ways of understanding the environmental threat. In the process of drafting the EIS, NIH and RML rationalized the risk of a BSL4 laboratory according to broadly accepted methods of assessing harm, as if the risk of such laboratories were accessible by the same methods of quantification and evaluation as any highway or pipeline project. In public comment sessions, both sides discovered the difficulty of identifying, labeling, and addressing such vague ideas as “fear,” “worst case,” or “safety.” Citizens expressed frustration with the NIH on many levels—for treating them as ignorant, unimportant, or inconvenient, for withholding information, for being careless, and for discounting concerns expressed in public and private. Supporters of the lab accused opponents of irrationally trying to impede the process, hurting the economy of the valley, and disrespecting their neighbors who work in the lab. Through the NEPA process, RML and NIH became more skillful at directing public comment and, in the end, institutionalized EIS as a mechanism for assessing the

impacts of BSL4 laboratories, a model likely to be mimicked in the several BSL4 laboratories currently under construction or consideration.

A BSL4 laboratory seems less like an office building in a post-9/11 world, a world where office buildings have proven to be very deadly when impacted by terrorist weapons. Alex Gorman, who became involved in the RML case through her work with Women's Voices for the Earth (WVE), believes that competing timelines collided during the NEPA process. NIH was driven by the momentum (and money) surrounding national security, desiring that the lab should be operational as soon as possible. The political climate demanded action from the science community to prepare the country for terrorist threats, and President Bush had charged the NIH with studying bioterrorism agents. The first presentation of the BSL4 laboratory to the public, in February 2002, conveyed the expansion as an opportunity for Hamilton to do its part for biosecurity and did not hedge around the idea that the expansion was designed to study "bioterrorism agents" and "diseases caused by the intentional release of pathogens into human populations."<sup>10</sup> While officials acknowledged security concerns, the proposal addressed the issue in vague and presumptive terms, suggesting that citizens could trust the laboratory to look out for their safety, even though they offered few details into what that would entail. Officials presented the clean safety records of the nation's four other BSL4 labs as evidence, but those, too, had been built before September 11, 2001, and citizens were now living in a world where the unimaginable played out on every major broadcast network in real time. In this new biological climate, residents were unable to trust the lab to tell them their building was secure.

The NIH scientists' initial confidence that their proposal would be readily accepted was not unfounded. From an architectural point of view, the difference between a Level 3 and Level 4 facility is incremental. At that very moment RML was on the verge of opening a BSL3 expansion, which was ratified in the late 1990s with merely an Environmental Assessment and nary a peep from the public. Less than a decade later the world had changed and citizens demanded that biological events be scrutinized to the full extent allowed by public process. "Given the timing, people were pretty worried about things like planes that might crash into the lab, etc. It didn't take much for local residents to think up some pretty scary worst case scenarios. And the response from the NIH (who apparently had not put much thought into worst case scenarios) was to ask the public to trust them: they knew what they were doing and it was all going to be very safe. That didn't sit well with a lot of folks—so the whole project got a lot more attention and controversy than the NIH ever expected."<sup>11</sup> NIH was going to have to prove "security" to the public in definitive, specific, and active measures, because the public demanded that the laboratory be subject to established protocols for evaluating risk, ultimately redefining the laboratory as much more than a 100,000 square foot office building.

An early and oft-repeated citizen complaint was that the BSL4 expansion was presented to the public as a "done deal," discrediting the fundamental principle of the NEPA process which allows that sometimes the most favorable outcome is to take no action. The project timeline presented in February showed construction beginning in less than a year, after a swift Environmental Assessment determined there would be no significant impact. The conclusions, it seemed, had already been drawn. NIH proceeded with the Environmental Assessment and held the requisite public meetings, but

throughout the summer it became clear that the citizens of Hamilton were going to demand the more rigorous scrutiny of an Environmental Impact Statement. Even when NIAID Director Anthony Fauci announced on September 12, 2002, that they would conduct an EIS after all, his statement presumed that the public comment period would absolve concerns without altering the outcome: "I'm totally confident that the people of the Bitterroot Valley want to be a part of what is happening here. In the same breath, we want to make sure they are a part of the process and comfortable with the lab."<sup>12</sup> Such discourses did not seem to allow the possibility that the EIS would conclude that the biological risk outweighed the value of the building and construction should not proceed.

Throughout this process, Hamilton residents found new ways to speak out for their biological rights. In the seven months since the announcement of the expansion, people had been studying the NEPA protocols, led by groups like Friends of the Bitterroot who had previously worked through the process in advocating for land management issues. The Coalition for a Safe Lab was established in August, and had been staging meetings parallel to the NIH-sponsored gatherings. While Friends and WVE adopted the lab issue into existing environmental advocacy platforms, the Coalition was established to enable citizen participation in discussions specifically about the laboratory. This group met a need by providing a forum where worst case scenarios and security questions could be handled in conversation instead of being dismissed as fearful rhetoric. These activist groupings also worked to frame the parameters of the argument, locating biological risk as an environmental concern, a local problem, a women's issue, as well as a new issue centered around the transformation of laboratory spaces.

Around the same time it began the EIS process, RML established a Community Liaison Group, part of the lab's strategy to "be a good neighbor." The "CLG" includes laboratory officials and representatives of various community sectors, such as the fire department and the Chamber of Commerce, handpicked to facilitate the flow of information between the lab and community members. Initially organized to address concerns regarding the BSL4 expansion, RML committed to keeping the group in place for ongoing interactions between the lab and community. RML provides CLG members with a packet of information prior to each quarterly meeting, giving updates on laboratory happenings, as well as news from the science community in general. Members can review materials, talk to their "constituents," and then raise concerns at group meetings, where lab officials are present to respond to questions. In all these interactions RML retains control as a gatekeeper of information. One CLG member points out that information seems to flow downhill from the lab, with a lot of propaganda and without much sincere discussion. "They put on the face that they want the community to see—it's nothing but a PR apparatus. They are going to say what will calm you down, until you become accepting of it. New ideas are tough to swallow."<sup>13</sup> RML has little at stake in its community group: by the existence of the CLG, the laboratory can promote itself as community-minded, while instituting a system that accepts input only from a faux representative council. The power relations are askew, for CLG members ultimately have no authority to enact change within RML or NIH. By establishing the CLG, however, RML made a statement that the laboratory exists in a community and that it has a responsibility to communicate—in some structured way—with that community. Said Director Bloom, "What we do here is a privilege, not a right—and one given to us by the

taxpayers.”<sup>14</sup> The CLG also formalized an understanding that the laboratory had to account for its role in the safety and well-being of its neighbors, a belief that emerged in the 1910s and 1920s during the spotted fever campaign but was largely taken for granted until the bioterror crisis demanded new types of accountability. The work of the CLG, as well as the Coalition for a Safe Lab and other community groups, was to identify precisely what are the obligations of a laboratory to its community.

The establishment of the CLG tacitly recognized that RML was part of a larger geography, bringing the community more formally into the scope of the EIS.<sup>15</sup> For the next two years, the NEPA process framed discussions of the Integrated Research Facility. The interplay of public comment and EIS documents inscribed the varied sentiments floating around the lab and in the community into a ritualized exchange. The NIH would present a draft EIS; the public would respond; NIH would revise, and the public reacted again. The documents and hearings proceeded as follows:

EA Scoping meeting	July 2002
Draft EIS (DEIS)	May 2003
Public Comment Period, meeting on DEIS	June-July 2003
Supplemental Draft EIS (SDEIS),	December 29, 2003
SDEIS comment period and public meeting	January-February 2004
Final EIS (FEIS)	April 2004
FEIS comment period,	May-June 2004
FEIS released	July 26, 2004
lawsuit filed to request new EIS	July 2004
settlement agreement reached	September 2004

This protocol places citizens in a reactionary role, for NIH and its contractors did the work of creating the documents which framed the discussion. Some members of the

public contended that their concerns were not addressed in the documents, but when they raised these concerns in other venues, they were told that they would be addressed in subsequent versions. When they finally received the Draft EIS—a 100-page document, which one person ironically described as smaller than the Hamilton phone book—they didn't find answers, and vocalized their complaints in the meeting: "Many people had questions they were told were going to be addressed in the EIS. You have an obligation to answer those questions. It's not an option." "I resent that people who are asking questions are labeled as afraid or ignorant. Maybe I won't be afraid if I get the answer." "Help me to not be so cynical about the process." People sought information in order to assess the risk the lab posed to their own well-being, and expected those who prepared the EIS (an outside company) to do the work of collecting, analyzing, and evaluating the risk. They themselves felt unable to quantify the risk, but retained the right to make decisions when presented with information they perceived to be adequate. As a mechanism for assessing environmental impacts, the EIS had to, first, identify and evaluate the potential outcomes according to its own standards, and then evaluate scenarios identified by the public through information gathering sessions. Rather than showing that the risks hypothesized by the public had been recognized and evaluated, the document simply excluded those impacts, producing public sentiment that their concerns had been ignored. In actuality, the biological scenarios imagined by the public presented situations which had never before been addressed through the EIS process. The limitations of the protocols to recognize evolving types of risk led to public disgruntlement about the process in general.

Environmental Impact Statements are commissioned by institutions and prepared by companies specializing in the drafting of such documents. The public comment period is established to ensure that the preparing agency surveys the range of issues involved and addresses the majority of public concerns in the published document. Public response to the EIS indicated that many citizens felt key items were being ignored in the process, whether intentionally or because traditional mechanisms for assessing environmental impact were not adequate to address the complexities of biological risk in an age of terror.

### **Assessing the Scope of a Laboratory**

As previously discussed, the range of impact of a BSL4 laboratory might be determined to be as small as the building's footprint or as vast as the entire nation or even the planet. The tradeoff in defining the scope of the EIS was that in order to claim positive regional or national impacts of the laboratory in its assessment, the scope had to be broadened to also consider the potential negative impacts in these areas.<sup>16</sup> Scope, in this case, deals with the range of issues—actions, alternatives, and impacts—addressed by the document, as well as the scoping of public comments during comment periods. NIH made deliberate decisions regarding how it defined the scope of the RML expansion project. Skeptics of the process claimed, “NIH has arbitrarily limited the scope of the DEIS. This is an obvious and transparent attempt to limit the scope to a location and budget that was predetermined to avoid considering a reasonable range of alternatives, and disclosing the rationale for the choice of location or budget tradeoffs.”<sup>17</sup> NIH was in a complicated position. On the one hand, the laboratory had been called critical to a national security need and lauded as a regional center of excellence in the Northwest, but



such a scope would require a tremendous EIS . NIH was a federal agency, with several established BSL4 laboratories and access to a \$500 million budget for building BSL4 labs, of which they had only committed \$65 million to the RML expansion.<sup>18</sup> With the addition of research projects on every continent and the importation of microbes from overseas, the scope of the work done in the RML could easily be called global. An impact statement of such a scope would be unwieldy.

Still, the various drafts of the EIS and the public comment periods affirmed clearly that the impacts of a laboratory dealing with highly-infectious diseases push beyond the laboratory walls. One public concern, for example, was how the agents to be studied would be brought to the laboratory (or shared between BSL4 facilities.) Clearly, Ebola did not occur locally and the highly protected laboratory space did not isolate the virus during transportation. The lab explained that pathogens were transported by commercial shipping companies who were regulated by the CDC, contending that because RML did not oversee the training or certification of these agencies, this issue was outside the scope of the EIS. In alarm, citizens swapped jibes about the shipments of Ebola being delivered by the FedEx truck, integrating the delivery company into their worst-case scenarios: What if the FedEx truck crashes? What happens when someone snags the FedEx truck, left running on the street while the driver pops into the drugstore? Such comments conceived of a scope beyond even the nation or community, encompassing all “the world on time.”

The EIS did broaden the scope of the project to include some community infrastructure, both in Hamilton and Missoula. Citizens expressed concern that the community lacked the facilities and resources to adequately protect its citizens should an

accident occur. Marcus Daly Memorial Hospital was not as well equipped as hospitals in large cities hosting BSL4 labs, and people worried that should an incident occur it would be exponentially worse due to limited resources on hand. Not only did the EIS assess the preparedness of the laboratory to deal with emergencies, but it considered the readiness of the support personnel who would be the next in line to deal with an incident. By this conception, the evaluation of emergency situations—not just day-to-day practices—fell within the scope of the EIS. While the laboratory could take physical measures to secure its space, “securing” the community required a combination of personnel, training, and infrastructure. For example, a bid was put out to hospitals within 100 miles of the lab (which was only two) to contract with RML for emergency support. Saint Patrick’s Hospital in Missoula received money to build two isolation rooms, and Dr. George Risi, who had long consulted with the labs, is now on contract and paid by the laboratory to respond to emergency situations.<sup>19</sup> The drafting of the EIS produced RML as a place that went beyond its four laboratory walls, for if the security of the facility were breached, the bounds of the laboratory would expand, engulfing a region that included, at least on paper, the city of Missoula, sixty miles to the north.

The presence of the BSL4 laboratory also redefined the town’s position within the global terrorism landscape. As Jim Miller watched the facility being built, he commented that the decision to build, “Did put us on the map for terrorism. I imagine there are people out there thinking about how they can really create a ruckus in Hamilton.” The EIS addressed this hypothetical by claiming that there would not be enough infectious material within the laboratory to attract the interest of a terrorist, and it would not be weapons-grade, anyways. Here the EIS claimed authority to delineate how much

biological matter would be of value to terrorists, presuming knowledge of human behavior as it relates to contemporary terrorist mindsets and attempting to quantify the risk posed by people who had their own subjectivity. The risks of bioterrorism resist calculation because human agency leaves so many unknowns. Residents of Hamilton saw this risk, but the governing apparatus presumed the unknown meant unlikely. Though the threat may be minimal, even a minimal risk is still a risk. Or so the community tried to convince scientists throughout the EIS process.

### **Quantifying Laboratory Risk**

“Risks only exist when there are decisions to be taken.”<sup>20</sup> Because Giddens’ definition of risk depends on the position of the subject, in this case a “society increasingly preoccupied with the future (and also with safety),” risk is generated by people’s actions, particularly decision-making by agencies that intervene on behalf of the individual or collective.<sup>21</sup> The NEPA process was supposed to generate information that would lead to a decision regarding the construction of the IRF, information that would transform the hazards, dangers, and threats of the laboratory into a measured and calculated risk. The BSL4 laboratory was a risk because it was an imagined future entity which could (theoretically) be eliminated through decisions in the present: the NIH could decide not to build, or the legal actions based upon the EIS could use the rule of law to prevent the building. As a risk-management practice NEPA aims to bring about the most desirable future outcome as measured by the actions which will bring the least amount of harm to people and environments. In Giddens’ risk society, however, the unremitting advancement of science “manufactures” risk, producing a society in which the uncertainties of science cannot be dealt with except by further advances in science and

technology.<sup>22</sup> These new risks have little historical precedent and, “we often don’t really know what the risks are, let alone how to calculate them accurately in terms of probability tables.”<sup>23</sup> The life sciences of the modern age manufactures such risks, and the expansive threats of bioterrorism made possible by the new biology can only be countered by the rapid growth of the science complex which promises better technologies to facilitate a faster, more efficient response to any possible event.

Consequently, a two-sided problem in identifying and assessing the impact of a BSL4 laboratory emerged through the EIS process: the preparers of the report did not successfully identify and assess a full range of hazards, while community members put forth increasingly extravagant scenarios which resisted quantification. Is risk an environmental impact? While imagined future catastrophe might be considered in assessing future environments, how can the risk of that event be calculated in planning for that future? Through meetings and written comments citizens negotiated contradictory assessments of whether there was a risk, how great that risk was, and what responsibility of the lab is in minimizing the risk.

In its earliest version, the Environmental Impact Statement proposed that it is not possible to measure the risk of a BSL4 laboratory. General terms like “high risk” and “low risk” established a vague scale of risk.<sup>24</sup> The DEIS noted that the proposed action presented “remote increased risk to the community” (DEIS 2-11), but that the “potential added risk to the community from the Proposed Action cannot be effectively quantified” (DEIS 4-2). Though the risk can’t be measured, according to the DEIS, it can be mitigated through standard operating practices, for the “safety measures inherent to RML would effectively reduce threats of terrorism and the possibility of a release of a studied

agent into the community.” Support for this claim cited the laboratory’s past safety record, without acknowledging the changed future conditions that created the risk, again failing to recognize that the very idea of risk is entwined with the subject’s perception of the future, not the past.

While some community members, including Mayor Joe, accepted the risk as negligible and trusted that past record, others insisted that the difficulty in assessing risk was no reason not to try. The comments on the DEIS submitted by the three community advocacy groups argued that “the fact that it is difficult to assess risk in this case does not mean that it is impossible to quantify in an EIS.”<sup>25</sup> Further, they argued that even when the risk is minimal, it is still within the bounds of the EIS to study that risk and that “risk assessment is a common practice of the Federal Government.”<sup>26</sup> Citizens ascribed authority over risk assessment to the contracted agency preparing the EIS and the groups who generate statistical information about risk, in this case scientists (who conduct the studies reviewed by the preparers of the EIS) and the government (who “commonly practice(s)” risk assessment). The calculation of risk is not a practice open to anyone, but is assigned to the government.

The purpose of calculating risk is to establish the level of acceptable regulation which will counter the risk, presuming that knowing the threat will illuminate an appropriate response. Mitchell Dean distinguishes “social risk,” presented as a characteristic of the modern age by Beck and others, from a particular type of “governmental risk,” in which risk is rationalized with the object of enabling intervention.<sup>27</sup> Assessment practices make risk knowable, but they also make it governable, binding the notion of risk with outcomes to be brought about by state action.

The question follows of why citizens themselves cannot quantify the risk? Several circumstances sustain the authority of the state over the calculation of risk. First, through the federally mandated NEPA process, citizens transfer responsibility for risk assessment to an entity which is supposedly impartial and has access to the skills and resources to undertake a project of some magnitude. The involvement of neutral third parties presumes that determinations of risk have material outcomes in the capitalist quest for economic advance and that entities might deliberately distort dangers in order to achieve independent objectives. Second, due to the well-secured practices of the science complex, citizens do not feel like they have access to the information necessary to conduct a valid risk assessment. In asking for an assessment of risk, citizens were demanding disclosure of the practices and procedures that brought about the risk. They requested access to information throughout the process, including a list identifying precisely the microbes that would be studied in the BSL4 lab, a full history of accidents at RML and other BSL4 labs, and detailed accounts of how Hamilton was chosen as the site for the lab.<sup>28</sup> Furthermore, citizens place the burden of proof upon those who are agents in bringing change to the community. Gorman explained that the goal of their activism was to make the government accountable to the citizens: “We need you to prove you can do this safely and responsibly in Hamilton.”<sup>29</sup> RML would be responsible for mitigating risk should the laboratory be built, and part of proving that they could do this well was proving that they had clearly identified what the risks were. Interestingly, community members did not seem willing to accept that the labs posed no threat, even when the methods of their designated authority led to this conclusion.

The Final EIS more fully incorporated risk assessment into its methods, including sections titled “community risk” and “risk assessment scenarios.” The NIH-developed Maximum Possible Risk model claimed to build credibility by “simplifying assumptions (which) we know for certain are more unfavorable than any credible assumptions.” This design purports to build “extra confidence since the actual risks are certain to be less than the risks presented in the analysis.”<sup>30</sup> Even the model used to assess risk presumes the risk to be less than the numbers worked through the model. The EIS described six “reasonably foreseeable, credible threat” scenarios which were run through the MPR model, concluding in every case that the risk is “none.”

There is an important play of statistics at work here, for in reality the numbers were so small they were rounded to zero. One scenario concluded, “The calculated potential release described in this scenario would be 0.000011 spores. Since release of a partial spore is not feasible, this number is practically rounded to zero.” Or in another, “The risk of public harm is so minute that it may be considered zero.”<sup>31</sup> In the eyes of the public, however, minimal risk did not equal no risk. Comments by the advocacy group argued that the numbers being used to assess risk did not account for the changing position of BSL4 laboratories in the world. The assessment of risk was fundamentally different because high-security science laboratories were becoming more numerous than they had been in the past. In other words, statistics based upon two or three working BSL4 laboratories might be small, but the trend in NIH was to build more and more laboratories, making these numbers much greater. Thus, “with a Ten Fold increase in BSL4 experiments the probability of a single community release over 25 years can raise over nine times that of the previous 25 years.”<sup>32</sup> The FEIS still assessed risk based on

past precedent, a method that also proved unsatisfactory and even contradictory. A literature review of laboratory-acquired infections cited more than 5,000 occupationally acquired infections since 1898, with six occurring since 1999, and one occurring in a BSL4 laboratory, then concludes by stating that “the overall safety record of biomedical and microbiological laboratories also indicates that there is not a risk of accidental release.”<sup>33</sup> Not only does the conclusion seem to contradict the evidence, but the reference to past events was not convincing in a future-looking climate of risk. The risk of a BSL4 facility could not be determined by the past precedent of laboratories, for the changes of the war on terror, the new drive for biosecurity, and the evolving face of fear in the community all looked towards the future. The world was a different place now and knowing risk meant understanding the future, for the past was not as relevant to the citizens as their own imagined futures.

Finally, the unpredictability of human beings complicates the calculation of risk. “Scientists are so glued to their microscopes, they can’t see the world around them. They’re not infallible, even if they seem to be.”<sup>34</sup> Human error and human intent undermine the security of the new BSL4 facility. The scientists who worked at RML lived in a small community where their foibles and fallibility were on display outside the laboratory, lifting the hem on that cloak of mystery which so often surrounds scientific work. People also did not have to look much beyond the anthrax incidents two years earlier to believe that some scientists also have intent to do harm. Hamilton residents proved to be extremely creative in concocting their own “reasonably foreseeable” scenarios, and they expected that to be addressed in the EIS, and they expected the government’s answers to resonate with their ways of seeing the world. Larry Campbell



recalled a meeting where someone suggested that a person with ill intent could load a cement truck full of explosives, drive it right down 3<sup>rd</sup> street, and then slam it into the laboratory building. In response, an NIH director said that the heat of such an explosion would kill the pathogens. “But people live through explosions—we see that all the time. Why couldn’t a microbe? This dismissive type of analysis is totally dangerous.”<sup>35</sup> The EIS proved unsatisfactory to residents because it refused to address in detail these “worst case” scenarios. They saw these as part of the government’s responsibility in assessing and communicating the risk of the laboratory. To scientists, these worst-case scenes were statistically insignificant, but to the residents who had recently witnessed bombings in so many federal buildings, they were critical.

The refusal of the laboratory to acknowledge worse-case scenarios in meetings or through the EIS served riled the people who set these scenes at the foundation of their discussion of risk. As one resident stated, in the comment session on the Draft EIS,

And then it goes on to say that the ‘proposed added risk to the community from the proposed action cannot be effectively quantified’—and because it can’t be effectively quantified, we’ll just ignore it. And I think that is an egregious oversight. There’s no discussion of the possible accidental or purposeful breach of security, the potential direct or indirect or cumulative effects of such a thing if it does happen. The ‘What if?’ The ‘nightmare.’ ... What happens if the worst happens? Because obviously it’s a possibility because the whole document talks about taking, you know, reducing the risk. ... But the risk never goes away.... What happens to the Bitterroot Valley if we do have the worst-case scenario? Let’s have it out on paper. ‘Cause it’s a possibility. And don’t ignore it. And don’t ignore those of us that are concerned about it and treat us like we are stupid.<sup>36</sup>

Musings over hypothetical situations pitted community members against each other, as supporters of the accused those who raised these concerns of being unpatriotic, selfish, or fearmongerers. Giddens describes the risk society as encompassing a “new moral climate of politics, one marked by a push-and-pull between accusations of scaremongering on the

one hand and of cover-ups on the other.”<sup>37</sup> Those who see risk feel compelled to proclaim and publicize, and are accused of scaremongering if no harm emerges (on the other hand, if authorities proclaim the risk is minimal, they can be accused of a cover-up.) While Giddens seems to suggest that anyone from scientist to politician to lay person could proclaim the risk equally, the situation in Hamilton shows that citizens were not equally vested with authority to identify risk. Though some of their comments were addressed in the EIS, the document still dismissed most of the scenarios and information requests as “outside the scope” of the EIS. Furthermore, the label of “fearmongerer” was applied to citizens by their peers before any event had played out, showing that the subjective ways of knowing risk can be definitive enough to exist outside of any results. People who supported the laboratory were so convinced of its safety that they could accuse others of using scare tactics and lacking proof that their fears were ill-founded before the future played out. More importantly, the authoritative actions of the NIH, RML, and other governmental agencies were powerful enough to relegate fear to the domain of ignorance. Where risk was perceived, ignorance was presumed.

By this reasoning, risk could be overcome through the production of knowledge and the education of the citizenry, demanding no material change to the laboratory or its practices. Citizens like Joan Perry (above) felt like public officials were mistreating and condescending to them, but still sustained this equation of knowledge and risk by repeatedly demanding more information. In writing about the crisis at Chernobyl, Petryna says that after the nuclear meltdown, “life was perceived to be in the hands of an invisible all-knowing expert” who controlled the flow of information about health risks. In the face of a crisis, people sought information “to render an uncertain and unknowable world knowable and

inhabitable in some way.”<sup>38</sup> Knowledge of the physical world offered access to life and survival; communication offers access to that knowledge, but the state still controls access to that information. The NEPA process exemplifies one way the state assigns risk, for by subjecting a new entity of unknown scope and impact to NEPA oversight, the governing agency retained power to set parameters and quantify risk. Rather than presenting a full spectrum of risks to be evaluated and compared, the EIS dealt in absolutes where only certain risks were given enough credibility to be quantified and all “negligible,” “minimal,” and “slight” risks were rounded down to “none.”

### **“Is This a Done Deal?”**

The NEPA process stipulates that an EIS should present at least three types of alternatives: the proposed action, no action, and other actions that would also meet the need. The document presented to Hamilton residents in June 2003 considered only the “preferred action” and “no action,” having eliminated alternatives due to budgetary issues. Ten percent of the 588 comments received during the scoping period requested NIH to consider alternatives to building in Hamilton, particularly in the center of town. By framing the issue as a “this-action-or-no-action” contest, the delineation of economic benefits took the spotlight away from suggestions that risk could be managed by considering alternative locations or situations. If people wanted the lab to continue to bless their community and support their nation’s defense, their only choice was to accept the new laboratory as proposed, for there simply were no alternatives. Residents who suggested that the IRF could be built outside of town, downwind and downstream, or as a self-contained facility found no action to support, for there was none. Within such a framework, people could not claim biological rights while still supporting the work and

workers of the laboratory. Their biological citizenship came into direct conflict with the plan to build, for the EIS reified the contest as a lab/no lab fight.

Advocacy groups claimed that this approach violated the spirit of the NEPA process, which purports to consider a range of alternatives in order to select the least damaging option. An EIS is a document for assessment, and is not to be used in “justifying decisions already made.” (CEQ 1502.2 (g)) The lack of alternatives furthered the perception that the building of the IRF was predetermined, and the agency was simply going through the motions in submitting to an EIS. As Gorman explained,

The thing that really struck folks from that first meeting though—was that they definitely presented the plan as a done deal. They had the space to build it (RML is a NIH campus and had plenty of room), they had the funds secured from Congress, and they had the blessing of the scientists at RML couldn't have been more pleased about getting a fancy new lab. The thing is there were some additional hoops they still had to jump through.<sup>39</sup>

Public officials spoke of the laboratory as if it were already approved, ideologically undermining the possibility that such a laboratory might not be built because it was shown to be environmentally harmful. Scientists were excited about the chance to be on the cutting edge of the virology field, and many saw this as a chance for Montana to play a role in the War on Terror.<sup>40</sup> It seemed that everything was in order to proceed, if only the EIS could assure everyone that there was no risk of harm. RML had begun contracting with builders, developing blueprints, and otherwise investing money into the project. Although this was not displacing dirt, it seemed that if the IRF were not approved, the community would already lose some of its investment.

When established measures for protecting the collective health are compromised, even—or especially—in a time of national crisis, citizens' biological rights are compromised. Institutions organized to protect biological rights, such as NEPA and the

NIH, establish priorities on citizen health which may not coincide with people's perception of their own biological needs. If the national need for biosecurity drowns out the voices of individuals in Hamilton, Montana, they lose agency in determining their own biological citizenship. During the bioterror crisis, the biological basis for citizenship may not withstand the apparatus of security, as individuals sacrifice their universal right to life and the state passes broad judgment on the worth of individual humans.<sup>41</sup>

### **“The” Memo: Valuing Biological Citizens**

During conversations with Hamilton residents in 2008, people repeatedly asked if I had seen “the memo.” Alexandra Gorman found the unsigned memo deep in a stack of papers released by a Freedom of Information Act request. When confronted with the memo, NIH officials accused people opposed to the lab expansion of writing the memo to support some sort of conspiracy theory. Though no one seemed to have a copy of the memo, everyone remembered it, recounting the gist of the message in their own words: “Hamilton is disposable.” “They chose us because we’re away from major population centers.” “The internal memo makes it seem like the worst is going to happen, so it might as well happen here.” They presented this document as evidence that the selection of Hamilton was more than just the perfect marriage with RML and that deliberate decisions involving their own bodies had been made in selecting the site.<sup>42</sup>

Though it refers to a “clear and present danger posed by the daily threat of human and agricultural bioterrorism,” the famous memo was written in December 2000, a year before the anthrax attacks would raise the profile of biosecurity. The memo cites multiple reasons for expanding NIH facilities in Montana, including unused land on the large campus, collegial relationships with RML and Hamilton, and closer proximity to west-

coast population centers which would minimize delays during a public health disaster in Seattle, San Francisco, or Los Angeles. The line that caught Hamilton's attention read: "Third, the RML campus is located in rural western Montana, well removed from major population centers. The location of the laboratory reduces the possibility that an accidental release of a Biosafety Level-4 organism would lead to a major public health disaster." Citizens in Hamilton clearly had a different conception of what constitutes a "major" public health disaster, and the overall message was that their lives would be expendable. To have such a message put down on paper—even in an unsigned memo—suggested that the institution did not value the lives of Hamilton residents as much as it valued its citizens in other population centers.

These lines, though brief, framed a biosocial argument claiming that when it comes to bioterrorism, the government does not value the lives of all people equally, and that those living near research facilities must assume the risk on behalf of all citizens. These lives were less valued because of their remote location. When the memo was brought into circulation at a Coalition for a Safe Lab meeting, people began to imagine the geography of the Bitterroot as it might be seen through the federal government. "For one thing, it would be really easy to quarantine the valley. There's only one paved artery in and out at both ends. At my most cynical, I can imagine them just shutting it off, then they could go back in and see where the bodies lay. In my own point of view, that kind of awful thinking is not unthinkable in the U.S. defense industry."<sup>43</sup> The transfer of accident to intent seeps into this assessment: an accident produces an opportunity to study disease, unwillingly turning people's bodies into objects in a virology experiment. Citizens are

bound to place, and by describing the Bitterroot Valley as an acceptable sacrifice zone the NIH devalued the lives of the people who lived there.

Several years later, people recited the legendary lines of the memo as example of just how “ugly” things were during the BSL4 controversy. They still felt disbelief, not just that the words had been said, but that they had been recorded on paper, threatening to undermine the well-crafted claims that the government meant no risk or harm to Hamilton residents. The memo pitted the people of this rural community against an agency that did not seem to have their best interests at heart, prioritizing bioterrorism research over their individual lives. The David and Goliath archetype situated small-town citizens against a national industry of science and government. While people didn’t seem to seriously believe their valley would deliberately be turned into a bioterrorism testing ground, referencing the memo seemed to push them to imagine just what the government was capable of. It created the possibility that despite their activism, biological rights may be out of reach to this small community. In addition, the memo suggests the events that played out after Valentine’s Day 2002 were set in motion, not by September 11, but by a national agenda established prior to December 2000, one that identified bioterrorism as a problem and established BSL4 research as part of the solution.

### **Security Settlement**

On September 24, 2004, Jim Olsen, Alex Gorman, and Larry Campbell sat in a chamber at the Great Falls courthouse negotiating a settlement with the National Institutes of Health regarding the future of the Rocky Mountain Laboratories. From 9:00 a.m. to 1:00 a.m., counsel shuffled between a room of Hamilton residents and a room packed with officials from NIH headquarters, setting out the terms that would end legal

action brought by the Coalition for a Safe Lab, Women's Voices for the Earth, and Friends of the Bitterroot. After the release of the FEIS earlier that year, these collectives went to court to demand an EIS which took seriously the new forms of risk created by the biolab. The lawsuit demanded that NIH scrap the previous EIS and commission a new assessment by a new firm, before proceeding with plans for the laboratory. Still feeling national pressure to build the BSL4 laboratory and working on a timeline now held up by months of community protest, NIH offered to settle.

In the settlement, NIH agreed to a range of safety measures demanded by the advocacy groups. Gorman recalls feeling surprised that they agreed to everything they asked: "I should have asked for more, they were so agreeable." The terms of the settlement addressed risks the plaintiffs felt had not been identified in the FEIS, including training for local health personnel and the co-development of an emergency response plan with the county. Community responses to the settlement were mixed: on the one hand, some felt their concerns over safety were being addressed, bringing the desired outcomes though the established processes had failed. Others felt some disappointment that the issue did not go to court, believing that they "traded away an opportunity to hold NIH's feet to the fire to come up with a legally defensible EIS."<sup>44</sup>

By threatening litigation, the alliances formed around the biolab issue found a way to bring about specific outcomes in regards to citizen health and security. The EIS process failed to delineate or address security concerns, but in court, NIH found a way to circumvent legislative process and meet the frantic timelines of the national security complex by agreeing to certain tangible outcomes. Whether the lab was a biological risk or not, certain practices would be undertaken to increase biosecurity, making the presence



of risk irrelevant. Neither judge, nor EIS preparer, nor scientist bore the burden of proving that there was or was not a risk, but agreed to certain actions that would help citizens feel secure. The settlement was action-oriented, legally binding NIH to specific conduct regarding safety, security, and community involvement. Thus, biosecurity was removed from the realm of ideological assessment and translated into material practice. Campbell claims that NIH “is getting by with totally insufficient documentation,” a poor precedent for future assessments of biolevel four laboratories.<sup>45</sup> In choosing to settle, the community groups prioritized outcome over ideology, deciding that if the lab would agree to behave in a certain way, the delineation of risk was less important to citizens’ well-being. This dissociation of action and risk, however, reinforced the idea that security actions should be taken even if there is no evidence of potential for harm. Finding ways to accurately assess the biological threat was not necessary to justify action, a precedent being used throughout the national security state.

On the other hand, Gorman contends the entire NEPA process and subsequent settlement will be a model for future BSL4 developments. NIH now recognizes that these laboratories have broad impacts and that citizens are attuned to microbial threats. She believes that because of the community involvement, even to the point of the lawsuit, NIH “put a lot of systems in place they never would have done, and did a lot of additional planning and coordination, which they now realize was necessary to make this a more viable project.” The settlement also bound NIH/RML to the community, formalizing a casual relationship that had existed for generations, and assigning specific and significant legal responsibilities to the laboratory in relation with the people who live around it.

## **Remaking Laboratories in an Age of Bioterrorism**

As we walk three blocks from the lab to the Sunshine Diner, RML Director Marshall Bloom talks about fishing and his advocacy for trout conservation in the Bitterroot River. A virologist by training, Bloom has worked in the lab for 30 years, coming to the directorship in 2002 in the midst of the controversy over the lab expansion. Today he seems relieved that those heated debates are behind him, and excited to leave behind his directorship and focus on his own research in the new laboratory. Though some of the lower level labs in the IRF are now operational, the BSL4 laboratory is still undergoing tests in order to receive the numerous certifications required for operation. As Bloom explains the systems of redundancy and security in the BSL4 laboratory, he recites story told hundreds of times in the last six years, spiced by the personal enthusiasm of a scientist who will be working in the laboratory. He believes in the work of RML, in the importance of studying emerging infectious diseases in a world where diseases still cause social upheaval not unlike what the Bitterroot experienced a century ago. While Bloom acknowledges that bioterrorism and biosecurity funding is building the new lab, he says “we don’t consider ourselves as working on bioterrorism, but as working on emerging infectious diseases.”<sup>46</sup> Still, the laboratory Bloom is building is a product of the modern age of bioterrorism and it looks different from all other labs because of the events of the last decade. Though the terror of disease has long shaped the spaces used to study microscopic biological threats, the material changes to the laboratory brought by the contestation in Hamilton show that the manipulation of space and the endless production of knowledge are primary means for convincing citizens that the state is caring for their biological survival.

The promise that space can be managed to compensate for human error is expressed in the floor plans of biological laboratories everywhere, particularly in the multi-chambered entrances and sealed outlets of BSL4 facilities. Like most such labs, the laboratory in Hamilton has submarine doors, four-foot walls coated with epoxy (because air can move through cement), and an elaborate system of ducts and vents to continuously push air through the laboratory and purify it on the way out. The laboratory space sits in the center of the IRF, buffered by hallways on all sides. An upper story houses the water and air purification systems. The space is designed to *contain*, to secure microorganisms which move by vectors of air and water and human flesh. The standard design presumes that the laboratory exists entirely within its walls, and nothing can escape. Human bodies and laboratory equipment that move out of the secure space must pass through a sequence of decontamination which will transform them from risky carriers of disease into neutral entities.

Though the isolation sequence—exit, shower, disrobe, shower again—has been ritualized in modern BSL4 laboratories, the routine of personal cleansing when moving from “hot” areas into the vulnerable community have long been understood as a way to contain biological threats. In the early “tick lab,” “the dangerous work of tick rearing and vaccine making ... (took) place in quarters which, except for a single door, are shut off from the rest of the laboratory. Even the janitor is forbidden to enter. On going out of the department, the men in charge of tick rearing leave their white coveralls to be baked in an electric oven, take a shower bath, and examine their bodies carefully for ticks before a three-paneled mirror.”<sup>47</sup> The space is designed to create a buffer zone, where the human

body can be transformed from a potential vector for disease into a “normal” body free to move about the community.

When this sequence is violated, whether intentionally or in a medical emergency, the body enters the community in a state of risk. The contestation in Hamilton over the BSL4 lab challenged the conception of the laboratory space as self-contained, arguing through the settlement that spaces beyond those four walls were part of the laboratory space and also needed to be secured. The settlement agreement assigned responsibility to NIH for medical services in the community, water and air flowing out of the facility, and transportation of microbes. Not only did NIH agree to build an isolation room in the IRF, but it contracted with a local hospital to provide “patient isolation services” and “isolation transportation service.”<sup>48</sup> Providing a secure way to move a sick and infected person through the community was determined to be part of the laboratory’s responsibility to protect the biological health of Hamilton residents. The settlement also stipulated that NIH would evaluate and regularly assess the function of its air and water systems, and that it would comply with regulations in transporting BSL4 agents. By determining that RML has jurisdiction over its water and air, and by recognizing the partial responsibility for shipping, the settlement identified three material outputs from the lab, challenging the assumption that such a facility is isolated, and insisting that the entities flowing from the lab should also be assessed and protected.

To minimize fear, the laboratory itself must be produced as a space that looks secure in the eyes of the public. After the 1927 court case against the lab, RML decided to build a moat around the laboratory building, reproducing the conventional wisdom of the day that ticks could not cross the Bitterroot River by constructing a water barrier

around the laboratory itself. Floors and walls were built without cracks and crevices, an advanced technology in the day, and tick holding rooms were designed without corners to alleviate the fear of ticks lurking in tight, dark spaces. These physical alterations to the building visually reproduced the idea that the laboratory was a secure, safe space, sending a message to the community that it was concerned with protecting their health and well-being. These visual gestures communicated concern with citizen safety without having to provide further evidence of safety precautions, raising the question of whether institutionalized security measures which are less visible (such as air filtration systems) can sustain community trust in the laboratory without being accompanied by visual alterations to the physical space. In the IRF, many of the security measures are internal, hidden within the building and blocked from inspection by the community. The NIH settlement required disclosure of status reports on these safety measures, which still requires the public to trust their agents who run tests and report results, as opposed to what they can see with their own eyes. In addition, the community repeatedly requested the EIS to consider alternative locations for the IRF outside the residential community, showing that citizens believe distance offers some degree of security from the risks posed by the microbes. The decision to build in Hamilton and the fact that the IRF simply looks like an office building, demanded that the laboratory find other ways, beyond spatial configurations, to convince citizens their bodies are secure.

### **Citizenship through Protest**

The citizen protest of the IRF expansion institutionalized forms of risk communication at Rocky Mountain Laboratories, for the physical closing of the laboratory to local citizens has demanded new ways to make the laboratory space

knowable and familiar, and therefore less fearful. The lab hired its first public affairs officer to develop and present a unified message to the public. The Community Liaison Group was ratified in the settlement, with the stipulation that the group would continue to meet “at a location outside the RML campus and will allow a reasonable time for public comment at such meetings.”<sup>49</sup> In the settlement NIH promised to communicate information about the pathogens being studied, their medical symptoms, accident reports, and safety inspections to the public and their representatives. To enable community medical and safety personnel to recognize potential threats and pinpoint indicators of increased harm, the lawsuit required mandatory reporting of disease symptoms among lab employees and encouraged workers to disclose their employment to their personal health care providers. By these stipulations, the settlement ratified the perception that biosecurity hinges upon effective communication, binding local entities beyond the laboratory walls to practices happening within.

The settlement agreement also stipulated that a local health officer, a local health board member, and a representative of the plaintiffs would have a seat on RML’s Institutional Biosafety Committee (IBC), the group that reviews proposals for research. Typically such boards are internal to institutions and all members are affiliated scientists and officials. Bringing local community members onto this board was an innovative move, suggesting that nonscientists could contribute to conversations which center on the ethics, outcomes, and methods of advanced scientific techniques. Gorman, who sits on the board for the plaintiffs, recalls a lot of tension during the first meeting, while long-standing committee members figured out what the three public representatives had to offer. Now, she says, this is where they have the conversations that emerged during the

NEPA process. Because they will defend their proposals to lay members of the public, scientists must elaborate, in writing, processes which might otherwise be presumed. By accepting these members on the biosafety committee, RML acknowledged that people who are not a part of the science industry are vested in science practices and may have a voice in stipulating the parameters under which science work is done.

The presumption that knowledge conquers fear was reiterated by scientists and citizens alike throughout the BSL4 contestation. While NIH officials promised the public that if they could only comprehend the scale of the risk, they would not be afraid, advocacy groups settled with the provision that NIH would maintain communication and disclose information to the community. The sense of security initially created through the manipulation of physical space is sustained through the production of knowledge. The control of public spaces in the name of security—constructing gates, issuing ID tags, requiring escorts—further the need to produce biosecurity through knowledge, for when citizens cannot enter the laboratory space, they can only know that space by the information that flows from within. However, while people can judge secure spaces with firsthand sensory experience, they have to develop trust in secondhand accounts of security. In Hamilton, such trust developed during the long-standing and economically beneficial presence of RML in the community, but had to be reconfigured in a world where national security concerns seemed to override citizens' interests in their individual biological security.

These efforts to engage the community in the governance of risk show the first steps in building trust and transparency between citizens and government.<sup>50</sup> It may be that following the outcry and hyperbolic imaginings of the BSL4 debate, risk governance

is finding its way in Hamilton, Montana. Certainly, it seems the mechanisms of framing and deliberative learning proposed in Jasanoff's essay gained momentum as effective strategies for focusing wide-ranging public concerns. The question remains, however, of whether risk can effectively be mitigated through improved forms of governance.

Perhaps, indeed, this is fundamentally a question of perception management; in Hamilton, the perception that community members can speak out through the CLG and IBC seems to provide a sense of security to its citizens. Whether this is truly a form of governance can only be tested as the governing agency, in this case NIH and RML, integrates the collection of public experiences through these venues into changed practices and policies, bringing measurable outcomes as a result of public engagement.

#### **“I Never Want to Say ‘I Told You So’”**

A shiny new building sits today on the RML campus, reflecting the snow-capped peaks of the Bitterroot Range in its shatterproof windowpanes. Fishing season is in full swing, and residents are heading out to enjoy the brief Montana summer. By their conversations they seem more concerned about drought and forest fire than Ebola and smallpox. People have not forgotten the contention over the lab, but they seem to accept its presence. And no one plans to leave town when the IRF goes to level 4. Mary Wulff stayed in Hamilton, though she still looks skeptically towards the future: “I never want to say ‘I told you so.’ If I do, we’re all toast.” She contends that the collectivities which formed around the laboratory protest will endure, playing out in new ways in the future. The present lack of concern among residents, even as the IRF finally goes live, raises the question of how the new biosociality provides opportunities for citizens to gather temporarily to activate for their biology, and then disperses when those biological



conditions no longer exist, perhaps when cancer is cured or risk fades. Certainly these forms account for the dynamic quality of life itself, for how could subjects build static identities on such fluxing terms? The outcomes in Hamilton, however, suggest that biosociality gains potency precisely because it provides a unifying ideology by which citizens can take collective action. Perhaps the biosocial communities do not dissolve due to changing conditions of life—for the biological risk in Hamilton endures today—but because their usefulness as political tools fades. When biological claims become less effective in accessing social and economic inclusion, citizens feel less bound to each other on the basis of that shared identity.

The rise of the security culture in the United States has remade the terms of citizenship in the modern age. Petryna proposes that “the very idea of citizenship is now charged with the superadded burden of survival,” shifting away from a sense of citizenship founded on tenets of civic participation and human rights, because those principles cannot guarantee basic survival.<sup>51</sup> The tension which emerges when structures of governance are unable to meet this essential biological goal is pushing the formation of new democratic systems and reshaping biopolitics in general. If survival is the primary biopolitical goal, any entity which threatens survival must be handled prior to and in conjunction with all other negotiations of citizenship. If the state is parceling out the intimate care of citizens to individuals and corporations, as Rose proposes, perhaps it is because the burden of watching over survival more broadly has grown with the rise of the national security state.<sup>52</sup> When the issue of survival overwhelms negotiations of citizenship between state and subject, less effort can be directed to the discussions of individual freedom and liberal rights. Certainly bioterrorism and the imagination of a

disease-ridden future effectively moves questions of collective and individual survival to the fore of political interactions.

The story of a twice-contested laboratory in rural Montana illuminates how citizens attempt to claim certain biological rights in dynamic times of science and terror, and how governments work to sustain larger circulations of wealth and information in order to further a broader security agenda. Motives of fear, trust, risk, and prosperity worked conjunctively through the hundred-year project of making Rocky Mountain Laboratories, simultaneously shaping the community in which it stands. Through all these negotiations, community members often felt helpless in the face of the power and politics of the science regime. A witness in the 1927 trial explained why his neighbor refused to join the case against the labs: “He is very much in fear of ticks, and does not feel there is a chance to get rid of this laboratory. He thinks the Government are (sic) too powerful, and it was useless to contest the Government.” Though the citizen collectives which came together at various times to protest Rocky Mountain Labs rarely achieved their purported goals, they exemplify the desire of citizens to act on behalf of a biological future. The recent protest of the BSL4 expansion reveals how untried conceptions of the world and its risks are emerging alongside the new life sciences and the endless war on terror. Such “serious speech acts” of citizens and scientists have “problematized” the modern laboratory space. A Foucauldian “problematization” brings objects into “the play of true and false” through discourse, and as Rabinow explains, “the reason why problematizations are problematic, not surprisingly, is that something prior ‘must have happened to introduce uncertainty, a loss of familiarity; that loss, that uncertainty is the result of difficulties in our previous way of understanding, acting, relating.’”<sup>53</sup> The new

biology presents countless uncertainties to the human condition, as does the politics of the War on Terror. In Hamilton, a familiar space received new scrutiny because political events surrounding bioterrorism introduced uncertainty into the local science complex, rendering the lab unfamiliar and inciting discursive negotiations of fear, harm, and risk. Thus, the bioterror crisis brings material effect by remaking spaces and redefining the terms of biological citizenship.

### Chapter 3

#### **Wash Your Hands, Watch Your Neighbor, and Make Your Nation Safe!:**

#### **Science and Surveillance as National Security Practice**

#### **at the Centers for Disease Control and Prevention**

The Commission believes that unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013. The Commission further believes that terrorists are more likely to be able to obtain and use a biological weapon than a nuclear weapon.

*--World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism.<sup>1</sup>*

In 2005, the Centers for Disease Control and Prevention (CDC) established an incident command center on the second floor of Building 21, a glassy 12-story high-rise that dominates the agency's Atlanta campus. Funded in part by private donors, the Director's Emergency Operations Center (DEOC) is a place where division chiefs, subject matter experts, budget personnel, and support teams can congregate to address a crisis situation.<sup>2</sup> When no incidents abound and no drills are underway, the rows of workstations and high-tech meeting rooms sit empty, but for two workers staffing a 24-hour hotline to connect local public health workers with subject matter experts at CDC. When operational, DEOC is designed to command—to communicate, document, make decisions, measure outcomes—and has the infrastructure to establish direct lines of authority from a room in Building 21 to any other site in the country. Dan Sosin, acting director of the Coordinating Office for Terrorism Preparedness and Emergency Response (COTPER) which oversees the DEOC, believes CDC's expertise on biological agents brought the agency into the emergency response environment, and then "money followed

and expanded dramatically after we had experience with events that were deemed to have a public health impact. The science has been chasing behind the application of programmatic dollars to do something about this concern.”<sup>3</sup> With counter-terrorism funding, CDC created a space where the agency could act authoritatively in emergency situations, a space awaiting the insertion of appropriate and available personnel during a worthy event.

Colorful pennants hang on the walls of the command center, tallying incidents when the DEOC was mobilized: green flags mark international events; blue and red flags mark events in the United States; and solid colors mark the drills and scenarios staged in the center. Flags commemorating bioterrorism preparedness exercises hang alongside flags marking the space shuttle Columbia explosion and the latest hurricane season, chronicling simulations on equal level with events that took place within the population. Whether activated for preparedness or response, using the incident command produces a form of expertise concerned with how people act during crisis, knowledge which will be used to structure the systems and conditions of state authority during a biological event. By directing every incident—large or small, real or simulated—from the command space, CDC treats an array of situations as events in need of authoritarian discipline from a central agency. Using such a space to rehearse a disease response, even under the auspices of determining its weaknesses and improving response capabilities, inscribes it with the purpose of mobilizing a timely, nationwide response to disease.

Historically, CDC has claimed to offer its expertise only upon request, primarily by sending field agents to advise local governments and health workers during health emergencies. While incident command has not replaced the use of such agents, and

COTPER boasts an ability to deploy a team of field-ready experts within hours of an event, DEOC displaces some of the authority traditionally given to field agents by building a chain of command to the national level. Certainly, the science expertise produced by this agency, which is consistently ranked among the most trustworthy government entities, is not passive, for CDC's research has institutionalized particular ways of managing health and disease throughout the world.<sup>4</sup> In building the DEOC, the agency has produced a space at its national headquarters to command a response.

With its remote communications, secure telephone lines, video conferencing, and real-time data, DEOC enables CDC to offer its expertise remotely, to physically avoid the site of biologic risk while still controlling the disease response. Ironically, while the DEOC was created to bring experts and decision-makers into common space to facilitate an effective emergency response to a health crisis, the agency is now implementing ways for people to report to DEOC from their homes or other remote locations, based upon the belief that physical proximity could facilitate the spread of disease during a health crisis. Dispensers of waterless hand sanitizer mounted in every room of the DEOC subtly remind employees of their own vulnerability to disease, as do protocols requiring individuals to stand ten feet apart when talking to each other in the DEOC during pandemic events. Disease shapes the DEOC and the interactions of the people who work there, for even the agency's highly secure BSL4 laboratories are not exempt from the agency's mantra of the social control of disease.

To explore the question of how disease serves the security state, this chapter considers how the Centers for Disease Control and Prevention, the nation's expert agency on public health, has been remade as an authority on national security, bringing its

scientific expertise and a collection of healthcare practices into the service of a broader domestic security agenda. I examine how the agency's mission has been rewritten around the notion of bioterrorism preparedness, and then explore the changing practices CDC has adopted to meet these preparedness goals, particularly in the areas of science, surveillance, and risk communication. While it is not unreasonable that an agency like CDC will adapt to meet the new health challenges posed by the possibility of bioterrorism, if protecting the nation means militarizing its systems of care, citizens' bodies will be scrutinized against a new standard of health and risk. By adopting the counterterrorism agenda, a branch of government with the primary purpose of providing care to the population is being recruited to the War on Terror. Furthermore, increased health authority at the national level challenges the traditionally local focus of public health in the name of producing a timely, nationwide response to protect the population during a disease event on a national scale. However, disease control practices deemed acceptable to contain an epidemic may violate citizens' privacy and autonomy when enacted in the absence of a biological event. Ultimately, if preventing an attack is "not sufficient" to the national security agenda, then biosecurity may never be attained, producing a bioterror crisis characterized by a never-ending threat and demanding rigorous attention on the part of its potential victims.<sup>5</sup>

In a 2008 report to Congress, the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism prophesied that "a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013."<sup>6</sup> This committee of security and subject matter experts called upon the services of the nation's health system to fight the "War on Terror," a departure from the international

diplomacy it recommends to combat nuclear terrorism. With bioterrorism “prevention alone is not sufficient, and a robust system for public health preparedness and response is vital to the nation’s security. In order to deter biological attacks, we need to demonstrate—through effective preparedness measures and public exercises—that we are capable of blunting the impact of an attack and thus thwarting the terrorists’ objectives.”<sup>7</sup> By this articulation, bioterrorism cannot be contained by the work of policymakers crafting treaties on foreign soils, but must be battled by the domestic health system. According to these experts, national biosecurity hinges upon the ability of the health system to respond to a biological attack so swiftly and efficiently that the event, in essence, would have no impact upon the population. The health system must also publicly demonstrate that it is so prepared. Fueled by billions of dollars in bioterrorism preparedness grants, the project to achieve nationwide biosecurity by remaking the public health system has been underway for the past decade and is bringing a new level of militarism to the everyday practices of health and wellness. Because disease is battled at the individual, intimate level of the human body, restructuring care mechanisms has profound impact not only on how the healthy population is delineated, but on how bodies are constituted and managed by the modern security state. The morphing of microbes into weapons of mass destruction, as imagined by the technoscientific practices of genomic biology, has rearranged the parameters by which disease is known, requiring new equations of biological risk and new interventions to preserve the nation’s health.

### **The Care of the CDC**

To accomplish its mission to care for the population by “controlling the introduction and spread of infectious diseases,” CDC conducts laboratory research,



collects disease surveillance data, develops health promotion programs, and sends epidemiologists into communities to respond to disease outbreaks.<sup>8</sup> In this capacity, CDC was on the front lines for the anthrax attacks of 2001, and soon after Director Julie Gerberding testified before Congress that CDC would be a part of the domestic terrorism response: “The events of September and October 2001 made it very clear that terrorism is a serious threat to our Nation and the world. The Bush Administration and Congress responded forcefully to this threat by providing funding to strengthen our medical and public health capacities to protect our citizens from future attacks. To support [The Department of Health and Human Services], CDC has made terrorism preparedness and emergency response one of two overarching agency goals and has built an infrastructure to catalyze and implement biodefense activities.”<sup>9</sup> As Gerberding promised, CDC immediately made changes that would further define it as an agency concerned with bioterrorism preparedness. The Coordinating Office for Terrorism Preparedness and Emergency Response was established in 2002, and became one of the seven Coordinating Centers that structure the agency.<sup>10</sup> Through COTPER and acting under directive from Congress, CDC created the Strategic National Stockpile (SNS) of vaccines and medical supplies, established a nationwide Laboratory Response Network (LRN) to test microbial agents, developed BioSense programs to share health information and track the spread of health threats, and built a state-of-the-art incident command center to use during emergency events. In 2007, COTPER managed \$1.5 billion appropriated by Congress for terrorism preparedness and emergency response, about one-sixth of CDC’s \$8.4 billion budget.<sup>11</sup>

With this infrastructure in place, CDC declared in 2006 that it was shifting its preparedness focus towards improving emergency response time through science research and scenario analysis.<sup>12</sup> Bioterrorism infused the agency with a sense of urgency, expanding CDC's nominal focus on disease control and prevention to include emergency response. Dr. Gerberding identified terrorism as the catalyst for a reformation of national health strategy:

The philosophy of public health during the 20<sup>th</sup> century has been to prevent natural outbreaks. In the 21<sup>st</sup> century, however this is not enough. The threat of terrorism necessitates that we improve our public health and medical systems so that we can respond with greater flexibility, speed, and capacity to handle mass casualties and large-scale emergency response in coordination with our traditional emergency response partners as well as those at Department of Homeland Security (DHS) and Department of Defense (DoD).<sup>13</sup>

Gerberding explained CDC's alliance with the nation's military agencies as an answer to a new regime of disease, where disease is somehow faster and larger, requiring the reaction of soldiers not just scientists. Though presented by Gerberding as a new association, the alliance of departments of health and war characterized military conflict throughout the 20<sup>th</sup> century. The medical community continues to grapple with the deeds of Nazi physicians during the Second World War, as well as so-called public health practices like sterilization or mass quarantine.<sup>14</sup> Scholars have argued that the new knowledge of infectious disease emerging at the turn of the century has been used to rationalize the victimization of certain populations, whether through the policing of hygiene or the discursive formation of victimized communities through the dialogues of disease and risk.<sup>15</sup> The military exploited new fears of disease which emerged as scientists showed disease to be external, transmissible, tropical, parasitic, and endemic, and public health practices which might have been deemed intolerable infringements

upon civil liberties were sanctioned by belief in the priority of disease control and the scientific promise that disease could be eliminated by the careful management of populations. Incidents of violent genocide continuing into the 21<sup>st</sup> century illustrate the most extreme consequences of the militarization of public health, but even now-routine acts like medical surveying, also begun during World War II, show that the social fear of disease allowed health practices to be brought increasingly into the service of the nation-state, conceiving of disease in terms of nationalized populations rather than global humanity.<sup>16</sup>

The emergence of the germ theory of disease in the 19<sup>th</sup> century brought disease into the calculation of security because it identified a source of disease outside the human body. Disease is a bearer of deviance, for the presence of disease renders some members of a population less healthy than others. Through the mechanisms of security, an acceptable level of disease within a population can be calculated, allowing morbidity to be a part of a normally healthy life, while still enabling the security apparatus to work against deviant cases and individuals to act upon their personal will to be healthy. Foucault theorizes a changing relationship between people and disease based upon the ability to calculate risk and create a population, a collection of living beings defined by their biological and pathological characteristics and subject to common mechanisms of governing.<sup>17</sup> If security comes from the ability to determine and maintain a “normal” condition of the population, and the liberal state is governed so that all individuals can work to attain that normalcy, then the mechanisms of security must extend deeply into the many social conditions of life which have the potential to deviate within the population. Because liberal citizens have the right and responsibility to govern their

social interactions as they relate to the risk of contracting disease, the technologies of disease control work effectively as a security apparatus. By the time the scientific promise that disease could be wiped from the earth faded in the late-twentieth century, disease control practices were entrenched in practices of citizenship and national security and could be appropriated by a new disease response where the eruption of disease within the population is presumed and anticipated.

By articulating bioterrorism as a disease threat and using security techniques developed for disease outbreaks, the state employs a unique blend of liberalism and militarism to promote individual preparedness while simultaneously organizing a large-scale governmental response. This strategy imagines citizens as agents in producing biosecurity, a role emphasized by Senator Graham's Commission. While their report said little about how citizens could aid in nuclear nonproliferation, they admonished people to take on a range of behaviors to promote biosecurity, such as logging onto the government preparedness website, Ready.gov, or learning how to identify and report a neighbor's suspicious activities. Diseases can be battled by the individual, and the prescription of minimally disruptive techniques like vaccination and social distancing proposes to interrupt the chain of contagion that would turn disease into a crisis.<sup>18</sup> Social distancing, for example, encourages people who exhibit symptoms of disease to isolate themselves from the population, a voluntary action which relieves the state of the responsibility to enforce quarantine, a rule of law. Because contagion creates social fear around human interactions by transforming all bodies into vectors of disease, healthy individuals govern themselves out of fear of contracting disease, as evidenced by people who donned surgical masks to walk through parts of certain cities during the SARS outbreak in 2003.

While legal regulations can require certain behaviors of individuals infected with disease, such as prohibiting TB patients from flying on commercial airlines, the security apparatus manages the circumstance where the apparently healthy members of a population are still potential carriers of disease. Bioterrorism (and disease) preparedness operates presuming that artificial controls can limit the disease before its spread is “naturally” contained, reducing morbidity and mortality and producing a higher level of security for the population.<sup>19</sup> By aligning terrorism with disease, the social controls long used to secure the population against disease can be reproduced in the daily acts of national security. The population, however, encompasses both those who are ill and those who are not, subjecting healthy bodies to the techniques of governing the sick. Interestingly, bioterrorism imagines the population as a collection of presently healthy bodies where disease, though currently absent, is still calculated into the risk that defines the population. The healthy population is distinctively regulated by the possibility that disease could be introduced, unknown to the individual or the state, at any moment.

When the belief that the nation needs to be secured against bioterrorist threats rationalizes a wide-scale biosecurity response, the military state harnesses fears of disease and terrorism in ways that also transform the meaning of disease. Weaponization violates the “natural” bounds, such as climate or reproduction, which regulate the expansion of disease within a population. CDC’s scientific practices have produced a store of expertise concerning how microbes live, grow, and move within populations, and along with that an expectation that disease can be controlled by knowing the parameters under which diseases survive. Bioterrorism violates these (presumed) boundaries, rendering CDC’s

expertise less useful in combating an intentional release, for disease is both a social and natural process. As one CDC employee explained,

When you're dealing with an outbreak of plague that's epizootic, that is coming from prairie dogs, you can anticipate who's going to be at risk and the control measures you need to put in place to stop that outbreak. If you're dealing with something that was intentionally released, you don't necessarily have that boundary that you can rely on for how to respond and keep it from happening again, because who knows if it's going to be released somewhere else.... People are a lot more interested in an intentional outbreak of plague than in reading about prairie dogs in Arizona.<sup>20</sup>

The disease expertise which enables CDC to intervene in outbreaks presumes that disease is limited by consistent and knowable controls, but bioterrorism creates new parameters for disease which cannot be known through study of microbes. Because weaponization and intentionality create so many unknowns regarding the disease and its environment, CDC must develop new knowledge to uphold its expert role. Preparedness expertise attends to the knowable qualities of the population when faced with an unknowable disease threat.

By opening the possibility for a seemingly limitless number of biological threats, bioterrorism changes what it means to be "prepared" for disease. No longer can individuals take directed actions to prevent a finite list of risky diseases, for disease could come from anywhere, including new strains concocted in laboratories; no longer can disease be known "in terms of the calculus of probabilities."<sup>21</sup> With less ability to act in the interests of their own health, individuals seek new knowledge and expertise, leading to an expansion in the knowledge-producing role of government. Because the global condition and the rise of genomic science have produced diseases that are constantly emerging, resurrecting, and mutating, disease can never be knowable, demanding that the security apparatus adopt mechanisms of disease control that have as much to do with the

militant protection of national borders and disease laboratories as with the scientific study of particular microbes.

“Preparedness” differs from “prevention” by its focus on the health infrastructure rather than a particular disease, and the imagining of future threats rather than the calculation of past events.<sup>22</sup> Collier and Lakoff describe preparedness as a “crucial interface between public health and national security,” identifying preparedness techniques as those which model future threats in order to locate and act upon vulnerabilities in the present infrastructure.<sup>23</sup> Though the goal to secure the population remains, preparedness employs the vagueness of the threat to broaden the security response. In adopting a strategic preparedness plan, CDC has integrated security against future threats with its liberal ideals of total health. CDC’s investment in preparedness particularly targets the production of a timely response to a health emergency, as if to promise minimal disruption to the normalcy of life. Further, because preparedness entails infrastructure change rather than specific knowledge of disease, CDC is changing its role as an “expertise-only” agency, acquiring resources and training personnel that will be deployed as part of the agency’s timely response. The security apparatus of “preparedness” has consequences in reshaping a public health infrastructure that is built to respond to, rather than diagnose, deter, or eliminate disease. In this scenario, vulnerability is not eliminated, but contained.

In 2004, CDC named “preparedness” as one of its four strategic Health Protection Goals, along with healthy people, healthy places, and global health. Two years later, the agency declared it would be shifting from a preparedness plan concerned with building infrastructure to an effort to improve response time in emergency situations, including

natural disasters and terrorist attacks. “Our goals measure the speed in which we prevent, detect, investigate, and control public health emergencies.”<sup>24</sup> Indeed, CDC’s preparedness goals before, during, and after an event center on decreasing the time to detect, identify, provide countermeasures, restore health services, and implement changes. Not only does the CDC’s plan to improve the timeliness of its response reify the event as part of an inevitable future, but it also reproduces disease as an event, directing attention and resources to handling disease when it happens. Though CDC is involved in a range of long-term health initiatives, such as anti-smoking or anti-obesity campaigns, the agency is still a first responder in disease emergencies, and the study of infectious disease continues to dominate CDC’s research agenda.<sup>25</sup> While CDC may stand to benefit from the perception of disease as an event of national proportions, particularly because an outbreak has potential to rally public support and secure resources for other disease control programs, aligning disease with disaster-like events has consequences in shaping a militarized response to disease rather than a consideration of the wide political causes and outcomes of infection.<sup>26</sup> Preparing for an event presumes the health status of the population will change, likely dramatically, in some future time. By this iteration, the present situation becomes the standard of normalcy and the objective of public health is to maintain status quo, thereby normalizing health problems that already exist within the population.

To rationalize bioterrorism expenditures, public health advocates allude to the dual-use potential of preparedness technologies. The justification ranges from the belief that bioterrorism is improving the overall public health infrastructure, to the claim that the public system will be able to assist domestic security, often military, responses to



other events of national proportions, such as hurricanes or nuclear attacks. Pamela Diaz, associate director of science for CDC's Division of Bioterrorism Preparedness and Response, argues that "bioterrorism funds helped moved communicable disease investigation into the 20<sup>th</sup> century. It did, and we were not going to get that money any other way, because there had been such dissolution of public health in the 20 years prior with categorical funding going constantly down. Now, we're trying to get into the 21<sup>st</sup> century."<sup>27</sup> Because these funds are prioritized for emergency preparedness, however, the public health infrastructure is being reshaped around the emergency response to disease. Though laboratories and clinics may be better equipped overall, the question remains of how that equipment shapes the work being done in those places, for even an infrastructure with multiple capabilities will have primary and priority uses. Whether attention to terror is distracting from more critical disease concerns, or beneficial to the public health system overall, bioterrorism preparedness is producing a public health system working for timely responses to disease emergencies, giving tenacity to the belief that an event will take place and that the government is responsible for intervening at the local public health level.

In order to create the interest and urgency to mobilize government and citizens, and to justify bioterrorism expenditures, CDC has identified a series of biological events which threaten the national health in succession, thereby imagining the population as vulnerable, not just to a single event, but to a series of health catastrophes. This multiplication of risk produces a population that is perpetually threatened by bioweapons, pandemic disease, flooding, hurricanes, and global travel. In developing an overarching, all-hazards preparedness strategy, CDC ascribes an elevated sense of urgency and

timeliness to many aspects of the nation's health plan and increases the number and types of individual behaviors which threaten the population. Not only does the endless threat justify an armed-and-ready health militia, but when CDC responds to hurricane sites or earthquake zones, the techniques of the largely militarized disaster response become part of the standard for disease control practices.

CDC's 15,000 employees are involved in a range of disease prevention activities, such as mobilizing local health workers, offering on-site expertise, networking, and regulating channels of communication. To explore how CDC produces bioterrorism, I will consider three particular practices: scientific study of disease and human disease behavior, surveillance of the population, and communicating preparedness interventions to individuals. In this discussion, I will consider how these practices work to secure the population by regulating its social interactions, producing a security mechanism that operates at the level of the individual and subjects who work to secure the nation against the bioterror threat.

*Scientific Study.* "Remember, at CDC, data is king! It's the lifeblood of the organization, the mother's milk."<sup>28</sup> This CDC scientist described science as the overarching force driving CDC actions, determining what CDC does, how it intervenes, and how it spends its money. The agency, however, is a place where science and public health overlap, and as Dixie Snider, former Chief Science Officer explains, in CDC laboratories "there's this idea that there's some practical issue to be addressed. We don't have the orientation ... that scientific knowledge is intriguing and interesting on its own merits, and if there's a practical spin-off that's great. As a public health agency, we don't have the dollars for

that kind of research.”<sup>29</sup> Such a research agenda enlists the methods of science in the service of public health, establishing CDC as source for a particular class of disease information as it relates to the health of the population. The ideology that scientific study can and should bring about change in health practice fits well with CDC’s preparedness goals, which presume that vulnerabilities exist but must be identified in order to be acted upon. The agency’s research practices, including the goals expressed in CDC’s comprehensive research guide, shows that CDC is developing a particular research agenda around bioterrorism preparedness, one which presupposes that the population is at risk and is focused on providing techniques which will impact how that risk is assessed and mitigated in the population.<sup>30</sup>

In 2006, CDC published “Advancing the Nation’s Health: A guide to public health research needs, 2006-2015,” a 139-page compendium outlining the agency’s research priorities as established through internal working groups, input from employees and partner agencies, and formalized public comment. The “Research Guide” claims to identify gaps in knowledge which, if filled, will justify public health interventions and improve the effectiveness of public health work.<sup>31</sup> The guide lists “preparedness” as the second of CDC’s seven major research areas, for “although emergency public health has always been a public health activity, health services research in preparedness and response must be made a priority.”<sup>32</sup> The preparedness goals focus on infrastructure, emergency responders, communications, and vulnerable communities, rendering the people who respond to an event as the priority to be studied over the microbes themselves.<sup>33</sup> Not only does this agenda presume communities are vulnerable, but also that the factors which produce vulnerability can be quantified and measured in ways that

will bring about change in the population and produce preparedness.<sup>34</sup> Because the research proposed to support CDC's preparedness effort imagines communities as groups of individuals with calculable behaviors and characteristics that produce vulnerability, these studies will facilitate health interventions which are sustained by this quantified assessment of people and risk. This research produces expertise of human behavior, not disease and microorganisms, a distinction which has potential to change the role CDC will play in responding to crises.

During the anthrax events of 2001, CDC assumed a role as an authority in field techniques, for not only did the event demand answers from CDC scientists regarding the microbe, but it required expertise regarding the risk of the disease within a particular context. For example, when CDC workers were cleaning spaces contaminated with anthrax spores, they confronted the question, "How clean is 'clean'?" The agency had to quantify and prove cleanliness, a task Diaz says her research team continues to debate in their work to develop standards which can be used in the field: "How clean does it have to be? How do you translate the risk of a spore or two spores in light of a human being? How accurate does a test have to be?"<sup>35</sup> Preparedness funds at CDC are being directed at answering these questions, and collaborating with partner agencies to identify and answer fundamental questions related to biological attacks. CDC works to translate risk to individuals and make recommendations for a population.<sup>36</sup> The work CDC scientists do to develop better field assays, establish protocols for handling potential bioterrorist agents, and collaborate with national security agencies builds the agency's expertise on bioterrorist events, in addition to its role in studying biological agents. While science informs these debates, one director in the bioterrorism preparedness office says that in his

experience public health decisions are based upon evidence, while “bioterror decisions are based upon politics.”<sup>37</sup> The social context influences the questions being asked and therefore the evidence being produced, and while all science is political in this regard, the attention and demand for timely answers produced by bioterrorism may distance the scientist from involvement in formulating pertinent questions.

Of particular challenge in emergency preparedness is the irregularity of events, limiting the amount of data available to be gathered and analyzed from the field. To compensate for the lack of field data, CDC and other agencies are increasingly turning to drills and simulations to imagine the outcomes of bioterrorism events, and CDC claims the research goal to “ensure scientific rigor in the design, implementation, and evaluation of drills and exercises.”<sup>38</sup> Such scenarios produce data regarding potential participant responses and event outcomes. As a scientific method this practice falls somewhere between observation and experiment, and is notably different from the laboratory science and field work that has built CDC’s disease expertise, though these scenarios are designed based upon knowledge of disease contagion acquired in the laboratory and assessments of vulnerability produced by social science research of the population. Because bioterrorism and other emergency situations change how disease moves within the population, CDC is undertaking new study of how disease might move during crisis situations.

Access to bioterror preparedness funds is enabling the public health discipline to conduct research which will justify a range of past, present, and future security actions, “developing a science base for public health practice” and establishing expertise, not just on disease, but on populations.<sup>39</sup> CDC’s research agenda profiles populations in terms of

risk and vulnerability to disease, calling upon scientists to use measures to quantify and compare communities, thereby rationalizing national security actions within certain communities. By describing communities in terms of vulnerability to disease, science can be used to explain the biological impacts of social interactions, subjecting communal behavior to the rule of health experts.<sup>40</sup> CDC explains the world in terms of disease, calling for disease scientists to keep pace with globalization and study how the social conditions that bring about contagion produce risk and vulnerability due to bioterrorism. CDC maps the population as a network of people and places made vulnerable by lines of interaction and weaknesses in infrastructure, and as CDC grows into its role as a bioterrorism authority, it brings these social networks under the scrutiny of national security concerns.

*Surveillance.* Like the famous horseshoe seating of NASA's mission control, all workstations in CDC's Emergency Operations Center are oriented towards a large bank of screens covering the long wall of the center room. While the content of these screens will be changed as needed during an incident, on this day a screen on the far right shows the day's scheduled events while the two screens on the far left stream CNN and the Atlanta news. In the center, a half-dozen screens display health-related information around the world. One map of the United States shows the number of flu outbreaks in the country to date; another map charts salmonella in North America. A global outlook map tracks diseases of interest around the world, as reported over the last two weeks. Another map shows a satellite weather image, so CDC can track the advance of Hurricane Poloma. One screen lists individuals on the airline industry's "Do Not Board" list; there

are 23 people on the list on this day, primarily individuals with tuberculosis. This electronic wall of the DEOC creates a timely image of the nation's health, an up-to-the-minute calculation of the people and places being monitored by the health sector, visually situated between the day-to-day operations of CDC and the constant streaming of events presented by news media. CDC serves as a national center for handling surveillance data and the effective collection and distribution of this information is at the core of its public health mission. Surveillance of the population for disease, particularly the collection and use of surveillance data in policymaking, also plays a role producing the healthy population as vulnerable to bioterrorism and therefore in need of securing. CDC's surveillance capabilities have expanded with bioterrorism funding, increasing its stores of national health information.

Public health surveillance involves the systematic collection of data regarding disease and health behaviors and the analysis of that information to impact public health practice. Methods range from laws that require health care providers to report certain diseases to local health departments, to voluntary surveys that solicit information about health practices directly from the population.<sup>41</sup> Information can also be gleaned from vital records, hospital reports, laboratories, or police reports. New technologies are changing traditional health surveillance techniques. For example, CDC is working with Google to explore ways of tracking internet searches for disease symptoms in order to locate outbreaks in their earliest phases—before individuals start going to the doctor.

Environmental sensor technology, as used in the DHS BioWatch program, attempts to locate disease-causing microbes in the air before they impact human hosts. Ultimately,

disease surveillance targets microbes, but humans are implicated as the microbial hosts and must be disassembled in order to scrutinize the disease-causing agents.<sup>42</sup>

Biosurveillance practices build networks that connect local populations to the nation in real-time, for even while the geographic scale expands to the global, the chronological scale is shrinking, offering the possibility to quantify the health status of the world in the immediately present moment.<sup>43</sup> By allowing health workers and citizens to “see” the disease-present status of the world, surveillance technology facilitates a belief that it is possible to act against disease in the present moment, for surveillance tracks the marks of disease upon the population even while the microbes themselves remain invisible. The hope that a bioterrorist event can be mitigated depends upon the belief that such an event can be detected in a timely fashion. New surveillance technology offers hope that detection will be fast enough.

Where CDC has traditionally distributed disease expertise to populations through local health departments, the expansion of CDC’s surveillance capabilities through the BioSense program instituted following 9/11 has increased the role of the federal agency in collecting information about populations from the local public health service. Along with BioWatch and BioShield, the BioSense program was part of the Bush administration’s three-pronged attack on bioterrorism. Established in 2003, BioSense aims to collect “real-time” data from a range of local health centers with the goal of detecting anomalies in disease patterns which would indicate an unusual disease event, whether terrorist attack or food poisoning. The technology uses an Internet-based platform for reporting and tracking information, an attempt to standardize the myriad reporting systems currently being used by local health organizations. With a price tag



now approaching half a billion dollars, BioSense has not been popular with public health practitioners and will likely be fully revised and implemented no earlier than 2012.<sup>44</sup> CDC claims the benefits of “real-time” information will not only serve national security issues, but will empower local departments to communicate effectively with each other in order to better serve their populations.<sup>45</sup> On the other hand, local health departments must invest additional labor into BioSense training and reporting, but receive no additional funding to do so. After establishing its own department to collect and analyze BioSense data, CDC analysts now have the ability to map the patterns of normalcy around the nation and sound an alert when they spot abnormalities, but local health workers are now expected to respond to such alerts promptly, further taxing a system that already complains of being short-staffed and undersupplied.<sup>46</sup>

Surveillance is not a passive technology. Engineers of surveillance devices make calculated decisions about what data will be collected, how it will be analyzed, and therefore how it can be used.<sup>47</sup> Design decisions include everything from what organisms or symptoms to monitor, to calibrating how sensitive the system should be to aberrations. Then, the surveillance technology must be programmed with a norm and a way to recognize specified types of deviance, relying on both science expertise and government to establish what level of deviance should signal an alert. “We have to set up systems sensitive enough to pick up the organisms without spending taxpayers’ money on false alarms.”<sup>48</sup> Designers program the technology with protocol to determine whether an event is “real,” masking the decision-making which established the parameters that would sound the alarm and quantifying the precise level of deviance which can be accepted within the healthy population. Dr. Snider explains, “At the end of the day, we have to err

on the side of having a civic system that's sensitive, but not overly so. There's pressure from Congress to develop those types of systems. We're developing several systems. I am not so arrogant as to say we've got it, but we're getting there. We're getting closer to not one, but a suite of systems."<sup>49</sup> Though surveillance has long been valued by the public health apparatus, Snider alludes to new pressure from government to watch over the population.<sup>50</sup> When used as a detection device, rather than a means to gather information about disease for science research, surveillance technologies produce data which will prompt swift, militant action upon the population by health authorities and the state. By locating decision-making about surveillance at the national level, biosecurity programs like BioSense and BioWatch are transforming a traditionally local health practice of data collection into a national effort, shifting a scale of public health that has long tilted towards the local a bit more in favor of national control.<sup>51</sup>

As with other bioterrorism preparedness programs, surveillance activities are justified by their multiple uses and synergistic public benefit. Dan Sosin, acting director of CDC's Coordinating Office for Terrorism Preparedness and Emergency Response, argues that surveillance activities bound by the same rigors of science method that inform CDC's laboratory activities can potentially sustain the dual-use platform of bioterrorism preparedness measures:

We need effective systems of gathering and sharing timely health information to lead to quality improvement and effective decision making. That requires scientific emphasis on identifying the appropriate metrics of interest for surveillance, both from the standpoint of improving the provision of care, whether that's clinical care or public health care, and for measurement in quality improvement. This focus on the science of gleaning health related information from real-time electronic sources, and how we make better use of that both in targeted ways and in ways of discovery, are an important place in which we can advance multiple objectives of public health at the same time...and that can be driven by science.<sup>52</sup>

A dual-use approach to disease research, however, will produce different science outcomes by shifting the locus of inquiry from the microbe and body to the population at large. Because surveillance shows a geography of disease—how microbes impact people in places over time—changing the scale from local to national shows disease risk in terms of the national body rather than individuals within a community. Surveillance also animates disease by showing how outbreaks move over space and time, providing a map for an intervention. When surveillance is used within a dual-use platform which includes the potential for any disease to outbreak anywhere, at any time through bioterrorist acts, there is potential for the science objectives to favor enabling a rapid response during an event over identifying and addressing long-term health trends. Still, Dr. Sosin sees surveillance as a “leverage point” in biosecurity: something that if done well will affect the outcome of bioterrorist events, “if we invest appropriately and apply a rigorous scientific approach to the extrapolation of that knowledge.”<sup>53</sup>

The expansion of CDC’s surveillance programs characterizes the post-9/11 world where existing technologies find broader application and popular support during a crisis, and the time of “exception” becomes a new state of governing.<sup>54</sup> Since September 11 the surveillance state has manifest as a surveillance society, where the mechanisms of surveillance and the role of surveyor are dispersed through many actors whose roles are elevated by the crisis.<sup>55</sup> By deploying the technological fix—expanding the use of existing surveillance technologies against an unknown enemy—the response is calculated by available solutions rather than the threat itself.<sup>56</sup> Because surveillance systems are perceived to be passively “watching” the population, they are characterized by a lack of accountability. David Lyon sees danger in the surveillance solution because it expands

the potential to classify the population, centralizes state authority, and is generally supported by people who submit to surveillance as the ‘price of security.’ When they are under surveillance, citizens assume a new identity grounded in risk, built around a normalized population and the perception that they are living in a state of exception. Health surveillance technologies produce all members of the population as potential victims of disease, and the discursive production of the crisis articulates a shared identity in that vulnerability. Senator Graham’s commission’s definition of victimhood which gave all people access to the identity of a victim: “In every terrorist strike anywhere in the world, to every innocent life lost must be added thousands more who were just hours away.... In those moments of danger, we are all, first and foremost, citizens of a world at risk.”<sup>57</sup>

*Risk Communication.* In 2007, CDC revamped its website, a redesign based upon “science, best practices, and evidence-based research” to better serve the 9 million “diverse customers” who search for health content on CDC.gov.<sup>58</sup> While CDC’s traditional customers are state and local public health departments, the agency’s expertise is increasingly being sought by other government agencies, the press, and the public. The overhaul of CDC’s internet presence followed the recognition that individual citizens were turning directly to CDC to find answers to their health questions. “For many years we thought we were a wholesaler of health information, but now we realize that we are both a wholesaler and a retailer. It took a while to realize we were in that role and now we are making adjustments to be a good retailer, too. It’s a new concept for us; we hadn’t been trained to do that.”<sup>59</sup> The reordering of time and space that accompany digital

technology enable individuals to turn directly to CDC for health information, and CDC is recognizing a new role in producing a message that bypasses health departments and is consumed directly by the citizen.

Remaking CDC into a retailer of information reverses a flow of expertise that has carried information from CDC to the public through intermediaries, whether field agents at an epidemiological event or local doctors who display posters in their offices. While a public website seems to empower subjects to make decisions regarding their own health, citizens do not have access to the raw data collected by scientists, but to a crafted message about how they should manage their own health. In rethinking its gatekeeping strategies—how it packages and displays those products for the public consumer—CDC is making deliberate decisions about enticing consumers and producing citizens who will govern their own behaviors.

Bioterrorism has been articulated as a crisis of national scale, and while liberal subjects still seek health expertise locally and individually, the technologies of the digital age remake a large, distant group of experts as an accessible authority. While many of CDC's disease-control messages remain consistent during bioterrorism events—wash your hands, cover your mouth, cook your food thoroughly—as the agency assumes a role to communicate directly to citizens, it builds government authority over the health of the population. Again, the national agency increasingly assumes a role it previously delegated to local health authorities, establishing its own authority over the public health response.

As a public health agency, CDC is motivated by “the belief that the government can and should do something to improve the lives of citizens.”<sup>60</sup> Jim Curran, now dean of

the Emory School of Public Health and former head of CDC's AIDS program, says the goal of public health is to "redefine the unacceptable."<sup>61</sup> For example, scientists can collect data showing that smoking will cause cancer, but the public health debate lies in what should be done about it, and how much work the government should do to push the population towards fear and panic in order to bring a positive social effect.<sup>62</sup> While scientific study of the population establishes the parameters of unacceptable behavior, risk communication plays a role in creating the public opinion that will bring about change. The work that CDC does using science knowledge to impact citizen behavior is a form of biopolitical governance eminently useful to the security state in accessing the population.

Beginning in 2002, CDC introduced a risk communication curriculum into its semiannual training for Epidemiological Intelligence Service officers, the experts who respond to disease events locally. The course teaches strategies for building trust, nonverbal communication techniques, how to stage a public exhibit, run a public meeting, and work with the media.<sup>63</sup> In the curriculum, effective communication is directly correlated with positive health outcomes, while possible effects of poor risk communication include "demands for unneeded treatment, disorganized group behavior (stealing/looting), bribery and fraud, ... unreasonable trade and travel restrictions, ... misallocation of limited response resources, ... (and) increased disease and death."<sup>64</sup> The expectation that EIS officers will be asked to speak as authorities remakes their advise-upon-invitation-only role in the field, and the training anticipates that CDC communications will impact citizen behavior.<sup>65</sup> In addition, media staff participates in CDC drills and planning meetings with the express purpose of anticipating what

questions the public will have during bioterrorism events and other emergencies.<sup>66</sup> The strengthening of CDC's media corps since the 2001 anthrax events reflects the agency's commitment to developing crafted media messages during times of emergency.

While a communicator during a crisis may be concerned with explaining CDC actions or the science of a particular biological agent, CDC works daily to prepare the population to receive instruction during emergency events. The director of the Office of Bioterrorism Preparedness and Response believes this communication engages individuals in emergency preparedness: "if they feel like you're responding and you're thinking about these issues, they're going to feel a lot less anxiety. They know what's going on and how you'll respond to it." CDC regularly publishes preparedness plans which describe specific actions people might take before and during an emergency. Isolation, home quarantine, closures of schools, cancellation of public gatherings, hand-washing, and covering one's mouth when sneezing are advocated in CDC publications, targeting individuals and attempting to persuade people to adopt or eliminate personal behaviors, repackaging familiar disease-prevention behaviors as acts to secure the nation and producing individual health behaviors as patriotic or community-minded actions.<sup>67</sup>

CDC communicates a bioterrorism preparedness message that simultaneously assures the citizenry that the government is at work solving the problem, but that its work can only be successful through the citizens' governing of themselves. As a security technology, risk communication practices must incite action without causing a level of fear which would create insecurity. CDC is also concerned with upholding its expertise through its risk communication techniques, retaining its privileged access to information which will shape the experience of bioterrorism. Aihwa Ong recognizes the biopolitical

foundations of governing in practices that extract living resources from the population, with the dual purposes of governing the individual body to optimize its capacities while building the collective capabilities of the population. CDC must protect individual health while governing the interactions that sustain the nation's living resources. Neoliberal "technologies of subjectivity rely on an array of knowledge and expert systems to induce self-animation and self-government so that citizens can optimize choices, efficiency, and competitiveness in turbulent market conditions."<sup>68</sup> Science, surveillance, and communication technologies used by CDC are producing such an array of expertise, making opportunities for the biological citizen to negotiate the risks of bioterrorism.<sup>69</sup>

### **Material Outcomes of Bioterrorism Preparedness**

Both scientists and CDC officials interviewed in this research expressed the difficulty of showing citizens what federal bioterrorism preparedness funds are buying and of convincing people that the nation is "prepared" for biological attacks. In the absence of a bioterrorist event to demonstrate preparedness (or lack thereof), agencies may point to tangible indicators of preparedness, such as stockpiles of pharmaceuticals, or evidence that the funds are providing a social benefit beyond preparedness, such as improvements to public health laboratories. Examining the ways in which new spaces are built or old spaces are reappointed in order to support CDC's new science, surveillance, and communication practices shows how the agency is being materially remade as a national security entity. Places at CDC headquarters, like the DEOC, facilitate a national, militarized response to disease events, showing how concerns over biosecurity have brought public health more forcefully into the domain of national government. However, CDC allocates most of its bioterrorism budget to support biosecurity at the state and local



level, creating at all levels of public health dual-use spaces which promote public wellbeing on a daily basis, but can be taken over during a “crisis” to serve a timely security purpose.<sup>70</sup> Thus, by accessing the existing public health apparatus, the national security state accesses both liberal claims to health security and militant authority over bodies during times of crisis. The state authority over citizens’ health depends upon expertise on biological threats, and CDC’s science and health practices both order knowledge and institutionalize power. New products and places are changing how CDC does business, structuring the conditions under which knowledge of disease and populations is produced. Furthermore, as the agency stockpiles vaccines and hosts private sector training institutes, CDC is becoming a national repository for goods and information which will be vital to citizens during a biological event. In this new economy of bioterrorism preparedness, expertise is trafficked alongside pharmaceuticals, and CDC’s authority has the potential to sway markets.

*Strategic National Stockpile.* Biosecurity funding has changed the expertise-only model at CDC by building the Strategic National Stockpile (SNS), which gives CDC responsibility over a reserve of vaccines and other pharmaceutical supplies to be used in a biological event. Through SNS, CDC claims it can deliver 15 semi-trucks full of medical supplies to any location in the contiguous 48 states within 12 hours. An “adrenaline junkie’s dream job,” SNS workers excel at logistics and have the technological and personal connections to move items rapidly through space.<sup>71</sup> While local and state agencies are responsible for the distribution of supplies to the population, SNS stores are bought and managed by the federal government, giving CDC its first large-scale physical

product: millions of doses of antibiotics, vaccines, and other countermeasures to biological attacks. As the largest collection of such goods, CDC's decisions on what drugs to purchase, from whom, and how often, have no small impact upon the pharmaceutical industry, and the agency must also assume responsibility for maintaining, rotating, and restocking such a reserve. Prior to the establishment of SNS through bioterrorism funding, local health departments were solely responsible for acquiring disease treatments, even during emergency events. Now, while these groups play a vital role in first response and then distribution and administration of pharmaceuticals, all commodities beyond a small local reserve are controlled at the national level in the name of security and efficiency. Individuals are discouraged from purchasing or storing vaccines and antibiotics, and are specifically instructed not to seek out such items so that the national stockpile will not be depleted. Instead, citizens must trust in the state to provide appropriate antidotes and to distribute supplies to the places and people who need them most. By controlling the countermeasures, the national agency magnifies the role it will play during a bioterror event, and the caring act of governance becomes the timely dispersal of drugs. Citizens are bound to the federal agency by the need to access pharmaceuticals during an emergency event.

As CDC grows into its role as a goods distributor, the capabilities of SNS personnel have found multiple uses as well. Capt. O'Conner tells of FEMA seeking CDC assistance during a hurricane incident when field workers found the cots in their medical tents were too small to accommodate overweight patients; CDC came up with a plan to bring in piles of wrestling mats and through the logistics work of SNS was able to locate and ship the mats to the coast. Thus, in addition to its expertise on biological agents and

vulnerable populations, CDC is also developing its expertise in managing and distributing goods. The SNS operates from a room in the DEOC, where the logistics experts will be close at hand during emergency situations, reflecting the increased use of CDC's new expertise in directing disaster. As CDC increases its knowledge of transportation, distribution and managing resources, it creates a new base of authority for the national security apparatus.

*Laboratory Response Network.* Though they are denied first-hand knowledge of the stockpile and its location, the public can readily visualize a vast, national medicine cabinet stocked with antibiotics and vaccines as a tangible outcome of bioterrorism preparedness measures. Lisa Rotz, director of CDC's Division of Bioterrorism Preparedness and Response (DBPR), argues that the Laboratory Response Network (LRN) has a similar, measurable impact because people can equally imagine a network of laboratories with standardized diagnostic capabilities. Established in 1999, the LRN now includes about 150 laboratories in every state, including public health, military, environmental, and veterinary labs. LRN labs use a standardized platform to test for biological agents and staffed by people trained to run the appropriate tests. Thus, instead of sending samples to CDC to be tested, the terrorism response begins locally in labs that have been prepared to handle such diagnostics. In theory, the LRN facilitates timelier bioterrorism response by enabling a local diagnosis of bioterror agents. LRN directors cite other benefits of such a system, particularly in times of emergency, such as having laboratories that are used to working together and have the same instrument platforms<sup>72</sup>. Also, agencies such as the FBI and state department have official agreements to work

with LRN labs, because CDC understands and agrees to the chain of custody issues that surround criminal investigations.

CDC heads the LRN by developing protocols for the laboratory response, training laboratory personnel, and determining which assays and equipment platforms will be used in local labs.<sup>73</sup> Rotz points out that the network is not a network unless the entire network is maintained, a task consistently constrained by funding. CDC's work is federally funded and LRN labs have some access to federal funding through grants, but for the most part individual states must be convinced to allocate funds for the training and equipment that will keep the labs on the national network. While the LRN minimizes the role of CDC laboratories in identifying biological agents, the work DBPR does in drafting protocols, developing assays, and selecting equipment consolidates greater authority over the national laboratory system as a whole at the federal level.

CDC's status as an expert agency on diagnostics is also impacting the markets for biological field equipment which have emerged with the influx of biosecurity funding. Dr. Stephen Morse of DBPR pulls a weighty, spiral-bound catalogue from a shelf of biology journals and flips through hundreds of glossy pages, each showing a piece of biotech equipment for sale. As local emergency response teams collect their bioterrorism preparedness funds, they turn to volumes like this to purchase gadgets which claim to diagnose anthrax on the spot or detect foreign pathogens in the air. Morse argues that much of the equipment offered here is inadequate or unnecessary, but that people with budgets to burn are buying it up because the technology is out there.<sup>74</sup> As a scientist and a public health worker, Morse prioritizes standardization, warning that in an emergency poor fieldwork could paralyze the public health system with hundreds of thousands of

unusable samples collected by untrained responders using substandard equipment. Furthermore, local laboratories make decisions to purchase supplies to test for particular biological agents, a decision complicated by the limitless possibilities for bioterrorist agents. “People aren’t going to buy and stockpile tests that are never going to be used unless there’s an event. It’s not like flu, which comes every year. You have no idea how many tests you’re going to need or what tests you’re going to need.”<sup>75</sup> Through the LRN, CDC assumes responsibility for those decisions at the national level, but also creates a market for the tests and equipment it deems most useful. Again, under the auspices of creating a timely emergency response, CDC has increased its authority over the mechanisms of local public health, and by standardizing the equipment on the counter and the assays in the refrigerators of laboratories around the country, it is changing the local face of public health.

### **Conclusions: The Citizens’ CDC**

“Having a plan doesn’t mean you are prepared because you haven’t shown you can implement it.” Susan True explains the challenge of preparedness to top-level planners from state and local government during the Meta-Leadership Summits for Preparedness she runs through the CDC Foundation.<sup>76</sup> At the Summit, CDC reaches out to groups who will partner with the agency during a crisis, learning, in the words of CDC Director Gerberding, “how to build a connectivity that includes people who are not like us—people in business, people in the faith-based sector, people in the health care delivery system, people in the nonprofit community.”<sup>77</sup> The Summit proposes to build a network between groups and individuals who may have competing goals during an emergency, with the belief that connecting these people beforehand will smooth the

interactions under crisis. In such efforts to further involve citizens in CDC activities, the CDC Foundation works to establish that the public has a responsibility to sustain the work of the governing agency, while also providing a way for individuals to financially contribute to disease preparedness activities.

Established by Congress in 1995, the CDC Foundation represents the continually changing face of public health in this country, not only in the blurring of boundaries between local and national care, but also that which is private, corporate, governmental, biological, and scientific. The CDC Foundation operates with federal funds in order to fundraise for CDC and return those investments back to the agency. In 14 years, CDC Foundation has invested \$170 million in CDC health programs, drawing large and small donations from corporations and private citizens.<sup>78</sup> The idea that a non-governmental organization can help CDC do better work, faster, underlies the foundation's mission, particularly in regards to the Emergency Preparedness and Response program.

As a fundraising agency, the Foundation must balance a booster message about the good works of the CDC with a warning about the weaknesses which can be overcome with additional financing. The Meta-Leadership summit, for example, identifies diverse local governments and private entities as vulnerabilities in the emergency response system, and promises a stronger public health response by developing expertise in how to strengthen community relations. Another oft-repeated anecdote tells of CDC epidemiologists working in the field who needed emergency supplies beyond their kits of bandages and antibiotics, such as a banner from Kinko's or some rope from Home Depot. To circumvent the time delays of purchasing through government channels, CDC Foundation issues field workers credit cards that they can use to buy equipment on the

spot. “After working so long in government and dealing with the bureaucracy, I had to ask, ‘Can it really be this easy?’” reflects Foundation VP for Programs Kevin Brady.<sup>79</sup>

The cards are funded through the Emergency Preparedness and Response Fund, which collects donations through an online form on the Foundation website, an easy way for individuals to financially contribute to the work CDC employees do on the front lines.<sup>80</sup>

The Foundation represents the agency of citizens to contribute to the science and practices that impact their health, though the options for participation are skewed towards monetary donations. While this private venture seems to favor citizen participation, the CDC Foundation in no way challenges state control of the nation’s health, instead placing responsibility upon citizens to sustain the work of the government through private monetary investment.

Initiatives like the Emergency Preparedness and Response Fund provide a way for individuals to contribute to the national preparedness initiative, even when discouraged from personally stockpiling antibiotics or directly phoning CDC’s subject matter experts. As a fundraising organization, however, CDC Foundation stands to gain from the public perception of a biological threat just as the agency itself benefits from congressional belief in bioterrorism risk. The on-going, preemptive nature of bioterrorism preparedness ensures that the public health system will be constantly employed on behalf of national security and that citizens who desire to secure their personal health will continuously turn to government resources and expertise. In the endless war against an invisible threat as enduring and adaptive as microbes themselves, and where preventing attack is “not sufficient” and cannot be proven, the banners of success are the material evidence that the government is taking action. Dr. Sosin explains, “This isn’t a disease that we conquer or

that we tire of, and then go onto another condition. In this instance, it's really the infrastructure that supports high-profile, high-impact kinds of response to these types of events. Inevitably, we will continue to have them over time, and depending on how successfully we execute the resources we receive, and how well we measure and account for them, those resources are unlikely to dissipate in the grand scheme over time.”<sup>81</sup>

The absence of a specifiable threat is the never-ending threat of the modern age, and the reasoning behind the mobilization of resources for security. In Sosin's vision, the infrastructure will continue to grow, expanding the technological fixes available to the security state. The nonspecified disease threat rationalizes this growth because the mechanisms of security are rendered even more vital to act against unknown and imagined threats. The crisis sustains public health practice today, and the crisis is known by the endless potential for disease, a permanent condition of living in society.

Infrastructure built for bioterror will shape our ways of knowing disease and risk, for it orders the scientific process and sustains a “high-profile, high-impact” state response. A malady that originates outside the normal condition of society seems to require an obstructive approach to disease control, creating a high profile through a timely, militant, large-scale effort to separate the vectors of disease from the normal, healthy population. Not only does bioterrorism preparedness harness the social fear of disease, but it uses and expands disease control practices, including the scientific study of pathogens, recreating them as national security practices. New biosecurity strategies produce new ways of accessing citizens and institutionalize forms of knowledge central to state authority. Waging the war on terror in the domain of public health connects local populations to the state through surveillance and access to care, bringing local health



systems into a network where they depend upon the knowledge and resources of the state to function. While the dual-use agenda of public health proposes to create an infrastructure that will care for the population in times of crisis as well as “normal” times, a system designed to care for people during an event may not provide the best care overall, and may also infringe upon personal liberties and divert resources that might serve the population in other ways. Bioterrorism preparedness centralizes the mechanisms of care at the national level, militarizing the daily rituals of health and reproducing individual acts like hand washing as critical acts of national safety and security. The belief that citizens’ liberal claim to health and wellness can only be attained through a militant war on disease rationalizes this way of governing individual bodies. Finally, the infrastructure created for bioterrorism preparedness ensures that citizens can establish a collective identity grounded in their common biological vulnerability. Surveillance technologies set the parameters of a biological collective, while depicting every individual within a population as a potential “ground zero” for biological attack. The project to protect a group from external biological threats can only be accomplished through the technologies which make it visible. CDC’s bioterrorism preparedness practices have given public face and common form to fears of germs and disease, creating opportunities for citizens to build a sense of well-being which hinges upon evidence of state intervention. The promise that ever-expanding infrastructure and expertise can mitigate the never-ending bioterror threat and protect citizens’ lives affirms the continued growth of state authority over health and human life.

## Chapter 4

### **Bombed, Again: New Mexico's Militarized Landscape in the National Security Economy**

“Sun for healthy living. Anyone with a little capital can be independent!”

--1930 Leaflet promoting Columbus, New Mexico

New Mexico Highway 9 hems a hundred miles of United States soil at the southern border of the nation, a river of pavement meandering through the desert where the only markers of nationhood are five-mile stretches of border fence and green-striped Border Patrol trucks. Locals claim that if your car breaks down in those isolated stretches between the towns of Hatchita, Columbus, and Sunland Park, in less than fifteen minutes you will have an officer pulling up to lend a hand in changing that flat tire. Agents are suspicious of anyone who might stop and linger, perhaps waiting for illegal travelers crossing that desert landscape from the south on foot. Driving Highway 9 on an afternoon drive in July 2009, I passed one sedan with local plates and twenty-three Border Patrol vehicles, including a Suburban inching along the shoulder of the road while the driver hung his head out the window, scanning for migrant footprints crossing the smooth sand path near the highway. White blimps hovering above the road heighten the sense that every movement along this border is being watched, and after travelling through this landscape for just over an hour, I developed a keen sense that my presence on this highway was unwelcome and suspicious.

While the militarization of the U.S./Mexico border begins and perhaps ends with the question of immigration, I had come to the borderlands to consider particularly how

bioterrorism preparedness work on our nation's borders sustains notions of nationhood and citizenship. Gleaming white Border Patrol SUVs, sophisticated surveillance technologies, and miles of security fence, evidence a booming security economy in the region, drawing federal funding to support jobs in construction, protection, and technology. Less visible to the highway traveler are the technologies which regulate the movement of nonhuman life through the desert, seeking to create a biological buffer zone around the nation's border. I theorized that border communities were seeking terrorism preparedness funding sources in order to upgrade their public health systems and provide general care for their citizens. During my time in the area, however, I discovered that the security economy runs deeper than I imagined, restructuring agricultural and mineral-based markets and binding health programs to a range of social systems.

In this chapter, I interrogate how national security is bartered in the borderland economy. As communities invest in preparedness programs, these sites become part of the emerging security apparatus which continuously defines and gives form to the terrorist threat, teaching citizens new survival strategies in the post 9/11 world. In the following cultural history of New Mexico's borderlands, I also aim to substantiate two theses about security practices in the border states. First, the recognition of the nation's border as a fluid, inhabited space, crossed by biological entities of all sorts, informs how border residents undertake national security projects locally. Second, contemporary security practices continue the work of the national nuclear program in producing the desert southwest as a sacrifice zone and a laboratory for new kinds of violence. Thus, the very real outcome of the economic drive to implement terrorism preparedness programs along our nation's borders is the profound militarization of daily life in this region.

## **Columbus: Sun, Water, and War**

Residents of Columbus, New Mexico, have taken the idea of the “snowbird”—an individual who relocates to warmer climates during cold winter months—to its extreme, travelling south until they are within spitting distance of the border before dropping the trailer hitch and pulling out the barbeque grill. A shiny, new border crossing station separates Columbus from the Chihuahuan town Puerto Palomas, but residents of both communities regularly commute the short distance over the border. While the Americans head south in search of cheap prescriptions and dentist appointments, Mexicans come north to attend school and to fill jugs of clean, free water from the spout in front of the civic offices, a tradition sustained for generations and symbolic of the truth that though these two communities are increasingly rent by fences and politics, neither town would exist without the other, their fates flowing together by blood, water, and money. Citizens await the opening of a nearby biorefinery, where microscopic algae grown in the endless sunshine will be processed into biofuel, but for now the local economy centers on the border itself, as well as a small grocery store, service station, bed and breakfast, and a state park commemorating a violent moment in the area’s history.

A century ago, Columbus bustled with the border protection business. An outpost on the skirts of town, Camp Furlong, was one of several army camps providing military might to secure the nation’s border during the ongoing revolution in Mexico. With the arrival of additional troops in the days following Pancho Villa’s famous 1916 raid on the border town, Columbus’s population swelled to over 15,000, becoming the largest city in New Mexico. From here the US army pursued Villa deep into Mexican soil, employing automobiles and aircraft in military attack for the first time in U.S. history, a field test for

new technologies of warfare (aircraft surveilled the Villistas from above while the armored supply vehicles which supported the expedition from the north were ironically fueled by gasoline carried by pack horses). Some claim the army's year-long pursuit of Villa and the Border Campaign played a vital role in preparing troops for US entry into World War I, rhetoric which identifies a military invasion of Mexico as little more than a training ground for US military might.<sup>1</sup> Thirty thousand soldiers participated in the pursuit of the Mexican bandit, and by mid-June more than 100,000 members of the National Guard would be stationed along the border to handle other skirmishes incited by Mexican Revolution. As the unrest in Mexico diminished and conflict increased overseas, the military relinquished the groundwork of border protection, making way for new conceptions of national security where non-military entities assumed the work of protecting the homeland.

Without the military presence on the border, the population of Columbus dwindled. When the railroad finally left town in the 1950s, mapmakers began to mark Columbus as a ghost town. Without the military, the promise of a 1930 brochure promoting Columbus proved to be an immediate failure: "Sun and climate for healthy living: where anyone with a little capital can be independent." It seems the only capital for this border town is the border itself—and the need to protect it with troops, automobiles, and airplanes or border patrol, blimps, and fences. In the 21<sup>st</sup> century, drug violence south of the border, including beheadings, the murder of the mayor of Palomas, and a much-publicized incident where a dentist was robbed at gunpoint while the mayor of Columbus sat slack-jawed in his chair, has slowed the demand for cheap pharmaceuticals and dental work on the Mexican side of the border. One Columbus

snowbird assures me that she feels perfectly safe in town, for once the smugglers cross into the U.S. they flee “like a prison break,” far from the border itself.<sup>2</sup> Palomas, however, suffers from the violence as residents relocate, many taking permanent residence in their sister city to the north, and popular tourist attractions south of the border sit empty.

In this time of unease at the border, the annual Camp Furlong Day, a commemoration of the 1916 attacks, seems perhaps more significant. Formerly called “Raid Days,” the festivities center on a reenactment of Pancho Villa’s attack on Columbus. Led by an actor portraying the famous bandit himself, the Calbagata of Mexican riders travel over the border, where they are met by a group of Americans on horseback. Rather than opening fire, the two groups blend together to parade through town in a show of reconciliation and commonality. The festival draws scholars and celebrants from both sides of the border, even as naysayers point to the ironic celebration of the most significant terrorist attack on US soil prior to September 11, 2001. Indeed, one USA Today reporter likened this to an imagined “Osama bin Laden State Park” in Lower Manhattan, where tourists “learn how the Muslim militant planned the attack on the World Trade Center and the Pentagon, how he eluded U.S. forces, and why he hated America.”<sup>3</sup> One attendee pointed out a thick-mustached likeness between Pancho Villa and Saddam Hussein, whispered that Villa “just looks like he was a terrorist.”<sup>4</sup> Because the name Pancho Villa carries the weight of legends and a heap of Hollywood glitz, locals hesitate to drop the famous name and its potential tourist draw. Rather, as the Pancho Villa State Park manager argued in a statement about Camp Furlong Day, the event honors longstanding bonds between the two communities and “the celebration of

our common heritage.”<sup>5</sup> Residents of the borderlands invest in this space with their celebration as well as their labor, claiming identities which are neither fixed nor homogenous and embrace a complicated narrative of nationhood, conquest, and economic dependency. Though the technologies which define the U.S./Mexico border have changed over time, along with the types of work performed at the borders to produce national security, both the annual parade of “Pancho Villa” onto US soil and the daily parade of individuals crossing the border in pursuit of water and health care, are reminders that there exists no stable subject in national security discourses. While this may seem evident in the bilingual, resource-sharing communities of the borderlands, the new configurations of daily life in the borderlands brought by the changing security economy produce new ideas of citizenship and value for residents of these places.

### **Santa Teresa: Cows and Vegetables**

About a mile down the border from the port of entry where the modern-day Pancho Villa crosses into the U.S. with his Calbagata lies another type of facility, where thousands of four-legged Mexican immigrants will be scrutinized before being granted entry into the United States. Mexico exports almost a million cows to the U.S. each year, supplying the large herds of cattle that graze in Texas, California, and the Midwest. About a third of these animals will pass through one of the two ports of entry in New Mexico, where they are held and inspected for signs of disease.<sup>6</sup> The exchange of goods, including food, over the border further exposes the border as a dynamic space, where biology is as suspect as nationality and where specific ways of policing bodies protects national security. The work of these checkpoints is to inspect cows and cull infection, preventing diseases apparent in Mexican herds, such as tuberculosis, from transmitting to

US cattle and desiccating a multi-billion-dollar beef industry. Here, the distinct qualities of nationhood are negotiated on bovine bodies, where animals which manifest health are permitted on one side of the border and animals infected by microbes are sent away. Further, this work is done in the name of protecting the US food system and citizens' bodies, but must also be done in a way which ensures the continuous and successful supply of vital resources to US markets. Recent attacks on ranchers and agriculture inspectors in the borderlands has drawn scrutiny to the food safety practices which take place in the borderlands, entwining discussions of ranching, terrorism, immigration, and drug wars, and creating a complex representation of cows and insects as national security threats.

The Santa Teresa/Jeronimo cattle crossing is recognized as an efficient and effective inspection facility where cattle are literally allowed to walk over the border, in contrast with other sites which are more spread out and require animals to be moved by truck. Cows are held at the site in quarantine for 14 days, allowing time for diseases to manifest in their bodies. Veterinarians test for infection, then cowboys run the cattle through disinfecting skin baths on the Mexican side of the border before prodding the animals northward where they are again tested on the US side. Dozens of semis with a rainbow of license plates line up outside the facility, ready to disperse these animals into the ever-moving flows of the livestock industry. Union Ganadera Regional de Chihuahua, a Mexican Livestock Cooperative working on behalf of more than 3,000 ranchers in northern Mexico, runs both sides of the Santa Teresa facility and the southern part of the Columbus site. To ensure that all human bodies can do their work but still end up on the appropriate side of the border at the end of the day, the handlers wear vests, allowing



border patrol officials to watch and regulate the workers' bodies, even as they labor within the facility. Thus, while the quarantine facility is designed to make disease visible in the bodies of cattle, the daily operations here also work to produce the border as a space where both biology and nationality are suspect and bodies of all sorts must be carefully policed.

As in other border security divisions, agriculture inspection practices have been infused with new security measures following drug-related violence near the border. In 2010, agriculture inspection work which was once done on the Mexican side of the Texan border was relocated to the U.S. two months after USDA inspectors were held at gunpoint at the Nuevo Laredo inspection facility. FEMA funding through the border security initiative "Operation Stonegarden" now provides armed escorts for New Mexico Department of Agriculture (NMDA) workers performing annual inspections of livestock scales on the remote ranches south of Interstate 10. Almost all bodies are suspicious this far from paved roads and cell phone service, and the distinction between a border patrol agent and a weights-and-scales inspector may be unimportant to an armed and cornered participant in illegal border activities. After the much-publicized murder of Arizona rancher Robert Krentz around the same time, Governor Bill Richardson deployed the New Mexico National Guard to the borderlands in an executive decision reminiscent of presidential directives following the Pancho Villa Raids nearly a century earlier. These state-initiated acts to protect the border with military might accompany a broader taking-up of arms by residents and citizen-militias in the area (one local arms shop reported a twenty percent increase in gun sales following the Krentz murder.)<sup>7</sup> The disruption of daily life on the US/Mexico border links the uncertainty of individual survival to the

broader economic concerns of the state (in the case at hand, agriculture and trade, though many other economic needs also drive international diplomacy), an intertwining which, according to Arjun Appadurai, is increasingly evident in contemporary forms of terrorism. Appadurai argues that 9/11 bound local histories and political turmoil in a new “geography of anger” and “freshly charged [the] relationship between uncertainty in ordinary life and insecurity in the affairs of states.”<sup>8</sup> In New Mexico, the security response simultaneously attends to the well-being of individual citizens, protection of state workers and their labor, and preservation of a diplomatically-guided economic relationship between nations—all under the banner of issues as wide-ranging as drugs, immigration, terrorism, and disease.

While protecting New Mexico’s \$6 billion agriculture industry provides a local incentive for national agriculture security, the borderlands are also significantly conceived as a buffer zone for an ecological boundary which cannot be policed by fences and other technologies.<sup>9</sup> Not only do mountain lions and butterflies move through the landscape without regard to national borders, but the deliberate transportation of people, cattle, cotton, and bananas simultaneously relocates microbial hitchhikers, potentially introducing disease into the US food system. The NMDA’s Southwest Border Food Safety and Defense Center was established at New Mexico State University to grapple with this particular problem. Director Billie Dictson is quick to point out that eating in the United States depends upon the safe transportation of edibles across borders.<sup>10</sup> Dictson claims that the agriculture economy supports 17% of the American population, not counting those of us who eat. Contamination in the food supply threatens lives, and more than 5,000 people die every year from food contamination. In reports that read like major

drug busts, border patrol agents boast of “seizing and destroying” hundreds of pounds of illegal vegetables, laying wrapped meats and packages of produce on the evidence table like bricks of marijuana.<sup>11</sup> As concerned as Americans are about drugs and humans being trafficked over the border, protecting against the accidental or intentional introduction of contaminants into the food supply is a primary goal of the Border Food Safety and Defense Center and its government partners. The key, however, is containing the circulation of biological threats without hindering the vital flow of animals and vegetables through the borderlands.<sup>12</sup> Following Foucault, Bingham and Hinchliffe suggest that regulating circulations is a key characteristic of biosecurity.<sup>13</sup> With the goal to encourage “good” things to move while slowing “bad” things, biosecurity practices attend to the specific qualities of environments which enable this regulation to take place. Furthermore, biosecurity is not so concerned with dramatically rebuilding spaces so much as modifying existing situations to maximize the circulation of the “good.” Thus, the cattle crossings at the border seek to regulate the import of healthy cows by using a facility to identify and remove unhealthy animals; while recognizing that the only way to guarantee that no disease would cross the border would be to stop the imports entirely, biosecurity practices focus on removing the specific obstacles within the operation after understanding the local conditions. Similarly, as explored in the following section, the Border Food Safety and Defense Center seeks intimate knowledge of the biological conditions of the borderlands in order to modulate preparedness programs in a way which provides maximum benefit to the area’s agrarian economy.

While the statement that disease knows no borders seems a bit cliché, Dictson and co-director Jeff Witte have wrestled seriously with the challenges of addressing

biosecurity in a diverse and sparsely populated border region. Dictson claims the biggest challenge to his work to secure the biological border has been putting disease on “the radar.” Thanks to H1N1 “Swine” Flu and E. coli-infested spinach, people are thinking about disease as never before, and Dictson says now they must “take them from the awareness level and get them to a place to respond.”<sup>14</sup> Not only do the many hands in the agricultural pot create confusion about who to call during emergency events, but emergency planners are often called upon to think creatively about, say, how to round up 100 head of escaped cattle. Dictson claims that people “do” logistics in daily life, and are very good at it, but they don’t know how to use those skills in organized emergency response.

As part of an international agro-security project, Witte runs the Ten States Border Training Initiative, involving participants from all states which form the US/Mexico border in planning and rehearsing a coordinated response to an agricultural event. In order to plan and prepare a food-systems-emergency response for the border region, Witte staged three agroterrorism training events from 2004 to 2009, including tabletop exercises and a full-scale simulation. These exercises involved more than 250 people, from governors and Homeland Security agents to USDA inspectors and veterinarians. Participants role-played a response to either an agricultural or livestock event, such as foot and mouth disease or an apple moth infestation. While these simulations work to keep people’s attention riveted on agricultural concerns and establish a mechanism of response, the dual acts of planning and performing emergency events are also prescribing a distinct role for government in caring for the population, and not just during times of crisis. The simulation disciplines citizens to behave in particular ways during the

emergency, but it also forges networks which operate in daily life to build the foundation of national security systems.

Publicly rehearsing the response to an event shapes the perception of the threat itself, while creating spaces to mitigate risk, and materially and ideologically arranging the community around the idea of responding to crisis. As Joseph Masco describes it, “the scripting of disaster in the imagination has profound social effects: it defines the conditions of insecurity, renders other threats invisible, and articulates the terms of both value and loss.”<sup>15</sup> Designed to identify vulnerabilities and anticipate the unexpected, the simulation uses an unreal, if “realistic,” catalyst and real, if “role-playing,” participants to imagine outcomes which can be valued as authentic, delivering more political punch. As a training mechanism, simulation also supplants an individualized, skills-based measure of preparedness with requisite group coordination and response, thereby stripping subjects of the ability to mitigate disaster independently and shifting responsibility to a community, where success can only be achieved through the fulfillment of particular roles within the social network. The condition of security, then, is the constant readiness of disciplined workers to perform a planned emergency response function.

Developing such a scripted and sustainable preparedness system with two federal, ten state, and numerous local governments is a particular challenge of the Border States Training program. For example, Dictson explains that while US agencies fight for local control and readily act within their perceived jurisdictions, the Mexican states seem to favor acquiring the blessing of federal government before proceeding with local actions, creating competing timelines for achieving established benchmarks. At one level, part of the problem stems from different languages, not just Spanish and English, but also the

acronym-laden jargon of the US government. Witte has been working to ratify the use of the favored model for emergency response in the United States, the Incident Command System or ICS, as part of their border security plan. He recently received a call from a Mexican planner who said he'd finally received federal permission to use the "CSI" model in their emergency response plan, confusing the acronym and mistakenly referencing forensic crime studies and a popular television series. More significant than misspeaking an acronym, this anecdote exemplifies the work being done to export models of governance, in this case Incident Command, in the name of producing a unified emergency response. The global adoption of the ICS model brings a standardized, structured model to events, one which can be rehearsed for biological events along with forest fires and hurricanes. Again, the expectation falls upon individuals to master their roles within the system, and in training modules they are taught that working outside these roles leads to negative consequences, such as slowing the response, gobbling up resources, or instilling fear and panic.<sup>16</sup> The proposal that all nations need a unified response to events rationalizes the exportation of US forms of governance during times of crisis, and the regular rehearsal of this response through preparedness exercises further instills familiarity and proficiency in new forms of government.

In talking to Witte and Dictson, one gets a sense that the biosecurity business is booming. They are undertaking a wide range of projects, from helping New Mexico communities develop terrorism preparedness plans, to distributing DHS brochures and 20,000 response bags to local elementary schools. A leader in border preparedness, the group is also active at the federal level, recently receiving a \$2 million grant from DHS to develop a national curriculum for multi-day courses on preparing communities for

agroterrorism. DHS has stringent curriculum requirements and the resulting textbook-length manual will be subject to peer review at the national level and mandatory updates every three years. A course with the DHS seal of approval, however, can be accessed for free by communities who receive DHS funding, saving the \$5,000 to \$500,000 expense of contracting with a private company for biosecurity training. Significantly, DHS stipulates that its funds cannot be used to train people who are foreign nationals, limiting the ability of responders to train together for a unified multi-national response. Dictson is also concerned because it is front line agricultural workers who will see disease first, and are therefore the ones who need to learn how to recognize an apple moth infestation or a cow with foot and mouth disease. He reiterates that “pests don’t know borders” and that American citizens will benefit by educating individuals on both sides of the borders. Dictson believes the culture of secrecy on the border, along with a tradition of covering things up and working independently, creates a false perception that locals won’t work to secure the food system, but “though training, awareness, and scaring the hell out of ‘em, now they just might call someone when they see that white powder.”<sup>17</sup>

### **Playas: Minerals**

As funding for terrorism preparedness initiatives declines, Dictson and Witte are seeking new ways to make their programs sustainable in New Mexico. Communities invest in biosecurity because they can see long-term benefits to the health and safety of their citizens, but also because programs like Operation Stonegarden and the Border Health Securities Act infuse these rural areas with federal funding. Economists have theorized the particular challenges facing borderland economies, particularly distance from population centers and the disruption of a political boundary.<sup>18</sup> In the remainder of

this chapter, I will explore the possibility that biosecurity programs and increased attention to national security concerns provide some degree of economic opportunity in border communities struck by dwindling natural resources and declining tourist travel. The case study of the town of Playas raises the question of whether these rural communities which already suffer economic decline due to their remote locations are targeted because of their desolate landscapes, small populations, and isolation, precisely the reason the state was selected for nuclear development programs three generations ago. Does New Mexico's participation in current national security projects revive notions of a national sacrifice zone? How do border residents articulate their participation in homeland security? I will also revisit the question of simulation, considering how role-playing a fearful future constitutes a profoundly political act of meaning-making, producing an expansive response focused on increasing the capacity of the nation to respond to an ever-growing range of threats.

In southern New Mexico, Interstate 10 takes drivers into a strange, militarized landscape, paralleling the national border where a white fence snakes from coast to coast. Periodic customs checkpoints break up the blurred, brown landscape, startling reminders of the human presence in this seemingly empty space. Here the 75 mph highway speed limit drops suddenly to divert traffic under shaded canopies to be scrutinized by eyes, mirrors and cameras. Trained canines, held on leashes by uniformed agents with soldier-like posture, sniff for evidence overlooked by the many pairs of eyes. The trucks and automobiles which stack up at these checkpoints are the primary transportation through the desert southwest today, since the construction of the interstate pulled commerce away from the railroad line a few miles north. Today's drivers barely glimpse towns like Gage,



Separ, and Shakespeare, which are nestled around abandoned train depots over the hill and out of sight from the highway. Communities which once boasted a lively railroad economy now struggle to divert the curious traveler or hungry trucker away from the sterile roadside comfort stations and into their quiet, vacant coffee shops. Dozens of abandoned buildings and hundreds of seemingly unlivable mobile housing units might lead one to presume that here the desert is indeed uninhabitable.

Leaving the interstate at Highway 113, one can drive south into New Mexico's bootheel, a wedge of land jutting abruptly into Mexico and then easing back to the Arizona border. This road ends abruptly forty miles from the border at an abandoned factory once known as "La Estrella del Norte," or the North Star, because the lights on its smokestacks provided a beacon in the north for travelers navigating the borderlands at night. For 25 years, this smelter also shone brightly as the economic center of the bootheel region, but the abandoned site now speaks of the boom or bust economies of the West sustained, as in so many other areas, by the glint of mineral wealth. Built in the early 1970s by Phelps Dodge Corporation, the Hidalgo smelter collected ore from the company's numerous mines to extract and refine copper locally before shipping to market. The bootheel site was selected because of its proximity to mines in New Mexico and Arizona—two of the top three copper exporters in the nation—but also because the remote location separated population centers from the toxic byproducts of copper smelting.<sup>19</sup> With little attention to environmental woes, residents and political leaders in Hidalgo County rallied around the development, celebrating the influx of jobs, and embracing a new identity for the area as an industrial center. As imagined in a 1974 comprehensive development plan for Hidalgo County,

The smelter will make a substantial contribution to the economies of the immediate area and the State of New Mexico. In addition to the annual smelter payroll of around four million, Phelps-Dodge expects to pay nearly ten million dollars per year for services and supplies . . . The increase of a significant number of industrial jobs in a community has a number of side effects. . . In addition to an increase of the population to 900 there will be a rise in the average personal income. In the past, agriculture has been an important factor in the economy of Hidalgo County, but with Phelps-Dodge's expansion, this will change. The principal employment for the county will be mining and mineral processing.<sup>20</sup>

Composed while the paint was still drying in 200 homes in the company town of Playas, the 55-page development plan fairly bursts with the anticipation of a new economic future. Sections on education, health, employment, and recreation all end with paragraphs suggesting that while this is how it was, with the new development in Playas, things will be different now.

Significantly, the economic development plan promotes the benefits of the smelter to the quotidian experiences of Hidalgo County residents, conceptually binding the social existence of the county to the fates of the copper industry. Strong support for the smelter continued for decades, and a 1992 newspaper headline, now framed on the walls of the Lordsburg Historical Museum, celebrated "A Hidalgo County Dream that Came True," the completion of a million-dollar road-building project which would geographically close the gap between the company town and the county seat. Less than ten years later that road would dead end at an abandoned factory in the desert.

In 25 years of operation, the Hidalgo smelter altered the cultural landscape of the bootheel. Railroad tracks crisscrossed the land, drawing ore from the mines to the refinery, where round-the-clock workers used heat and chemicals to extract the precious metals. These laborers lived ten miles north, in neat suburban homes on a patch of New Mexican desert. Designed with aesthetics of the suburban ideal, the company town of



**Figure 4.1** Playas, 1974. *Image courtesy Lordsburg Historical Society.*

Playas plotted 250 two-and-a-half-bath homes on well-manicured lawns in neat cul-de-sacs. Residents paid \$50 a month to rent a home, or \$25 a month for an apartment in one of the town's six apartment complexes. Banks, churches, bars, parks, a grocery store and a bowling alley made this site an oasis in the desert, and children who grew up in Playas remember Fourth of July picnics at the pool, sneaking out with friends to drink beer in the desert, and breathtaking sunsets viewed from the neighbor's porch.<sup>21</sup> More than 900 people lived in Playas when the copper industry was booming, and in 1996, the Phelps Dodge smelter was the second largest copper producer in the country, employing 500 people and selling \$488 million worth of marketable copper.<sup>22</sup>

Changing technologies for smelting ore and the plummeting price of copper, however, brought a swift end to the Hidalgo smelter. On June 30, 1999, the plant president warned Lordsburg Mayor Arthur Smith, of an upcoming economic blow when “virtually all” Hidalgo employees would “sustain an employment loss between September 5-18, 1999.”<sup>23</sup> The plant would keep a skeleton crew to close out operations, and eventually the entire town would be put up for sale. Recognizing that the community was once again being struck by the peaks and plummets of a mineral-based economy, Hidalgo County planners revived the Hidalgo Area Development Corporation (HADECO), an economic development agency established in the 1960s to promote economic growth. Interestingly, this commission is housed under the nonprofit group “Hidalgo Medical Services” with the philosophy that “healthy people are better workers, and productive workers are necessary for economic success.”<sup>24</sup> Through HMS and HADECO, county planners are promoting an image of the area quite distant from its land- and mineral-based roots, seeking to attract businesses to the bootheel through local infrastructure development and improved health services. Though framed in an argument about the unending fluctuations of agricultural and mineral economies, and their accompanying transportation mechanisms, HADECO aims to invest federal funds for health programs, which have long been accessed by this impoverished area, in ways which will boost local business development and attract new work. Thus, while Playas residents were closing up and abandoning their homes, a new planning philosophy was taking root, one which would partially loosen the community’s natural resource dependence while turning to the federal government in search of seed money for a new

type of development. Significantly, at the start of the 21<sup>st</sup> century, the nation's attention was riveted on foreign terrorist threats and strengthening homeland security.

### **Trinity: Uranium and C4**

For a moment, let us detour from our journey along New Mexico's southern border to consider the state's historic importance in the production of national security. Three hundred miles from Lordsburg sits a squat, brown obelisk with a dull brass plaque which would elicit the most casual of glances in an urban setting, but deep in the New Mexico desert just such a monument draws thousands of pilgrims twice a year. The memorial sits at the exact center of four pilings, the remnants of scaffolding erected to suspend the world's first nuclear bomb in mid-air before exploding it over the landscape. Erected twenty years after the explosion, the monument tells very little of the events which took place here: "Trinity Site where the world's first nuclear device was exploded



**Figure 4.2** Trinity Site, April 3, 2010. *Photo by author.*

on July 16, 1945” reads the plaque, with a smaller plate below designating the site a National Historic Landmark, “possess(ing) national significance in commemorating the history of the United States of America.” Rather, at the Trinity Site, the story of military might and scientific capability seems to emerge from the land surrounding the obelisk. A mile of chain link fence draws a circle in the desert, outlining the “reach” of the nuclear blast; woody shrubs push on the fence from the outside, but within the circle the land is flat and bare, as if irrevocably damaged and barren. The iron casing called “Jumbo,” which was brought to the site to contain the valuable plutonium in the event that the blast was not successful, sits outside the chain link near the improvised parking area. Jumbo survived the 1945 test intact, but the top and bottom were lopped off in later military tests, and the rusty, broken shell now builds the nuclear narrative at the site, its sheared walls suggesting the force of an explosion which it originally withstood. Even the homestead where the bomb was assembled two miles from the test site, has fallen into disrepair, and the collapsed ceilings and crumbling walls of the outbuildings, flagged with red tape warning visitors to “keep out,” weave the decay of buildings over time and the hazards of unstable infrastructure into the narrative of danger and risk. Indeed, because one drives three hours from the nearest city, through an arid landscape with little infrastructure, where even the cacti seem to be withering in the sun, the last hour on the military base after clearing a security checkpoint, the dominant message of a visit to Trinity is one of remoteness and isolation. Standing near that commemorative stone, one can look over hundreds of miles of land and see few signs of human use or occupation, evoking perhaps some of the sentiment which inspired the selection of New Mexico as a the site for the Manhattan Project and Trinity test.

Twice a year, when the White Sands Missile Range opens its gates to the public, tourists can walk the land still speckled with the fused sand called Trinitite, and then commemorate the event with grilled sausages and a tote bag stenciled with a stylized mushroom cloud, sold by vendors in the parking lot. Mile-long lines of vehicles waiting to enter the site during its biannual opening indicate the local and national interest in walking New Mexico's bombed landscape, and the desire to celebrate, share, and remember a historic event of global significance. "Locking" the site behind closed gates for 363 days of the year shrouds this landscape with the cloud of secrecy which characterizes the national nuclear project, keeping the events which happened here 65 years ago very much a part of the nuclear present and an important piece of the New Mexico's nuclear identity. The annual pilgrimages sustain the value of this seemingly empty and barren desert landscape, inscribing the land with cultural significance, and masking the biological and environmental impacts of the work done here beyond the perimeter of the chain link fence.

In April 2010, I toured the Trinity site with a group led by the National Museum of Nuclear Science, departing Albuquerque before dawn in a caravan of busses packed with descendants of Manhattan Project workers, current Los Alamos employees, and a variety of nuclear hobbyists. We spent the morning at the monolith, and then gathered for a lecture and picnic lunch on the golf course at the New Mexico Institute of Mining and Technology, "New Mexico Tech." After lunch, we travelled to the school's Energetic Materials Research and Testing Center, where we further commemorated New Mexico's explosive past by watching people blow things up. The EMRTC range is located on a gated road which leads from campus into the foothills west of town. As we entered our

second restricted area on the tour, the bus navigated hairpin turns climbing through a landscape littered with the shells of bombed-out cars and exploded bunkers, remnants of earlier exercises. The road ended at a high point overlooking Socorro to the east and a firing range to the west. An EMRTC guide stood in the back of a pick-up truck to introduce the demonstration we were about to see, holding out various bits of tubing and detonators as he explained why C4 worked well for certain types of explosions and what exactly constitutes a fertilizer bomb.



**Figure 4.3** Energetic Materials Research and Testing Center, Socorro, NM. *Photo by author.*

After the introduction, we huddled behind a cement barrier, gazing into mirrors to watch while the crew blasted a grapefruit, wooden stand, and steel plate with increasing amounts of explosives. Before each round, the guide counted slowly back from five and the audience took in a breath of anticipation. Following each snap, bang, or boom, the



group chattered eagerly about the detonation, trying to put into words what they had just seen and heard. The last and largest explosion drew a collective “ooooo” from the audience as it pulsed the ground beneath our feet and shattered one of the mirrors above



**Figure 4.4** Spectators examine a stand exploded in EMRTC demonstration, April 3, 2010. *Photo by author.*

our heads. Huddled behind that wall on a sunny April afternoon, this crowd reenacted in a small way the experiences of July 16, 1945, when scientists and spectators witnessed the blast which rang in the atomic age. In this semi-annual remembrance of the Trinity test, attended by so many people whose lives have been shaped by the local nuclear complex, not only do spectators walk the perimeter of one of the most famous explosions in history, but at the EMRTC they participate firsthand in a sensory experience of the bomb. Though on a much smaller scale, individuals could feel the shaking of the ground,

see the flashes of light, hear the delayed echoes of sound, and share the collective experience of hunkering down behind a wall to anticipate the blast.

The raw and reflexive reactions to the explosives demonstration paralleled the general excitement surrounding the commemoration of the Trinity events, raising the question of how New Mexico's explosive past can be relived so effectively in the present. Perhaps these events promise to make known some part of the local experience which is carefully guarded and therefore inaccessible to those who wish to understand these explosive parts of history. Demonstrating the technologies of violence in the mountains outside Socorro makes the experience of witnessing accessible to modern audiences. Furthermore, the work of EMRTC to claim expertise in the explosives field, marketing the center in the public and private sector and serving as a regional center for homeland security, emphasizing explosives. Also, the practices which inscribe the New Mexican landscape with the marks of war and terror have continued from the Manhattan Project to the present. The production of New Mexico as a national sacrifice zone which began with nuclear testing continues today, as residents of the economically poor and geographically rural state seek out ways to make the landscape viable. Building upon the nuclear science work which brought the state into the center of US military might, New Mexicans continue to work in military development, as well as the broad domestic preparedness projects, and the desert landscape continues to fulfill a specific role in providing landscapes for secrecy and testing. As discussed earlier, the particular qualities of the borderlands and the security practices instituted in the region inscribe New Mexico's desert "wasteland" with national purpose, continuing the security projects which rendered the state a national sacrifice zone. Masco contends that the "nuclear secret remains a

fetish in the United States (and) continues to colonize everyday life in the name of counterterrorism.”<sup>25</sup> Returning to the bootheel of the state, we can see how the national security project emerges in a contemporary form with material impact upon the lives of citizens in borderlands.

### **Playas: Suburbs and Citizens**

When Phelps-Dodge closed down operations in Hidalgo County, the entire town of Playas was put up for sale. Residents were given the option to stay in their homes or include them as part of the sale, and with the closure of the smelter and accompanying job loss, most people moved on. Public services closed down, and Playas seemed on the verge of becoming a modern-day ghost town. In 2004, with a \$5 million grant from the Department of Homeland Security, New Mexico Tech purchased the entire town of Playas, planning to develop a terrorism training center affiliated with EMRTC. New Mexico Senator Pete Domenici lobbied for the purchase and development of this site, contending that a ready-made town situated in such a remote location would meet the national security objectives to “dramatically increase the technical capacity of emergency response organizations to manage incidents involving chemical, biological, radiological, explosive, and environmental agents.... The Playas purchase would add significantly to the DHS infrastructure by providing a working town for real world training scenarios.... Our Nation must be able to handle agricultural and biological outbreaks that could significantly harm our citizens and create (sic) chaos in our agricultural sector. Playas is the perfect location to study and train against these problems.”<sup>26</sup> Its remote location and empty suburbs promised the opportunity to rehearse for terrorism events out of public

view, echoing the sentiment which drew nuclear scientists to a site in the mountains of northern New Mexico 75 years earlier.

While the project was sold in Washington as meeting a national security training need, the local discourse focused on the promise of jobs in a struggling economy. At the ribbon-cutting ceremony in 2004, New Mexico Tech President Daniel H. Lopez said, “I suspect, once we get going in Playas, the southwest region of New Mexico will have more economic activity and job opportunities being created for everyone involved than we can foresee at this time.”<sup>27</sup> As with the smelter a generation earlier, this makeover of Playas was touted as an economic boon for the area, where the demise of the natural resource could be mitigated by a burgeoning terrorism preparedness industry. Indeed, New Mexico Senators Domenici and Udall would secure more than \$100 million in federal and state funding to develop the Playas Training Center, which began with trainings for first responders, then expanded into military operations including the construction of an “Afghan” village within the compound.<sup>28</sup> In 2011, EMRTC announced its first private contract, promising up to \$27.5 million in revenue for NM Tech and the Playas Training Center.<sup>29</sup> Much of this income is invested in the facility itself, either to building new structures or to the constant upkeep and repair of the existing homes. Camera systems have been installed throughout the complex to record trainings for later review; a new airstrip was built with funding from the state, in order to accommodate large planes bringing trainees to the facility. These building projects send bursts of business to the community, but the training center is largely a self-contained facility with trainees living on site and rarely venturing into the county at large.

The addition of gates and guardhouses further adds to the sense that outsiders are not welcome in Playas. The town itself is open to the public, though the guardhouse which sits in the center of the main road into town seems to indicate otherwise. “Tell the guard you’re coming to bowl,” instructs Anneliese Kvamme, from the public affairs department, “and you can come right in.” The guard, however, discourages the casual tourist, politely informing visitors that the site is closed to the public. A sign on a chain-link fence barricading some of the training facilities parodies the popular cliché and echoes wartime propaganda of earlier eras, “What happens in Playas, stays in Playas. Remember, information is power.” Though residents boast that the bowling alley serves the best tacos in three states, such gatekeepers sustain a perception that public use of this space compromises national security.

About 20 families continue to reside in Playas as employees of the training center. The center provides two primary jobs to locals: builders and actors. During the day, actors might role play a suicide bomber cornered in a living room, or a hostage in a stand-off with a terrorist cell. At night, the builders come in to replace the shattered windows and restore the walls torn down during the day’s scenarios. Imagine living in Playas today: you get up in the morning, bus your children to school 20 miles away, and then head to work—where you are kidnapped by terrorists and held for ransom with a bomb strapped to your chest, until the police barge into the room, kicking down doors and lacing the air with tear gas. Or, you might spend your evening repairing broken doors, returning them to their hinges so they can be tackled again the following day. Such jobs exist because government and private entities believe role-playing emergency events in a place which looks like an American suburb will increase the safety of suburban residents

throughout the country during times of crisis. The act of rehearsing, however, is itself a productive act, and the center at Playas exemplifies how simulation brings material change to the spaces where people live and work in the present moment.

Though the scenarios at Playas are staged and the “terrorists” are actors, they are also members of a community and dwellers in the landscape. Simulated or not, residents experience daily the sights and sounds of war, incorporating them into their world as readily as they greet guards on the entrance road or the daily arrival of helicopter transports bringing another platoon of trainees. Locals attest that they can hear the explosions at Playas echoing for 30 miles across the flat desert. Still, they describe the work being done here as “patriotic” and “important to protect our country,” saying they are glad to sacrifice their silence, not just for the jobs, but for the security of the nation.<sup>30</sup> Thus, New Mexico again becomes the sacrifice zone, perpetually living in the state of emergency so the nation can imagine how a future crisis might look. The state continues to be remade by the biosocial experiment to know, anticipate, and prepare for future and foreign threats. The war acts rehearsed in the deserts of New Mexico sustain a contemporary crisis, changing the calculation of risk to enable a broad response, focused on increasing the capacity of the nation to respond to an ever-growing range of threats.

### **New Mexico: Outcomes**

If the Playas Training Center brings few jobs to Playas, then what outcomes arise from the work being done there? In this concluding section, I interrogate how the use of scenario enactment in national security practices produces new ways of knowing and mitigating risk. Today, Playas’ economy depends, not upon the continued presence of copper in the ground, but in the public perception of risk and support of government

intervention on behalf of people's safety and well-being. In the same way it once depended upon natural resources, the fate of Playas now hinges upon public and private investment in preparedness training. The rise of terrorism preparedness simulation programs such as the practices described in this chapter, evidences the active work to shape the cultural imaginary of risk in contemporary society, and shows that the lives of citizens in this region are bound to practices to mitigate terrorist threats. The federal government has invested millions of dollars in southern New Mexico for the work of imagining vulnerabilities and rehearsing responses to terrorist threat. In so doing, the political state is shaping the cultural imaginary of terrorist threats. Further, the existence of a never-ending threat is a potent political tool because it demands the increased presence of government in order to ensure the security of the population. If the "state of emergency" can be made into the normal condition of the population, then society can be militarized as never before.

The current anxiety over terrorist attack recalls the climate of fear experienced by many Americans during the Cold War. Through propaganda and policy, the United States produced a fear of nuclearism which demanded a preemptive response to protect citizens from a perceived future risk.<sup>31</sup> Rather than fighting an enemy in combat, military strategy involved building infrastructure and implementing programs to anticipate an attack and increase human survival in the homeland. The civil defense programs of the 1950s and 1960s called for individual cities to rehearse their evacuation plans with the citizenry, and these drills were followed by public discussion of who would have died had the attack been "real." Participating in these exercises, down to the basic duck and cover drills rehearsed by school children, was a patriotic duty, a part of public life during the nuclear

age. Similarly, a 2005 recruitment poster for the national TOPOFF 3 exercise lauded community volunteers who would role-play victims of biological attack as “the most important people participating in our exercise.” Sign-up materials promised “an interesting and enjoyable evening and as a result, our community will be better prepared to face real challenges in the future,” language which echoes call for participation in the civil defense programs of a generation ago. Masco calls the reenactment a “formidable public ritual—a core act of governance, technoscientific practice, and democratic participation ... a civic obligation to collectively imagine, and at times theatrically enact through ‘civil defense,’ the physical destruction of the nation-state.”<sup>32</sup> Not only did these scenarios imagine a post-nuclear world, but they showed just how the state would emerge from the apocalypse and the specific practices people would have to undertake to survive. Public rehearsal of the crisis response continues in the 21st century as a state-building strategy and performance of citizenship.

Staging a preparedness exercise brings an imagined future event into a time and space where individuals can rehearse their responses. Andrew Lakoff argues that in order to achieve “preparedness,” the uncertain threat must be brought into “a space of present intervention.”<sup>33</sup> While the Cold War had a clear enemy in the Soviet Union and the weapon was presumably nuclear, in contemporary crises neither the enemy nor the weapon is so readily identified. National security demands new spaces and places where threats can be managed and mitigated, and the creation of facilities like the Playas Training Center channels national security funds into the construction and maintenance of a new security infrastructure. The influx of capital fractures old systems of science and governance,



reconstituting them in ways that work for the crisis and sustain the belief that human intervention can deter the event.

Tracing the genealogy of simulation from civil defense programs through natural disaster planning during the 1960s and 1970s to the present day, Stephen Collier draws attention to the ways that enactment restructures the mechanisms of knowledge production. In cases such as terrorism or natural disasters, statistical models are insufficient to calculate risk, causing societies to turn to simulations to generate the logics of response. The knowledge produced by such scenarios describes particular social vulnerabilities emerging from “the uncertain interaction of potential catastrophes with the existing elements of collective life,” which forms the basis of new forms of political citizenship.<sup>34</sup> The value of the Playas site is repeatedly ascribed to its authentic spaces as a “real” town, just as scenario enactments are valued for evoking an authentic response from the real-time interactions of role-playing participants. Rather than calculating statistical probability based upon historical events, these live enactments seek to assess the vulnerabilities which might emerge from the interactions of individuals and groups during a state of emergency.

Collier’s analysis shows how the contested allocation of federal monies based upon terrorism risk models links enactment to budgetary rationalization, showing the emerging role of simulations in the national security apparatus. He proposes enactment as a mechanism for governing the catastrophic elements which Ulrich Beck, in his much-debated thesis *Risk Society* deemed to be ungovernable; Collier predicts that enactment, like more traditional statistical calculations of risk, will eventually expand to include more general societal functions. The establishment of centers for enactment shows the

stabilization of dedicated mechanisms for producing this particular type of knowledge of collective life. Success in Playas has led to proposals to build similar training facilities in Maryland and Pennsylvania, and the proliferation of terrorism preparedness exercises from Congress to community meetings and classrooms shows the social acceptance of scenario enactment as a means of producing useful knowledge for a political response to terrorism.

Recognizing scenario enactments as producers of security knowledge draws attention to the fact that all enactments are not produced equally. Staging a full-scale exercise is costly, with the bill for 2009's National Level Exercise exceeding \$12 million. Thus, scenarios tend to operate in the realm of worst-case scenarios, or, as in the agroterrorism exercises discussed above, attempt to handle multiple threats simultaneously. De Goede theorizes that premediation, or the mapping of futures by the culture industries, deliberately employs the imagination of the outside realm of possibility in order to fantasize the control and management of the future. "This does not mean that disastrous imagined futures will inevitably play out, but it does mean that the imagination of some scenarios over others, the visualization of some futures and not others, entails profoundly political work that enables and constrains political decision-making in the present."<sup>35</sup> The calculation and motivation which informs scenario enactment has political roots and political outcomes. Decisions about which disasters to stage and which threats to enact will have consequences in people's daily lives, and further work to shape the preparedness infrastructure. In a radio interview in March 2011, a FEMA official confounded the boundaries of imagination and calculation, explaining that agency is building an infrastructure to target a broad, theorized event first: "It's not so much a vivid

imagination, as we look at a lot of our historical events, and we put it in the context of what would it look like today? And then we take some of the theoretical things, such as what happens if a terrorist attack occurs? What we learn is you cannot plan to what you're capable of doing. You have to plan against the events that could happen and build systems that start with that and can scale down; versus that you are going to scale up from small disasters and be successful in a catastrophic event."<sup>36</sup> Fugate's remarks exemplify Lakoff's argument that political calculations grounded in scenario enactment produce an expansive response concerned with building a preparedness system which can respond to an ever-growing range of threats. Fugate proposes that emergency planning must begin with the imagined event rather than the existing systems, rationalizing both the practices which calculate "the events that could happen" and a broad emergency response plan which presumes large-scale disasters before small ones.

In addition to defining the threat, scenario enactments work to assure the population of the state's ability to respond to an incident. Dictson and Witte's work with local agricultural agents establishes a proximate authority over biological incidents, and the simulation events aim to showcase strengths of the responders as well as identifying vulnerabilities. Erickson and Barratt propose that scenario enactments function simultaneously as terrorism deterrents, information warfare, and tools to manage public perception.<sup>37</sup> This argument hearkens James der Derian's studies of war games and virtual warfare, the "virtual continuation of war by other means," where the media and technologies of contemporary warfare sustain the military-industrial complex at its core.<sup>38</sup> The simulation of a terrorist attack confounds the realities of warfare in such a way that enactment becomes a technology which extends warfare into the domestic

arena, bringing the sights, sounds, and smells of a terrorist event into people's homes and communities.

Consequently, scenario enactments have brought a never-ending state of war to New Mexico, as well as other American spaces. In his book *Nuclear Borderlands*, Joseph Masco showed how the work of the nuclear bomb, originating in this state, produced new forms of national governance which relied upon the perpetual state of war. Furthermore, "hypersecurity has become a dominant mode of governmentality after 9/11, a series of linked discourses and official practices that work through the mobilization of a named or unnamed, but always totalizing, threat."<sup>39</sup> The modern preparedness industry which includes terrorism training facilities, border fences, and agricultural inspection facilities, relies upon the sustained perception of that threat which, if not totalizing, is deeply personal and targeted. Indeed, terrorism effectively fuels the security state because the many unnamed threats of the War on Terror can potentially be linked to any individual or community. The National Asset Database, which registers potential terrorist targets, was ridiculed in the media in 2006, for identifying local festivals, petting zoos, and ice cream parlors as potential terrorist targets, but the catalog of nearly 80,000 sites shows the flexibility of terrorism discourses in connecting the terrorist threat to every citizen and every community in the nation.<sup>40</sup> New Mexico's situation as a border state and resulting economic challenges have driven the state's involvement in national security practices. National funding for local scenario enactment gives further evidence for the growing acceptance of simulation practices within the security apparatus (consider, for example, the Cities Readiness Initiative exercises in Albuquerque, discussed in the following chapter.) Furthermore, in a place where the regulation of bodies across the border and the

handling of nuclear materials are already scrutinized with aggressive watchfulness, there is precedent for the militarization of the border food system or the wholesale turnover of a community to the nation's defense complex. This study of the New Mexico borderlands shows how the infrastructure of the border is integrated into the national security apparatus, stabilizing security practices at the local level and integrating them into the local economy. As it was historically, the desert southwest continues to be a laboratory for new kinds of violence. By continually remaking this space as a wasteland and national sacrifice zone, the nation ensures that the deep pockets of its defense agencies can shape the collective life of border residents who work to make their lifestyles viable in this harsh landscape.

## Chapter 5

### Rehearsing for the Plague: Citizens, Security and Simulation

Photographer Nina Berman's exhibit, "Homeland," a survey of post-9/11 America, includes an image of a volunteer in 2003's Top Officials (TOPOFF) security exercise. The woman's crisp white hair is perfectly set and framed by a brilliant blue sky rising from trim suburban lawns. Her gold earrings match the monogrammed rims of her eyeglasses, which encircle smiling eyes. Though a surgical mask hides the smile itself, the portrait clearly shows the pleasure this sixty-something citizen feels to be role-playing an attack of pneumonic plague in her neighborhood. On this day, the civically-minded suburban white-hairs one would expect to see at the polling booths on Election Day were all dressed up to perform their civic duty by passing out "pills" from white tents set up around the neighborhood. Berman recalls that during TOPOFF people really seemed to be enjoying themselves: "They had all the elements of theater there—pillows to make you 'pregnant,' fake blood, biscuits you chew and spit out like vomit—and they were pretty determined in their objective to make it seem real."<sup>1</sup> In the simulation, theatrical effects were used to transform healthy bodies into bodies under attack, while props like a surgical mask prescribed a care-giving role to other members of the community. In acting out a terrorist attack, these citizens shared the experience of victim-hood, and while the attack was simulated, the social effects were not, producing a type of community around the idea of vulnerability to biological attack.

In this paper, I consider what work is done by people rehearsing biosecurity, particularly through the formation of a "security community," in which citizens are bound

together, not just by common biological risk, but by access to care during times of crisis, as well as the ability and authority to provide care during the emergency. In particular, I argue that the dual acts of planning and performing are prescribing a distinct role for government in caring for a population, and not just during times of crisis. Publicly rehearsing the caring practices of government through bioterror simulation has consequences, not only in shaping the perception of the bioterror threat, but also in materially and ideologically organizing the community around the idea of mitigating biological risk.

As a planning practice, visualizing and simulating how disaster might impact a community has long shaped the arrangement of cities and the structure of buildings. During the Cold War, modeling and simulating nuclear attack led to proposals for planned communities built to minimize the potential for a nuclear bomb to interfere with urban living.<sup>2</sup> Moreover, civil defense exercises turned the city into a “laboratory of conduct,” where qualities of citizenship could be spatialized through urban design and stereotyped groups of citizens could rehearse geographically prescribed responses.<sup>3</sup> Further, Masco and Oakes argue that Cold War civil defense required that citizens contemplate their own demise and the end of the nation-state in order to “emotionally manage” the population, transforming terror into fear, and producing a population which would work to ensure its own survival.<sup>4</sup> Whether nuclear or “natural,” the never-ending threat is a potent political tool because it demands the increased presence of government in order to ensure the security of the population. If the “state of emergency” can be made into the normal condition of the population, the community can be militarized as never before.

In order for citizens to do their work to ready themselves for the catastrophe, the uncertain future threat must be brought into a space where it can be acted upon in the present.

Large-scale simulations create the crisis in the present moment, not only staging a rehearsal, but teaching participants what their roles should be during the imagined future event. These simulations have consequence, for they will shape how future incidents are understood and managed.<sup>5</sup> Furthermore, scenarios change the calculation of risk, for they produce expertise grounded in “imaginative enactment” rather than statistics and probability.<sup>6</sup> As Collier has argued, these enactments are producing new knowledge about our ways of living in society, using an imagined future instead of a calculated past to determine what threatens our social being and how.<sup>7</sup> The information gleaned from a scenario might be used in the same way as knowledge produced through the analysis of past events, rationalizing legislation or determining funding allocations. Unlike the insurance of risk produced through the careful study of the past, however, simulation trends towards an expansive response, one focused on increasing the capacity of the nation to respond to an ever-growing range of threats. Simulation thereby becomes a mechanism for managing the unthinkable.

Because biological agents act upon individual bodies differently than chemical or nuclear weapons, planning the emergency response to a bioterrorist attack draws particular attention to the networks that constitute community. Unlike “duck and cover” or “shelter in place” guidelines which focus upon shielding the body during an attack of limited duration, the response to a biological event takes place over time as bodies are protected against disease by access to medical treatment. Bioterrorism preparedness plans largely focus upon medical infrastructure and access to bodies in order to provide medical care. Through rehearsal, planners seek to identify barriers that inhibit the flow of pharmaceuticals into the population, interactions that increase the transmission of disease, and weaknesses within the existing health infrastructure which would become critical if



the system were stressed by the rapid onset of disease within the population. Further, because the bioterror attack may not be accompanied by explosions or other indicators of a violent event, there may be no immediate change of behavior at the onset of the event. Thus, the everyday interactions that define the community—the movements and meetings of individuals—must be evaluated in terms of the crisis. Not only does the scenario have the potential to identify certain behaviors as damaging to people’s ability to survive an attack, as might be the case in a nuclear simulation, but the bioterror rehearsal seeks to pinpoint certain actions which constitute the event itself, revealing behaviors that spread disease and showing how citizens essentially become the weapon through those actions. Preparedness practices rationalized through bioterrorism simulation have a particular capacity to advocate changes in the daily activities that constitute community, for these are the acts that transmit disease.

Bioterrorism preparedness practices are notable for their diversity in scale and focus, as well as for involving a range of individuals from scientists to postal workers. Bioterrorism simulation takes place from the national to the local levels of government, from “full-scale” to “tabletop” exercises. Tabletop events are so named because they play out as a group of decision makers gathers around a table to decide how to respond to a scenario planned by scientists and modeled by computer. At the national level, Dark Winter (held in 2001) and Atlantic Storm (2005) are notable examples, involving a range of officials from retired Prime Ministers to former members of Congress. Modeling a smallpox outbreak upon a naturally occurring event in Yugoslavia, the Dark Winter exercise predicted a rapid, spiraling spread of smallpox, eventually leading to more than 16,000 simulated cases in 25 states. Though the tabletop exercise was put on by

nongovernmental organizations, the outcomes influenced several policy decisions, particularly following the terrorist events in the U.S. later that year.<sup>8</sup>

Full-scale events include a range of participants and responders in a real-time reaction to an event. Typically these scenarios focus on “response and recovery,” measuring how people respond to the attack and how capable the emergency response infrastructure is in dealing with the casualties. At the national level, the “Top Officials” (TOPOFF) series of terrorism preparedness exercises began with a simulated biological attack in 2000, seventeen months before anthrax filtered into the U.S. postal system. Mandated by Congress in the late 1990s, TOPOFF scenarios are staged every other year in multiple sites, with the objective to engage decision makers at all levels of government and from the private sector in a large-scale exercise. Unique components of TOPOFF include the simultaneous enactment of multiple attacks on a national or international scale and the use of a Virtual News Network with an interactive website to involve media professionals and address the ways information will be communicated to the public. TOPOFF 4, held in 2007, involved more than 15,000 participants from three international governments, and included citizen participants role-playing victims and local emergency responders reacting in real time as the event unfolded. TOPOFF 5, now called National Level Exercise 09, focused on preventing a terrorist attack and had no visible public component, though the exercise involved policymakers ranging from President Obama to DHS workers in Tulsa, Oklahoma.

With funding from the federal level, many local governments are now developing bioterrorism preparedness plans and including full- or partial-scale exercises. For example, the Centers for Disease Control and Prevention received Congressional

allocations for bioterrorism preparedness, which the agency is distributing to local communities through programs like the Cities Readiness Initiative (CRI). The CRI identifies 72 critical urban areas based upon population and geographical location, and funds their development of a bioterrorism preparedness plan. Cities receiving CRI funding are required to develop a plan to distribute countermeasures to their population within 48 hours of a bioterrorist event, completing a chain of health care which begins with the federal reserves of antibiotics and ends with the individual citizen. While the CRI is first and foremost a means to apportion federal funding for bioterrorism preparedness at the local level, the program also works to ensure that local entities have compatible preparedness plans and have developed protocols and infrastructure to access federal resources, particularly the national pharmaceutical reserve, the Strategic National Stockpile (SNS). Rather than forcing a preparedness plan developed at the national level upon individual communities, this funding strategy enables cities to develop plans that work within the existing local infrastructure, address the particular needs of the community, and rehearse the response locally. On the other hand, with its focus on SNS resources, CRI planning firmly links local bioterrorism preparedness to the national stockpile of medical care, requiring cities to develop plans to access the federal stores rather than developing and maintaining a local reserve of pharmaceuticals. For the remainder of this paper, I will examine work being done in Albuquerque, New Mexico, to prepare for a bioterrorist event. In particular, I consider how the mechanisms of governance over a deliberately conceived community are impacted by bioterrorism planning. I will show how Albuquerque's work with the CRI is defining the community around access to care during a time of crisis, and how the rehearsal and simulation of

these events stands to impact the mechanisms of government during a perpetual state of emergency.

When the state of New Mexico received federal funds to develop a bioterrorism preparedness plan as part of the CRI, the state government turned the funding and the responsibility for planning over to the city of Albuquerque, which is the largest city in the state: half of New Mexico's one million residents reside in the Albuquerque metropolitan area. According to the city's emergency director, the first task in developing the bioterrorism response plan was to identify the population to include in the plan and thereby the decision-makers to involve in the planning.<sup>3</sup> Though the Office of Emergency Management (OEM) is part of the city government, the metropolitan area includes unincorporated county areas, one other city, an Air Force base, a university, and six native pueblos. Because Albuquerque City has the funding to develop the plan and will have control over the SNS pharmaceuticals, in order to access care these entities must participate in the city-led planning and rehearsal. For the duration of the imagined future event, "Albuquerque" must become a security community, an alliance defined not by who was victimized by the attack, but by who has access to the medical care which will counter the biological attack and protect citizens' bodies.

Producing a single community in crisis, however, is not a simple task. Indeed, the OEM has authority to plan for the city itself, but must persuade other stakeholders to voluntarily participate. While some of these entities refuse to participate by simply not returning phone calls, others produce more complicated narratives. The governor of one pueblo rejected the principle of preparedness, explaining his pueblo's nonparticipation due to a cultural practice to avoid talking about bad things rooted in the belief that

articulating calamity invites it to happen. The population of Kirtland Air Force base must be included due to their proximity to the city, yet its residents are governed by military rank and rule. The early drafts of the preparedness plan designated a warehouse on the base as one of three secondary distribution sites, a decision supported by a Kirtland representative who was soon after transferred. His successor believed that were a terrorist attack to take place, the base would be put under lock-down, and the chances of driving truckloads of pharma onto the base for distribution would be very small. While this individual lacked authority to authorize the original plan, he could offer no alternative that would provide medication for residents of the base—and yet could not opt out of the CRI plan and assume responsibility for the population's care, raising a question about whether the crisis would integrate residents of the base into the local security community or whether the military community would be cared for separately. Thus, as emergency planners imagine a future biological event, they challenge the demarcations of urban/rural, military/civilian, indigenous/colonizer which divide the systems of government within the metropolitan area, creating a new space where a single authority assumes responsibility to care for all who have been determined to reside within the bounds of the security community.

During the imagined crisis, a primary mechanism of care will be distributing doses of pharmaceuticals to individual citizens. Albuquerque planners are preparing for an attack that involves the widespread and rapid introduction of a microbe into the population, requiring the immediate dispersal of medication to restore health to a majority of the population. The pharmaceuticals themselves are stored and managed at the national level, through the Strategic National Stockpile, which claims it can deliver

15 semi-trucks full of medical supplies to any location in the contiguous 48 states within 12 hours. Local governments are therefore not responsible for obtaining, producing, or storing a physical product, but for creating a mechanism to efficiently and effectively connect people with the product. Biosecurity can be characterized as “regulating circulations,” enabling “good” things like pharmaceuticals to flow freely through the population while inhibiting “bad” things like viruses.<sup>9</sup> The challenge, of course, is that the interactions which facilitate the positive flow of care are also likely to encourage person-to-person contact which may increase disease transmission. Similarly, biosecurity may not be achieved through quarantine or isolation because the government must be able to exercise care for the population during the crisis. Effective governance during a bioterror event will contain the disease without interrupting the economic and social exchanges which define the community. Rather than dramatically shifting social functions at the onset of a crisis, biosecurity can more effectively be achieved by ensuring that the “normal” state of the community is one where viruses and disease have limited circulation. Bioterrorism preparedness is particularly effective in normalizing the state of emergency because the silent, slow introduction of disease into the environment requires that the community constantly behave as if a deadly microbe were already present.

Bioterrorism preparedness plans also transform existing circulations into mechanisms of distributing care during crisis. In Albuquerque, the primary access to the population will come through the US Postal Service. In the event that an antidote must be delivered to every member of the population, postal workers will load trucks with the pharmaceuticals and, with an accompanying armed guard, walk their regular routes,

dropping drugs in every household mailbox. During the state of emergency, an existing community system takes on a new role in accessing citizens in order to provide care. In discussions over the plan, the safety of the postal workers came under question, suggesting the need to pair the delivery personnel with security forces, thereby militarizing the postal system during the crisis. The knowledge and systems of the US Postal Service, already in place for conducting daily mail-delivery business, will be enhanced by the training of security personnel in order to ensure the safe delivery of the antidote. Significantly, planners do not anticipate a “run” on the SNS supplies, planning instead to so thoroughly saturate the community with free supplies which target specific, timely needs that the medicine would have no market value and could not be hoarded, stolen, or resold for profit. By using an organization already in the delivery business, which has an established pattern for physically accessing houses, the preparedness plan initially conceives of the community as people dwelling in households which receive mail.

The second mechanism of distribution seeks out groups of people who are part of the community but might be omitted from the postal lists, such as residents of nursing homes or prisons, people who might not be at their homes, such as hospital patients, and transitory members of the community, such as people staying in hotels. Planners are attempting to identify such groups prior to an event in order to determine how many doses to allocate and deliver to those sites which are not individual homes on the postal routes. Finally, residents who might be missed by these first two phases can seek the medication from temporary centers, such as the one staffed by the TOPOFF volunteer in Berman’s photograph. These distribution centers provide a way for citizens to become

agents in seeking their own care, presuming that all individuals will be aware of the event and able to assess their medical needs, traveling to a predetermined site where the government will provide care during the crisis.

These final phases recognize the security community as a collection of vulnerable bodies produced by events happening within a certain time and space. These individuals may not be connected to the place by permanent residency, but are part of the vulnerable community because they were in that space during the attack. In the planning process, then, policymakers must recognize “community” as an ever-changing entity which becomes fixed by the event. Notably, this security plan presumes the use of a biological agent that is not contagious and therefore the parameters of community are set at the moment of attack, by those who were potentially exposed to the microbe. Planning for an attack involving a contagious organism like smallpox must consider community as a group of people who might potentially be exposed to a particular organism, caring for bodies that are both infected and potentially infected. While centuries of hurricanes, earthquakes, and acts of war have forged a relationship between community, care, and crisis, the variables of contagion and transmission which accompany a disease event create new ways of managing the population to protect individual bodies.

Disease is a bearer of deviance, rendering some members of a population less healthy than others, but if the risk of disease can be calculated, then mechanisms of security can be put in place to regulate disease within a population. In his 1977-78 lectures, *Security, Territory, Population*, Michel Foucault theorized a population as a collection of living beings defined by their biological and pathological characteristics and subject to common mechanisms of governing. People’s relationship to disease changes



with the ability to conceive of a population, for a level of disease might be tolerated within the population which cannot be accepted individually. Thus, mechanisms of security can be used to work against deviant cases of disease in order to maintain a “normal” condition of the population. The population, however, encompasses both those who are ill and those who are not, subjecting healthy bodies to the techniques of governing the sick for the promise of security for the whole. Because liberal subjects have the right and responsibility to govern their social interactions in order to ensure the security of the population, the mechanisms of security extend deeply into the many social conditions which produce disease risk. The biopreparedness plans undertaken by the city of Albuquerque exemplify how identifying and delineating the population enables the calculation of risk and determines the acts of governance which will care for the population when disease is introduced. Here, the common biological characteristic that defines the population is a shared vulnerability to disease, and the state is attempting to predetermine the extent of its care by identifying who shares that vulnerability. This case exemplifies how far the mechanisms of disease control might extend into the population, for the population is healthy in the present moment, but every individual is inscribed with the potential to become diseased. Furthermore, because disease is borne by living entities, it is also characterized by moments of sudden expansion and growth, which will continue unless checked by environmental or human-imposed controls, a moment Foucault labels “the crisis.”<sup>10</sup> Each body within the population—even the presently healthy ones—contains within it the potential to create the crisis, requiring that the calculation of risk account for healthy bodies because they are vulnerable to disease and that acts to mitigate risk focus upon all members of the population who bear vulnerability. The state of

emergency is thereby sustained when disease is not present, for a disease event might erupt at any moment and the healthy population bears within it the potential to become ill. Biosecurity can thereby be achieved by preparing for that moment of crisis, planning a response which will maintain the health of the population by containing the disease and preventing those moments of sudden expansion and growth.

One of the aims of scenario enactment is to identify vulnerabilities, not within individual bodies, but within the planned response to a catastrophic event, seeking the weak spots within the security apparatus and improving the ability to provide care during crisis. Staging a preparedness exercise also brings the imagined future event into a time and space where individuals can rehearse their responses. To test the components of its bioterrorism preparedness plan, the city of Albuquerque has hired a contractor to design a scenario involving an aerosolized anthrax attack. In three simulations, planners will test three phases of the emergency response, to be followed by a fourth, full-scale exercise which will try the plan from beginning to end. The cast includes the public generally, but particularly the individuals who will manage the community during the event. The Department of Homeland Security advocates rehearsal as a time to practice communication between the diverse government agencies which will respond to terrorist events, characterizing the crisis as an event that cannot be managed by a single agency, when the collaboration of many entities will transform the means of governing the population.<sup>11</sup> The scenario imagines a future where security cannot be achieved without the consolidation of government around the singular goal of providing care, perhaps even through the militarized authority brought by armed guards walking with postal workers.

While nationwide scenarios may involve thousands of volunteers role-playing victims and responders, on a small-scale much of the social effect of these scenarios comes by bringing representatives for all the stakeholders and caregivers into a common present location. At the July rehearsal in Albuquerque, the room was filled with uniformed police officers, city employees wearing polo shirts, representatives from Kirtland Air Force Base in military fatigues, and representatives from CDC dressed in business attire. After signing in and filling out identifying nametags, the group sat down to review how the day's events would unfold, being oriented to the various rooms which represented the remote distribution centers where the individuals would be staged during a bioterrorist event. To further set the stage, the contractor played an audio recording simulating a news broadcast, describing the "attack" and the public panic which characterized the present moment. The director then reviewed the steps that had been taken during Phase One, and the group dispersed to their assigned "locations," where they were connected to each other by phone and email, but could not physically see the participants who were supposedly working at a site on the other side of the city.

Presumably, actions taken during a rehearsal are somehow more authentic and therefore more useful in preparing for the event, identifying the weaknesses in the mechanisms of crisis governing. Significantly, the recognition that the simulation is still a simulation, does not fade during the exercise. Because there was no emergency, participants glossed over or walked around difficulties that might have been more significant in "the field," such as transport time or not having accurate numbers on hand, while throwing glitches at each other on the spur of the moment, as if to create, and then neatly resolve, their own worst-case scenario: "Hey, let's give them a gas leak over in

building three.” Ironically, the cost of full-scale exercises is often rationalized as providing more authentic data than a computer-modeled exercise because it involves human actors whose responses are less predictable and therefore more in line with human behavior.<sup>12</sup> No amount of fake blood, however, can replicate the urgency that accompanies crisis, suggesting that these exercises are not valued because they provide new expertise on human behavior, but because they rehearse forms of governing that are deemed to be important to managing a population perpetually in crisis.

The important work being done here is not authentically simulating the emotion of a crisis, but rather the creation of community around the idea of crisis. The committees formed, the infrastructure built, and the policies drafted are created in anticipation of a future event, but they exist in the present moment. The simulation works to assess resources, designate authority, allocate spaces, and build networks—acts which rearrange the means of governing around crisis management. Furthermore, in order to keep that uncertain threat in “a space of present intervention,” the simulation must be repeated, reminding all actors of their roles during the imagined crisis. The scenario in Albuquerque and the work of the Cities Readiness Initiative is producing a new way of governing the health of the population, rehearsing a chain of care which links citizens to the federal government through the networks that distribute terrorism countermeasures. Public health has traditionally been managed at the local level, in county clinics and community health departments, but through bioterrorism preparedness planning, the national government is assuming a new role in providing medical care to the population. The CRI requires that cities prove their compatibility with national programs in order to access the pharmaceuticals which are reserved at the national level. Through rehearsal,

local governments are trying out a new role of facilitating federal care during times of crisis.

The militarization of caregiving practices confounds the specter of war with life-giving acts of health, providing citizens assurances that their life is secure and offering a way of living within the state of emergency. Erickson and Barrett describe preparedness exercises as “explicitly designed forms of information warfare and perception management,” aimed at displaying the state’s preparedness in order to assure its citizens and deter its enemies.<sup>13</sup> Whether or not the deterrence objectives are achieved, simulation plays an important role in producing the images and narratives of security which signify preparedness, and teaching individuals how to act during these times of crisis. People learn to recognize, within their community, face masks and white tents and postal workers traveling with police officers as indicators of a bioterrorist event. The work of developing and rehearsing bioterrorism preparedness plans reminds individuals that the community is at risk of bioterrorist attack, establishing watchfulness and readiness as qualities of good citizenship which must be sustained at all times. Good governance, on the other hand, comes through the timely distribution of life-saving medical care after the event. Not only does the simulation affirm that the community is vulnerable, but it enables the community to display its “biosecurity” as practice in the present moment.

Finally, people find value in seeing themselves as a target—they enjoy the simulation because it affirms that they are at risk, for “someone” out there is threatened by their community and might seek to do them harm. Simulation reminds citizens that the federal government values cities like Albuquerque enough to grant money to prepare and protect its citizens, and values the health of the nation enough to stage biannual TOPOFF

exercises at \$12 to \$16 million dollars apiece. Such expenditures are rationalized by the claim that money spent for bioterrorism preparedness will also benefit the community during times of peace.

In 2009, people around the world rehearsed a response to a major biological event through the social control of the H1N1 virus. While reminders to wash hands and stay home from school abound, emergency responders seized the H1N1 event as another way to test their bioterrorism preparedness plans. At the Phase 2 simulation in Albuquerque, participants commented that they would have the opportunity for a “real-life” test of this scenario when New Mexico received the swine flu vaccine. In addition to following traditional measures for annual flu vaccination, Albuquerque plans to set up the same remote “drive-through” stations it would use to hand out medication in a bioterrorist event, thereby testing the city’s capability to recruit medical personnel, staff the tents, manage crowds, and record information about flu shot recipients. Bioterrorism preparedness work has created the infrastructure to undertake such a distribution, and the decision to use it for H1N1 is rationalized for the purpose of assessing the effectiveness of the mechanism.

In considering the consequences of bioterrorism simulation, it is important to recognize that bioterrorism preparedness is changing the structures of our health system, and changing the ways that the state cares for the population during the never-ending state of emergency. In treating H1N1, an emergency response will be used for a non-emergency event, using simulation protocols to distribute a “real” health product for the sake of testing the infrastructure, further blurring the bounds between simulation and event. Undoubtedly, the means of distribution of H1N1 vaccine will contribute to public

perception of risk and thereby public participation in vaccination programs. When the mechanisms of bioterrorism response are used for routine health care, the simulation becomes the event, and the community is no longer putting on a mask for a day of role-playing, but participating in the rehearsal in order to receive care. When an individual's access to a life-saving vaccine requires participation in a community preparedness drill, the stakes of bioterrorism scenarios raise even higher. Simulation is no longer the stage, but these forms have blurred until all citizens are continuously rehearsing the state of emergency, transforming a future event into a way of living in the present.

### **Conclusions: Infectious! Stay Away**

What makes disease visible in society? Coughing? Pockmarks? Facial masks? How do people negotiate a world fraught with unseen disease risk? If disease risk were rendered explicitly upon bodies, how would human social relations change? In 2008, the Science Gallery at Trinity College in Dublin used blinking badges and GPS technology to study how disease transmits through social groups on a micro-level and how people's behaviors change when "disease" is made visible. Part science museum, art gallery, and working laboratory, "Infectious! Stay Away" made people subjects in a social experiment of contagion, to study transmission of infection on the small scale (as opposed to the global maps of infections which chart the movement of disease by populations.) In the experiment at Trinity College, disease was always present, always virulent, and always transmissible, eliminating the possibility that social contact would not transmit disease by defining proximity as the only condition for infection.

A plastic tunnel which seemed to have been swiped from the set of *Outbreak* led visitors into the exhibit, where they received a Radio Frequency Identification (RFID) device to hang around their necks. The RFID tags were programmed to "pick up" infection by proximity to other infected tags. Thus, a healthy individual's tag pulsed with a steady green light, but when an "infected" tag/body passed close by, the RFID picked up the "disease" and began to blink red. Throughout the exhibit, which showcased a wall of smooched-on Petri dishes illuminating unique "Kiss Cultures" and a darkened audio room exploring the question of whether laughter is contagious, flat-panel monitors tracked the movements of infected "bodies," red dots bumping into green and turning



them red as the infection spread. By correlating moving dots with moving feet, attentive participants could watch infected bodies approach and duck out of the way. Some red dots immediately scrambled towards decontamination rooms on the second floor, while others seemed to zip through the crowd like Pac-Man pursuing endless strings of green dots to swallow. Not unlike characters in a video game, each body moved through the contained space with a self-ascribed mission to catch or be caught. By rendering disease status visible through blinking tags, participants were empowered to act and react according to a known risk of contamination.

As the public moved through the dim exhibits, scientists at a remote location surveilled the site, looking for patterns and downloading millions of data points from the RFIDs to use for modeling epidemics at the most intimate, person-to-person level. Through their GPS-keyed tags, *Infectious* visitors enrolled in a social experiment, becoming subjects in a survey of the movement of disease.<sup>1</sup> After wandering through the halls for half an hour or so, I began to sense the layers of power which can be accessed when bodies are stripped to bare life, read merely as vectors for disease. As a subject in this experiment of contagion, my very body—its movements, its preferences, its vulnerability—was reduced to a dot on a screen, a signal sent through the air to be analyzed in relation to a million other signals. By honing in on my disease practices alone, the experiment stripped from my body all the other qualities which constituted my social existence: what I was saying to my green-dot friends, how we reacted when we saw a nearby dot turn to red, or how we strategized to protect our collective health as we moved through the exhibit. I was a dot on a screen indicating a higher risk of disease in a particular geographical area, like the dots on the big panel at the CDC marking hepatitis

cases. I was a role-player in a simulation of an outbreak, providing data which might change the ways people prepare for epidemics on the small scale. And I was an individual within a community of people, policing my own behavior because I could see it on the screen and therefore felt responsible for protecting my own health. In those moments when I became infected, I felt the loss of control over my own body, unable to protect myself and still participate as I wanted in this society, namely exploring the exhibit with my friends. In the data set, I simply changed from green to red. Infection disrupted my life, but was simply another risk to calculate for the scientists and for the strangers who shared my space.

My experiences at the *Infectious* exhibit contained about the same level of emotional and physical intensity as a video game, but the encounter mirrored the larger social consequences of biological risk explicated throughout this dissertation. There are countless entities in modern society which watch, assess, test, calculate, and explain the human subject in terms of its disease-health and vulnerability. Many of these calculations are dichotomous—healthy/unhealthy, infection/uninfected, vaccinated/unvaccinated—offering useful quantifications for health practice, but limiting the ability to account for numerous expressions of disease which define social relations, including the potential to carry disease unknowingly or adopting behaviors to modify the expression of disease. On the other hand, the invisibility of disease makes it particularly effective as a security threat, for it multiplies vulnerability by minimizing the option of social avoidance. In other words, while I could avoid a red dot at the *Infectious* exhibit, I cannot avoid a smallpox carrier moving through public spaces unless the pox marks appear to make the disease visible. As such, the bodies within my proximate environment cannot be

eliminated as disease threats because their disease status is invisible and unknown, infusing healthy bodies with the endless potential for disease risk.

Visible or not, contagion shapes human interactions on many scales. The invisibility of the disease threat gives it power in systems of governance, for a hundred places might be vulnerable where only one space is impacted, rationalizing expansive government practices. Human behaviors shift in the face of known threats, presenting difficulties for security practices which work to normalize populations. When contagion is unknown, all subjects experience shared vulnerability which enables the possibility of ever-more and ever-greater threats to be commonly experienced by many subjects. With familiar, emerging, technological, and synthetic germs simmering in a bottomless pot of bacterial soup, the bioterror state can effectively uphold the endless need for national, local, and individual biosecurity.

This project to excavate the underpinnings of biological terrorism presumes that an existent bioterror threat is incidental to the establishment of the security state. Indeed the systems of security are better sustained by an ever-present threat than by a single catastrophic event, for they work to convince populations to continuously strive for a state of preparedness. The ideological power of bioterrorism, produced by vivid cultural memories of disease, draws strength from the many daily acts of life, science, and politics which affirm human vulnerability to disease. Furthermore, our imaginings of the threat, whether on the Hollywood screen, in a simulation exercise, or calculated by science, readily stand in for lived experience, and are typically bigger and farther-reaching than the quotidian experience of bioterror acts.

The case studies presented here explore how bioterrorism touches down in people's lives in unexpected ways. In examining the similar ways the bioterror threat is manifest in wide-ranging geographies, three key outcomes of the bioterror crisis emerge. First, bioterrorism remakes nature as a prominent threat of the modern age, particularly through the blending of nature and technology through science practice. The cultural histories of germs have produced powerful ideologies of contagion and control, which have been reinvigorated by the genomic ways of knowing life. The case of smallpox, for example, showed how the belief that the most virulent disease of human history could be contained by a program of social control emerged from new knowledge of germs and vaccination. In the modern age, that belief is expressed anew through the large-scale stockpiles kept by the national government as the primary countermeasure for small-pox attack. The revitalization of the smallpox virus through advances in science and technology therefore demands a parallel expansion of the mechanisms of control. Similarly, the risk created by the globalization of science and the transportation of microbes from their "natural" environments mobilizes the microbial threat and expands the field of risk to global proportions. Finally, the perception that under the new biology, terrorists have ready access to dangerous pathogens and easily-developed knowledge of how to use them creates a politics of nature where microbes can be harnessed to increase their harm. Thus, a secondary narrative of "nature under control" creates a basis for bioterrorism in the belief that individuals can readily manipulate microbes to create more virulent, directed, or insidious effects. Citizens demand that the state demonstrate how microbial risk is being controlled, as seen during the protest in Hamilton where residents pleaded with Rocky Mountain Laboratories to use the EIS protocol to show them that the

agency recognized their biological interest in the lab's security and had developed plans to mitigate that risk. Such political acts define the terms of biosecurity, requiring outcomes that can be seen and measured by citizens. In so doing, they express the new parameters of fear in the contemporary moment, borrowing from the lexicon of disease which has characterized public health and biological science for many years.

Second, as conceptions of microbial risk change our ways of knowing nature and the quality of life itself, the terms of biological citizenship are renegotiated. When biological risks abound, citizenship becomes rooted in the basics of human survival and the protection of "bare life." In turn, the care practices of government shift away from more intimate concerns of health and well-being in favor of protecting the population holistically. This shift is manifest, for example, in the state health apparatus, as the influx of funding for bioterrorism preparedness changes the involvement of government in citizens' health. A health system attending to the healthy, but vulnerable, population manages for the enduring life of the citizens, rather than the present well-being of individuals. For example, building Biosafety Level-4 laboratories to increase national security through the study of dangerous pathogens shows the calculation of the greater good over the well-being of those who live in proximity to the labs themselves. The repurposing of health care technologies and the development of new federal research priorities around bioterrorism further demonstrate how national attention to and funding allocations for biosecurity motivate different types of research and dual-purposing of health care technologies. This influx of funding is changing the spaces of public health and science in the modern age. BSL4 laboratories, terrorism training centers, fenced borderlands, post offices, and incident command centers have emerged as the spaces

where bioterrorism will be managed; these spaces change the ways people live, how they work, and how they interact with each other, and sustain the idea that with enough funding and citizen participation, bioterror threats can be mitigated. This research shows that despite considerable federal funding and national support for biosecurity practices, these sites and their work are contested. They challenge citizens to evaluate the multiple biological threats in their immediate and distant environments and situate their own lives in relation to the national security complex. Thus, the material outcomes of biosecurity practices challenge groups and individuals to act on behalf of their collective well-being, bringing debates over the character of biological security into the public discourse and opening new possibilities for biological citizenship.

As the government expands programs of biosecurity, whether stockpiling vaccines for the nation or staging full-scale simulations of terrorism events, it is important to remember that citizens sacrifice for the continuation of the national security state, including the decline of one civic program in favor of another, or even the individual decision to take a live virus into one's body for the sake of the collective health. Demands for vaccination, rationalized for some "greater good," ask individuals to manage their own bodies, not just for individual survival, but to create a massive immunity which will protect the population holistically. Furthermore, citizens may be asked to assume certain behaviors, perhaps as small as hand-washing, in order to counter the risk they present to the population as carriers of human disease. The paradox of humanity, as Feldman and Ticktin argue, is that the belief that human life under threat demands increased government attention, but at the same time humanity poses a tremendous threat which must be contained through governance. The human body

cannot escape the attention of the security state, for these new government practices target the very institutions in which people live. Narratives of contagion emerging from cultural histories of disease imagine human bodies as simultaneous victims and vectors of deadly diseases, conflating and confusing the care and security functions of governments.<sup>2</sup>

Third, these cases expose how systems of governance operating in the modern age are grounded in a “permanent war posture.”<sup>3</sup> Sophisticated real-time disease surveillance technologies, command centers for disease control, impenetrable fortresses for scientific study, and centers dedicated to rehearsing war events are material outcomes of bioterrorism preparedness practices in the last decade. These spaces show the expansion of the military complex into obscure spaces, where they draw power from their economic centrality to remote populations or their bird’s-eye view of the nation as a whole. If the new state forms of the modern age rely upon the never-ending threat as the basis for government expansion, these spaces work simultaneously to sustain the existence of the threat itself. Whether there exists a threat or not, bioterrorism has changed the town of Playas, the agricultural flows through the US borderlands, the laboratories of the CDC, and the economy of Hamilton. The creations of numerous such sites within the last decade, despite no new occurrences of bioterrorist attack, affirms that biosecurity is rooted in ideologies emerging from deep-seated beliefs about nature and the role of government in relation to its citizens. Staging simulations of bioterrorist events in new spaces and in familiar ones further ingrains the meanings and uses of such sites with the purpose of biosecurity. Thus, not only does simulation demonstrate citizens’ responsibilities for biosecurity, but it shows how the places which have been built to

secure bodies and protect national health will be used during a crisis. As a security practice, simulation imagines future events, but the important work of determining appropriate citizen behaviors and conditioning populations to respond is done in the present moment, with material changes to existing forms of governance. Not only does simulation produce a cohesive understanding of biological risk, but it imagines new ways of managing populations to mitigate future harm. In the absence of a biological event, biosecurity manifests in the material forms of preparedness which show how people act on behalf of their personal and collective health.

The particular qualities of bioterrorism, rooted in unpredictable natures and invisible movements of living bodies through time and space, work effectively to sustain a perpetual state of exception, where the most intimate practices of citizens can be accessed through the production of a crisis. As I experienced walking through the *Infectious* exhibit, the biological is social, and when disease is understood in terms of individual biological risk, people modify behaviors, thereby opening opportunities for the state to delineate desired behaviors for the survival of populations. The danger, however, lies in the potential for the state to take action without a threat and the outcomes such a mobilization has in citizens' current lives. Biosecurity practices must be taken seriously in the present moment, because the work to build national bioterrorism defenses has notable immediate consequences.

After an afternoon at "Infectious! Stay Away," a space inscribed in every way with contagion, it seems possible to imagine a world where social living is dedicated to the sole task of containment. The liberal society is unable to resist prioritizing physical security and as a consequence all "public life is organized around survival."<sup>4</sup> When social



systems measure accomplishment in the terms of survival alone, there are no longer spaces to engage important debates over equality, justice and opportunity. Bare life is a powerful entity, but leaves little room for uncertainty. The narratives presented in this dissertation, however, show potential for localized responses to state policies, though the challenges of realizing them in the current political state are self-sustaining. If totalizing threats like terrorism can be complicated by new narratives of biology, science, and simulation, then citizens may find ways to access understandings of life which are neither bare nor fearful.

## Bibliography

- "Combating Terrorism: Observations on the Threat of Chemical and Biological Terrorism." In *Testimony Before the Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform, House of Representatives*, 1999.
- "Department of Homeland Security Announces TOPOFF 3." *Journal of Environmental Health* 67, no. 1 (2004): 53-53.
- "Don't Underestimate the Enemy." *Nature* 409, no. 6818 (2001): 269.
- Committee on Homeland Security. *Engineering Bio-Terror Agents: Lessons from the Offensive U.S. And Russian Biological Weapons Programs*, 109th Congress, First Session, July 13, 2005 (2006).
- Subcommittee on prevention of nuclear and biological attack of the committee on homeland security. *Engineering Bio-Terror Agents: Lessons from the Offensive U.S. And Russian Biological Weapons Programs*, one hundred ninth congress, first session, July 13, 2005.
- "Making the Nation Safer: The Role of Science and Technology in Countering Terrorism." National Academy Press, <http://www.nap.edu/html/stct/>
- "Ready or Not? Protecting the Public's Health from Diseases, Disasters, and Bioterrorism." Washington, DC: Trust for America's Health, 2007.
- "Report on Vaccination: Agreed to in the House of Representatives of the United States on Friday, Feb. 22d." *Niles' Weekly Register (1814-1837)* 1822, 5.
- "Science and Technology: A Foundation for Homeland Security." edited by Executive Office of the President: Office of Science and Technology Policy, 2005.
- Securing Our Homeland U.S. Department of Homeland Security Strategic Plan*. Washington, D.C.: U.S. Dept. of Homeland Security, 2004.
- "Seventeenth Congress--First Session: In the Senate. House of Representatives. Thursday's Proceedings--April 18." *Niles' Weekly Register (1814-1837)* 1822, 123.
- (U.S.), National Research Council. *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. Washington, DC: National Academy Press, 2002.
- (U.S.), National Research Council, and Institute of Medicine. *Globalization, Biosecurity, and the Future of the Life Sciences*. Washington, DC: National Academies Press, 2006.

- Agamben, Giorgio. *Homo Sacer. Sovereign Power and Bare Life*. Stanford University Press, 1998.
- . "On Security and Terror." *Frankfurter Allgemeine Zeitung*, September 20, 2001.
- . *Remnants of Auschwitz: The Witness and the Archive*. New York: Zone Books, 2000.
- . "The State of Exception as a Paradigm of Government." In *State of Exception*, 1-31, 2005.
- Amass, Sandra F., ed. *The Science of Homeland Security*. West Lafayette, IN: Purdue University Press, 2006.
- Anderson, Fred. *Crucible of War: The Seven Years' War and the Fate of Empire in British North America, 1754-1766*. New York: Alfred A. Knopf, 2000.
- Anderson, Karen. "Mock Terrorist Tests Response Capacities." *Nation's Cities Weekly* 28, no. 16 (2005): 2-2.
- Andron, Sonya Lynn. "New Mexico State University Undergraduate Student Awareness of Bioterrorism." Dissertation: Thesis (M.P.H.)--New Mexico State University, 2004.
- Appadurai, Arjun. *Fear of Small Numbers: An Essay on the Geography of Anger*, 2006.
- . *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis, Minn.: University of Minnesota Press, 1996.
- Armstrong, David. "The Rise of Surveillance Medicine." *Sociology of Health and Illness* 17, no. 3 (1995): 393-404.
- Baer, Martha. *Safe: The Race to Protect Ourselves in a Newly Dangerous World*. New York: HarperCollins, 2005.
- Barnett, Michael N. and Thomas George Weiss. *Humanitarianism in Question: Politics, Power, Ethics*. Ithaca: Cornell University Press, 2008.
- Barratt, Bethany and Christian William Erickson. "Rehearsing Armageddon: Multilateral CBNRE Preparedness Exercises and Public Perceptions." *Conference Papers -- International Studies Association* (2006): 1-28.
- Barrett, Ronald. "Dark Winter and the Spring of 1972: Deflecting the Social Lessons of Smallpox." *Medical Anthropology* 25 (2006): 171-91.
- Bartlett, John G. and Luciana Borio. "Healthcare Epidemiology: The Current Status of Planning for Pandemic Influenza and Implications for Health Care Planning in the United States." *Clinical Infectious Diseases* 46, no. 6 (2008): 919-25.

- Baudrillard, Jean. "The End of the Millennium or the Countdown." *Theory, Culture & Society* 15, no. 1 (1998).
- Baudrillard, Jean and Michel Valentin. "War Porn L'esprit Du Terrorisme." *Journal of Visual Culture* 5, no. 1 (2006).
- Bauman, Zygmunt. "In and out of the Toolbox of Sociality." In *Liquid Love: On the Frailty of Human Bonds*, 38-76, 2003.
- . *Liquid Fear*: Cambridge: Polity Press, 2006.
- . *Liquid Times: Living in an Age of Uncertainty*. Cambridge: Polity Press, 2007.
- Beck, Ulrich. *Risk Society*. Translated by M. Ritter. London: Sage, 1992.
- Behbehani, Abbas M. "The Smallpox Story: Life and Death of an Old Disease." *Microbiology Review* 47, no. 4 (1983): 455-509.
- Bentham, Jeremy. *Theory of Legislation*. Translated by Richard Hildreth. London: Trübner, 1871.
- Bigo, Didier. "Security and Immigration: Toward a Critique of the Governmentality of Unease." *Alternatives: Global, Local, Political* 27, no. 1 (2002): 63.
- . "Security, Exception, Ban and Surveillance." In *Theorizing Surveillance: The Panopticon and Beyond*, edited by David Lyon, 46-66. Cullompton, Devon: Willan Publishing, 2006.
- Bingham, Nick and Steve Hinchliffe. "Mapping the Multiplicities of Biosecurity." In *Biosecurity Interventions: Global Health and Security in Question*, edited by Andrew and Stephen J. Collier Lakoff, 173-94. New York: Columbia University Press, 2008.
- Bishop, George D. "Lay Disease Representations and Responses to Victims of Disease." *Basic & Applied Social Psychology* 12, no. 1 (1991): 115-32.
- Blaine, Harden. "Ebola's Shadow." *New York Times Magazine* (2000): 44.
- Blum, Rony. "'Ethnic Cleansing' Bleaches the Atrocities of Genocide." *European Journal of Public Health* 18, no. 2 (2008): 204-09.
- Bourke, Joanna. *Fear: A Cultural History*. Emeryville, CA: Shoemaker Hoard, 2006.
- Bowers, John Z. "The Odyssey of Smallpox Vaccination." *Bulletin of the History of Medicine* 55 (1981): 17-33.
- Braun, Bruce. "Biopolitics and the Molecularization of Life." *Cultural Geographies* 14 (2007): 6-28.

- Bull, Malcolm. "States Don't Really Mind Their Citizens Dying (Provided They Don't All Do It at Once): They Just Don't Like Anyone Else to Kill Them." *London Review of Books* (2004): 3-6.
- Burgan, Mary. "Contagion and Culture: A View from Victorian Studies." *American Literary History* 14, no. 4 (2002): 837-44.
- Butler, Judith, and Gayatri Chakravorty Spivak. *Who Sings the Nation-State?: Language, Politics, Belonging*. London: New York, 2007.
- Campbell, David. *Writing Security: United States Foreign Policy and the Politics of Identity*. Minneapolis: University of Minnesota Press, 1992.
- Cappellini, Marc B. "The Silent Threat: An Analysis of the Phenomenon of Biological Terrorism." Dissertation: Thesis (M.S.)—Troy State University, 1999.
- Carey, James. "Mass Communication Research and Cultural Studies." In *Mass Communication and Society*, edited by James Curran, Michael Gurevitch and Janet Woollacott, 315-48. London: Edward Arnold, 1977.
- . "McLuhan and Mumford: The Roots of Modern Media Analysis." *Journal of Communication* 31, no. 3 (1981): 162-78.
- Caton, Hiram. "Thought Contagion: How Belief Spreads through Society." *Politics & the Life Sciences* 19, no. 2 (2000): 272-75.
- Cello, Jeronimo, Aniko V. Paul, and Eckard Wimmer. "Chemical Synthesis of Poliovirus CDNA: Generation of Infectious Virus in the Absence of Natural Template." *Science* 297, no. 5583 (2002): 1016.
- Chacko, Arun M. "A Goddess Defied." *World Health: The Magazine of the World Health Organization* May 1980, 14-17.
- Clark, William R. *Bracing for Armageddon? : The Science and Politics of Bioterrorism in America*. Oxford: New York, 2008.
- Clarke, Richard A., and Rand Beers. *The Forgotten Homeland: A Century Foundation Task Force Report*. New York: Century Foundation Press, 2006.
- Cohen, Ed. *A Body Worth Defending: Immunity, Biopolitics, and the Apotheosis of the Modern Body*. Durham: Duke University Press, 2009.
- Cole, Leonard A. *The Anthrax Letters*. Washington, D.C.: Joseph Henry Press, 2003.
- Collier, Stephen J. "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization." *Economy and Society* 37, no. 2 (2008): 224 - 50.

- Collier, Stephen J., Andrew Lakoff, and Paul Rabinow. "Biosecurity: Towards and Anthropology of the Contemporary." *Anthropology Today* 20, no. 5 (2004): 3-7.
- Comaroff, Jean. "Beyond Bare Life: Aids, (Bio)Politics, and the Neoliberal Order." *Public Culture* 19, no. 1 (2007): 197-219.
- Cooper, Melinda. "Pre-Empting Emergence." *Theory, Culture & Society* 23, no. 4 (2006): 113-35.
- Cotton, John G., ed. *The Medical Intelligencer: Devoted to the Cause of Physical Education and to the Means of Preventing and of Curing Disease*. Vol. IV. Boston: John Cotton, 1827.
- Daase, Christopher, and Oliver Kessler. "Knowns and Unknowns in the 'War on Terror': Uncertainty and the Political Construction of Danger." *Security Dialogue* 38, no. 4 (2007): 411-34.
- D'Arcy, Michael B. *Protecting the Homeland, 2006/2007*. Washington, D.C.: Brookings Institution Press, 2006.
- Davies, Marcella. "A Job Well Done." *World Health: The Magazine of the World Health Organization* May 1980, 6-10.
- Davis, Cynthia J. "Contagion as Metaphor." *American Literary History* 14, no. 4 (2002): 828-36.
- Davis, Mike. *The Monster at Our Door: The Global Threat of Avian Flu*. New York: New Press, 2005.
- Davis, Tracy C. *Stages of Emergency: Cold War Nuclear Civil Defense*. Durham: Duke University Press, 2007.
- De Goede, Marieke. "Beyond Risk: Premediation and the Post-9/11 Security Imagination." *Security Dialogue* 39, no. 2-3 (2008): 155-76.
- Dean, Mitchell. *Governmentality: Power and Rule in Modern Society*. London: Sage Publications, 1999.
- . *Governmentality: Power and Rule in Modern Society*. London: Sage, 2004.
- Deleuze, Giles and Felix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia*. Translated by B. Massumi. London: Athlone Press, 1988.
- Dillon, Michael. "Liberalism's War on Terror: Pascal Versus Descartes." *Conference Papers -- International Studies Association* (2006): 1.
- . "Underwriting Security." *Security Dialogue* 39, no. 2-3 (2008): 309-32.

- . "Virtual Security: A Life Science of (Dis)Order." *Millennium: Journal of International Studies* 32 (2003): 531.
- Diprose, Rosalyn, Niamh Stephenson, Catherine Mills, Kane Race, and Gay Hawkins. "Governing the Future: The Paradigm of Prudence in Political Technologies of Risk Management." *Security Dialogue* 39, no. 2-3 (2008): 267-88.
- Dixon, David. *Never Come to Peace Again: Pontiac's Uprising and the Fate of the British Empire in North America*. Norman: University of Oklahoma Press, 2005.
- Doolen, Andy. "Reading and Writing Terror: The New York Conspiracy Trials of 1741." *American Literary History* 16, no. 3 (2004): 377-406.
- Dower, Nigel. "Against War as a Response to Terrorism." *Philosophy & Geography* 5, no. 1 (2002): 29-34.
- Elbe, Stefan. "HIV/AIDS and Security: A Biopolitical Perspective." *Conference Papers - International Studies Association* (2006): 1.
- . "Risking Lives: AIDS, Security and Three Concepts of Risk." *Security Dialogue* 39, no. 2/3 (2008): 177-98.
- Enemark, Christian. *Disease and Security: Natural Plagues and Biological Weapons in East Asia*. London & New York: Routledge, 2007.
- Erickson, Christian William and Barratt, Bethany A. "Prudence or Panic? Preparedness Exercises, Counterterror Mobilization, and Media Coverage--Dark Winter, TOPOFF 1 and 2." *Journal of Homeland Security and Emergency Management* 1, no. 4 (2004): 1-21.
- Ericson, Richard and Kevin D. Haggerty. *The New Politics of Surveillance and Visibility*. Toronto: University of Toronto Press, 2006.
- Ewald, Francois. "Two Infinities of Risk." In *The Politics of Everyday Fear*, edited by Brian Massumi, 221-28. Minneapolis, MN: University of Minnesota Press, 1993.
- Feldman, Ilana and Miriam Ticktin, ed. *In the Name of Humanity: The Government of Threat and Care*. Durham & London: Duke University Press, 2010.
- Fenn, Elizabeth A. *Pox Americana: The Great Smallpox Epidemic of 1775-82*. New York: Hill and Wang, 2001.
- Fenner, Frank. *Smallpox and Its Eradication*. Geneva: World Health Organization, 1988.
- Fortun, Kim. *Advocacy after Bhopal: Environmentalism, Disaster, New Global Orders*. Chicago: University of Chicago Press, 2001.

- Foucault, Michel. *The Archaeology of Knowledge*. Translated by A. M. Sheridan Smith. New York: Pantheon Books, 1972.
- . *Discipline and Punish: The Birth of the Prison*. Translated by Alan Sheridan. New York: Vintage, 1977.
- . *The History of Sexuality*. New York: Pantheon Books, 1978.
- . *Security, Territory, Population : Lectures at the Collège De France, 1977-78*. Translated by Graham Burchell. Edited by Michel Senellart and François Ewald and Alessandro Fontana: Basingstoke ; New York : Palgrave Macmillan, 2007.
- . *Society Must Be Defended: Lectures at the College De France, 1975-1976*. New York: Picador, 1997.
- Foucault, Michel, and Paul Rabinow. *The Foucault Reader*. London: Penguin Books, 1991.
- Franklin, Sarah. "Science as Culture, Cultures of Science." *Annual Review of Anthropology* 24 (1995): 163-84.
- Friedberg, Aaron L. *In the Shadow of the Garrison State: America's Anti-Statism and Its Cold War Grand Strategy*: Princeton, N.J.: Princeton University Press, 2000.
- Füredi, Frank. *Culture of Fear: Risk-Taking and the Morality of Low Expectation*. London: New York, 2002.
- Garrett, Laurie. *The Coming Plague: Newly Emerging Diseases in a World out of Balance*. New York: Farrar, Straus and Giroux, 1994.
- Giddens, Anthony. "Risk and Responsibility." *Modern Law Review* 62, no. 1 (1999): 1-10.
- Giroux, Henry A. "Beyond the Biopolitics of Disposability: Rethinking Neoliberalism in the New Gilded Age." *Social Identities* 14, no. 5 (2008): 587-620.
- Golinski, Jan. *Making Natural Knowledge: Constructivism and the History of Science*. Cambridge: Cambridge University Press, 1998.
- Gorman, Siobhan, and Marilyn Werber Serafini. "Homeland Security's Reality TV Show." *National Journal* 35, no. 19 (2003): 1482.
- Graham, Bob, James M. Talent, and Graham T. Allison. *World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism*. New York: Vintage Books, 2008.
- Gray, Colin S. "Strategy in the Nuclear Age: The United States, 1945-1991." In *The Making of Strategy: Rulers, States, and War*, edited by Williamson Murray,



- MacGregor Knox and Alvin H. Bernstein, 579-613. Cambridge: Cambridge University Press, 1994.
- Green, Stephen. "A Plague on the Panopticon: Surveillance and Power in the Global Information Economy." *Information, Communication & Society* 2, no. 1 (1999).
- Gregory, Steven. *The Devil Behind the Mirror: Globalization and Politics in the Dominican Republic*. Berkeley: University of California Press, 2007.
- Grenier, John. *The First Way of War: American War Making on the Frontier, 1607-1814*: Cambridge: Cambridge University Press, 2005.
- Grossman, Andrew D. *Neither Dead nor Red: Civilian Defense and American Political Development During the Early Cold War*. New York: Routledge, 2001.
- Guillemin, Jeanne. "Inventing Bioterrorism: The Political Construction of Civilian Risk." In *Making Threats: Biofears and Environmental Anxieties*, edited by Betsy Hartmann, Banu Subramaniam, and Charles Zerner. Lanham, MD: Rowman and Littlefield, 2005.
- Gupta, Akhil, and James Ferguson, eds. *Anthropological Locations: Boundaries and Grounds of a Field Science*. Berkeley: University of California Press, 1997.
- Gusterson, Hugh. "Nuclear Futures: Anticipatory Knowledge, Expert Judgement, and the Lack That Cannot Be Filled." *Science and Public Policy* 35, no. 8 (2008): 551-60.
- Gutierrez, Christopher M. "Bodies of Terror/Terrorizing Bodies." MA Dissertation, Concordia University, 2006.
- Habermas, Jürgen, Jacques Derrida and Giovanna Borradori. *Philosophy in a Time of Terror: Dialogues with Jürgen Habermas and Jacques Derrida*. Chicago: University of Chicago Press, 2003.
- Hacking, Ian. "Risk and Dirt." In *Risk and Morality*, edited by Richard Ericson and Aaron Doyle, 22-47. Toronto: University of Toronto Press, 2003.
- Haggerty, Kevin D. "Tear Down the Walls: On Demolishing the Panopticon." In *Theorizing Surveillance: The Panopticon and Beyond*, edited by David Lyon, 23-45. Cullompton, Devon: Willan Publishing, 2006.
- Hall, Stuart. "Culture, the Media and the 'Ideological Effect'." In *Mass Communication and Society*, edited by James Curran, Michael Gurevitch and Janet Woollacott, 315-48. London: Edward Arnold, 1977.
- Haraway, Donna Jeanne. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge, 1991.

- Hård, Mikael and Andrew Jamison. *Hubris and Hybrids: A Cultural History of Technology and Science*: Routledge, 2005.
- Haggerty, Kevin D. and Richard V. Ericson. "The Surveillant Assemblage." *The British Journal of Sociology* 51, no. 4 (2000): 605-22.
- Hartmann, Betsy, Banu Subramaniam, and Charles Zerner, eds. *Making Threats: Biofears and Environmental Anxieties*. Lanham, MD: Rowman and Littlefield, 2005.
- Harvey, David. *The Condition of Postmodernity*. Cambridge, MA: Blackwell, 1990.
- Heath, Deborah, Rayna Rapp, and Karen-Sue Taussing. "Genetic Citizenship." In *A Companion to the Anthropology of Politics*, edited by David Nugent and Joan Vincent, 152-67. Malden, MA: Blackwell, 2004.
- Heaton, John A., Anne M. Murphy, Susan Allan, and Harald Pietz. "Legal Preparedness for Public Health Emergencies: TOPOFF 2 and Other Lessons." *Journal of Law, Medicine & Ethics* 31, no. 4 (2003): 43-44.
- Helmreich, Stefan. "Biosecurity: A Response to Collier, Lakoff & Rabinow." *Anthropology Today* 21, no. 2 (2005): 21.
- Henderson, Donald A. *Smallpox: The Death of a Disease: The Inside Story of Eradicating a Worldwide Killer*. Amherst, N.Y.: Prometheus Books, 2009.
- . "A Victory for All Mankind." *World Health: The Magazine of the World Health Organization* May 1980, 3-5.
- Hess, David J., Linda L. Layne and Arie Rip. *Knowledge and Society: The Anthropology of Science and Technology*. Greenwich, Ct: London, 1992.
- Hopkins, Donald R. *Princes and Peasants: Smallpox in History*. Chicago: University of Chicago Press, 1983.
- Hounshell, David A. "Epilogue: Rethinking the Cold War; Rethinking Science and Technology in the Cold War; Rethinking the Social Study of Science and Technology." *Social Studies of Science* 31, no. 2 (2001): 289-97.
- Humphreys, Margaret. "No Safe Place: Disease and Panic in American History." *American Literary History* 14, no. 4 (2002): 845-57.
- Inglesby, Thomas V., Rita Grossman, and Tara O'Toole. "A Plague on Your City: Observations from TOPOFF." *Clinical Infectious Diseases* 32, no. 3 (2001): 436.
- Jabri, Vivienne. "War, Security and the Liberal State." *Security Dialogue* 37, no. 1 (2006): 47-64.

- Jarvis, Lee. "The Spaces and Faces of Critical Terrorism Studies." *Security Dialogue* 40, no. 1 (2009): 5-27.
- Jasanoff, Sheila. "Beyond Calculation: A Democratic Response to Risk." In *Disaster and the Politics of Intervention*, edited by Andrew Lakoff, 14-40. New York: Columbia University Press, 2010.
- Jenner, Edward. *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of the Cow Pox*. London: Printed, for the author, by Sampson Low, and sold by Law [etc.], 1798.
- Kaltman, Stacey, Rochelle E. Tractenberg, Kathryn Taylor, and Bonnie L. Green. "Modeling Dimensions of Choice in Accepting the Smallpox Vaccine." *American Journal of Health Behavior* 30, no. 5 (2006): 513-24.
- Kellman, Barry. *Bioviolence: Preventing Biological Terror and Crime*. New York: Cambridge University Press, 2007.
- Kettl, Donald F. *The Department of Homeland Security's First Year: A Report Card*. New York: Century Foundation, 2004.
- King, Nicholas B. "The Ethics of Biodefense." *Bioethics* 19, no. 4 (2005): 432-46.
- . "The Influence of Anxiety: September 11, Bioterrorism, and American Public Health." *Journal of the History of Medicine* 58 (2003): 433-41.
- . "The Scale Politics of Emerging Diseases." *Osiris* 19, no. 1 (2004): 62-76.
- . "Security, Disease, Commerce: Ideologies of Postcolonial Global Health." *Social Studies of Science (Sage)* 32, no. 5/6 (2002): 763.
- Kittelsen, Sonja. "Conceptualizing Biorisk: Dread Risk and the Threat of Bioterrorism in Europe." *Security Dialogue* 40, no. 1 (2009): 51-71.
- Koplow, David A. *Smallpox: The Fight to Eradicate a Global Scourge*. Berkeley: University of California Press, 2003.
- Kosek, Jake. *Understories: The Political Life of Forests in Northern New Mexico*. Durham, N.C.: Duke University Press, 2006.
- Krisberg, Kim. "Public Health Preparedness Drills Reap Benefits, Concerns." *Nation's Health* 33, no. 9 (2003): 9-9.
- Kupperman, Robert H. *Final Warning: Averting Disaster in the New Age of Terrorism*. New York: Doubleday, 1989.

- Lakoff, Andrew. *Disaster and the Politics of Intervention*. New York: Columbia University Press, 2010.
- . "The Generic Biothreat, or, How We Became Unprepared." *Cultural Anthropology* 23, no. 3 (2008): 399-428.
- . "Preparing for the Next Emergency." 1-34: *Laboratory for the Anthropology of the Contemporary*, 2006.
- . "Preparing for the Next Emergency." *Public Culture* 19, no. 2 (2007): 247-71.
- Lakoff, Andrew, and Stephen J. Collier. *Biosecurity Interventions: Global Health & Security in Question*. New York: Columbia University Press, 2008.
- Larkin, Howard. "Three Days in May." *H&HN: Hospitals & Health Networks* 77, no. 7 (2003): 24.
- Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, Mass.: Harvard University Press, 1999.
- . *Politics of Nature: How to Bring the Sciences into Democracy*. Cambridge, Mass: Harvard University Press, 2004.
- . *We Have Never Been Modern*. Cambridge, Mass.: Harvard University Press, 1993.
- Latour, Bruno, and Steve Woolgar. *Laboratory Life: The Construction of Scientific Facts*. Princeton, N.J.: Princeton University Press, 1986.
- Le Blay, Frederic. "Contagion and Confinement (Book)." *History & Philosophy of the Life Sciences* 22, no. 1 (2000): 110.
- Lederberg, Joshua. "Keeping America Secure for the 21st Century." *Proceedures of the National Academy of Sciences of the United States of America* 96, no. 7 (1999): 3486-88.
- Leitenberg, Milton. "Biological Weapons and Bioterrorism in the First Years of the Twenty-First Century." *Politics & the Life Sciences* 21, no. 2 (2002): 3-27.
- Lerner, Barron H. and David J. Rothman. "Medicine and the Holocaust: Learning More of the Lessons." *Annals of Internal Medicine* 1995, 793-94.
- Lewontin, Richard C. *Biology as Ideology: The Doctrine of DNA*. New York: Harper Collins, 1991.
- Lipschutz, Ronnie D., and Heather Turcotte. "Duct Tape or Plastic? The Political Economy of Threats and the Production of Fear." In *Making Threats: Biofears*

*and Environmental Anxieties*, edited by Betsy Hartmann, Banu Subramaniam, and Charles Zerner, 25-46. Lanham, Maryland: Rowman and Littlefield, 2005.

- Luhmann, Niklas. *Risk: A Sociological Theory*. New York: Aldine de Gruyter, 1993.
- Lynch, Michael. "Laboratory Space and the Technological Complex: An Investigation of Topical Contextures." In *Ecologies of Knowledge: Work and Politics in Science and Technology*, edited by Susan Leigh Star, 226-56. Albany: State University of New York Press, 1995.
- Lyon, David. *Surveillance after September 11*. Malden, Mass.: Polity Press in Association with Blackwell Pub., 2003.
- . "Technology vs. "Terrorism": Circuits of City Surveillance since September 11, 2001." In *Cities, War, and Terrorism: Towards an Urban Geopolitics*, edited by Stephen Graham, 296-311. Malden, MA: Blackwell Publishing, 2004.
- . *Theorizing Surveillance: The Panopticon and Beyond*. Cullompton, Devon : Willan Publishing, 2006.
- Maclean, Sandra J. "Microbes, Mad Cows and Militaries: Exploring the Links between Health and Security." *Security Dialogue* 39, no. 5 (2008): 475-94.
- Maier, Charles S. "Consigning the Twentieth Century to History: Alternative Narratives for the Modern Era." *American Historical Review* (2000),
- Marcus, George E. *Ethnography through Thick and Thin*. Princeton, NJ: Princeton University Press, 1998.
- Marcus, George E., and Michael M.J. Fischer. *Anthropology as Cultural Critique: An Experimental Moment in the Human Sciences*. Chicago: University of Chicago Press, 1986.
- Marshall, William. *Of Microbes and Men: The Emotions, Drama, and Mystery of a Struggle to Correct a 125-Year-Old Mistake and Improve Our Defenses against Epidemics and Bioterrorism*. Bloomington: Authorhouse, 2008.
- Martin, Emily. *Flexible Bodies: Tracking Immunity in American Culture from the Days of Polio to the Age of Aids*. Boston: Beacon Press, 1994.
- Masco, Joseph. "Atomic Health, or How the Bomb Altered American Notions of Death." In *Against Health: How Health Became the New Morality*, edited by Jonathan M. Metz and Anna Kirkland, 133-53. New York and London: New York University Press, 2010.
- . *Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico*. Princeton: Princeton University Press, 2006.

- . "'Sensitive but Unclassified': Secrecy and the Counterterrorist State." *Public Culture* 22, no. 3 (2010): 433-63.
- . "'Survival Is Your Business': Engineering Ruins and Affect in Nuclear America." *Cultural Anthropology* 23, no. 2 (2008): 361-98.
- Masterson, Lori, Christel Steffen, Michael Brin, Mary Frances Kordick, and Steve Christos. "Willingness to Respond: Of Emergency Department Personnel and Their Predicted Participation in Mass Casualty Terrorist Events." *Journal of Emergency Medicine* 36, no. 1 (2009): 43-49.
- McAlister, Melani. *Epic Encounters: Culture, Media, & U.S. Interests in the Middle East since 1945*. Berkeley: University of California Press, 2001.
- McCarthy, Anna. *Ambient Television: Visual Culture and Public Space, Console-Ing Passions*. Durham: Duke University Press, 2001.
- McLean, Stuart. *The Event and Its Terrors: Ireland, Famine, Modernity*. Stanford, CA: Stanford University Press, 2004.
- Metzl, Jonathan and Anna Rutherford Kirkland. *Against Health: How Health Became the New Morality*. New York: New York University Press, 2010.
- Miller, Judith, Stephen Engelberg, and William Broad. *Germs: The Ultimate Weapon*. New York: Simon & Schuster, 2001.
- Miller, Toby. *Cultural Citizenship: Cosmopolitanism, Consumerism, and Television in a Neoliberal Age*. Philadelphia: Temple University Press, 2007.
- Mills, Catherine. "Agamben's Messianic Biopolitics: Biopolitics, Abandonment and Happy Life." *Contretemps* 5 (2004): 42-62.
- Mirzoeff, Nicholas. *Watching Babylon: The War in Iraq and Global Visual Culture*. New York: Routledge, 2005.
- Mitka, Mike. "Bioterror Exercise Tests Agencies' Mettle." *JAMA: Journal of the American Medical Association* 289, no. 22 (2003): 2927.
- Montana State Board of Entomology. "Third Biennial Report of the Montana State Board of Entomology, 1917-18." Helena, Mont.: Independent Pub. Co., 1918.
- Moore, Donald S. *Suffering for Territory: Race, Place, and Power in Zimbabwe*. Durham: Duke University Press, 2005.
- Muller, Benjamin J. "Securing the Political Imagination: Popular Culture, the Security Dispositif and the Biometric State." *Security Dialogue* 39, no. 2-3 (2008): 199-220.

- Murray, Stuart J. "Thanatopolitics: On the Use of Death for Mobilizing Political Life." *Polygraph* 18 (2006): 191-215.
- Nester, William R. *"Haughty Conquerors": Amherst and the Great Indian Uprising of 1763*. Westport, Conn.: Praeger, 2000.
- Nowak, Rachel. "Killer Virus." *New Scientist*, January 10 2001.
- Oakes, Guy. *The Imaginary War: Civil Defense and American Cold War Culture*. New York: Oxford University Press, 1994.
- O'day, Alan, ed. *Weapons of Mass Destruction and Terror*. Burlington, VT: Ashgate, 2004.
- Ojakangas, Mika. "Impossible Dialogue on Bio-Power: Agamben and Foucault." *Foucault Studies* 2 (2005): 5-28.
- Olson, Debra, Aggie Leitheiser, Christopher Atchison, Susan Larson, and Cassandra Homzik. "Public Health and Terrorism Preparedness: Cross-Border Issues." *Public Health Reports* 120 (2005): 76-83.
- Ong, Aihwa. *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty*. Durham: Duke University Press, 2006.
- Ong, Aihwa and Stephen J. Collier. *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*. Malden, MA: Blackwell Pub., 2005.
- O'Sullivan, Terrence M. "Disease, Death and Disruption: Globalization, Bioterrorism and the Politics of Catastrophic Infectious Disease Outbreaks." PhD Thesis, University of South Carolina, 2003.
- Parisi, Luciana. "Biotech: Life by Contagion." *Theory, Culture & Society* 24, no. 6 (2007): 29-52.
- Parr, Hester "New Body-Geographies: The Embodied Spaces of Health and Medical Information on the Internet." *Environment and Planning: Society and Space* 20 (2002): 73-95.
- Peach, James and Kenneth Nowotny. "Economic Development in Border Areas: The Case of New Mexico and Chihuahua." *Journal of Economic Issues* 16, no. 2 (1982): 489-96.
- Peckham, Howard H. *Pontiac and the Indian Uprising*. Princeton: Princeton Univ. Press, 1947.
- Pernick, Martin S. "Contagion and Culture." *American Literary History* 14, no. 4 (2002): 858-65.

- Peters, Stephanie True. *Smallpox in the New World*. New York: Benchmark Books, 2005.
- Petryna, Adriana. *Life Exposed: Biological Citizens after Chernobyl*. Princeton, N.J.: Princeton University Press, 2002.
- Preston, Richard. *The Demon in the Freezer*. New York: Doubleday, 2000.
- . *The Hot Zone*. New York: Random House, 1994.
- Rabinow, Paul. *Essays on the Anthropology of Reason*. Princeton: Princeton University Press, 1996.
- . "Representations Are Social Facts." In *Writing Culture: The Poetics and Politics of Ethnography*, edited by James Clifford and George E. Marcus. Berkeley: University of California Press, 1986.
- Rabinow, Paul and Talia Dan-Cohen. *A Machine to Make a Future: Biotech Chronicles*. Princeton, N.J.: Princeton University Press, 2005.
- Rajan, Kaushik. *Biocapital: The Constitution of Postgenomic Life*. Durham: Duke University Press, 2006.
- Raney, David. "'No Ties except Those of Blood': Class, Race, and Jack London's American Plague." In *Papers on Language & Literature*, 390-435: *Papers on Language & Literature*, 2003.
- Ranlet, Philip. "The British, the Indians, and Smallpox: What Actually Happened at Fort Pitt in 1763?" *Pennsylvania History* 67, no. 3 (2000): 427-41.
- Ratner, Daniel and Mark A. Ratner. *Nanotechnology and Homeland Security: New Weapons for New Wars*. Upper Saddle River, NJ: Prentice Hall/PTR, 2004.
- Razzell, P. E. *Edward Jenner's Cowpox Vaccine: The History of a Medical Myth*. Firlie [Eng.]: Caliban Books, 1977.
- Rhodes, Lorna A. "Panoptical Intimacies." *Public Culture* 10, no. 2 (1998): 285-311.
- Robin, Corey. *Fear: The History of a Political Idea*. Oxford: Oxford University Press, 2004.
- Rose, Nikolas. "The Politics of Life Itself." *Theory, Culture & Society* 18, no. 6 (2001): 1-30.
- Rose, Nikolas S. *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century*. Princeton: Princeton University Press, 2007.
- Rose, Nikolas S. and Carlos Novas. "Biological Citizenship." In *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*, edited by Aihwa Ong and Stephen Collier, 439-63. Malden, MA: Blackwell, 2004.



- Rudman, Warren B., Gary Hart, and Stephen E. Flynn. *America-Still Unprepared, Still in Danger*. New York: Council on Foreign Relations, 2002.
- Samimian-Darash, Limor. "A Pre-Event Configuration for Biological Threats: Preparedness and the Constitution of Biosecurity Events." *American Ethnologist* 36, no. 3 (2009): 478-91.
- Sarasin, Philipp. *Anthrax: Bioterror as Fact and Fantasy*. Cambridge, Mass.: Harvard University Press, 2006.
- Savage, Rowan. "Disease Incarnate": Biopolitical Discourse and Genocidal Dehumanisation in the Age of Modernity." *Journal of Historical Sociology* 20, no. 3 (2007): 404-40.
- Sayres, Sohnya. "Science under Glass." *American Literary History* 14, no. 1 (2002): 160-80.
- Scarry, Elaine. *The Body in Pain*. New York: Oxford, 1985.
- Schell, Heather. "The Sexist Gene: Science Fiction and the Germ Theory of History." *American Literary History* 14, no. 4 (2002): 805-27.
- Schneier, Bruce. *Beyond Fear: Thinking Sensibly About Security in an Uncertain World*. New York: Copernicus Books, 2003.
- Schuler, Ari. "Billions for Biodefense: Federal Agency Biodefense Funding, Fy2001-Fy2005." *Biosecurity and Bioterrorism* 2, no. 2 (2004): 86-96.
- Shapiro, Michael J. "The New Violent Cartography." *Security Dialogue* 38, no. 3 (2007): 291-313.
- Simon, Jeffrey D. *The Terrorist Trap: America's Experience with Terrorism*. Bloomington: Indiana University Press, 2001.
- Smith, Michael M. "The "Real Expedicion Maritima De La Vacuna" In New Spain and Guatemala." *Transactions of the American Philosophical Society* 64, no. part I (1974): 1-74.
- Soja, Edward W. *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*. London: Verso, 1989.
- Solovey, Mark. "Introduction: Science and the State During the Cold War: Blurred Boundaries and a Contested Legacy." *Social Studies of Science* 31, no. 2 (2001): 165-70.
- Staiger, Janet. *Media Reception Studies*. New York: New York University Press, 2005.

- Stern, Jessica. "Dreaded Risks and the Control of Biological Weapons." *International Security* 27, no. 3 (2002/03): 89-123.
- Stockman, Lauren J. "Scared or Prepared?: The Effect of Bioterrorism Response Exercises on Risk Perception in Wyoming." MPH Thesis, Yale University, 2003.
- Stolberg, Richard W. and Sheryl Gay Stevenson. "Threats and Responses: Vaccinations; Bush Lays out Plan on Smallpox Shots; Military Is First." *New York Times*, December 14, 2002.
- Stoler, Ann Laura. "On Degrees of Imperial Sovereignty." *Public Culture* 18, no. 1 (2006): 147-84.
- . "Tense and Tender Ties: The Politics of Comparison in North American History and (Post) Colonial Studies." *Journal of American History* 88, no. 3 (2001): 829-65.
- Stoneman, Scott. "Pedagogy in a Time of Terror: Henry Giroux's Beyond the Spectacle of Terrorism." *Review of Education, Pedagogy & Cultural Studies* 29, no. 1 (2007): 111-35.
- Sturken, Marita , Douglas Thomas, and Sandra J. Ball-Rokeach, eds. *Technological Visions: The Hopes and Fears That Shape New Technologies*. Philadelphia: Temple University Press, 2004.
- Tambornino, John. "Locating the Body: Corporeality and Politics in Hannah Arendt." *Journal of Political Philosophy* 7, no. 2 (1999): 172.
- Tanner, Laura E. "Bodies in Waiting: Representations of Medical Waiting Rooms in Contemporary American Fiction." *American Literary History* 14, no. 1 (2002): 115-30.
- Thornton, William H. "Cold War II: Islamic Terrorism as Power Politics." *Antipode* 35, no. 2 (2003): 205-11.
- Tomes, Nancy. "Epidemic Entertainment: Disease and Popular Culture in Early-Twentieth-Century America." *American Literary History* 14, no. 4 (2002): 625-52.
- Tsing, Anna. *Friction: An Ethnography of Global Connection*. Princeton, N.J.: Princeton University Press, 2005.
- Tucker, Jonathan B. "Biosecurity: Limiting Terrorist Access to Deadly Pathogens." Washington, DC: United States Institute of Peace, 2003.
- . *Scourge: The Once and Future Threat of Smallpox*. New York: Grove Press, 2002.

- Tucknott, Darr. "Rocky Mountain Laboratories: An Inquiry into Community Opposition to a Biosafety Level IV Expansion." Thesis, University of Montana, 2006.
- Tuli, Jitendra. "India's 'War Plan.'" *World Health: The Magazine of the World Health Organization* May 1980, 12-13.
- Utley, Robert Marshall. *The Indian Frontier of the American West, 1846-1890*. Albuquerque: University of New Mexico Press, 1984.
- Vogel, Kathleen. "Bioweapons Proliferation: Where Science Studies and Policy Collide." *Social Studies of Science* 36, no. 5 (2006): 659-90.
- Vogel, Sydney. "War Medicine: Spain, 1936-1939." *American Journal of Public Health* 98 (2008): 2146-49.
- Wade, Beth. "Drill Tests Response to Terrorism." *American City & County* 115, no. 11 (2000): 46.
- Wald, Priscilla. "Communicable Americanism: Contagion, Geographic Fictions, and the Sociological Legacy of Robert E. Park." *American Literary History* 14, no. 4 (2002): 653-85.
- . *Contagious: Cultures, Carriers, and the Outbreak Narrative*. Durham : Duke University Press, 2008.
- . "Introduction: Contagion and Culture." *American Literary History* 14, no. 4 (2002): 617-24.
- Waldby, Cathy. *The Visible Human Project: Informatic Bodies and Posthuman Medicine*. New York: Routledge, 2000.
- Walters, Ronald G., ed. *Scientific Authority & Twentieth-Century America*. Baltimore, MD.: Johns Hopkins University Press, 1997.
- Washington, George, Philander D. Chase, Dorothy Twohig, Frank E. Grizzard, and Edward G. Lengel. *The Papers of George Washington. Revolutionary War Series*. Charlottesville: University Press of Virginia, 1985.
- Weart, Spencer R. *Nuclear Fear: A History of Images*. Cambridge, Mass.: Harvard University Press, 1988.
- White, Richard. *The Organic Machine*. New York: Hill and Wang, 1995.
- White, Robert A. "Mass Communication and Culture: Transition to a New Paradigm." *Journal of Communication* 33, no. 3 (1983): 279-301.
- Wiant, Chris J. "Operation TOPOFF-Lessons on Responding to Bioterrorism." *Journal of Environmental Health* 63, no. 3 (2000): 50.

- Williams, M. J. "The Coming Revolution in Foreign Affairs: Rethinking American National Security." *International Affairs* 84, no. 6 (2008): 1109-29.
- Williams, Raymond. *Television: Technology and Cultural Form*. London: Fontana-Collins, 1974.
- Wray, Ricardo J., Steven M. Becker, Neil Henderson, Deborah Glik, Keri Jupka, Sarah Middleton, Carson Henderson, Allison Drury, and Elizabeth W. Mitchell. "Communicating with the Public about Emerging Health Threats: Lessons from the Pre-Event Message Development Project." *American Journal of Public Health* 98, no. 12 (2008): 2214-22.
- Wright, Susan and David A. Wallace. "Varieties of Secrets and Secret Varieties: The Case of Biotechnology." *Politics & the Life Sciences* 19, no. 1 (2000): 45.
- Young, Donna. "Drill Tests Seattle's Radionuclide Preparedness." *American Journal of Health-System Pharmacy* 60, no. 13 (2003): 1300.
- . "States, Hospitals Learn Emergency-Preparedness Lessons in TOPOFF 3." *American Journal of Health-System Pharmacy* 62, no. 10 (2005): 1000.
- Zizek, Slavoj. *Welcome to the Desert of the Real! Five Essays on September 11 and Related Dates*. London: Verso, 2002.

## Notes

## Introduction Notes

<sup>1</sup> "UPI Poll: Bioterrorism Seen as Top Threat," United Press International, accessed February 25, 2007, <http://www.upi.com/ZogbyPoll/view.php?StoryID-20070223-054926-5121r>.

<sup>2</sup> The Centers for Disease Control and Prevention estimates the cumulative number of deaths of people diagnosed with AIDS in the United States was 617,025 in 2008, with about 16,000 deaths annually. "HIV/Aids-Statistics and Surveillance," CDC, accessed January 23, 2010, <http://www.cdc.gov/hiv/topics/surveillance/basic.htm#ddaids>.

<sup>3</sup> Because of the dual-purposing of biosecurity funds and the far reach of government programs touching on bioterrorism, calculating annual expenditures for biosecurity is a tremendous exercise in categorization. Calculating line items marked explicitly for bioterrorism ignores the sums of money directed to vaccine research or public health improvements. The numbers cited here borrow from Jeanne Guillemin, whose work explicitly tallies expenses. Jeanne Guillemin, "Inventing Bioterrorism: The Political Construction of Civilian Risk," in *Making Threats: Biofears and Environmental Anxieties*, ed. Betsy Hartmann, Banu Subramaniam, and Charles Zerner (Lanham, MD: Rowman and Littlefield, 2005). Allocations by fiscal year can be accessed at "Budget of the United States Government," <http://www.gpoaccess.gov/usbudget/>.

<sup>4</sup> Jeffrey D. Simon, *The Terrorist Trap: America's Experience with Terrorism* (Bloomington: Indiana University Press, 2001).

<sup>5</sup> Rachel Nowak, "Killer Virus," *New Scientist*, January 10 2001. An early example of a biological attack, often recounted in American military lore, tells of British soldiers passing smallpox-infected blankets to Native Americans in order to "extirpate this execrable race" (*sic*) (William R. Nester, "Haughty Conquerors": Amherst and the Great Indian Uprising of 1763 (Westport, Conn.: Praeger, 2000), 115.) For a cultural history of smallpox, see Richard Preston, *The Demon in the Freezer* (New York: Doubleday, 2000), David A Koplou, *Smallpox: The Fight to Eradicate a Global Scourge* (Berkeley: University of California Press, 2003), Jonathan B. Tucker, *Scourge: The Once and Future Threat of Smallpox* (New York: Grove Press, 2002), Stephanie True Peters, *Smallpox in the New World* (New York: Benchmark Books, 2005). This topic is explored further in the following chapter.

<sup>6</sup> Judith Miller, Stephen Engelberg, and William Broad, *Germs: The Ultimate Weapon* (New York: Simon & Schuster, 2001).

<sup>7</sup> Richard Preston, *The Hot Zone* (New York: Random House, 1994), Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World out of Balance* (New York: Farrar, Straus and Giroux, 1994).

<sup>8</sup> See for example, William R. Clark, *Bracing for Armageddon?: The Science and Politics of Bioterrorism in America* (Oxford: New York, 2008), Alan P. Zelicoff and Michael Bellomo, *Microbe: Are We Ready for the Next Plague?* (New York: MJF Books, 2005).

<sup>9</sup> Spencer Weart convincingly explicates the thesis that popular perceptions of nuclear risk emerge from propaganda campaigns and media images which flooded the cultural

landscape during the mid-twentieth century. Spencer R. Weart, *Nuclear Fear: A History of Images* (Cambridge, Mass.: Harvard University Press, 1988).

<sup>10</sup> Joseph Masco, "'Survival Is Your Business': Engineering Ruins and Affect in Nuclear America," *Cultural Anthropology* 23, no. 2 (2008): 362.

<sup>11</sup> Andrew Lakoff, "Preparing for the Next Emergency," *Public Culture* 19, no. 2 (2007).

<sup>12</sup> Weart, *Nuclear Fear: A History of Images*.

<sup>13</sup> See for example, Philipp Sarasin, *Anthrax: Bioterror as Fact and Fantasy* (Cambridge, Mass.: Harvard University Press, 2006), National Research Council (U.S.) and Institute of Medicine (U.S.), *Globalization, Biosecurity, and the Future of the Life Sciences* (Washington, DC: National Academies Press, 2006), Miller, Engelberg, and Broad, *Germ: The Ultimate Weapon*, William R. Clark, *Bracing for Armageddon?: The Science and Politics of Bioterrorism in America* (Oxford: New York, 2008).

<sup>14</sup> Betsy Hartmann, Banu Subramaniam, and Charles Zerner, eds., *Making Threats: Biofears and Environmental Anxieties* (Lanham, MD: Rowman and Littlefield, 2005).

<sup>15</sup> Andrew Lakoff and Stephen J. Collier, *Biosecurity Interventions: Global Health & Security in Question* (New York: Columbia University Press, 2008).

<sup>16</sup> Priscilla Wald, *Contagious: Cultures, Carriers, and the Outbreak Narrative* (Durham: Duke University Press, 2008), Nicholas B. King, "Security, Disease, Commerce: Ideologies of Postcolonial Global Health," *Social Studies of Science* 32, no. 5/6 (2002).

<sup>17</sup> Examples of ethnographic studies that address questions of biopolitics include Kim Fortun, *Advocacy after Bhopal: Environmentalism, Disaster, New Global Orders* (Chicago: University of Chicago Press, 2001). Adriana Petryna, *Life Exposed: Biological Citizens after Chernobyl* (Princeton, N.J.: Princeton University Press, 2002), Paul Rabinow and Talia Dan-Cohen, *A Machine to Make a Future: Biotech Chronicles* (Princeton, N.J.: Princeton University Press, 2005), Anna Tsing, *Friction: An Ethnography of Global Connection* (Princeton, N.J.: Princeton University Press, 2005), Kaushik Rajan, *Biocapital: The Constitution of Postgenomic Life* (Durham: Duke University Press, 2006).

<sup>18</sup> Stephen J. Collier, Andrew Lakoff, and Paul Rabinow, "Biosecurity: Towards and Anthropology of the Contemporary," *Anthropology Today* 20, no. 5 (2004).

<sup>19</sup> This theorization of risk follows Beck and Giddens. Ulrich Beck, *Risk Society*, trans. M. Ritter (London: Sage, 1992). Anthony Giddens, "Risk and Responsibility," *Modern Law Review* 62, no. 1 (1999).

<sup>20</sup> Adriana Petryna uses the phrase "burden of survival" in her study of the Chernobyl catastrophe. Petryna, *Life Exposed: Biological Citizens after Chernobyl*.

<sup>21</sup> Lakoff, "Preparing for the Next Emergency."

<sup>22</sup> King addresses this issue in his study of the emerging diseases public health campaign, arguing that the campaign turned social ambivalence about modernity into consensus regarding new risks and necessary interventions. Nicholas B. King, "The Scale Politics of Emerging Diseases," *Osiris* 19, no. 1 (2004).

<sup>23</sup> On the rise of the modern security state, see for example Joseph Masco, *Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico* (Princeton: Princeton University Press, 2006), Andrew D. Grossman, *Neither Dead nor Red: Civilian Defense and American Political Development During the Early Cold War* (New York:

Routledge, 2001), Guy Oakes, *The Imaginary War: Civil Defense and American Cold War Culture* (New York: Oxford University Press, 1994).

<sup>24</sup> Bruce Braun, "Biopolitics and the Molecularization of Life," *Cultural Geographies* 14 (2007): 7.

<sup>25</sup> Paul Rabinow, *Essays on the Anthropology of Reason* (Princeton: Princeton University Press, 1996), Nikolas S. Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton: Princeton University Press, 2007).

<sup>26</sup> King, "The Scale Politics of Emerging Diseases."

<sup>27</sup> Braun, "Biopolitics and the Molecularization of Life."

<sup>28</sup> Rabinow, *Essays on the Anthropology of Reason*, 98.

<sup>29</sup> Stuart J. Murray, "Thanatopolitics: On the Use of Death for Mobilizing Political Life," *Polygraph* 18 (2006).

<sup>30</sup> Cultural studies of the history of fear provide sophisticated theorizations of the social function of fear. See for example, Corey Robin, *Fear: The History of a Political Idea* (Oxford: Oxford University Press, 2004), Joanna Bourke, *Fear: A Cultural History* (Emeryville, CA: Shoemaker Hoard, 2006).

<sup>31</sup> Bourke, *Fear: A Cultural History*, 13.

<sup>32</sup> Robin, *Fear: The History of a Political Idea*.

<sup>33</sup> Giddens, "Risk and Responsibility."

<sup>34</sup> *Ibid.*: 3.

<sup>35</sup> Beck in Nancy Tomes, "Epidemic Entertainment: Disease and Popular Culture in Early-Twentieth-Century America," *American Literary History* 14, no. 4 (2002): 625.

<sup>36</sup> Niklas Luhmann, *Risk: A Sociological Theory* (New York: Aldine de Gruyter, 1993).

<sup>37</sup> Ian Hacking, "Risk and Dirt," in *Risk and Morality*, ed. R. Ericson and A. Doyle (Toronto: University of Toronto Press, 2003), Collier, Lakoff, and Rabinow, "Biosecurity: Towards an Anthropology of the Contemporary."

<sup>38</sup> Lakoff, "Preparing for the Next Emergency," 13.

<sup>39</sup> King considers this issue in his study of the emerging diseases public health campaign, arguing that the campaign turned social ambivalence about modernity into consensus regarding new risks and necessary interventions. King, "The Scale Politics of Emerging Diseases."

<sup>40</sup> See for example, Rajan, *Biocapital: The Constitution of Postgenomic Life*, Fortun, *Advocacy after Bhopal: Environmentalism, Disaster, New Global Orders*, Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, Mass.: Harvard University Press, 1999).

<sup>41</sup> Petryna, *Life Exposed: Biological Citizens after Chernobyl*, 10.

<sup>42</sup> Hugh Gusterson, "Nuclear Futures: Anticipatory Knowledge, Expert Judgement, and the Lack That Cannot Be Filled," *Science and Public Policy* 35, no. 8 (2008): 551.

<sup>43</sup> James Carey, "McLuhan and Mumford: The Roots of Modern Media Analysis," *Journal of Communication* 31, no. 3 (1981).

<sup>44</sup> Ronnie D. Lipschutz and Heather Turcotte, "Duct Tape or Plastic? The Political Economy of Threats and the Production of Fear," in *Making Threats: Biofears and Environmental Anxieties*, ed. Betsy Hartmann, Banu Subramaniam, and Charles Zerner (Lanham, Maryland: Rowman and Littlefield, 2005), 30.

<sup>45</sup> Petryna, *Life Exposed: Biological Citizens after Chernobyl*, 220.

<sup>46</sup> George E. Marcus, *Ethnography through Thick and Thin* (Princeton, NJ: Princeton University Press, 1998), 50.

<sup>47</sup> George E. Marcus and Michael M.J. Fischer, *Anthropology as Cultural Critique: An Experimental Moment in the Human Sciences* (Chicago: University of Chicago Press, 1986).

<sup>48</sup> Tsing, *Friction: An Ethnography of Global Connection*, Marcus, *Ethnography through Thick and Thin*. Paul Rabinow, "Representations Are Social Facts," in *Writing Culture: The Poetics and Politics of Ethnography*, ed. James Clifford and George E. Marcus (Berkeley: University of California Press, 1986).

<sup>49</sup> Tsing, *Friction: An Ethnography of Global Connection*.

<sup>50</sup> Significantly, this project does not claim to account for the global system holistically. Rather, as Marcus explains, there is no global in the local/global dualism, for "the global is an emergent dimension of arguing about the connection among sites in a multi-sited ethnography" Marcus, *Ethnography through Thick and Thin*, 83. See also, Tsing, *Friction: An Ethnography of Global Connection*, Fortun, *Advocacy after Bhopal: Environmentalism, Disaster, New Global Orders*, Petryna, *Life Exposed: Biological Citizens after Chernobyl*, Rajan, *Biocapital: The Constitution of Postgenomic Life*. and Donald S. Moore, *Suffering for Territory : Race, Place, and Power in Zimbabwe* (Durham : Duke University Press, 2005).

<sup>51</sup> Sarah Franklin, "Science as Culture, Cultures of Science," *Annual Review of Anthropology* 24 (1995): 174.

<sup>52</sup> Rajan, *Biocapital: The Constitution of Postgenomic Life*.

<sup>53</sup> Des Chene, Malkki, Martin and others in Akhil Gupta and James Ferguson, eds., *Anthropological Locations: Boundaries and Grounds of a Field Science* (Berkeley: University of California Press, 1997).

## Chapter 1 Notes

<sup>1</sup> "Strengthening the International Regime against Biological Weapons," The White House Press Release, November 1, 2001, accessed November 7, 2007, <http://www.whitehouse.gov/news/releases/2001/11/20011101.html>.

<sup>2</sup> Ibid.

<sup>3</sup> The audience included officials from the NIH, the Office of Public Health Preparedness, the Carnegie Mellon Institute, and representatives to Congress. "President Increases Funding for Bioterrorism by 319 percent," The White House, accessed November 8, 2007, [http://www.dhs.gov/xnews/speeches/speech\\_0062.shtm](http://www.dhs.gov/xnews/speeches/speech_0062.shtm).

<sup>4</sup> Ibid.

<sup>5</sup> Sheila Jasanoff, "Beyond Calculation: A Democratic Response to Risk," in *Disaster and the Politics of Intervention*, ed. Andrew Lakoff (New York: Columbia University Press, 2010), 15.

<sup>6</sup> Ibid.

<sup>7</sup> Rachel Nowak, "Killer Virus," *New Scientist*, January 10 2001.



<sup>8</sup> Ibid. See also, Jon Cohen, "Designer Bugs," *Atlantic Monthly* 290, no. 1 (2002), Miller, Engelberg, and Broad, *Germs: The Ultimate Weapon*, "Killer Virus Accidentally Made in Lab," *Current Science* 86, no. 14 (2001).

<sup>9</sup> Cohen, "Designer Bugs."

<sup>10</sup> Now the "Invasive Animals" CRC.

<sup>11</sup> He theorized that as the mouse's immune system fought off the virus, it would produce antibodies that would also attack the mouse's eggs, producing sterility in the female. The sterile mice could still mate, but over time would dilute the effective breeding of the mouse population and, hopefully, offer some relief from the mouse-plagues that overrun the nation about every four years.

<sup>12</sup> Humans cannot contract mousepox, though the strain is similar to the *Variola* viruses which cause smallpox. However, because mice are the rodent of choice for research in the science industry, an outbreak of mousepox could undermine years of scientific research by killing millions of laboratory mice. Thus, the United States prohibits experiments with mousepox, and Jackson and Ramshaw were working in one of a few facilities in Australia that allows work with the virus.

<sup>13</sup> Cohen, "Designer Bugs."

<sup>14</sup> Ibid. Ramshaw consulted with Frank Fenner, his colleague at the John Curtin School of Medicine, and coauthor with D.A. Henderson of the definitive history of smallpox, *Smallpox and Its Eradication* (1988). Jackson consulted with the CRC director Bob Seamark. Seamark consulted with the government agency that funded his program, which in turn took the question to the Australian Department of Defence.

<sup>15</sup> "Discovery prompts call for biowarfare review," Cooperative Research Centre for the Biological Control of Pest Animals," accessed April 29, 2008, <http://www.csiro.au/files/mediaRelease/mr2001/Prmousefox.htm> (January 11, 2001).

<sup>16</sup> Transcribed from interview at

[http://www.fas.org/biosecurity/education/dualuse/FAS\\_Jackson/4\\_B.html](http://www.fas.org/biosecurity/education/dualuse/FAS_Jackson/4_B.html), accessed April 29, 2008. The mousepox incident stayed in the spotlight for several months, and interest was revived again following the anthrax incident in the United States later that year. Eventually the agency closed to interviews and terminated the contraception project, unwilling to risk its reputation by pursuing the project.

<sup>17</sup> Humans are susceptible to four pox viruses: cowpox, monkeypox, vaccinia, and variola. (Chickenpox is a misnamed poxvirus, not a true poxvirus, infecting humans but not chickens.)

<sup>18</sup> See Priscilla Wald, "Introduction: Contagion and Culture," *American Literary History* 14, no. 4 (2002).

<sup>19</sup> Quoted in Jonathan B. Tucker, *Scourge: The Once and Future Threat of Smallpox* (New York: Grove Press, 2002), 13.

<sup>20</sup> Scholars estimate that the disease emerged around 10,000 BC. Donald R. Hopkins, *Princes and Peasants: Smallpox in History* (Chicago: University of Chicago Press, 1983).

<sup>21</sup> For a cultural history of smallpox and detailed biological information, see David A. Koplow, *Smallpox: The Fight to Eradicate a Global Scourge* (Berkeley: University of California Press, 2003), Stephanie True Peters, *Smallpox in the New World* (New York:

Benchmark Books, 2005), Tucker, *Scourge: The Once and Future Threat of Smallpox*, Richard Preston, *The Demon in the Freezer* (New York: Doubleday, 2000), Elizabeth A. Fenn, *Pox Americana: The Great Smallpox Epidemic of 1775-82* (New York: Hill and Wang, 2001), Donald A. Henderson, *Smallpox: The Death of a Disease: The inside Story of Eradicating a Worldwide Killer* (Amherst, N.Y.: Prometheus Books, 2009), Hopkins, *Princes and Peasants: Smallpox in History*.

<sup>22</sup> Jessica Stern, "Dreaded Risks and the Control of Biological Weapons," *International Security* 27, no. 3 (2002/03).

<sup>23</sup> Koplow, *Smallpox: The Fight to Eradicate a Global Scourge*, Peters, *Smallpox in the New World*, Tucker, *Scourge: The Once and Future Threat of Smallpox*, Preston, *The Demon in the Freezer*, Fenn, *Pox Americana: The Great Smallpox Epidemic of 1775-82*, Henderson, *Smallpox: The Death of a Disease: The inside Story of Eradicating a Worldwide Killer*.

<sup>24</sup> W.A. Croffut, Ed., *Fifty Years in Camp and Field: The Diary of Major General Ethan Allen Hitchcock* (New York 1909), 395. Cited in Robert Marshall Utley, *The Indian Frontier of the American West, 1846-1890*, 1st ed., *Histories of the American Frontier; Variation: Histories of the American Frontier*. (Albuquerque: University of New Mexico Press, 1984).

<sup>25</sup> Howard H. Peckham, *Pontiac and the Indian Uprising*, Phoenix Books; (Princeton: Princeton Univ. Press, 1947), 226. Fred Anderson, *Crucible of War: The Seven Years' War and the Fate of Empire in British North America, 1754-1766*, 1st ed. (New York : Alfred A. Knopf, 2000), 809b. Philip Ranlet, "The British, the Indians, and Smallpox: What Actually Happened at Fort Pitt in 1763?" *Pennsylvania History* 67, no. 3 (2000).

<sup>26</sup> He replies to do the chore, upon which Amherst commended him, "You will do well to inoculate the Indians by means of blankets, as well as every other method that can serve to extirpate this execrable race." Anderson, *Crucible of War: The Seven Years' War and the Fate of Empire in British North America, 1754-1766*, 809n, John Grenier, *The First Way of War: American War Making on the Frontier, 1607-1814* (Cambridge, UK ; New York: Cambridge University Press, 2005), 144, William R. Nester, *"Haughty Conquerors": Amherst and the Great Indian Uprising of 1763* (Westport, Conn.: Praeger, 2000), 114-15.

<sup>27</sup> Quoted in David Dixon, *Never Come to Peace Again: Pontiac's Uprising and the Fate of the British Empire in North America* (Norman: University of Oklahoma Press, 2005), 151.

<sup>28</sup> Abbas M Behbehani, "The Smallpox Story: Life and Death of an Old Disease," *Microbiology Review* 47, no. 4 (1983).

<sup>29</sup> Edward Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of the Cow Pox* (London: Printed, for the author, by Sampson Low, and sold by Law [etc.], 1798).

<sup>30</sup> Similarly, many Americans today remember taking their children to "Chickenpox Parties" while they were young in hopes of getting the disease over with and attaining the peace of mind that comes with immunity.

<sup>31</sup> In 1881, when Pasteur developed the Anthrax vaccine, he kept the name vaccination to

refer to all processes of inoculation against disease. Behbehani, "The Smallpox Story: Life and Death of an Old Disease," 470.

<sup>32</sup> P. E. Razzell, *Edward Jenner's Cowpox Vaccine: The History of a Medical Myth* (Firle [Eng.]: Caliban Books, 1977).

<sup>33</sup> Behbehani, "The Smallpox Story: Life and Death of an Old Disease," 24, "Decline and Fall of the Smallpox Empire," *World Health: The Magazine of the World Health Organization* May 1980.

<sup>34</sup> The governor of the Council of the Indies noted that depopulation would mean a decrease in income from taxes that the Spanish received from the colonies and in commerce and farming. The economic benefits of such a mission would, in his view, justify paying for it from the royal treasury. Donald R. Hopkins, *Princes and Peasants: Smallpox in History* (Chicago: University of Chicago Press, 1983). Michael M. Smith, "The "Real Expedicion Maritima De La Vacuna" in New Spain and Guatemala," *Transactions of the American Philosophical Society* 64, no. part I (1974), John Z Bowers, "The Odyssey of Smallpox Vaccination," *Bulletin of the History of Medicine* 55 (1981). Three times during the expedition, Balmis' group docked in a town only to discover that vaccination had already been introduced, testifying to the rapid global spread of the technique.

<sup>35</sup> John G. Cotton, ed., *The Medical Intelligencer: Devoted to the Cause of Physical Education and to the Means of Preventing and of Curing Disease*, vol. IV (Boston: John Cotton, 1827), 72. He earned no salary, though he received free postage for the distribution of the vaccine. He was authorized to charge a fee—Smith's usual price was \$5.00—but the doctor struggled with the ethics of withholding the vaccine from those who were unable to pay. Still, Smith managed to develop the program and soon was working with 20 other agents to distribute vaccine throughout the country.

<sup>36</sup> "Seventeenth Congress--First Session: In the Senate. House of Representatives. Thursday's Proceedings--April 18," *Niles' Weekly Register (1814-1837)* 1822, 125. The argument in the committee report proposed that because the task charged to the vaccine agency was so vast, it could not be done by the agent without producing a decline in the quality of the product.

<sup>37</sup> "Article 1 -- No Title," *Niles' Weekly Register (1814-1837)*, March 2, 1822, 1, "Article 1 -- No Title," 81. "Report on Vaccination.: Agreed to in the House of Representatives of the United States on Friday, Feb. 22d," *Niles' Weekly Register (1814-1837)* 1822, 6.

<sup>38</sup> Cohen writes, "Medicine increasingly legitimates its protocols in terms of political values and outcomes to extend its own power and expertise. Through this hybrid process, medicine begins to supplant religion as an authoritative basis for making political decisions about the public good." Ed Cohen, *A Body Worth Defending: Immunity, Biopolitics, and the Apotheosis of the Modern Body* (Durham: Duke University Press, 2009).

<sup>39</sup> *Ibid.*, 15.

<sup>40</sup> *Ibid.*, 8.

<sup>41</sup> *Ibid.*

<sup>42</sup> Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae*.

<sup>43</sup> Events recorded in the committee's official report to WHO on the smallpox eradication

program: Frank Fenner, *Smallpox and Its Eradication* (Geneva: World Health Organization, 1988).

<sup>44</sup> The 1967 resolution also dedicated about five percent of the WHO budget, roughly \$2.4 million annually, to the program, and established a headquarters for the directive

<sup>45</sup> Fenner, *Smallpox and Its Eradication*, 421.

<sup>46</sup> Henderson himself denied military tactics: "Many persons inside and outside WHO mistakenly concluded that the achievement (of global eradication) could be attributed to a generously financed, enthusiastically supported and authoritatively directed programme similar to a military campaign. That the programme had none of the characteristics is apparent" Ibid.

<sup>47</sup> Jitendra Tuli, "India's "War Plan", " *World Health: The Magazine of the World Health Organization* May 1980, 13.

<sup>48</sup> Ibid.

<sup>49</sup> Marcella Davies, "A Job Well Done," *World Health: The Magazine of the World Health Organization* May 1980, 7-9.

<sup>50</sup> Tuli, "India's "War Plan", " 13.

<sup>51</sup> Davies, "A Job Well Done," 7, Donald A. Henderson, "A Victory for All Mankind," *World Health: The Magazine of the World Health Organization* May 1980, 4.

<sup>52</sup> Tuli, "India's "War Plan". "

<sup>53</sup> Henderson, "A Victory for All Mankind."

<sup>54</sup> Tuli, "India's "War Plan". "

<sup>55</sup> Arun M. Chacko, "A Goddess Defied," *World Health: The Magazine of the World Health Organization* May 1980, 15.

<sup>56</sup> Cohen, *A Body Worth Defending*, 63.

<sup>57</sup> Michel Foucault, *Security, Territory, Population: Lectures at the Collège De France, 1977-78*, ed. Michel Senellart and François Ewald and Alessandro Fontana, trans. Graham Burchell (Basingstoke; New York: Palgrave Macmillan: République Française, 2007), 59.

<sup>58</sup> Notably, the vaccine is only effective for a decade, though the scar will last much longer, and only about 80% of smallpox cases leave facial scars, so this surveillance could not be considered to be foolproof.

<sup>59</sup> This method was considered by many to be an inefficient means of vaccination and a waste of the officials' time, for many more bodies could be treated if they came to a central location where the vaccinator was working.

<sup>60</sup> Mourning traditions and wakes also brought people into close proximity with each other and with smallpox following death in a home.

<sup>61</sup> World Health Assembly Resolution 33.3, 1980.

<sup>62</sup> Henderson, "A Victory for All Mankind," 5.

<sup>63</sup> Davies, "A Job Well Done," 8.

<sup>64</sup> Foucault, *Security, Territory, Population: Lectures at the Collège De France, 1977-78*.

<sup>65</sup> Wald, "Introduction: Contagion and Culture." P. 623

<sup>66</sup> Foucault, *Security, Territory, Population: Lectures at the Collège De France, 1977-78*, 66.

<sup>67</sup> World Health Assembly Resolution 52.5, 1999. accessed March 15, 2007, [http://apps.who.int/gb/archive/pdf\\_files/WHA52/ew5.pdf](http://apps.who.int/gb/archive/pdf_files/WHA52/ew5.pdf)

<sup>68</sup> Current WHO-sanctioned research focuses on antiviral agents and vaccines, as well as detection mechanisms. A 1999 resolution outlined six areas of research being conducted with the virus stockpiles, including “phylogenetic analysis ... nucleotide sequence analysis of *variola* virus DNA, serological detection of *variola* virus, antiviral agents and animal models of smallpox” (WHO advisory committee on *Variola* research, Report of the second meeting, 15-16 February 2001).

<sup>69</sup> Laboratory research, however, still carries risk. The last person to die of smallpox was a scientist in England who contracted the disease in a laboratory accident in 1978. Twice a year, WHO inspectors tour the reserve laboratories to assess the security of the facilities and the safety practices of workers. When WHO again voted to delay the destruction in 2007, claiming that “the destruction of all *variola* virus stocks is an irrevocable event and that the decision of when to do so must be made with great care,” a committee halfheartedly reminded WHO delegates that previous assemblies had voted to destroy the reserves, urging them to complete what their predecessors began in the 1950s: the obliteration of living smallpox virus. *WHO executive board, 120<sup>th</sup> session*, accessed March 13, 2007, [http://apps.who.int/gb/ebwha/pdf\\_files/EB120/b120\\_r8-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/EB120/b120_r8-en.pdf).

<sup>70</sup> World Health Assembly resolution 60.1, 2007.

<sup>71</sup> A Federation of American Scientists fact sheet on smallpox, for example, sustains the rumor of countries harboring smallpox reserves: <http://www.fas.org/programs/bio/factsheets/smallpox.html>. See also Preston, *The Demon in the Freezer*, Tucker, *Scourge: The Once and Future Threat of Smallpox*.

<sup>72</sup> Jeronimo Cello, Aniko V. Paul, and Eckard Wimmer, "Chemical Synthesis of Poliovirus CDNA: Generation of Infectious Virus in the Absence of Natural Template," *Science* 297, no. 5583 (2002).

<sup>73</sup> James Randerson, "Did Anyone Order Smallpox?," *The Guardian (London, England)*, 06/23/2006.

<sup>74</sup> Colonies also passed laws against the practice because of the risk of contagion and spread of the disease among civilians. “George Washington to Major General Horatio Gates, 5-6 February 1777” In George Washington, Philander D. Chase, Dorothy Twohig, Frank E. Grizzard, Edward G. Lengel, *The Papers of George Washington. Revolutionary War Series* (Charlottesville: University Press of Virginia, 1985), 8.

<sup>75</sup> The White House, "Remarks by the President on Smallpox Vaccination," (Office of the Press Secretary, December 13, 2002). Italics added.

<sup>76</sup> Ibid.

<sup>77</sup> When the military mandated anthrax vaccinations for all personnel in 1997, many refused to receive the vaccine due to its side effects. Air Force Major Sonnie Bates was honorably discharged when he refused the vaccine in 1999.

<sup>78</sup> White House, "Remarks by the President on Smallpox Vaccination."

<sup>79</sup> One option for people who demand to be vaccinated right away is to enroll in clinical trials of the smallpox vaccine, said Dr. Julie Gerberding, director of the Centers for Disease Control and Prevention in Atlanta. "As this program unfolds, vaccine safety is a top priority," Dr. Gerberding said. "We intend to do everything that we can to minimize

the risk." Richard W. Stevenson and Sheryl Gay Stolberg, "Threats and Responses: Vaccinations; Bush Lays out Plan on Smallpox Shots; Military is First," *New York Times*, December 14, 2002.

<sup>80</sup> Lawrence K. Altman and Denise Grady, "Threats and Responses: The Smallpox Vaccine; Smallpox Shot Will Be Free to Those Who Want One," *New York Times*, December 15, 2002.

<sup>81</sup> Stacey Kaltman et al., "Modeling Dimensions of Choice in Accepting the Smallpox Vaccine," *American Journal of Health Behavior* 30, no. 5 (2006).

<sup>82</sup> In Cohen, *A Body Worth Defending*, 28.

<sup>83</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, Mass.: Harvard University Press, 1993).

<sup>84</sup> www.drkenalibek.com, accessed May 12, 2008.

<sup>85</sup> Critics question Alibek's motivations, for he keeps close ties to the business side of biodefense. In 2006, Alibek resigned from a tenured post at George Mason University, where he founded the nation's first biodefense graduate education program, to become the CEO of AFG Biosolutions, a biotech company working to develop pharmaceuticals to protect against bioweapons. Though his Immune System Support System enterprise failed within three years, the impression that this Russian-turned-U.S. Citizen was trying to play the biosecurity game for his own profit cast a shadow on the altruistic motivations for which he was awarded the Barkley Medal for World Peace.

<sup>86</sup> Judith Butler and Gayatri Chakravorty Spivak, *Who Sings the Nation-State?: Language, Politics, Belonging* (London: New York, 2007), 4.

<sup>87</sup> Masco, "'Survival Is Your Business': Engineering Ruins and Affect in Nuclear America."

<sup>88</sup> David Campbell, *Writing Security: United States Foreign Policy and the Politics of Identity* (Minneapolis: University of Minnesota Press, 1992).

<sup>89</sup> Joseph Masco, "Atomic Health, or How the Bomb Altered American Notions of Death," in *Against Health: How Health Became the New Morality*, ed. Jonathan M. Metzl and Anna Kirkland (New York and London: New York University Press, 2010), 140.

<sup>90</sup> *Ibid*, 150.

<sup>91</sup> Aaron L. Friedberg, *In the Shadow of the Garrison State: America's Anti-Statism and Its Cold War Grand Strategy* (Princeton, N.J. : Princeton University Press, 2000).

<sup>92</sup> Masco, "'Survival Is Your Business': Engineering Ruins and Affect in Nuclear America", Oakes, *The Imaginary War: Civil Defense and American Cold War Culture*.

<sup>93</sup> Grossman, *Neither Dead nor Red: Civilian Defense and American Political Development During the Early Cold War*, 12.

<sup>94</sup> Michel Foucault, *Security, Territory, Population: Lectures at the Collège De France, 1977-78*, ed. Michel Senellart and François Ewald and Alessandro Fontana, trans. Graham Burchell (Basingstoke; New York: Palgrave Macmillan: République Française, 2007).

<sup>95</sup> Jeremy Bentham, *Theory of Legislation*, trans. Richard Hildreth, 2nd ed. (London : Trübner, 1871).

<sup>96</sup> Michel Foucault and Paul Rabinow, *The Foucault Reader* (London: Penguin Books, 1991).

<sup>97</sup> Beck, *Risk Society*.

<sup>98</sup> Christian Enemark, *Disease and Security: Natural Plagues and Biological Weapons in East Asia* (London & New York: Routledge, 2007).

<sup>99</sup> Mitchell Dean, *Governmentality: Power and Rule in Modern Society* (London: Sage Publications, 1999), 183.

<sup>100</sup> Collier, Lakoff, and Rabinow, "Biosecurity: Towards and Anthropology of the Contemporary."

<sup>101</sup> Masco, "'Survival Is Your Business': Engineering Ruins and Affect in Nuclear America."

<sup>102</sup> Grossman, *Neither Dead nor Red: Civilian Defense and American Political Development During the Early Cold War*, 35.

<sup>103</sup> *Ibid.*, 36.

<sup>104</sup> Butler and Spivak, *Who Sings the Nation-State?: Language, Politics, Belonging*, 1.

<sup>105</sup> Oakes, *The Imaginary War: Civil Defense and American Cold War Culture*, 6.

<sup>106</sup> *Ibid.*, 104.

<sup>107</sup> Lakoff, "Preparing for the Next Emergency."

<sup>108</sup> Oakes, *The Imaginary War*, 101.

<sup>109</sup> Grossman, *Neither Dead nor Red*, 17.

<sup>110</sup> Oakes, *The Imaginary War*, 79.

<sup>111</sup> Grossman, *Neither Dead nor Red*, xiii.

<sup>112</sup> Weart, *Nuclear Fear: A History of Images*, Masco, "'Survival Is Your Business': Engineering Ruins and Affect in Nuclear America."

<sup>113</sup> *Ibid.*

<sup>114</sup> Colin S. Gray, "Strategy in the Nuclear Age: The United States, 1945-1991," in *The Making of Strategy: Rulers, States, and War*, ed. Williamson Murray, MacGregor Knox, and Alvin H. Bernstein (Cambridge: Cambridge University Press, 1994).

<sup>115</sup> Weart, *Nuclear Fear: A History of Images*.

<sup>116</sup> Francois Ewald, "Two Infinities of Risk," in *The Politics of Everyday Fear*, ed. Brian Massumi (Minneapolis, MN: University of Minnesota Press, 1993), 274.

<sup>117</sup> As President Bush said upon signing the bill, "The Act restructures and strengthens the executive branch of the Federal Government to better meet the threat to our homeland posed by terrorism." The White House, Office of the Press Secretary, "President's remarks at homeland security bill signing," November 25, 2002.

<sup>118</sup> 6 USC 111, Title I section 101 b.1.a-f

<sup>119</sup> Donald F. Kettl, *The Department of Homeland Security's First Year: A Report Card* (New York: Century Foundation, 2004), 1.

<sup>120</sup> Campbell, *Writing Security: United States Foreign Policy and the Politics of Identity*, 66.

<sup>121</sup> 6 USC 121, Title II, section 201. d.2

<sup>122</sup> In turn, "The term "assets" includes contracts, facilities, property, records, unobligated or unexpended balances of appropriations, and other funds or resources (other than personnel)" (6 USC 101, sec 2.3).

<sup>123</sup> USC 101, Intro, sec 2.9

<sup>124</sup> [www.dhs.gov/index.shtm](http://www.dhs.gov/index.shtm), ellipses in original. Accessed November 14, 2008.

<sup>125</sup> *Securing Our Homeland U.S. Department of Homeland Security Strategic Plan*, (Washington, D.C. : U.S. Dept. of Homeland Security, 2004).

<sup>126</sup> Wald, "Introduction: Contagion and Culture."

<sup>127</sup> Masco, ""Survival Is Your Business": Engineering Ruins and Affect in Nuclear America."

<sup>128</sup> Dr. Gregory Poland, vaccinologist at the Mayo Clinic: "Bush's Bioshield reignites research," Minnesota Public Radio, January 30, 2003, accessed March 31, 2007, <http://news.mpr.org>.

<sup>129</sup> Subcommittee on prevention of nuclear and biological attack of the committee on homeland security, *Engineering Bio-Terror Agents: Lessons from the Offensive U.S. And Russian Biological Weapons Programs*, one hundred ninth congress, first session, July 13, 2005, 11-12.

<sup>130</sup> *Ibid.*, 13.

<sup>131</sup> *Securing Our Homeland U.S. Department of Homeland Security Strategic Plan*, 5.

<sup>132</sup> President George W. Bush, July 21, 2004. Cited in "Science and Technology: A Foundation for Homeland Security," ed. Executive Office of the President (Office of Science and Technology Policy, 2005). "Science and Technology: A Foundation for Homeland Security," 1.

<sup>133</sup> *Engineering Bio-Terror Agents*, 29.

<sup>134</sup> A similar question was posed in a hearing before the same committee eleven months later, "Mr. LINDER. Does it startle you—I may have asked you this the last time you were here—to know that significant numbers of Iranian children are being vaccinated for smallpox today?" (Serial no. 109-87, June 22, 2006)

<sup>135</sup> See for example blogs at [www.freerepublic.com/focus/f-news/1435455/posts](http://www.freerepublic.com/focus/f-news/1435455/posts), [www.drudgeforum.com/index.php?showtopic=2845&view=findpost&p=18798](http://www.drudgeforum.com/index.php?showtopic=2845&view=findpost&p=18798). (accessed April 1, 2007). Note that no blogger is able to locate a source for the speculation.

<sup>136</sup> Joseph Masco, ""Sensitive but Unclassified": Secrecy and the Counterterrorist State," *Public Culture* 22, no. 3 (2010): 461.

<sup>137</sup> Jasanoff, "Beyond Calculation," 15.

## Chapter 2, Part One Notes

<sup>1</sup> Mary Wulff, Conversation with author, July 9, 2008.

<sup>2</sup> For explorations of this term, see Nikolas S. Rose and Carlos Novas, "Biological Citizenship," in *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*, ed. Aihwa Ong and Stephen Collier (Malden, MA: Blackwell, 2004). The definition claimed here builds upon Petryna's expansion of the concept in Petryna, *Life Exposed: Biological Citizens after Chernobyl*.

<sup>3</sup> Rose and Novas, "Biological Citizenship," 7.

<sup>4</sup> Nikolas Rose, "The Politics of Life Itself," *Theory, Culture & Society* 18, no. 6 (2001).

<sup>5</sup> Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (Cambridge: Cambridge University Press, 1998), Michael Lynch, "Laboratory Space and



the Technological Complex: An Investigation of Topical Contextures," in *Ecologies of Knowledge: Work and Politics in Science and Technology*, ed. Susan Leigh Star (Albany: State University of New York Press, 1995).

<sup>6</sup> Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton, N.J.: Princeton University Press, 1986), 46.

<sup>7</sup> Donna Jeanne Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 248, n2.

<sup>8</sup> Latour, *Pandora's Hope: Essays on the Reality of Science Studies*, 43.

<sup>9</sup> Foucault proposes that the effect of the security apparatus which emerges through control of epidemics hinges upon the problem of circulation "in the very broadest sense of movement, exchange, and contact, as form of dispersion and also as form of distribution" Foucault, *Security, Territory, Population: Lectures at the Collège De France*, 64., See also Bingham, Nick and Steve Hinchliffe. "Mapping the Multiplicities of Biosecurity." In *Biosecurity Interventions: Global Health and Security in Question*, edited by Andrew and Stephen J. Collier Lakoff, 173-94. New York: Columbia University Press, 2008, 177.

<sup>10</sup> Burgdorfer, Conversation with author, July 29, 2008.

<sup>11</sup> When the building used by the lab prior to the 1930s was converted into a community playhouse (in the 1980s), old specimen jars were found sitting on shelves in the building, abandoned by the lab in a move half a century ago. Disputes over landfill issues have popped up repeatedly in the lab's history, most recently regarding a dump site in Victor, MT. The NIH agreed to partially pay for the cleanup of this site.

<sup>12</sup> Elise McCormick, "Death in a Hard Shell," *Saturday Evening Post*, November 15, 1941, 24.

<sup>13</sup> Montana State Board of Entomology, "Third Biennial Report of the Montana State Board of Entomology, 1917-18," (Helena, Mont. : Independent Pub. Co., 1918), 17.

<sup>14</sup> "Darby Commercial Club to Battle Spotted Fever," *Western News*, February 14, 1913, 3.

<sup>15</sup> Foucault, *Security, Territory, Population*.

<sup>16</sup> Charles S. Maier, "Consigning the Twentieth Century to History: Alternative Narratives for the Modern Era," *American Historical Review* June 2000 (2000), <<http://www.historycooperative.org/journals/ahr/105.3/ah000807.html>>

<sup>17</sup> *Fourth Annual Report of the Montana State Board of Entomology*, 1921, p. 12.

<sup>18</sup> McCormick, "Death in a Hard Shell." Whether or not McClintic's ride was the act that finally pushed Rocky Mountain spotted fever to the national spotlight, the next year the federal government allocated \$15,000 to an anti-tick campaign in the Bitterroot. That same year, the state of Montana established a Board of Entomology, appropriating an additional \$5,000 "to investigate and study the dissemination by insects of diseases ... having for its purpose the eradication and prevention of such diseases." (Law of 1913, *First Biennial Report*, 1913-14, 5.)

<sup>19</sup> Foucault, *Security, Territory, Population*, 52.

<sup>20</sup> *Fourth Annual Report*. Control efforts did bring about results, reducing the number of spotted fever fatalities from 11 in 1913 to just three in 1918.

<sup>21</sup> "Conference is held on woodtick", *Western News*, April 15, 1913, p. 1.

<sup>22</sup> “Dipping Vat Destroyed by Vandals” *Western News*, Friday, June 13, 1913, vol. 23. The *Western News* reported that cement forms on each corner of the vat had been pried off, and the structure had been punctured, suggesting “that the damage had been done by a crowbar.” Dunbar refused to pay \$100 bail, spending one night in prison before he was tried and found not guilty of the offense.

<sup>23</sup> *First Biennial Report*, 18, 20. The recipe for the lethal water consisted of: “8 or 8½ pounds of arsenite of soda (80% arsenious acid); 5 ½ pounds soft soap; 2 gallons paraffin (kerosene); 400 (Imp.) gallons of water (480 U. S. gal.)” (*Stevensville Register*, May 22, 1913, no 41 vol 11, p. 1.) Kerosene was used to “add penetration to the arsenic solution” and did not kill ticks. Excess kerosene was skimmed from the surface, for “Free kerosene has been found to be injurious to the animals” (First Biennial Report, 16-17.) When the solution was not right, ranchers reported that the animals skin was “somewhat burned or parched, and remain(ed) so for several days.” (*Stevensville Register*, May 22, 1913, no 41 vol 11, p. 1.) Accordingly, milk cows and work horses were not subject to a swim in the poison.

<sup>24</sup> *First Biennial Report*, 5, Sec. 6. The same section allowed the board to prescribe treatment of animals, but not humans.

<sup>25</sup> The report of the first year lists three strategies, with dipping at the top of the list. By 1919, however, the report showed seven components to the control plan. The *Third Biennial Report* (p. 31) states that dipping was no longer of “great benefit,” while also citing weather complications and the “difficulty of enforcing a dipping program due to lack of interest and occasionally to prejudice on the part of certain stock owners.” Notably, the story of the dipping vats and the dynamite is retold in the visitor center at RML as an example of the public opposition the lab “had to overcome” in its early history.

<sup>26</sup> In 1915, workers applied 1,000 pounds of strychnine-doused grain over 100 square miles. They reported the cost of poisoning, including labor, at \$500 for the season, an amount less than the purchase price of a single vat. *First Biennial Report*, p. 27

<sup>27</sup> Farmed land was considered less-hospitable to ticks than the logged-over and abandoned land that Parker identifies as “most dangerous.” By not planting and fencing, Parker suggests, these residents were creating land perfect for squirrels, livestock, and therefore ticks. *Third Biennial Report*, p. 37

<sup>28</sup> McCormick, “Death in a Hard Shell,” 24.

<sup>29</sup> *Third Biennial Report*, 19.

<sup>30</sup> Latour, *Pandora’s Hope*, 43.

<sup>31</sup> Latour and Woolgar, *Laboratory Life: The Construction of Scientific Facts*, 51. At a conference in April 1923, Parker reported the incidence of the disease in ticks to be about 2%.

<sup>32</sup> Robert N. Philip, *Rocky Mountain Spotted Fever: Anatomy of a Pestilence*. Stevensville, MT: Stoneydale Publishing, 2000, p. 138.

<sup>33</sup> Philip, *Rocky Mountain Spotted Fever*, 140.

<sup>34</sup> A 1926 leaflet calls the lab “anything but a safe place to rear the infected ticks,” and a *Saturday Evening Post* article vividly describes the “dangerous work of tick rearing and

vaccine making” in a tight, dark space, evoking language which would resurface nearly a century later in protest of BSL4 facilities. McCormick, "Death in a Hard Shell."

<sup>35</sup> House Bill no. 265, Montana State Legislature.

<sup>36</sup> The so called “Block 19” of the Pine Grove Addition was part of the Hamilton townsite, but outside the incorporated city limits. Court Transcript, findings of fact and conclusions of law, section III

<sup>37</sup> Wulff, Conversation with author, July 9, 2008.

<sup>38</sup> Miller, Conversation with author, July 19, 2008.

<sup>39</sup> Record of the Fourth District Court, State of Montana, 1927, 8.

<sup>40</sup> Petryna, *Life Exposed: Biological Citizens after Chernobyl*, 6.

<sup>41</sup> *Ibid.*, 14.

<sup>42</sup> Record of the Fourth District Court, State of Montana, 1927, The speaker is citing the state constitution, here paraphrased is section 3, “Inalienable Rights.”

<sup>43</sup> *Ibid.*, Opening Statement, p. 4.

<sup>44</sup> *Ibid.*, 1927, 41-42.

<sup>45</sup> *Ibid.*, 1927, 54-55.

<sup>46</sup> *Ibid.*, 1927, 55.

<sup>47</sup> *Ibid.*, 1927, Opening Statement, 4.

<sup>48</sup> *Ibid.*, 37-38.

<sup>49</sup> Being on the wrong side of the river was not the only place-based argument against the location. The plaintiffs complained that the site was too close to the high school, in a populated area, and on top of “the playground of the children.” Concern for property values was expressed repeatedly by the plaintiffs, who, as regular citizens and not property experts could only testify from their own experience and were discredited as authorities on property value. The opposing side countered that the laboratory needed access to the water and electricity infrastructure provided by the town, and that the buying and selling of property had proceeded as normal since the time when the site was announced.

<sup>50</sup> Record of the Fourth District Court, State of Montana, 1927, 6.

<sup>51</sup> *Ibid.* Mary Wulff would later express frustration at the scientists’ insistence that the building was completely secure. “If they would just admit that something bad might happen, we would have some common ground. But they just kept saying over and over again that there was NO risk.” Wulff, Conversation with author., July 9, 2008.

<sup>52</sup> Marshall Bloom, Conversation with author, July 17, 2008. Dr. Swanson believes such protocols came about when the diseases being studied were deadly enough that a needle prick could be a death sentence, but also as social concern increased, not just over disease, but over laboratory practice. John Swanson, Conversation with author, July 10, 2008.

<sup>53</sup> The judge also cited precedent of laboratories built in populated cities where they “are not regarded as dangerous to health nor as a nuisance.” Record of the Fourth District Court, State of Montana, 1927, XVI.

<sup>54</sup> *Ibid.*, 3.

<sup>55</sup> *Ibid.*, 7.

<sup>56</sup> *Ibid.*, 4.

<sup>57</sup> Ibid., 3.

<sup>58</sup> Philip, *Rocky Mountain Spotted Fever*, 171.

<sup>59</sup> Maurine Hughes, Conversation with author, July 18, 2008, and Bill Hadlow, Conversation with author, July 15, 2008.

<sup>60</sup> Building 1 was purchased from the state of Montana for \$68,757. The Walsh Act appropriated \$150,000 to the laboratory, part of which was used to purchase Building 1, and the remainder of which paid for the construction of Building 2. An allotment in 1935 paid \$132,000 for Building 4 and two residences, and \$622,000 was allocated in 1938 for Building 3, and three other buildings.

<sup>61</sup> Jani Meuchel, Conversation with author, July 14, 2008.

<sup>62</sup> Larry D. Swanson, "The Bitterroot Valley Economy" November 2002.

<sup>63</sup> "What is RCEDA?" brochure, 2008. RCEDA is funded by grants from the county and Hamilton City, as well as private donations.

<sup>64</sup> The land donation was also critical because it provided mandatory matching funds for the federal grant. Most rural areas would not be able to raise matching funds in order to access these grants, however, because land values are so high in the Bitterroot Valley at the present moment, the appraisal of the land donation came in close to the \$1.6 million in matching funds.

<sup>65</sup> GSK uses MPL in its new cervical cancer vaccine, Ceravix, which is currently under trials. They have increased manufacturing in anticipation of this becoming one of the "biggest vaccines of the decade" according to Vice President Gary Christianson, in *Montana Business and Technology*, Summer 2007, p. 25. In July 2008, GSK did lay off 14 people, bringing the total number of employees from 292 to 278. Meyers cites 260 as the steady employment rate for GSK. \$3 million is Foster's estimate on the tax base.

<sup>66</sup> Self-employment rates are high in the Bitterroot overall. The Swanson report suggests that over 40 percent of all jobs come from self-employment, likely due to the poor quality of salary jobs in the area. Swanson, "The Bitterroot Valley Economy," v.

<sup>67</sup> Rose and Novas, "Biological Citizenship," 455.

<sup>68</sup> Rose and Novas also identify an individual alliance between patients and scientists, brought about through new communication technologies and political activism.

<sup>69</sup> Rose and Novas, "Biological Citizenship," 458.

<sup>70</sup> Rajan, *Biocapital*.

## Chapter 2, Part Two Notes

<sup>1</sup> Lawrence, Conversation with author, July 23, 2008.

<sup>2</sup> Jasanoff, "Beyond Calculation: A Democratic Response to Risk," 36, 30.

<sup>3</sup> Ibid., 36.

<sup>4</sup> Paul Rabinow, *Essays on the Anthropology of Reason* (Princeton, NJ: Princeton University Press, 1996), 99.

<sup>5</sup> Rose and Novas, "Biological Citizenship," 7.

<sup>6</sup> Petryna, *Life Exposed*.

<sup>7</sup> Rabinow, *Essays on the Anthropology of Reason*, 98.

- <sup>8</sup> Adriana Petryna. 2002. *Life Exposed*, 14-15. See also Nguyen and Rose and Novas in *Global Assemblages: Technology, politics, and ethics as anthropological problems*. Ed. Aihwa Ong and Stephen J. Collier (Malden, MA: Blackwell Publishing, 2005).
- <sup>9</sup> Alex Gorman, Conversation with author, July 21, 2008.
- <sup>10</sup> Jenny Johnson, "Lab to play expanded role in fighting bioterrorism" *Ravalli Republic*, February 11, 2002, accessed on July 14, 2008, <http://ravallirepublic.com/articles/2002/02/11/news/export3133.txt>
- <sup>11</sup> Alex Gorman, Conversation with author, July 21, 2008.
- <sup>12</sup> "NIH Director Speaks to Community." *Ravalli Republic*, September 15, 2002, accessed July 18, 2008, <http://ravallirepublic.com/articles/2002/09/15/news/export4258.txt>
- <sup>13</sup> Swanson, Conversation with author, July 10, 2008.
- <sup>14</sup> Bloom, Conversation with author, July 17, 2008.
- <sup>15</sup> Notably, the CLG was formed after the decision had been made to proceed with the EIS. Only then could the laboratory officially acknowledge that its actions went beyond its boundaries without undermining the arguments of the initial environmental assessment.
- <sup>16</sup> NEPA's scoping process involves a comment period that will help to define the scope. Scope includes actions (connected, cumulative, and similar), alternatives (no action, other reasonable, mitigation), and impacts (direct, indirect, cumulative).
- <sup>17</sup> *Comments to the Draft Environmental Impact Statement Integrated Research Facility, RML*, May 2003, p. 8
- <sup>18</sup> Even in the final EIS, the total project budget was determined to be outside the scope of the EIS.
- <sup>19</sup> Another innovative proposal to ensure the security of the community demanded that the names of all agents being studied in the labs be distributed to the local doctors who would be diagnosing diseases in the citizen population.
- <sup>20</sup> Giddens, "Risk and Responsibility," 8.
- <sup>21</sup> *Ibid.*: 3.
- <sup>22</sup> Science takes place within a political context in which it is both subject and object of power relations. As Petryna writes, "the processes of making scientific knowledge are inextricable from the forms of power those processes legitimate and even provide solutions for." In the crisis of bioterrorism, cultural fears raise the desire for knowledge, demanding science to simultaneously produce both evidence of and solutions for the crisis. Petryna, *Life Exposed*, 10.
- <sup>23</sup> Giddens, "Risk and Responsibility," 4.
- <sup>24</sup> The very definition of a BSL4 agent relies on this vague terminology: "Dangerous/exotic agents which pose high risk of life-threatening disease...or related agents with unknown risk of transmission" (DEIS 1-5)
- <sup>25</sup> *Draft Environmental Impact Statement, Rocky Mountain Laboratories, Integrated Research Facility* (DEIS), May 2003, 30.
- <sup>26</sup> *DEIS*, 30. They cited other EIS documents that found no risk and yet followed it up with study. For example, a study of brucellosis in bison stated that there were no known cases of transmitting the disease between these species, yet they still studied all the

literature that had led to this conclusion. No risk, in this case, did not excuse the drafters of the EIS from upholding their responsibility to study the risk.

<sup>27</sup> Mitchell Dean, *Governmentality: Power and Rule in Modern Society* (London: Sage, 2004), 178.

<sup>28</sup> When these questions were not answered through the EIS process, advocacy groups used the procedures of the Freedom of Information Act in hopes of answering these and other questions.

<sup>29</sup> Gorman, Conversation with author, July 21, 2008.

<sup>30</sup> *Final Environmental Impact Statement, Rocky Mountain Laboratories Integrated Research facility* (FEIS), July 26, 2004, 4-11

<sup>31</sup> *FEIS*, 4-12, 4-13

<sup>32</sup> *DEIS Comments*, 33

<sup>33</sup> This phrase is repeated three times in the document, the second and third times inserting “not a significant risk” (*FEIS*, S-4, 4-7)

<sup>34</sup> Larry Campbell, Conversation with author, July 12, 2008.

<sup>35</sup> *Ibid.*

<sup>36</sup> Transcribed from video of the DEIS scoping meeting, September 18, 2002, accessed at Rocky Mountain Laboratories library.

<sup>37</sup> Giddens, "Risk and Responsibility," 5.

<sup>38</sup> Petryna, *Life Exposed*, 63.

<sup>39</sup> Gorman, Conversation with author July 21, 2008

<sup>40</sup> Gorman, Conversation with author July 21, 2008. See also <http://ravallirepublic.com/articles/2002/02/11/news/export3133.txt>

<sup>41</sup> Rose, "The Politics of Life Itself." P. 21

<sup>42</sup> I found a copy of the memo on a website set up to protest the BSL4 lab at Boston University, ironically turning the controversial statement in their favor, saying that such labs should not be built in populous areas like Boston, but in rural areas like Hamilton.

<sup>43</sup> Larry Campbell, Conversation with author, July 12, 2008.

<sup>44</sup> *Ibid.*

<sup>45</sup> *Ibid.*

<sup>46</sup> Indeed, part of the settlement agreement stipulates that NIH “will not weaponize any pathogen at its facility.” The settlement agreement defines weaponization as “...the manipulation of pathogens to render them more useful as weapons. NIH may study pathogens that have been weaponized.” *Settlement Agreement, Coalition for a Safe Lab, et al, v. National Institutes of Health, et al, in the United States District Court for the District of Montana Missoula Division*, CV 04-158-M-DWM, September 27, 2004.

<sup>47</sup> “Tick Warriors.” *Saturday Evening Post*, November 15, 1951.

<sup>48</sup> *Settlement*, p. 2

<sup>49</sup> *Settlement*, p. 3

<sup>50</sup> Andrew Lakoff, *Disaster and the Politics of Intervention* (New York: Columbia University Press, 2010), 5.

<sup>51</sup> Petryna, *Life Exposed*, 218.

<sup>52</sup> Rose, "The Politics of Life Itself," 6.

<sup>53</sup> Paul Rabinow, “Midst Anthropology’s Problems.” In *Global assemblages*, 43.

## Chapter 3 Notes

<sup>1</sup> Bob Graham, James M. Talent, and Graham T. Allison, *World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism* (New York: Vintage Books, 2008), xv.

<sup>2</sup> A plaque in the lobby honors the financial contributions of Bernie Marcus, founder of Home Depot company.

<sup>3</sup> Conversation with author, December 15, 2008.

<sup>4</sup> According to a 2009 Gallup pole, 61% of Americans rank the CDC as doing an “Excellent” or “Good” job, the highest score of any agency and comparable to the rankings of NASA (58%) and the FBI (58%). Saad, Lydia. “CDC Tops Agency Ratings; Federal Reserve Board Lowest.” July 27, 2009, accessed November 8, 2009, [www.gallup.com](http://www.gallup.com).

<sup>5</sup> Graham, Talent, and Allison, *World at Risk*, 23.

<sup>6</sup> *Ibid.*, xv.

<sup>7</sup> *Ibid.*, 23-24.

<sup>8</sup> CDC Mission Statement, accessed April 2, 2009, <http://www.cdc.gov/maso/pdf/cdcmiss.pdf>

<sup>9</sup> Gerberding, Julie. “Implementing a National Biodefense Strategy” *Testimony before the Committee on Homeland Security Subcommittee on Prevention of Nuclear and Biological Attack*, July 28, 2005, 1.

<sup>10</sup> Other centers include the Coordinating Center for Infectious Diseases, Coordinating Center for Health Promotion, Coordinating Office for Global Health, Coordinating Center for Environmental Health and Injury Prevention, Coordinating Center for Health Information and Service, and National Institute for Occupational Safety and Health. COTPER was established as the Office for Terrorism Preparedness and Emergency Response in August 2002, and renamed when CDC was reorganized in 2005.

<sup>11</sup> *Public Health Preparedness: Strengthening CDC’s Emergency Response*, January 2009, 3.

<sup>12</sup> *FY 2007 Budget Request summary*. Retrieved on 6/15/09 from [www.cdc.gov/docs](http://www.cdc.gov/docs)

<sup>13</sup> Gerberding, 2005, p. 1.

<sup>14</sup> See for example, Rony Blum, “‘Ethnic Cleansing’ Bleaches the Atrocities of Genocide,” *European Journal of Public Health* 18, no. 2 (2008): 204-09; Barron H. Lerner and David J. Rothman. “Medicine and the Holocaust: Learning More of the Lessons,” *Annals of Internal Medicine* 122 (1995): 793-94; RJ Lifton, *The Nazi Doctors: Medical Killing and the Psychology of Genocide* (New York: Basic Books, 1986).

<sup>15</sup> See for example, Rowan Savage, “‘Disease Incarnate’: Biopolitical Discourse and Genocidal Dehumanisation in the Age of Modernity,” *Journal of Historical Sociology* 20, no. 3 (2007): 404-40; Paul Weindling, *Epidemics and Genocide in Eastern Europe, 1890-1945*, (New York: Oxford University Press, 2000).

<sup>16</sup> Sandra J. Maclean, “Microbes, Mad Cows and Militaries: Exploring the Links between Health and Security,” *Security Dialogue* 39, no. 5 (2008): 475-94. Harley Feldbaum, Preeti Patel, Egbert Sondorp, and Kelly Lee, “Global Health and National Security: The Need for Critical Engagement,” *Medicine, Conflict and Survival* 22, no. 3 (2006): 192-98.

David Armstrong, "The Rise of Surveillance Medicine," *Sociology of Health and Illness* 17, no. 3 (1995): 393-404.

<sup>17</sup> See Foucault, *Security, Territory, Population* and Rose, *The Politics of Life Itself*.

<sup>18</sup> At the moment of the crisis, individuals can do little to secure their bodies against the impact of a bullet or a bomb, and as a security technique issuing Kevlar to the population exceeds the level of acceptable, or from the perspective of governance, "necessary and sufficient" behavior.

<sup>19</sup> Disease is also characterized by moments of sudden expansion and growth which will continue unless checked by environmental or human-imposed controls, a moment Foucault labels as the "crisis."

<sup>20</sup> Lisa Rotz, Conversation with author, November 19, 2008.

<sup>21</sup> Foucault, *Security, Territory, Population*, 59.

<sup>22</sup> See Andrew Lakoff, "The Generic Biothreat, or, How We Became Unprepared," *Cultural Anthropology* 23, no. 3 (2008): 399-428; Stephen J. Collier, "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization," *Economy and Society* 37, no. 2 (2008): 224 – 50; Lakoff and Collier. *Biosecurity Interventions*.

<sup>23</sup> *Ibid.*, 14. Though Lakoff and Collier explain that the aim of such projection is to identify vulnerabilities, one could argue that these preparedness techniques actually create the vulnerability, because they produce knowledge of a threat which has not yet come into existence.

<sup>24</sup> *2007 Budget Request Summary*, Centers for Disease Control and Prevention, 2.

<sup>25</sup> The 2007 budget request itemized \$1.6 billion for infectious diseases, the largest line item aside from vaccines for children (\$1.9 billion) and equal to the request for terrorism. In contrast, health promotion received just \$222 million.

<sup>26</sup> Lakoff and Collier (*Biosecurity Interventions*, 17) call this the "emergency modality of intervention," an emergency management strategy which "does not involve long-term intervention into the social and economic determinants of disease. Rather, it emphasizes practices such as rapid medical response, standardized protocols...surveillance and reporting systems, or simple technological fixes like mosquito nets or drugs."

<sup>27</sup> Pamela Diaz, Conversation with author., November 18, 2008.

<sup>28</sup> Dennis O'Mara, Conversation with author, August 19, 2008.

<sup>29</sup> Dixie Snider, Conversation with author, November 18, 2008. The goal is to use research for public health action, and the epidemiological research of CDC is aimed at addressing health threats even if the threat itself is unknown. For example, AIDS was identified as a blood-borne disease before the organism was isolated in a laboratory, and public health action could be taken based upon those clues to transmission.

<sup>30</sup> The history of the agency, however, has built research programs around disease-specific lines: to the founding malaria program was added a venereal disease focus, then a tuberculosis program, then AIDS and anti-smoking and obesity. Snider believes organizational changes at CDC are following a shift towards broader thinking about disease.

<sup>31</sup> The Research Guide was created following several ideological regroupings undertaken at CDC in the 21<sup>st</sup> century, including the Futures Initiative and the formulation of four Health Protection Goals, and maintains that research is still at the heart of CDC and will be critical to accomplishing the agency's mission. Unlike earlier CDC programs, these



initiatives rarely reference a specific disease as a problem, though the historic attention to infectious disease remains, forming the primary research category in the Guide. Influenza is the only disease given a research category by name, while other diseases only appear in passing under categories like “host-agent interactions” and “behavioral, social, and economic research.”

<sup>32</sup> Centers for Disease Control and Prevention, “Advancing the Nation’s Health: A guide to public health research needs, 2006-2015,” (CDC: Atlanta, 2006), 1, 35.

<sup>33</sup> For example, the first research objective concerns “vulnerable communities and populations” and aims to “identify, measure, and understand the factors and dynamic processes that influence the vulnerability of defined community populations.” *Research Guide*, 36. “Examples of Priority Research” identified in the Guide include developing “reliable, valid tools and strategies to profile the vulnerability of communities along multiple sociocultural and community dimensions, including the mechanisms responsible for health disparities.”

<sup>34</sup> Further, because CDC is a national agency, “standardized and reproducible measurements and methods must be developed to describe and quantify the vulnerability of communities.” *Research Guide*, 36.

<sup>35</sup> Diaz, Conversation with author, November 18, 2008.

<sup>36</sup> Diaz contrasts this to the work of a physician who makes determinations for an individual, where CDC is challenged to diagnose and then make guidelines for the national as a whole, a diagnostic that requires scientific techniques to assess the population and generalize a public health response.

<sup>37</sup> Stephen Morse, Conversation with author, November 20, 2008.

<sup>38</sup> *Research Guide*, 41.

<sup>39</sup> *Ibid.*, 44. Assessing the population is central to CDC’s research plan for preparedness, and the goals expressed in the Research Guide uses a range of social terms to “profile the vulnerability of communities along multiple sociocultural and community dimensions”: “community knowledge, attitudes, practices, behaviors and perceptions,” “diverse communities,” populations with “limited access to care, geographic barriers, poor health status and socioeconomic disadvantages,” and “sociocultural barriers.” Selections from *Research Guide*, 36-44.

<sup>40</sup> Wald, *Contagious*, 71. Disease science “harness(es) the authority of science to depict the medical implications of the changing spaces, interactions, and relationships attendant on urbanization and industrialization”

<sup>41</sup> Notably, because public health is enacted at the local level, the federal government does not have authority to mandate disease reporting, but local laws can require the report and local health departments can voluntarily pass that information to CDC.

<sup>42</sup> Kevin D. Haggerty, “Tear Down the Walls: On Demolishing the Panopticon,” in *Theorizing Surveillance: The Panopticon and Beyond*, ed. David Lyon (Cullompton, Devon: Willan Publishing, 2006).

<sup>43</sup> The contagion of disease, its ability to spread from one place to another through human interactions, “offers a visceral way to imagine communal affiliations in national terms” (Wald, *Contagious*, 57.), and by reproducing disease at the scale of the national instead of

the local, the national security state attains authority over communal relations because they can spread disease.

<sup>44</sup> Information about BioSense is summarized by the CDC at <http://www.cdc.gov/BioSense/flash/history&mission.html>, accessed March 15, 2009.

<sup>45</sup> Ibid.

<sup>46</sup> Initially, CDC did little analysis of data collected through BioSense, turning raw data over to local health departments which were already stretched thin and varied widely in their use of the data. Eventually, CDC established a center for analyzing data, collecting the data from around the nation and giving CDC analysts attain the ability to map the patterns of normalcy and sound an alert when they spot abnormalities. Yet, without a follow-up in the field, an alert is just an alert: the work of the epidemiologist must confirm what the computer suggests. For a thorough discussion of local responses to BioSense, see Lyle Fearnley, "Redesigning syndromic surveillance for biosecurity." In Andrew Lakoff and Stephen J. Collier, *Biosecurity Interventions*.

<sup>47</sup> Lyle Fearnley, "Redesigning syndromic surveillance."

<sup>48</sup> Dixie Snider, Conversation with author, November 18, 2008.

<sup>49</sup> Ibid.

<sup>50</sup> Dr. Snider recalls a time when he was asked to cut his tuberculosis control division by 24%, but decided that the number one thing to keep was surveillance: "If I don't know how much or where or the further demographic characteristics of the disease, then I don't have a lot to talk about. How will I develop intervention programs? How will I allocate resources, if I don't know these things?" Dixie Snider, Conversation with author, November 18, 2008.

<sup>51</sup> Finally, if surveillance produces a "generic awareness" of disease, then it opens the possibility for a generic treatment. Preparedness practices are like a broad-spectrum antibiotic for the generic threat of bioterrorism, and surveillance can map those practices onto the disease geography of the nation. (The phrase "generic awareness" comes from Fearnley, "Redesigning syndromic surveillance," 69.)

<sup>52</sup> Dan Sosin, Conversation with author, December 15, 2008.

<sup>53</sup> Ibid. Rose discusses how the type of knowledge required to sustain the liberal state changes in the "advanced liberal state." Surveillance knowledge differs from the "truth-in-nature" type of expertise that sustains the liberal state.

<sup>54</sup> David Lyon, *Surveillance after September 11*, (Malden, Mass.: Polity Press in Association with Blackwell Pub., 2003). Didier Bigo, "Security, Exception, Ban and Surveillance," in *Theorizing Surveillance: The Panopticon and Beyond*, ed. David Lyon (Cullompton, Devon: Willan Publishing, 2006).

<sup>55</sup> Lyon, *Surveillance after September 11*.

<sup>56</sup> Bigo, "Security, Exception, Ban and Surveillance."

<sup>57</sup> Graham, et. al., *World at Risk*, xiii.

<sup>58</sup> From 2007 to 2008, CDC.gov received an average of 41 million hits per month, with about 2.2 million searches run on the site each month. "CDC Fact Sheet," accessed March 27, 2009, <http://www.cdc.gov/Other/pdf/CDCFactSheet.pdf>. The director of National Center for Health Marketing, the division that oversees CDC.gov, states: "The process of improving CDC.gov is almost as impressive as the outcome. We started by

performing an assessment to collect base-line data for comparison purposes and by identifying our primary and secondary customers. We involved stakeholders throughout the entire CDC organization by creating the CDC.gov Council. We involved end users in the design, development and testing processes to ensure that the new site would meet their needs.” [http://www.cdc.gov/HealthMarketing/blog\\_041907.htm](http://www.cdc.gov/HealthMarketing/blog_041907.htm) accessed March 27, 2009.

<sup>59</sup> Dixie Snider, Conversation with author, November 18, 2008.

<sup>60</sup> Jim Curran, Conversation with author, November 19, 2008. Curran charts a continuum between public opinion and response. While opinion vacillates between complacency and fear, public and personal response actions range from neglect to panic.

<sup>61</sup> The discipline calls this “social marketing,” though Curran favors the term “prevention marketing.”

<sup>62</sup> Public health places the most intimate personal behaviors in a social context where they can be governed in the interests of society. Thus, having unprotected sex with multiple partners may not harm one individual, but public health programs demonstrate that when a large portion of the population engages in this behavior it spreads deadly diseases like HIV, thereby redefining unprotected sex as an unacceptable behavior.

<sup>63</sup> Risk communication protocols are studied, tested, tried, and taught within the agency, and developing improved communication strategies is one of CDC’s research objectives. Indeed, CDC defines risk communication as “a science-based approach for communicating effectively in high concern situations,” and has developed a curriculum for training its employees in the “skill” of risk communication. See Mullins and Hayslett.

<sup>64</sup> Mullins and Hayslett, Slides from a PowerPoint presentation given during EIS training, Spring 2004. Shelved at CDC Library and retrieved in November 2008.

<sup>65</sup> “Perception creates the reality of the issues” argues a CDC risk communication trainer, and “effective communication is grounded in knowledge and understanding of perceptions.” Von Roebuck, Conversation with author, November 20, 2008.

<sup>66</sup> Von Roebuck, Conversation with author, November 20, 2008.

<sup>67</sup> “Interim pre-pandemic planning guidance: community strategy for pandemic influenza mitigation in the US,” released in February 2007. Some argue that the measures CDC advocates “lack validation and could have substantial indirect and unintended consequences” (John G. Bartlett and Luciana Borio, “Healthcare Epidemiology: The Current Status of Planning for Pandemic Influenza and Implications for Health Care Planning in the United States,” *Clinical Infectious Diseases* 46, no. 6 (2008): 919). Such communications attempt to prepare the population for a massive manipulation of their environment in an effort to halt contagion, though as JoAnne Brown argues, the rare use of this type of coercive power is superseded in effect by the diffuse authority of health communication. “‘Just say No’: Risk, behavior, and disease in twentieth-century America,” in *Scientific Authority and Twentieth-Century America*, ed. Ronald G. Walters (Baltimore: Johns Hopkins University Press, 1997).

<sup>68</sup> Aihwa Ong, *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty* (Durham: Duke University Press, 2006), 6.

<sup>69</sup> Ibid.

<sup>70</sup> A laboratory at CDC, for example, is always subject to being appropriated during a “crisis,” suspending the regular disease study of the day in favor of a priority need to identify a particular agent.

<sup>71</sup> Susan True, Conversation with author, November 21, 2008. To secure the stockpile, vaccines are not stored in a single location, but dispersed throughout the country and moved on a regular basis.

<sup>72</sup> Lisa Rotz, Conversation with author, November 19, 2008. Pamela Diaz, Conversation with author, November 18, 2008. Stephen Morse, Conversation with author, November 20, 2008.

<sup>73</sup> Morse describes decisions as science driven, as well as economic. “What makes a good assay? Is ½ hour faster worth twice the cost?” Stephen Morse, Conversation with author, November 20, 2008.

<sup>74</sup> When CDC and FBI issued a statement that this equipment was not reliable and could not replace the work done in credible laboratories, the biotech companies protested in Congress, leaving CDC only the ability to advise local responders on equipment to purchase and to plead that they preserve enough of the field sample for CDC to run its own diagnostics in its own laboratories.

<sup>75</sup> Morse, Conversation with author, November 20, 2008. Furthermore, it takes millions of dollars to develop a test to the level of precision and standardization that will meet FDA approval, money which might be well invested in developing an assay for influenza, but have less return for a biological agent that does not occur regularly and naturally within the population. According to Dr. Morse, since the creation of the LRN, CDC has been negotiating with FDA to allow emergency use of such tests.

<sup>76</sup> Susan True, Conversation with author, November 21, 2008.

<sup>77</sup> CDC Foundation, “Meta-Leadership Summit,” accessed May 25, 2009, <http://www.cdcfoundation.org/programs/CDCFoundationInitiatives.aspx>

<sup>78</sup> CDC Foundation, “2008 Report to Contributors,” accessed May 24, 2009, [http://www.cdcfoundation.org/sitefiles/ReportToContributors\\_FY08.pdf](http://www.cdcfoundation.org/sitefiles/ReportToContributors_FY08.pdf). Note that contributors include biotechnology corporations, posing potential conflicts of interest in aligning with CDC.

<sup>79</sup> Kevin Brady, Conversation with author, November 21, 2008.

<sup>80</sup> Foundation contributions vary widely, but the foundation favors funding programs over directly funding research or laboratories which are otherwise supported through the CDC budget. Thus, one donor established an internship for a college student to work in an HIV lab at CDC, or corporate partners worked on a campaign to raise awareness of antimicrobial resistance. Burning testimonials from those who suffer from disease and donate out of gratitude to the agency fill the foundation’s promotional materials.

<sup>81</sup> Dan Sosin, Conversation with author, December 15, 2008.

#### Chapter 4 Notes

<sup>1</sup> David V. Holtby, “World War I and the federal Presence in New Mexico: the Punitive Expedition and the Education of General John J. Pershing,” Centennial of New Mexico

Statehood collection, UNM Repository, 2008.

<sup>2</sup> Annette Anderson, Conversation with author, July 27, 2009.

<sup>3</sup> Hampson, Rick. "Pancho Villa Now Celebrated in New Mexico." *USA Today*, March 9, 2011.

<sup>4</sup> Anderson, Conversation with author, March 12, 2011.

<sup>5</sup> "Pancho Villa State Park and Village of Columbus Celebrate Camp Furlong Day." March 2, 2011, accessed March 15, 2011,

[https://www.emnrd.state.nm.us/PRD/documents/PR-ParksPanchoVillaStateParkCelebratesCampFurlongDayMarch12\\_2011.pdf](https://www.emnrd.state.nm.us/PRD/documents/PR-ParksPanchoVillaStateParkCelebratesCampFurlongDayMarch12_2011.pdf)

<sup>6</sup> "New Mexico Border Authority," accessed February 22, 2011, <http://www.nmborder.com/livestock.html>.

<sup>7</sup> Whetten, Bruce. "Local gun sales on the rise." *Douglas Dispatch*, April 7, 2010.

<sup>8</sup> Arjun Appadurai, *Fear of Small Numbers: An Essay on the Geography of Anger*, (Durham, N.C.: Duke University Press, 2006), 99, 101, 04.

<sup>9</sup> "NMDA biennial report, 2007-2009", accessed November 10, 2010, <http://nmdaweb.nmsu.edu/events-and-publications-folder/Binder1.pdf>.

<sup>10</sup> Billie Dictson, Conversation with author, April 19, 2010.

<sup>11</sup> See the newsroom of the Customs and Border Patrol at [www.cbp.gov/newsroom](http://www.cbp.gov/newsroom). [http://www.customs.gov/xp/cgov/newsroom/news\\_releases/archives/2007\\_news\\_releases/122007/12262007\\_3.xml](http://www.customs.gov/xp/cgov/newsroom/news_releases/archives/2007_news_releases/122007/12262007_3.xml), accessed March 3, 2011.

<sup>12</sup> Conversation with Billie Dictson and Jeff Witte, April 19, 2010.

<sup>13</sup> Nick Bingham and Steve Hinchliffe, "Mapping the Multiplicities of Biosecurity." In *Biosecurity Interventions: Global Health and Security in Question*, ed. Andrew Lakoff and Stephen J. Collier (New York: Columbia University Press, 2008), 177.

<sup>14</sup> Dictson, Conversation with author, April 19, 2010.

<sup>15</sup> Masco, "Survival Is Your Business," 363.

<sup>16</sup> The FEMA Training Module 103 for Incident Command Systems is available to the public at [www.fema.gov/about/training/emergency.shtm](http://www.fema.gov/about/training/emergency.shtm), accessed June 14, 2010.

<sup>17</sup> Dictson, Conversation with author, April 19, 2010.

<sup>18</sup> See for example James Peach and Kenneth Nowotny, "Economic Development in Border Areas: The Case of New Mexico and Chihuahua," *Journal of Economic Issues* 16, no. 2 (1982): 489-96.

<sup>19</sup> *Phelps Dodge Corporation Annual Report, 1971*. Accessed at the Center for Southwest Studies, University of New Mexico, October 22, 2009.

<sup>20</sup> *Hidalgo County Economic Development Plan, 1974*. Accessed at the Center for Southwest Studies, University of New Mexico, October 2009.

<sup>21</sup> Mark Vitalia, Conversation with author, July 28, 2009 and Anneliese Kvamme, Conversation with author, April 14, 2010.

<sup>22</sup> Environmental Protection Agency. "Economic Impacts of Air Emission Standards: Primary Copper Smelting." 1997, accessed July 24, 2009, [http://www.epa.gov/ttnecas1/regdata/IPs/Primary%20Copper%20Smelting\\_IP.pdf](http://www.epa.gov/ttnecas1/regdata/IPs/Primary%20Copper%20Smelting_IP.pdf).

<sup>23</sup> Numbers excerpted from a wall display at the museum of the Lordsburg Historical Society, April 2010.

<sup>24</sup> "Hidalgo Medical Services, Lordsburg, New Mexico," *Innovations 1*, 2004, 6.

- <sup>25</sup> Masco, "Survival is Your Business," 441.
- <sup>26</sup> Pete Domenici (NM), *Congressional Record – Senate*, July 23, 2003, p. 19113.
- <sup>27</sup> George Zamora, "NM Tech Hosts Inaugural Event at Playas Training Center," New Mexico Tech news page, December 2, 2004, accessed February 22, 2011, <http://infohost.nmt.edu/mainpage/news/2004/2dec01.html>.
- <sup>28</sup> See for example National Domestic Preparedness Consortium, New Mexico Institute of Mining and Technology, WMD First Responder Training Programs (\$30,000,000). Also, New Mexico State Senate Bill 465 (2005), New Mexico Fiscal Impact Report (2005), New Mexico House Bill 523 (2006), House Capital Outlay 113 (2006).
- <sup>29</sup> "NM Tech Lands \$27.5 million deal," *Albuquerque Journal*, March 15, 2011
- <sup>30</sup> Anneliese Kvamme, Conversation with author, April 14, 2010.
- <sup>31</sup> Weart, *Nuclear Fear*.
- <sup>32</sup> Masco, "Survival is your Business," 362.
- <sup>33</sup> Lakoff, "Preparing for the Next Emergency," 1.
- <sup>34</sup> Stephen J. Collier, "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization," *Economy and Society* 37, no. 2 (2008): 244.
- <sup>35</sup> Marieke De Goede, "Beyond Risk: Premediation and the Post-9/11 Security Imagination," *Security Dialogue* 39, no. 2-3 (2008): 171.
- <sup>36</sup> Liane Hansen, "Is the U.S. Prepared for the Next Disaster?" Interview with Craig Fugate, NPR, March 20, 2011.
- <sup>37</sup> Christian Erickson and Bethany Barratt, "Prudence or Panic? Preparedness Exercises, Counterterrorism Mobilization, and Media Coverage--Dark Winter, TOPOFF 1 and 2," *Journal of Homeland Security and Emergency Management* 1, no. 4 (2004): 1-21.
- <sup>38</sup> James Der Derian, *Virtuous War: Mapping the Military-Industrial-Media-Entertainment Network*, (Boulder, CO: Westview Press, 2001), 9.
- <sup>39</sup> Masco, *Nuclear Borderlands*, 206.
- <sup>40</sup> See for example: Eric Lipton, "Come one, come all, join the terror target list," *New York Times*, July 12, 2006.

## Chapter 5 Notes

- <sup>1</sup> Nina Berman, Conversation with author, July 29, 2009
- <sup>2</sup> Matthew Farish, "Another Anxious Urbanism: Simulating Defense and Disaster in Cold War America," in *Cities, War, and Terrorism: Towards an Urban Geopolitics*, ed. Stephen Graham (Oxford: Blackwell Publishing, 2004), 93-109.
- <sup>3</sup> Thomas Osborne and Nikolas Rose, "Governing Cities: Notes on the Spatialisation of Virtue," *Environment & Planning D: Society and Space* 17.6 (1999): 740.
- <sup>4</sup> Masco, "Survival Is Your Business," Oakes, *The Imaginary War*.
- <sup>5</sup> Limor Samimian-Darash, "A Pre-Event Configuration for Biological Threats: Preparedness and the Constitution of Biosecurity Events," *American Ethnologist* 36, no. 3 (2009): 479.
- <sup>6</sup> Lakoff, "Population," 35.

<sup>7</sup> Stephen J. Collier, "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization," *Economy and Society* 37, no. 2 (2008): 226.

<sup>8</sup> For a detailed report of the outcomes of Dark Winter, see Peter J. Roman, "The Dark Winter of Biological Terrorism" and the CDROM published by the Center for Strategic and International Studies (Washington, D.C.: CSIS, 2001). See also, Tara O'Toole, Michael Mair, and Thomas Inglesby, "Shining Light on 'Dark Winter.'" *Clinical Infectious Diseases* 34 (2002): 972–83. Records of Atlantic Storm are archived and can be retrieved online at <http://www.atlantic-storm.org>.

<sup>9</sup> Nick and Steve Hinchliffe Bingham, "Mapping the Multiplicities of Biosecurity," in *Biosecurity Interventions: Global Health and Security in Question*, ed. Andrew Lakoff and Stephen J. Collier (New York: Columbia University Press, 2008), 177.

<sup>10</sup> Foucault, *Security, Territory, Population*, 61.

<sup>11</sup> Department of Homeland Security, "TOPOFF: Exercising National Preparedness," accessed October 11, 2009, [http://www.dhs.gov/files/training/gc\\_1179350946764.shtm](http://www.dhs.gov/files/training/gc_1179350946764.shtm)

<sup>12</sup> See, for example, the executive summary of TOPOFF 4.

<sup>13</sup> Erickson and Barratt, "Prudence of Panic?" 1.

#### Conclusion Notes

<sup>1</sup> If participants truly "caught the bug," they had other opportunities to turn themselves into laboratory subjects. For an additional fee, participants could provide their DNA to a Trinity immunologist who was testing for genes which might explain varying immune responses to disease. In return for a swab of saliva, the lab would analyze your sample and tell you whether you carry this gene which lessens the severity of infections like malaria and tuberculosis. Visitors who signed up for the study were invited to enter a "laboratory" within the laboratory prop, a cornered-off section of the museum.

<sup>2</sup> Ilana Feldman and Miriam Ticktin, ed. *In the Name of Humanity: The Government of Threat and Care* (Durham, N.C.: Duke University Press, 2010).

<sup>3</sup> Masco, "Sensitive but Unclassified," 419.

<sup>4</sup> Alex Gourevitch, "Environmentalism—Long live the politics of fear," *Public Culture* 22 no. 3 (2010): 419.