

GROUNDS FOR PERMANENT WAR

Land Appropriation, Exceptional Powers, and the Mid-Century Militarization of
Western North American Environments

by

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ABSTRACT

Few areas across globe have escaped the pressures of militarization. Despite the many significant developments and repercussions tied to the military control of vast areas of national territories, the complex intersections between militarization and the environment have only recently attracted scholarly attention. This dissertation argues that the contemporary condition of global permanent war and ongoing state of emergency are rooted in the military control of land and other natural resources. During the mid-twentieth century buildup of North American defense forces, the practice of military land appropriation not only legitimized and expanded certain types of unilateral, emergency powers but also produced secret and legally permissive spaces in which the exercise of such extraordinary powers and related military land use practices could be more freely conducted.

A major impetus driving these mid-century land use developments was the rise of unconventional weapons of mass destruction. Not only did such weapons technologies destabilize the global political order but they also brought about a multitude of disruptions at local sites. By investigating the establishment and operations of two of the world's largest, most secretive, and longest-lasting chemical and biological weapons proving grounds—the U.S. Army's Dugway Proving Ground in western Utah and the Canadian-and U.K.-controlled Suffield Experimental Station in southeastern Alberta—this study reveals how the imperatives of permanent war have had critical influence in shaping the workings of power between local citizens, government, and the environment in western North America.

At its core, this dissertation pushes back against the various assumptions and prerogatives driving the establishment of a permanent military presence in the North American West. All four chapters examine how varying elements of exceptional, emergency executive and administrative powers have shaped military land claims and practices of military land use. The study uncovers and demystifies the procedures, policies, and practices governing the establishment, operational activities, and ongoing control of North American defense lands. It provides a critical examination of the legal, material, and figurative grounds of our continuing and permanent global state of war.

LAY SUMMARY

Few doubt that militaries need substantial amounts of land for their operations, yet the question of why they need these lands, or how they acquired and have used them, has typically been taken as a given. This study examines the establishment, early operational activities, and ongoing control of North American defense lands. Chapter 1 looks into how the U.S. Defense Department acquired so much land, and highlights how the military's claims to these lands rested on shaky legal foundations. Chapters 2 and 3 both investigate how militaries appropriated large tracts of western land for the establishment of permanent chemical and biological weapons testing sites. Chapter 4 looks beyond land claims and more closely at how the military's control of land has facilitated the practice of controversial defense-related research activities. The study makes a case for the importance of investigating the origins and functions of North American defense lands.

PREFACE

This dissertation is an original, independent work by the author, B. Davis.

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LIST OF ABBREVIATIONS

BW—Biological Warfare

CBW—Chemical and Biological Weapons

CW—Chemical Warfare

DHH—National Defence Headquarters Directorate of History and Heritage

DND—Department of National Defence

DOD—Department of Defence

DPG—Dugway Proving Ground

DRDC—Defence Research and Development Canada

DTIC—Defence Technical Information Center

FDR—Franklin Delano Roosevelt

LAC—Library and Archives Canada

MGO—Master-General of the Ordnance

NRC—National Research Council

NACP—National Archives and Records Administration at College Park

RCMP—Royal Canadian Mounted Police

UXO—Unexploded Ordnance

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INTRODUCTION

In 1957 Representative William A. Dawson of Utah warned about the Defense Department's voracious appetite for land. Speaking to Congress, he pointed out that "the greatest military machine the world has ever known now holds more than 43,000 square miles of American soil and is still enlarging its area of occupation." Dawson may have been thankful that this "military machine is our own," but this does not mean that he had not "long been concerned at the pace and capriciousness with which the Department of Defense has been withdrawing vast areas from our public domain." If Dawson had looked beyond American soil, he would have discovered that the U.S. Department of Defense's (DoD) total, worldwide landholdings exceeded thirty million acres (46,875 thousand square miles), encompassing a cumulative area of land comparable in size to New York state. In the years that followed Dawson's warnings, the DoD's control over real property has been in a constant state of flux, yet the overall figure of approximately thirty million acres of total U.S. defense landholdings has remained relatively constant.¹ As massive as these holdings may be, the DoD's land-use demands are far from unique. Few areas across the globe have escaped the pressures of militarization. Even nations with relatively small military establishments have long devoted significant portions of their territory to the needs of defense and security. With, for example, over five-and-half million acres

¹ 103 Cong. Rec. 5512, 5520 (1957). Most additional lands were in what was then the territory of Alaska, but there were also over half a million of acres of additional land-holdings in foreign territories. The DoD's website notes that they currently utilize over 30 million acres of land, see www.defense.gov/About-DoD.

of land formally reserved for military purposes, and considerable amounts of additional territory and airspace utilized for training and strategic defense, Canada devotes more space to military purposes than all but a handful of countries.²

Dawson's 1957 warning about the DoD's spiraling demands for military lands is somewhat of an anomaly. There has been widespread concern over the rise of what U.S. President Dwight D. Eisenhower referred to in his famous 1961 farewell address as the military-industrial complex, particularly from the context of the Cold War. Since the early 2000s, there has also been an outpouring of investigations on the influence of global militarism, and how the condition of permanent war has given rise to a perpetual state of emergency. While these various studies have skillfully examined the cultural, economic, and political dimensions of the global military-security apparatus, they have largely neglected its environmental underpinnings.³ Related works on science, technology, and the

² National Defence, *Defence Environmental Strategy: A Plan for Ensuring Sustainable Military Operations* (2010), 7, available at www.forces.gc.ca/assets/FORCES_Internet/docs/en/defence-environmental-strategy_en_v7_small.pdf. For overview of global defense landholdings, see Rachel Woodward, *Military Geographies* (Malden: Blackwell, 2004), 13-20.

³ For cultural aspects of warfare and security in the North American context, see Tarah Brookfield, *Cold War Comforts: Canadian Women, Child Safety, and Global Insecurity, 1945-1975* (Waterloo: Wilfrid Laurier Univ Press, 2012); Richard Cavell, *Love, Hate, and Fear in Canada's Cold War* (Toronto: Univ of Toronto Press, 2004); Tom Engelhardt, *The End of Victory Culture: Cold War America and the Disillusioning of a Generation*, 2nd ed. (Amherst: Univ of Massachusetts Press, 2007); Stephen J. Whitfield, *The Culture of the Cold War*, (Baltimore: John Hopkins Univ Press, 1996.); Reg Whitaker and Gary Marcuse, *Canada and the Cold War* (Toronto: Univ of Toronto Press, 1994). For economic aspects, see Seymour Melman, *The Permanent War Economy: American Capitalism in Decline* (New York: Touchstone, 1985); Ann Markusen et al, eds., *The Rise of the Gunbelt: The Military Remapping of Industrial America* (Oxford Univ Press, 1991), Richard Nash, *World War II and the West: Reshaping the Economy* (Lincoln: Univ of Nebraska Press, 1990); Lynne M. Pepall and Daniel M. Shapiro, "The Military-Industrial Complex in Canada," *Canadian Public Policy/Analyse de Politiques* (1989): 265-284. For political aspects, Andrew J. Bacevich, *The New American Militarism: How Americans are Seduced*

military have kept pace with rapidly shifting strategic imperatives and security concerns, but have similarly overlooked the spatial dimensions of defense-related training, research, and development activities.⁴

What has been missing from these bodies of literature in particular is recognition of the many significant developments and repercussions tied to the military control of land. Without, for example, the utilization of “large areas of suitable land,” many of the major advancements in modern warfare capabilities and technologies could not have been achieved.⁵ In a very real sense, the mobilization of vast swaths of terrain has been an essential requisite of military modernization. As is the case with many military endeavors, however, such

by War (New York: Oxford Univ Press, 2013); Michael J. Hogan, *A Cross of Iron: Harry S. Truman and the Origins of the National Security State, 1945-1954* (Cambridge University Press, 1998); Chalmers Johnson, *Sorrows of Empire: Militarism, Secrecy, and the End of the Republic* (New York: Metropolitan Books Henry Holt and Company, 2004); Stephen Morton and Stephen Bygrave, *Foucault in an Age of Terror: Essays on Biopolitics and the Defence of Society* (New York: Palgrave Macmillan, 2008); Ellen Schrecker, *Many Are the Crimes: McCarthyism in America* (Boston: Little, Brown and Company, 1998); Reginald Whitaker, Gregory S. Kealey, and Andrew Parnaby, *Secret Service: Political Policing in Canada: From the Fenians to Fortress America* (Toronto: Univ of Toronto Press, 2012); Daniel Yergin, *Shattered Peace* (New York: Penguin Books, 1980).

⁴ Everett Mendelsohn, Merritt Roe Smith, and Peter Weingart, eds. *Science, Technology and the Military* (Boston: Kluwer Academic Publishers, 1988); Robert L. Paarlberg, "Knowledge as Power: Science, Military Dominance, and U.S. Security," *International Security* 29(1) (Summer 2004): 122-151; B. Rappert, B. Balmer, and J Stone, "Science, Technology, and the Military: Priorities, Preoccupations, and Possibilities" in *The Handbook of Science and Technology Studies*, eds. Edward J. Hackett, Olga Amsterdamska, Michael Lynch, and Judy Wajcman (Cambridge: The MIT Press, 2008), 719-739. For prominent monographs on technology, science, and war, see Donald Avery, *Pathogens for War: Biological Weapons, Canadian Life Scientists, and North American Biodefence* (Toronto: Univ of Toronto Press, 2013); David Edgerton, *Britain's War Machine: Weapons, Resources, and Experts in the Second World War* (Oxford Univ Press, 2011); Alexei B. Kozhevnikov, *Stalin's Great Science: The Times and Adventures of Soviet Physicists*, Vol 2 (New York: Imperial College Press, 2004); Silvan S. Schweber, *In the Shadow of the Bomb: Bethe, Oppenheimer, and the Moral Responsibility of the Scientist* (Princeton Univ Press, 2000); Jessica Wang, *American Science in an Age of Anxiety: Scientists, Anticommunism, and the Cold War* (Univ of North Carolina Press, 1999).

⁵ P.C. 1/6687, 26 August 1941, 112.352009 (D51), National Defence Headquarters Directorate of History and Heritage, Ottawa, Canada (DHH).

achievements did not come without certain sacrifices. The formation and utilization of defense lands has also entailed enormous disruptions. In the context of the North American West, places that had been under the jurisdictional control of county, state, provincial, tribal-nations, and federal representatives were rapidly withdrawn from public access and converted into what one Pentagon official would later describe as “national sacrifice zones.”⁶ Having been home to what are now largely familiar forms of militarized expropriation, dispossession, displacement, exclusion, internment, experimentation, testing, production, exposure, secrecy, security, contamination, toxicity, storage, disposal, waste, remediation, and abandonment, these so-called military sacrifice zones have contributed to what geographer Shiloh Krupar describes as the “mass destruction of the homelands of indigenous cultures, as well as the silent casualties of millions of soldiers, armament workers, and downwind civilians.”⁷

Despite the many consequences surrounding the military control of vast areas of national territories, the complex intersections between militarization and the environment have only recently attracted scholarly attention. While few doubt that militaries need substantial amounts of land for their operations, the question of why they need these lands, or how they acquired and have used them, has typically been taken as a given, or as something not particularly worthy of

⁶ Seth Shulman, *The Threat at Home: Confronting the Toxic Legacy of the U.S. Military* (Boston: Beacon Press, 1992), 8.

⁷ Shiloh Krupar, *Hot Spotter's Report: Military Fables of Toxic Waste* (Univ of Minnesota Press, 2013), 88; Mike Davis, *Dead Cities: And Other Tales* (New York: The New Press, 2002), 49.

investigation. In actively challenging such assumptions, this dissertation argues that the condition of global permanent war and ongoing state of emergency are rooted in the military control of land and other natural resources. During the mid-twentieth century buildup of defense forces, the practice of military land appropriation not only helped to legitimize and expand certain types of unilateral, emergency powers but also produced secret and legally permissive spaces in which the exercise of such exceptional powers could be more freely conducted.⁸ In interrogating the establishment of a permanent military-industrial-scientific presence in the North American West, this study further demonstrates how the condition of permanent war has shaped the workings of power between citizens, government, and the environment at two of the world's largest and longest-lasting chemical and biological weapons field testing stations—the U.S. Army's Dugway Proving Ground in western Utah and the Canadian-and United Kingdom-controlled Suffield Experimental Station in southeastern Alberta.⁹

A DEEPER LOOK INTO PERMANENT WAR

The idea of a permanent, continuous war challenges conventional notions of war.¹⁰ War has typically been conceived as not only an aberration from normal

⁸ Carl Schmitt, *Das Nomos von der Erde* (Berlin: Duncker & C. Humbolt, 1974) as quoted in Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. Daniel Heller-Roazen (Redwood City, CA: Stanford Univ Press, 1998), 27.

⁹ Making visible the “repressed conditions of permanent war” follows what author John Beck identifies as the chief purpose of writing counter histories about war's permanent presence in society, see John Beck, *Dirty Wars: Landscape, Power, and Waste in Western American Literature* (Lincoln: Univ of Nebraska Press, 2009), 7, 37, 45, 228; Foucault, *Society Must Be Defended*, 66-76, 130, 270.

¹⁰ The idea of permanent war is often first credited to Seymour Melman in his book *The Permanent War Economy* (New York: Simon & Schuster, 1974). Hannah Arendt also

social order, but also destructive of that order. War, in other words, has been the exception and peace the norm. War also has more traditionally been something conducted between sovereign nation-states over set geopolitical concerns and within set spatial-temporal boundaries. Yet, since at least the rise of the Cold War, we can see evidence of a new type of war; one that is not only waged against nations but also against vague, ubiquitous threats to the social body of a nation or group of nations. In these latter war efforts, we can also see a shift in which, as authors Michael Hardt and Antonio Negri contend, “order is not arrived at through the ending of war, but through a continuous promotion of war” against an enemy that “needs to be continuously constructed and invented.” They further note how today “war has become—monstrously—a kind of machine that is productive of the social.”¹¹ To put it another way, what has commonly been understood as the military-industrial complex, permanent war economy, or simply American militarism has become the global norm, creating a permanent state of militarized exception that has infused all elements of social and political

described the idea of “global civil war” in 1963 in *On Revolution* and President Dwight Eisenhower also alluded to such a condition in his famous 1961 speech on the military industrial complex. The idea has had much currency among a wide-range of social critics and researchers. Some more recent, prominent examples include, Giorgio Agamben, *State of Exception* (Chicago: The Univ of Chicago Press, 2005); Andrew J. Bacevich, *Washington Rules: America's Path to Permanent War* (Metropolitan Books, 2010); Rosa Brooks, *How Everything Became War and the Military Became Everything: Tales from the Pentagon* (New York: Simon and Schuster, 2016); Mary L. Dudziak, *War Time: An Idea, Its History, Its Consequences* (New York: Oxford University Press, 2012); Michel Foucault, “*Society Must Be Defended*”: *Lectures at the College de France, 1975-1976* (New York: Picador, 2004); Michael Hardt and Antonio Negri, *Multitude: War and Democracy in the Age of Empire* (New York: The Penguin Press, 2004); Paul Virilio and Sylvère Lotringer, *Pure War: Twenty-Five Years Later*, trans. Brian O’Keeffe (Los Angeles: Semiotexte(e), 2008). Use of the term “permanent war” varies from work to work. This study’s usage most closely follows author John Beck’s formulation and understanding of the term, see Beck, *Dirty Wars*, 33-39.

¹¹ Antonio Negri, *Reflections of Empire* (Cambridge: Polity Press, 2008), 132-135; Hardt and Negri, *Multitude*, 13, 21.

life and eroded away any distinction between war and peace. Rather than a marked event or aberration, war has become a permanent, underlying condition.

A major aim of recent investigations into militarized environments has been to show how military power is spatially constituted. Researchers have specifically “sought to explain how the military makes geographies,” or how “militarism works to legitimate military control over environments and landscapes.”¹² Works that have looked into such questions have made significant contributions to our understandings of contaminated landscapes, wildlife conservation, military environmentalism, and other prevalent issues found at militarized landscapes across the world.¹³ In looking at such important contemporary concerns, most of these studies have had a decidedly strong focus on the present or near past. In a 2014 review of literature on military landscapes, geographer Rachel Woodward went as far as to claim that much of the work she highlighted in her overview “explores interpretations and practices in the present of landscapes constituted by past military activities.” Woodward may not have seen anything “inherently problematic” with this from the perspective of landscape studies, but this does not mean that the longer history of military activities does not matter.¹⁴ One thing often lacking in this growing body of research on militarized environments is a clear understanding of how we got to

¹² Rachel Woodward, "Military Landscapes Agendas and Approaches for Future Research," *Progress in Human Geography* (2013): 51; Krupar, *Hot Spotter's Report*, 4.

¹³ For overviews of studies on militarized environments see Chris Pearson, "Researching Militarized Landscapes: A Literature Review on War and the Militarization of the Environment," *Landscape Research* 37(1) (2012): 115-133; Mathew Rech, et al, "Geography, Military Geography, and Critical Military Studies," *Critical Military Studies* 1(1) (2015): 47-60; Woodward, "Military Landscapes," 40-61.

¹⁴ Woodward, "Military Landscapes," 45.

where we are. That the origins of militarized environments, or the unique administrative controls first established at defense sites, continue to have bearing on contemporary practices and developments is something not fully recognized or appreciated. Instead of focusing on present-day concerns, this study approaches militarized environments from the opposite end of their development cycle. By looking closer at the establishment and early operations of prominent North American defense lands, this study provides a deeper look into the origins of permanent war.

MILITARIZED ENVIRONMENTS

FROM AN ADMINISTRATIVE PERSPECTIVE

There has been some debate over what constitutes a militarized environment, as well as acknowledgment that such environments can encompass a wide variety of potential sites and uses.¹⁵ While recognizing these various understandings, I take a more straightforward approach. In this study, I limit my focus to the real property managed and controlled by Canadian and U.S. federal defense agencies. More so than previous works, I examine militarized environments from an administrative perspective. In his introduction to *Geojournal's* 2007 special issue on militarized environments, geographer Sasha Davis observed that in “much of the research on military activity and the

¹⁵ R.H. Edgington, *Range Wars: The Environmental Contest for White Sands Missile Range* (Lincoln: U of Nebraska Press, 2004), 3, 5; Chris Pearson, *Mobilizing Nature: The Environmental History of War and Militarization in Modern France* (New York: Manchester Univ Press, 2012), 1-2; Edmund Russell, “Afterword: Militarized Landscapes,” in Chris Pearson, Peter Coates, and Tim Cole eds., *Militarized Landscapes: From Gettysburg to Salisbury Plain* (London: Continuum, 2010) 234; Rachel Woodward, “Researching Military Geographies,” in *Researching the Military* eds. Helana Carreiras, Celso Castro, and Sabina Frederic (New York: Routledge, 2016), 63-65.

environment too often ‘the military’ is treated as a monolithic (evil) black-box generating practices and landscapes according to a binding script.” Given that military bureaucracies represent “powerful landscape altering institutions,” Davis recommended that “more research is needed examining the ways in which individuals inside militaries and other bureaucracies view landscapes and organize management plans.”¹⁶

That a history of militarized environments calls for an administrative history of military bureaucracies may seem somewhat counterintuitive. After all, the study of environmental history is supposed to focus predominately on the natural world, or the “role and place of nature in human life.” Military bureaucracies, in contrast, very nearly represent the antithesis to the so-called natural realm. At the same time, the study of environmental history, to paraphrase Raymond Williams, does contain an extraordinary amount of government history.¹⁷ Some of the most prominent works in American environmental history have traced the rise of federal agencies such as the National Park Service and Environmental Protection Agency or critiqued the operations of the Bureau of Reclamation or Forest Service.¹⁸ Yet, when it comes

¹⁶ Jeffrey Sasha Davis, “Introduction, Military Natures: Militarism and the Environment,” *GeoJournal* 69 (2007): 133.

¹⁷ Donald Worster, ed., *The Ends of the Earth: Perspectives on Modern Environmental History* (Cambridge: Cambridge Univ Press 1988), 292; Raymond Williams, *Problems in Materialism and Culture: Selected Essays* (London: Verso, 1980), 67.

¹⁸ For rise of NPS and EPA, see Roderick F. Nash, *Wilderness and the American Mind*, 4th ed. (New Haven: Yale Univ Press, 2001); Alfred Runte, *National Parks: The American Experience*, 3rd ed. (Lincoln: Univ of Nebraska Press, 1997); Samuel P. Hays *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985* (New York: Cambridge Univ Press, 1989); Adam Rome, *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism* (New York: Cambridge Univ Press, 2001); Hal Rothman, *The Greening of a Nation? Environmentalism in the United States since 1945* (Fort Worth: Harcourt Brace College Publishers, 1998). For rise

to one of the country's most significant "landscape altering institutions," American environmental historians and other academic researchers have been oddly quiet.¹⁹ Instead, most studies on the U.S. Defense Department's use of land have been institutionally driven, either produced directly by the Army, Air Force, Navy, and related government agencies or contracted out to think tanks such as the RAND Corporation. These studies are not without their merits, with certain ones having been invaluable to this dissertation. With such institutional histories, however, it can be harder to raise critical questions or engage with some of bigger debates and themes that drive research in the humanities and social sciences. Indeed, one contribution I make in this study is to demonstrate how officially approved, celebratory accounts of military history have disproportionately shaped our understandings of the origins and early operations of prominent defense installations and developments.

While emphasizing the importance of bureaucracies in shaping militarized environments, my purpose here is not to provide a comprehensive history of the U.S. Defense Department or any other government agency. Instead, this study

and critiques of Bureau of Reclamation and Forest Service, see Donald J. Pisani, *Water and American Government: The Reclamation Bureau, National Water Policy, and the West, 1902-1935* (Berkeley: Univ of California Press, 2002); Marc Reisner, *Cadillac Desert: The American West and its Disappearing Water* (Penguin, 1993); Donald Worster, *Rivers of Empire: Water, Aridity, & the Growth of the American West* (New York: Pantheon Book, 1985); Nancy Langston, *Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West* (Seattle: Univ of Washington Press, 1995); Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism* (Washington D.C.: Island Press, 2013).

¹⁹ As is usually the case with such generalizations, there are notable exceptions. See Edgington, *Range Wars*; P. Whitney Lackenbauer, *Battle Grounds: The Canadian Military and Aboriginal Lands* (Vancouver: UBC Press 2007); E.A. Martini ed., *Proving Grounds: Military Landscapes, Weapons Testing, and the Environmental Impact of U.S. Bases* (Seattle: Univ of Washington Press, 2015); J.R. McNeill and David S. Painters, "The Global Environmental Footprint of the U.S. Military" in *War and the Environment: Military Destruction in the Modern Age*, ed. Charles E. Closmann (TAMU Press, 2009), 10-31.

focuses on how certain elements of executive and administrative power have shaped both military land claims and practices of military land use. Historical studies on the twentieth century are typically centered on the affairs of the state, market, or civil society. History, however, can also take place outside of the prevailing order, sometimes at the hands of secret, lawless, and rogue powers. Since the early 2000s, for example, scholars have increasingly examined how the ongoing condition of permanent war has given rise to a permanent state of exception, in which the exercise of temporary, emergency war powers have, as legal philosopher Giorgio Agamben contends, increasingly appeared “as the dominant paradigm of government in contemporary politics.”²⁰ In writing about the United States’ indefinite detention of enemy combatants at Guantanamo Bay, philosopher Judith Butler similarly describes how in “the name of security alert and national emergency, the law is effectively suspended in both its national and international forms. And with the suspension of law comes a new exercise of state sovereignty, one that not only takes place outside the law, but through an elaboration of administrative bureaucracies” in which unelected government officials, or so-called “petty sovereigns,” have been “delegated with the power to render unilateral decision, accountable to no law and without any legitimate authority.”²¹

²⁰ As legal philosopher Giorgio Agamben describes it, the “state of exception” is a concept in German legal tradition that refers to a temporary suspension of the constitution and the rule of law most often employed during times of war or severe economic crises, and is similar to the state of emergency concept in the American system. For further details, see Agamben, *State of Exception*, 1-4.

²¹ Judith Butler, *Precarious Life: The Powers of Mourning and Violence* (New York: Verso, 2006), 51, 56, 65.

With their reliance on expert authority, propensity to delegate prerogative powers to unelected officials, frequent utilization of emergency war and other exceptional powers, high-levels of secrecy, and near exclusive control of vast amounts of territory, bureaucratic military institutions epitomize Butler's so-called "new exercise of state sovereignty." However, in what may be an indication of academia's apprehension toward military studies and affairs, only a handful of works have applied the concepts of petty sovereignty, the state of exception, and other related theoretical ideas to actual military bureaucracies and developments.²² This study is one of the first to link emergency powers to the expansion of U.S. defense lands. Part of Representative Dawson's concerns over "the pace and capriciousness with which the Department of Defense has been withdrawing vast areas from our public domain" stemmed from how the vast majority of these lands were, as this study make clear, acquired using unilateral, emergency presidential war and land withdrawal powers without the clear consent of Congress, the courts, or the American public. In addition to investigating the overlooked history of DoD land claims, this study also examines how extralegal, emergency powers influenced the establishment and early operations of Utah's Dugway Proving Ground and Alberta's Suffield Experimental Station, and specifically details how a remarkably analogous

²² This, of course, excludes the many case studies on Guantanamo Bay, Abu Ghraib, and Nazi extermination camps. For literature reviews highlighting how works in the field of geography have applied these theoretical ideas, see Claudio Minca, "Geographies of the Camp," *Political Geography* 49 (2015): 74-83; Alison Mountz, "Political Geography 1: Reconfiguring Geographies of Sovereignty," *Progress in Human Geography* 37(6) (2013): 829-841, especially 837; Richard Ek, "Giorgio Agamben and the Spatialities of the Camp: An Introduction," *Geografiska Annaler: Series B, Human Geography* 88(4) (2006): 363-386.

administrative situation as the one Butler described at Guantanamo Bay shaped Canada's secret chemical weapons field testing program in the 1940s and beyond.

WEAPONS OF MASS DESTRUCTION PROVING GROUNDS

A major impetus driving these various mid-century geopolitical-spatial developments, including the rise of permanent war and ongoing state of emergency, was the threat of weapons of mass destruction. Dugway Proving Ground and the Suffield Experimental Station were the U.S.'s, Canada's, and the U.K.'s response to the rising potential of such unorthodox weapon technologies. At the most basic level, these two proving grounds provided suitable areas where the necessary conditions for the development of capabilities with chemical and biological weapons (whether offensive or defensive) could be realized. Due to their unique land use demands, these two chemical and biological weapons (CBW) testing sites represent excellent places to not only examine the immediate material effects of some of the most ecologically dangerous activities ever performed by military interests on North American soil, but also the commonly overlooked economic, political, and social dimensions of militaries' environmental footprints. At Dugway and Suffield, which are both still active installations, we can also see how the transition from temporary wartime operations to permanent peacetime installations unfolded.

Figure 1: Map of Dugway Proving Ground

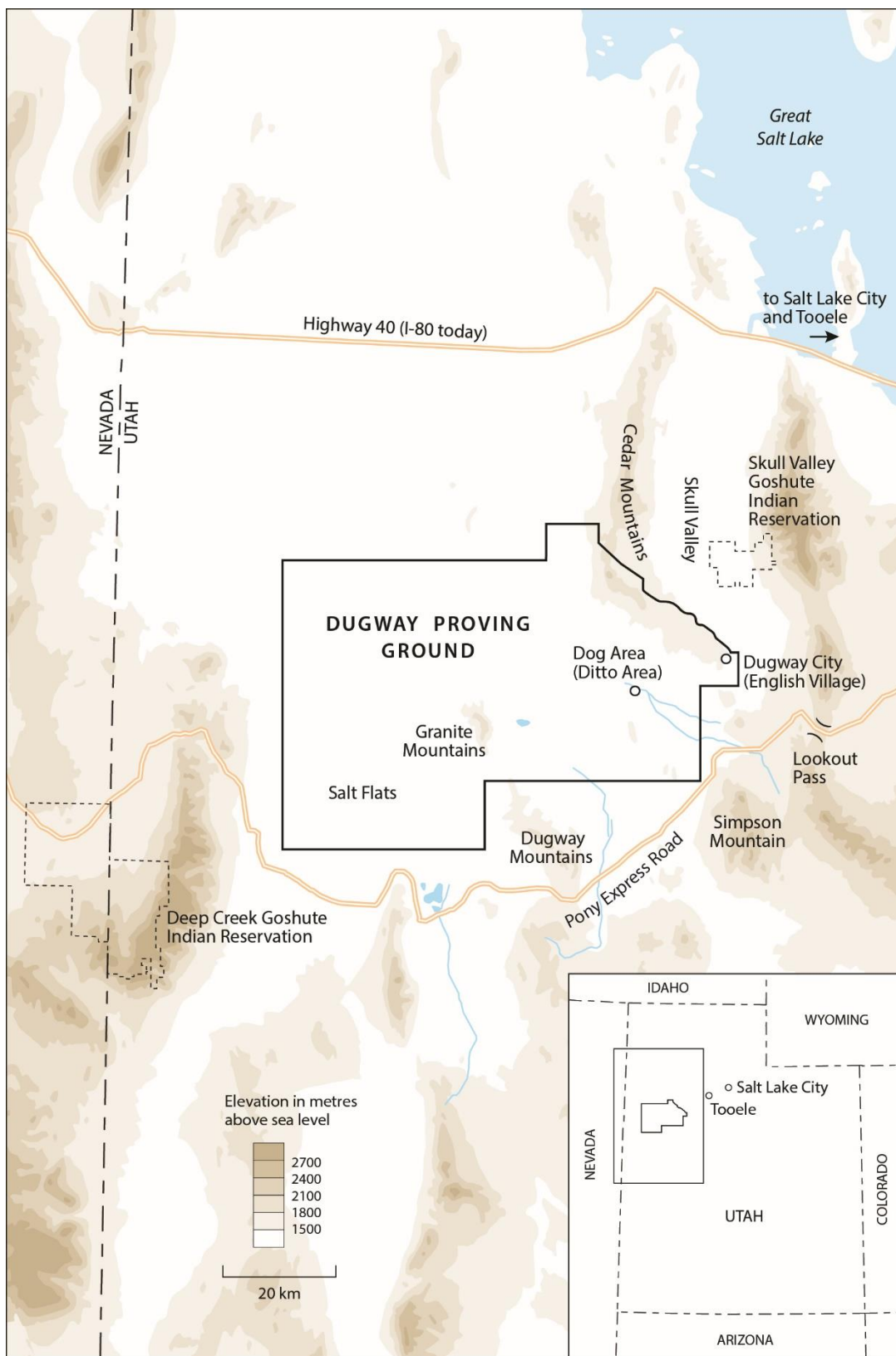
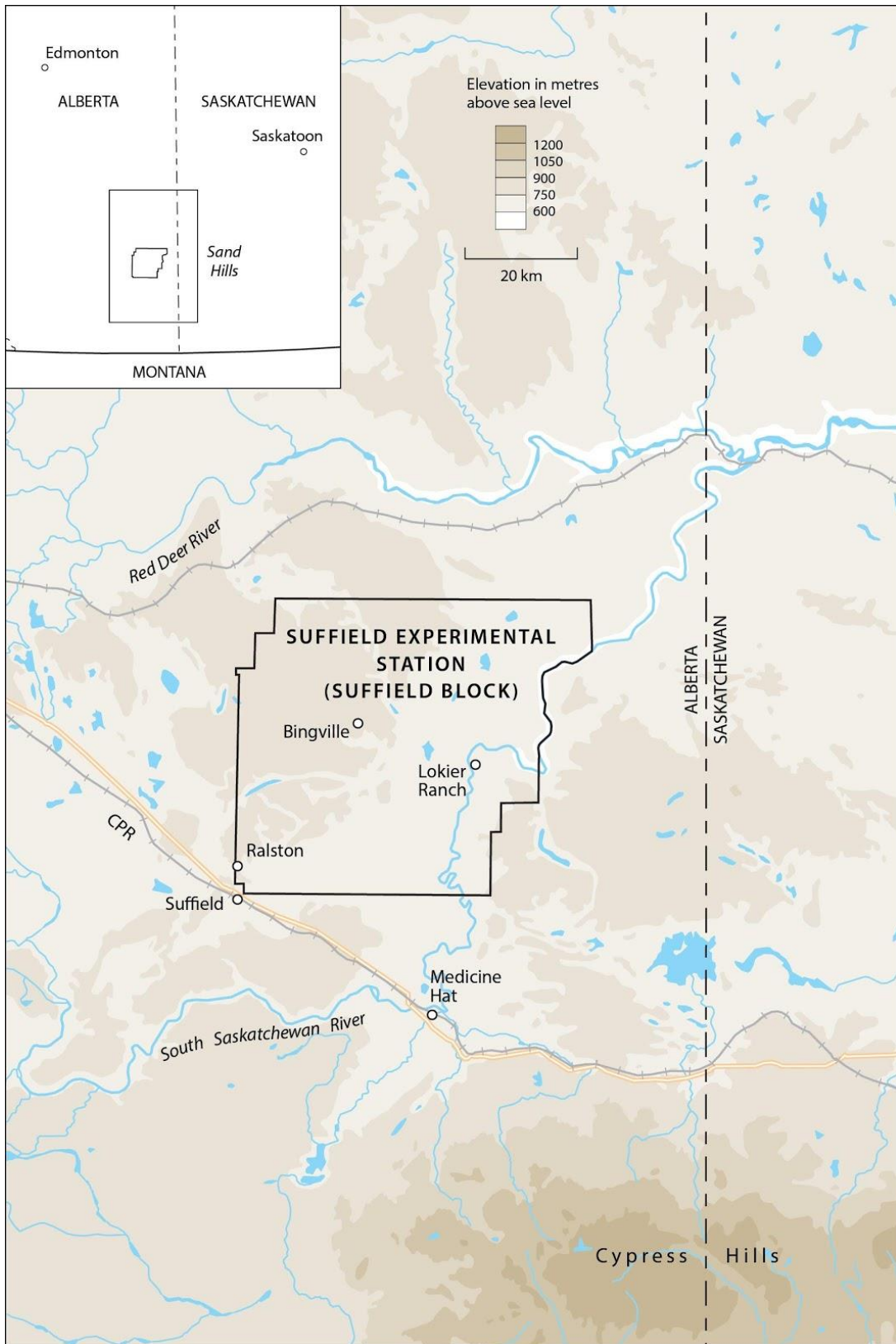


Figure 2: Map of Suffield Experimental Station



A number of works from a variety of disciplinary fields have investigated the development and use of weapons of mass destruction. The vast majority of these studies focus almost exclusively on the American West's nuclear weapons complex, or the consortium of public and private military, government, energy, security, industrial, and scientific interests tied to the research and development of nuclear weapons that are predominately located in the American West. These studies have done an impressive job of mapping the social and ecological consequences of the "internal nuclear colonization" and "radioactive nation-building" that have shaped the "secret alternative geographies" and "plutonium cities" of the American West. Yet, contrary to what many of these works seem to suggest, the nuclear militarized environments of the so-called "Atomic West" are not the whole story.²³

The strategic importance of nuclear weapons—as both a domestic threat and as a tactical weapon—undoubtedly makes them paramount in matters of security and warfare. However, chemical and biological weapons also present a

²³ For quotes and examples of works on nuclear weapons industry, see Valerie L. Kuletz, *The Tainted Desert: Environmental and Social Ruin in the American West* (New York: Rutledge, 1998), 5-9; Joseph Masco, *Nuclear Borderlands: The Manhattan Projects in Post-Cold War New Mexico* (Princeton: Princeton Univ Press, 2006), 337; Kathryn L. Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters* (New York: Oxford Univ Press, 2013) 3; Bruce Hevly and John M. Findlay, eds. *The Atomic West* (Seattle: Univ of Washington Press, 1998); Phillip Fradkin, *Fallout: An American Nuclear Tragedy* (Tucson: The Univ of Arizona Press, 1989); Carole Gallagher, *American Ground Zero: The Secret Nuclear War* (Lunenburg, VT: The Stinehour Press, 1993); Hugh Gusterson, *People of the Bomb: Portraits of America's Nuclear Complex* (Minneapolis: Univ of Minnesota Press, 2004). Gretchen Heefner, *The Missile Next Door: The Minuteman in the American Heartland* (Cambridge: Harvard University Press, 2012); Steve Kirsch, *Proving Ground: Project Plowshare and the Unrealized Dream of Nuclear Earthmoving* (New Brunswick: Rutgers University Press, 2005).

number of confounding strategic problems.²⁴ Much like their counterparts in the nuclear weapons industry, a consortium of defense interests tied to the research and development of CBWs have also formed a complex of “scientific cities” and “secret alternative geographies” that span the continent but are concentrated in the West. These alternate CBW geographies may be less commonly known than their nuclear counterparts, but this is not necessarily because they have had less noteworthy social and ecological consequences. Rather CBW development activities have simply been more effectively veiled from the public view than similar nuclear weapons developments. In investigating the history of two of the world’s most secretive, longest-lasting, and heavily-used chemical and biological weapons proving grounds, this study demonstrates how, as historian Ryan Edgington explains it, the West’s “relationship to military power remains more complex than we can explain just through nuclear testing.”²⁵

²⁴ Key works that have addressed the strategic problems of CBW include Brian Balmer, *Britain and Biological Warfare: Expert Advice and Science Policy, 1930-65* (Palgrave, 2001); Jeanne Guillemin, *Biological Weapons: From the Invention of State-Sponsored Programs to Contemporary Bioterrorism* (New York: Columbia Univ Press, 2005); Peter Hammond and Gradon Carter, *From Biological Warfare to Healthcare: Porton Down 1940-2000* (New York: Palgrave, 2002); Albert J. Maurroni, *America’s Struggle with Chemical-Biological Warfare* (Westport, CN: Praeger, 2000); Jeanne McDermott, *The Killing Winds: The Menace of Biological Warfare* (New York: Arbor House, 1987); Judith Miller, Stephen Engelberg, and William Broad, *Germs: Biological Weapons and America’s Secret War* (New York: Simon & Schuster, 2001); Ed Regis, *The Biology of Doom: The History of America’s Secret Germ Warfare Project* (New York: Henry Holt and Company, 1999); Edmund Russell, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (Cambridge: Cambridge Univ Press, 2001); Jonathan B. Tucker, *War of Nerves: Chemical Warfare from World War I to Al-Qaeda* (New York: Pantheon, 2006); Mark Wheelis et al, eds., *Deadly Cultures: Biological Weapons since 1945* (Cambridge: Harvard Univ Press, 2006); Raymond A. Zilinskas, ed., *Biological Warfare: Modern Offense and Defense* (Boulder, CO: Lynne Rienner Publishers, Inc., 2000).

²⁵ Edgington, *Range Wars*, 10-11.

A PEOPLE AND PLACE-BASED APPROACH

To truly grasp the importance of “global militarism and militarization,” we must, as geographers Matthew Rech et al contend, “focus on the people, and places, which militarism affects, and the processes of militarization through which it is constituted and expressed.”²⁶ While twentieth-century military and security efforts reshaped environments across the globe, no region offered up so much of its natural, cultural, social, and financial resources to so many different tasks of global security and permanent war as the North American West.²⁷ The supposed emptiness and underdevelopment of arid western landscapes have made them attractive targets to a variety of development schemes. The most significant of which occurred during and after World War II when certain areas of the West underwent unprecedented military-industrial transformations. This new land-use regime not only overtook vast swaths of land, air space, coastal waters, and even mountain interiors for defense purposes but also, as has been

²⁶ Rech, et al, “Military Geography, and Critical Military Studies,” 57; Woodward, “Military Landscapes,” 51; Sasha Davis, “The US Military Base Network and Contemporary Colonialism: Power Project, Resistance and the Quest for Operational Unilateralism,” *Political Geography* 30 (2011): 215. For broader discussions on the concepts of militarization, militarism, and similar terms, see Bernazzoli, Richelle M., and Colin Flint, “From Militarization to Securitization: Finding a Concept that Works in Political geography,” *Pergamon* 28(8) (2009): 449-450; Bernazzoli, Richelle M., and Colin Flint. “Power, Place, and Militarism: Toward a Comparative Geographic Analysis of Militarization.” *Geography Compass* 3(1) (2009): 393-411; Woodward, “Military Landscapes,” 40-61.

²⁷ My definition of North American West is primarily geographic and refers to the western half of the North American continent. For discussion on difficulties of locating the west, see Janice Cavell, “The Second Frontier: The North in English-Canadian Historical Writing,” *Canadian Historical Review* 83, 3, (September 2003): 364-389; Elizabeth Jameson and Jeremy Mouat, “Telling Differences: The Forty-Ninth Parallel and Historiography of the West and Nation,” *Pacific Historical Review* 75, 2 (2006): 183-230; Walter Nugent, “Where is the American West: Report on a Survey,” *Montana the Magazine of Western History* 42 (Summer 1992): 2-23.

well-documented by western historians, remade entire economies and lifestyles.²⁸ Far from being peripheral from the centers of power, the West, as author John Beck writes, “has become, metaphorically and literally, the arsenal, proving ground, and disposal site for American military-industrial power.”²⁹

Of all arid landscapes in the North America West, few are as disdained as the ones in which Suffield and Dugway are located. For instance, the once notorious “Great American Desert”—the supposed indomitable barrier to western American settlement that once included much of the American West—was, by the end of the nineteenth century, reduced on most national maps to only cover the desert region of western Utah where Dugway is squarely located. Suffield is also situated in the heart of the Canadian version of the Great American Desert, or what is known as Palliser’s Triangle—a zone of high aridity in the shortgrass prairies of western Saskatchewan and eastern Alberta that was similarly once thought to present the largest obstacle to western Canadian settlement.³⁰ Despite the prevailing views of these two areas as empty, desolate wastelands, both were far from being “devoid of population.”³¹ Indigenous peoples, ranchers, sheepherders, farmers, miners, and others had inhabited the lands and utilized the resources inside and adjacent to what would become the Dugway and Suffield

²⁸ Nash, *World War II and the West*; James L. Clayton, ed., *The Economic Impact of the Cold War: Sources and Readings* (New York: Harcourt, Brace, and World, 1970).

²⁹ Beck, *Dirty War*, 4.

³⁰ Patricia Limerick, *Desert Passages: Encounters with the American Deserts* (Albuquerque: Univ of New Mexico, 1985); Doug Owrarn, *Promise of Eden: The Canadian Expansionist Movement and the Idea of the West, 1856-1900* (Toronto: Univ of Toronto Press, 1992).

³¹ “Canadian Chemical Warfare Experimental Station, Suffield, Alberta,” n.d., 745.043 (D1), DHH.

sites for generations. By investigating the conflicting ways military and, what were at the time, the dominant local land use interests conceptualized and utilized the arid lands of western Utah and southeastern Alberta, this study provides a critical overview into how military dispossession has played out in the United States and Canada.³²

WHY CANADA?

The presence of over five-and-half million acres of defence lands in Canada seemingly defies conventional notions about militarized landscapes. Militarized environments are typically thought to be the products of states devoted to militarism and empire, and not of a nation popularly celebrated as a “peaceable kingdom” or an “unmilitary community.” How a country that is supposed to have “avoided the long history of militarism that so corrupted American society” possesses some of the world’s largest and most heavily utilized military lands is a question that has surprisingly not attracted much attention.³³ There are several reasons for this neglect. Perhaps more so than anywhere else, war in Canada is “relegated to specific places, or blamed on particular institutions, industries, or people, rather than viewed as geography of power

³² For viewing environmental change as a product of competing environmental agendas, see Andrew Hurley, *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary, Indiana, 1945-1980* (Chapel Hill, NC: 1995), xiv, 1-14, 180-183; Douglas R. Weiner, “A Death-defying Attempt to Articulate a Coherent Definition of Environmental History,” *Environmental History* 10 (July 2005): 404-420; William Cronon, “Modes of Prophecy and Production: Placing Nature in History,” *The Journal of American History* 76 (March 1990): 1131.

³³ Donald Worster, “Wild, Tame and Free: Comparing Canadian and U.S. Views of Nature,” in *Parallel Destinies: Canadian-American Relations West of the Rockies* eds. John M. Findlay and Kenneth S. Coates (Seattle: Univ of Washington Press, 2002), 289.

integral to the nation.”³⁴ For many Canadians, war is something that takes place “beyond their shores,” or at least “has not come to Canada” since the War of 1812.³⁵ Consequently, most discussions about Canada’s “distinct way of war” are typically about developments that have taken place overseas. The “conscious and consistent” use of Canadian armed forces abroad, the nation’s numerous diplomatic contributions, or Canada’s skillful handling of its alliance commitments with larger super powers are topics that dominate most discussions of war in Canada.³⁶

It is easy to see why these standard topics garner so much attention, as they not only speak to larger questions about Canada’s role in the world but also to core elements of Canadian national mythology and identity. According to many accounts, Canada’s many notable contributions to defence alliances have not only allowed the nation to gain “a seat at the table in the councils and organizations that deal with global strategy and security in the nuclear age” but also played a critical role in “creating the advanced, affluent, and vibrant nation that exists today.”³⁷ Perhaps the most distinct element of Canada’s “way of war” is how deeply it is tied to the politics of national identity. Even more contemporary

³⁴ Krupar, *Hot Spotter’s Report*, 4.

³⁵ *ibid*; Desmond Morton, *A Military History of Canada* (Toronto: McClelland & Stewart Limited, 2007), x.

³⁶ Bernd Horn, ed. *The Canadian Way of War: Serving the National Interest* (Toronto: Dundurn, 2006), 14; David Jefferess, “Responsibility, Nostalgia, and the Mythology of Canada as a Peacekeeper,” *Univ of Toronto Quarterly* 78(2) (Spring 2009): 709-727; Desmond Morton, *Understanding Canadian Defence* (Toronto: Penguin Books Canada, 2003); Robert Teigrob, *Warming up to the Cold War: Canada and the United States’ Coalition of the Willing, from Hiroshima to Korea* (Univ of Toronto Press, 2009).

³⁷ Joel J. Sokolsky, “A Seat at the Table: Canada and its Alliances,” *Armed Forces and Society* 16(1) (Fall 1989): 11; Horn, ed., *The Canadian Way of War*, 384.

debates over the merits of Canada's peacekeeping image or fears of creeping militarism are more about the politics of national identity than anything else.³⁸

In contrast, the use of domestic land for military purposes does not easily fit into narratives of national triumphalism. Land use rights are often contentious and many military land-use operations can be controversial. When Canadian defence lands do attract national attention, it is usually for something scandalous.³⁹ Without the interest and investment of allied nations, moreover, much of Canada's defence estate would not exist—a reality that raises a number of unsettling questions about national identity, sovereignty, and dependency. Far from being sources of national pride and comfort, Canada's militarized environments instead evoke discord and uncertainty. With little to gain from unwanted attention, most Canadian military reserves tend to operate under the radar of the public's scrutiny. Not surprisingly, the “the relationship between military activity and natural landscapes in Canada has received minimal scholarly attention.” Even one of nation's most significant domestic wartime contributions—World War II's highly ambitious British Commonwealth Air Training Plan—has “been largely ignored by historians.”⁴⁰

³⁸ Heie Härting and Smaro Kamboureli, "Introduction: Discourses of Security, Peacekeeping Narrative, and the Cultural Imagination in Canada," *Univ of Toronto Quarterly* 78(2) (Spring 2009): 659-685; John Clearwater, *“Just Dummies”: Cruise Missile Testing in Canada* (Univ of Calgary Press, 2006); Ian McKay and Jamie Swift, *Warrior Nation: Rebranding Canada in an Age of Anxiety* (Toronto: Between the Lines, 2012); Noah Richler, *What We Talk about When We Talk about War* (Fredericton, NB: Goose Lane Editions, 2012).

³⁹ More notorious examples include the testing of mustard gas on soldiers at Suffield, the housing of nuclear-armed missiles at Goose Bay, or the open-air testing of agent orange at Gagetown.

⁴⁰ P. Whitney Lackenbauer and Matthew Farish, “The Cold War on Canadian Soil: Militarizing a Northern Environment,” *Environmental History* 12(4) (Oct., 2007): 920;

“The military occupancy of land is a critical issue almost because of its relative invisibility. That which is taken for granted can relish in obscurity.”⁴¹ Nowhere does this maxim have as much applicability as in Canada. The Department of National Defence may be “one of the largest landholders in Canada,” yet its territorial assets rarely receive much recognition or acknowledgement.⁴² Not only was there little discussion or debate during the establishment of most Canadian military bases, but this lack of scrutiny has also largely persisted to the present. In many respects, Canada’s militarized environments remain as uncharted geopolitical entities. This neglect, however, should not be mistaken for lack of importance. Arguably one of Canada’s most significant contributions to collective security and common defence has been the government’s willingness to put the nation’s geography in service of global security and permanent war. Consequently, no portrayal of Canada’s “distinct way of war” can be complete without an examination of how warfare and security imperatives have segregated land and shaped environments in Canada.

The bulk of Canadian defence lands have served the shifting needs of air warfare. Cold Lake, Goose Bay, and a host of smaller Canada Forces air bases collectively represent well over half of all designated defence lands in Canada. Since 1939, when the highly successful British Commonwealth Air Training Plan was established, Canada’s airfields and skies have served the needs of not only

Allan Newell, “A Plan for the Future: The Legacies of the British Commonwealth Air Training Plan in Canada’s Prairie Provinces,” (M.A. Thesis, Univ of British Columbia, 2007), 3.

⁴¹ Woodward, *Military Geographies*, 12.

⁴² Morton, *Understanding Canadian Defence*, 82.

the Royal Canadian Air Force but also the air forces of numerous allied nations. The demands of air warfare not only transformed the geographies of designated air bases, but also development in the Canadian North. As new vulnerabilities to air power emerged, the North shifted from being understood as “a strategic barrier” to being perceived “as an exposed flank.”⁴³ P. Whitney Lackenbauer and Matthew Farish have skilfully detailed how these strategic perceptions prompted a “holistic form of government intervention” in the early Cold War period, in which both Canadian and American military demands drove a variety of military modernization projects, including the construction of the Distant Early Warning Line. Notably, Lackenbauer and Farish take pains to distinguish the militarization of the Canadian North from similar processes in the American West, contending that defence interests did not treat northern environments as empty sacrifice areas for destructive military activities, but as strategic spaces for defence training and military modernization. While these findings have subsequently become the standard bearer for how the militarization of Canadian landscapes is understood, this supposed Canadian distinctiveness does not hold up at many militarized environments across Canada.⁴⁴ The environmental

⁴³ Kenneth C. Eyre, "Forty Years of Military Activity in the Canadian North, 1947-87," *Arctic* 40(4) (1987): 294.

⁴⁴ Lackenbauer and Farish, "The Cold War on Canadian Soil," 924; P. Whitney Lackenbauer and Matthew Farish, "High Modernism in the Arctic: Planning Frobisher Bay and Inuvik," *Journal of Historical Geography* 35 (2009): 517-544; Matthew Farish, "Frontier Engineering: From the Globe to the Body in the Cold War Arctic," *The Canadian Geographer/Le Géographe Canadien* 50(2) (2006): 177-196; Matthew Farish, "The Lab and the Land: Overcoming the Arctic in Cold War Alaska," *Isis* 104(1) (2013): 1-29. For standard bearer, see Pearson, "Researching Militarized Landscapes: 118; Woodward, "Military Landscapes," 42. In looking beyond northern environments, Matthew Evenden's work on hydropower and wartime mobilization has made its own niche in the historiography of Canadian and global militarized environments, see Matthew Evenden,

histories of Suffield, Grosse Isle, Gagetown, Cold Lake, and other Canadian defense establishments embody some of the signature characteristics of military sacrifice zones and are, in many respects, indistinguishable from their more notorious counterparts in the American West. Any assessment of the militarization of Canadian environments needs to take into account these defense establishments.

Perhaps more than any other site, the Suffield Experimental Station embodies the chief elements of a Canadian militarized environment. At the time of its establishment, Suffield represented an unprecedented bounding and transformation of Canadian territory. It was Canada's first "full-scale" proving ground, originally encompassing close to 700,000 acres of land. Like other large Canadian militarization projects, Suffield's development was primarily driven by the needs of more powerful allied nations, particularly the U.K. As with projects in the North, Suffield's climatic and related geographic features resembled potential sites of actual war better than its counterparts in the American West. Lastly, in addition to being—like Dugway—one of the world's most secretive, versatile, long-lasting, and heavily-used militarized environments, Suffield has also been one of the world's most globally-oriented defense establishments.

Allied Power: Mobilizing Hydro-electricity During Canada's Second World War (Univ of Toronto Press, 2015).

COLLABORATION, MILITARY SECRECY, AND DISORIENTATION

In looking at prominent military developments in Canada and the United States, this study contains certain comparative elements. Federal land appropriation powers in the two countries, for example, are quite different, and this study highlights how these legal differences played out at the ground level. While taking into account such comparative aspects, I also recognize that war and related military and security activities have long since ceased being purely national affairs, if they ever were. Prominent twentieth-century warfare and security developments may commonly be framed as national stories, but such developments, particularly ones concerning nuclear, chemical, and biological weapons, have more often than not been multinational endeavours carried out on a global scale. During World War II, for example, a large consortium of chemical and biological weapons scientists from the U.S., U.K., Canada, and Australia worked closely together on “problems of common interest... without regard for questions of nationality.” In the case of CBW research in Canada and the U.S., there was, as one Canadian official put it in 1967, a “very informal ad hoc approach to defence science collaboration.” Dugway and Suffield had particularly close relations. Leading authorities from the two sites held informal, joint conferences, or “working parties,” with each other on a semiannual basis for decades. At times, the “direct co-operation between the field Stations” was so

closely integrated that they would publish their field testing schedules collaboratively.⁴⁵



Figure 3: Ralston, Alberta: The street names in the Crown Village of Ralston at the Suffield Experiment Station are named after prominent American CBW establishments, including Dugway Proving Ground. (Author's photo, 2013).

In examining Cold War military research activities in the Canadian North, Farish argues “the analysis of power should not proceed strictly from the perspective of traditional, legal sovereignty but... through a strategic model premised on the practices of war and related modes of technical rationality.” The collaborative, extra-national, and highly consequential nature of CBW research and development activities reinforces Michel Foucault’s well-known maxim about how “wars are no longer waged in the name of a sovereign who must be defended; they are waged on behalf of the existence of everyone; entire populations are mobilized for the purpose of wholesale slaughter in the name of

⁴⁵ Experimental Station Suffield, "Proposed Press Release," n.d., Station Series 1942-5, 680.2 Canada, Box 179, RG 175, National Archives at College Park, Maryland (NACP). A.L. Strange, "Exchange of Defence Science: Information with the Netherlands," 26 Dec 1967, SES.S 221-1 vol. 2, RG 24, Library and Archives Canada, Ottawa, Ontario, Canada (LAC); A.P.R. Lambert to Commanding Officer, Dugway Proving Ground, 29 April 1958, SES.S 1800-60-141 vol. 1, RG 24, LAC; A.P.R. Lambert to Dr. M.A. Rothenberg, 5 Feb 1964, SES.S 1800-60-141 vol. 1, RG 24, LAC; "Dugway-SES on Winter Trials Programme 1957-58," 27 June 1957, S-2000-1-100, RG 24, LAC.

life necessity: massacres have become vital.”⁴⁶ At Dugway, Suffield, and similar weapons facilities, multinational enclaves of select scientific-military authorities worked at the task of securing collective defense and global security on landmasses larger than many European kingdoms of old. The control these defense interests exerted over these lands, as this study highlights, more closely resembled the sovereignty of medieval fiefdoms than a modern liberal democracy. Through barbed-wire fences, guard patrols, loyalty oaths, and complex systems of surveillance and secrecy, they secured themselves against foreign threats and domestic democratic controls alike. According to geographer Trevor Paglen, our reliance on such restricted military spaces has, among other things, meant “turning our own history into state secrets.”⁴⁷

Assessing the workings of power at secret sites that have been withdrawn from public knowledge presents numerous challenges. Researchers have pointed out how “military-related research can be quite different from other social scientific inquiry in other social contexts because of issues of secrecy and security (some justifiable, some less so) in these institutions.”⁴⁸ In approaching militarized environments from an administrative perspective, the bulk of my research findings come from classified government records. Consequently, this

⁴⁶ Farish, “Frontier Engineering,” 180; Michel Foucault, *History of Sexuality, Vol. 1: An Introduction*, trans. David Macey (New York: Vintage Books, 1990), 137. For a closer look at Dugway Proving Ground’s direct contribution to some of history’s most notorious, large-scale massacres, see Mike Davis, *Dead Cities*, 65-84.

⁴⁷ Trevor Paglen, *Blank Spots on the Map: The Dark Geography of the Pentagon’s Secret World* (New York: Penguin, 2009), 275.

⁴⁸ Rech, et al, “Military Geography, and Critical Military Studies,” 56. For methodological challenges of researching militarized environments, see Woodward, “Researching Military Geographies,” 63-73.

study has relied heavily upon the U.S.'s *Freedom of Information Act* and Canada's *Access to Information and Privacy Act*. Even with these valuable yet imperfect tools, much information regarding military occupation and land use remains concealed. Access to government records is just one challenge.

Understanding basic questions of how and why military officials or weapons scientists do what they do can be immensely perplexing. Top-secret and often partial intelligence findings, for example, can have enormous influence on military research and development activities. Anthropologists have also revealed how the strategic epistemological assumptions and specialized technocratic language of defense experts sometimes gives them vastly different worldviews. There can be a sense of unreality to this, a fictive, mirror-world of imaginative war and security threats in which the logical paranoia of military strategists such as Herman Kahn becomes manifest on the landscape. To prevent a nuclear apocalypse, for example, the government apparatus meticulously transforms domestic territories into apocalyptic landscapes.⁴⁹

To fully grasp such a duplicitous, abstracted, and concealed history, you need to be ready to disorient yourself. The shadow world of our contemporary military-security apparatus, as Trevor Paglen further reminds us, lies “outside the rule of law, outside the Constitution, outside the democratic ideals of equal

⁴⁹ Hugh Gusterson, “Coming of Age in a Weapons Lab: Culture, Tradition, and Change in the House of the Bomb,” *The Sciences* (May-June 1992): 16-22; Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley: Univ of California Press, 1996); Carol Cohn, “Sex and Death in the Rational World of Defense Intellectuals,” *Signs* 12 (1987): 687-718. For the paranoid worlds of Herman Kahn, see Sharon Ghamari-Tabrizi, *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War* (Cambridge: Harvard Univ Press, 2005). For preventing a nuclear apocalypse, see Masco, *Nuclear Borderlands*, 12.

rights, transparent government, and informed consent.” According to landscape photographer Robert Del Tredici, uncovering the “amazing invisibility” of secret military activities requires a “hunger for unseen evidence... an eye for innuendo, a taste for paradox and the ability to walk among conspiracies and phantoms.”⁵⁰ It also means recognizing that as much as the history of prominent twentieth-century warfare and security developments may be full of secretive, controversial geopolitical drama, it can also be incredibly mundane. Weapons testing is, after all, largely a matter of blowing things up in the desert; of skilled and dedicated workers painstakingly trying to solve tedious technical problems day in and day out. While many details will remain hidden, one must make do with what is available. For the point of examining the hidden history of environmental and social change at restricted militarized environments is not just to make visible what has been concealed or even to make right what has been wronged. It also a matter of drawing attention to the ways in which the exceptional conditions of war have become normalized parts of contemporary politics and, above all, refusing to treat this expanding military presence as an inevitable outgrowth, or unavoidable response, to events and forces beyond our control.

THE CHAPTERS

All four chapters of this dissertation examine how mid-century military and security imperatives transformed environments of the North American West. Each chapter also explores how different elements of exceptional, emergency

⁵⁰ Paglen, *Blank Spots on the Map*, 16; Gary Hall, “Introduction” in *The Atomic Photographers Guild: Visibility and Invisibility in the Nuclear Era*, by The Atomic Photographers Guild (Toronto: Gallery TPW, 2001), 2.

powers have shaped both military land claims and practices of military land use. Chapter 1 looks at the use of presidential emergency powers on a national scale. Contemporary emergency powers are generally thought to be products of war, civil unrest, or natural disasters. This chapter reveals how, in the American context, the normalization of emergency powers is particularly rooted in the presidential management of public lands. Chapter 1 also addresses the central question of how the U.S. Department of Defense acquired so much land, and demonstrates how the legal foundation of much of America's vast defense estate rested upon a controversial, tenuous, and overreaching assertion of emergency presidential power at the outset of World War II. Instead of reverting back to constitutional norms, these ostensibly temporary military land withdrawal powers became routine administrative functions in the years after the war, which, as the chapter further argues, led to widespread abuse, inefficiency, and mismanagement that proved detrimental to a wide variety of public land users. Drawing on numerous examples from executive orders and legal cases, chapter 1 uncovers and demystifies the extralegal and haphazardly constructed land claim policies upon which all subsequent developments at U.S. bases established during and after World War II are predicated.

Chapters 2 and 3 both look at the question of how militaries appropriated large tracts of land in the North American West for the establishment of chemical and biological weapons proving grounds, while paying particular attention to the various policies and procedures that Canadian, U.K., and U.S. defense interests used to resist local opposition and solidify their land claims. As with many large-scale North American military reserves, Utah's Dugway Proving Ground and

Alberta's Suffield Experimental Station can trace their origins to the emergency conditions of the Second World War. Unlike certain World War II projects, however, the threats that initially brought these two proving grounds into existence did not cease in the years after the war, as both the scale and lethality of unorthodox CBW technologies increased. As these threats persisted, moreover, so did the imperative to develop capabilities in the fields of chemical and biological warfare. Hence, at both Suffield and Dugway, the questions are not only about the immediate demands of total war but also the more unremitting demands of permanent war. By investigating how these two CBW proving grounds transformed from temporary military camps to permanent defense installations, chapters 2 and 3 demonstrate how the less commonly acknowledged imperatives of permanent war have had critical influence in shaping spatial and power relations in western North American environments.

While chapters 2 and 3 share a number of similarities between, there are also significant differences in their approaches to the issues of military dispossession and permanent war. Following the overview of U.S. military land acquisition in chapter 1, chapter 2 investigates how those national strategies played out on the regional level in western Utah, and specifically examines local citizens' and representatives' role in placing vast tracts of national territory under military control. Temporary wartime emergencies have justified extraordinary and sometimes unthinkable measures, but, from the perspective of military land use, such crises have been less consequential than the condition of permanent war. As this chapter argues, in the case of Dugway, the establishment of a permanent installation in the early 1950s had a more imposing set of

environmental demands on the area than during World War II. After the war, not only did officials at Dugway covet more productive lands for long-term use, but their accommodation of non-military land users also diminished, heightening land use conflicts. Underlying this shift in land use relations was the DoD's unrestricted and increasingly formalized land withdrawal powers. The chapter specifically looks at how the unique imperatives of a so-called "permanent peacetime" CBW field-testing program drove Dugway officials to seize valuable grazing areas that had been vital to Utah's economy. In paying particular attention to how defense interests resisted the opposition of the "undisputed giant of Utah's sheep industry," this chapter demonstrates how military sacrifice zones are not only products of unchecked, overbearing military prerogatives but also the result of American citizens' calculated and collective choices.⁵¹

As the Suffield Experimental Station shifted from a temporary wartime operation to a permanent installation in the years after World War II, there was, much like at Dugway, an increase in disputes between military and local land use interests. Yet, at Suffield, the most significant environmental conflict took place during its initial establishment in 1941, when the urgent demands of war drove Canadian and U.K. defence officials to rapidly and forcibly remove close to six hundred settlers from a large block of agricultural land in southeastern Alberta. War undoubtedly makes demands, yet, in the case of the 1941 Suffield expropriation, the sacrifices of the dispossessed settlers occurred with minimal

⁵¹ James Moyle, "The Deseret Live Stock Company," (1946), Folder 18, Box 1, Ernest L. Poulson Papers, ACCN 594, Western Americana, J. Willard Marriot Library, University of Utah, Salt Lake City, Utah.

debate, recognition, or redress. Chapter 3 provides a case study on how history has been mobilized at Suffield, and argues that, by overlooking the consequences of military dispossession and distorting the local history of land use, official representations of Suffield's development have served as a key method of dispossession and legitimation, that have shaped not only the Department of National Defence's initial approach to the expropriation but also its continuing claims to lands in southeastern Alberta. The chapter further contends that the government's unwillingness to address possible wrongdoings committed under the strain of war at one of the world's largest and longest-lasting CBW proving grounds is primarily due to how the urgency of war preparation has become a permanent, underlying condition at Suffield. On a broader level, Chapter 3 provides a conceptual framework for thinking about war, militarism, and military developments in ways that move beyond the standard assumptions that drive most discussions about war in Canada.

Whether it was establishing America's vast defense landholdings at the national level or the founding of full-scale CBW proving grounds at the regional level in Alberta and Utah, the reliance on exceptional, emergency powers has been the norm. Chapter 4 takes this analysis beyond questions of land claims and looks at how emergency powers shaped administrative and jurisdictional controls. Certain defense lands, it turns out, offer much more than just physical space for testing and training activities. Chapter 4 argues that the Suffield Experimental Station also offered weapons scientists a secret and juridically empty space in which they could conduct controversial and inherently hazardous research and development activities beyond the pale of common legal and ethical

norms. Not only was the experimental station designed to exist outside the law from the outset, but the very lack of a normal legal order at Suffield also opened up great possibilities as far as the testing of chemical and biological weapons was concerned. Official records may rarely mention it, but the prospect of including actual soldiers as test subjects in chemical weapons field trials was one of the principle motivations guiding Suffield's establishment. To outsiders, the extraordinary and frequently troubling history of secretive military experimental activities can be difficult to grapple with or understand, and this has especially been the case with Suffield's ambitious human testing program. By examining how the emergency conditions of war were given a permanent spatial arrangement at Suffield, Chapter 4 helps to make more intelligible some of more horrific and baffling experimentation practices that have occurred all too regularly at sites devoted to the development of nuclear, chemical, and biological weapons.

The conclusion looks more closely at how extraordinary procedures and activities formed in response to seemingly temporary wartime crises have become permanent, normalized, and, in some cases, dominant features of contemporary politics. It also makes a case for the importance of investigating war's permanent presence in society. As a whole, the dissertation investigates the procedures, policies, and practices governing the establishment, operational activities, and ongoing control of North American defense lands. It provides a foundational look into the figurative and material grounds of our continuing and permanent global state of war.

CHAPTER 1

DEFENDING THE NATION, PROTECTING THE LAND

Emergency Powers and the Mid-century Militarization of American Public Lands

As both the scale and lethality of weapons technologies and military tactics increased during and after World War II, so did the need for what was commonly described as “realistic,” “operational,” or “full-scale” training and testing grounds. From late 1930s to 1945, the U.S. military’s total land holdings jumped from 3 million to more than 25 million acres. By the mid-1950s, the military’s holdings exceeded thirty million acres of land. Today these lands, which were largely drawn from the public domain, form the “cornerstone” of the Department of Defense’s operations.¹

¹ 103 Cong. Rec. 5520 (1957); Jack Utter et al., “Military Land Withdrawals: Some Legal History and a Case Study,” *College of Agriculture Paper* no. 541 (University of Arizona, 1985): 48.

Nearly all aspects of America's ongoing condition of permanent war rest upon on the military's continuing occupation of public land.² But the question of how the U.S. military came to occupy so much land has remained elusive to historians. In following Gerald Nash's lead, western historians have treated the federal government's power to acquire and occupy public lands for military purposes as a given, repeatedly noting how the West's old liabilities of remoteness and isolation suddenly became "virtues that provided a magnet" for vast new defense installations.³ More critical readings similarly fall short in providing clear answers. As author John Beck evocatively puts it, the "land itself is withdrawn from public usage and annihilating weapons exploded upon it, and nowhere is there any sense of an explanatory narrative or evidence of the agents of this transformation." Instead, the military's claims to land are "defined by invisible rules," or through the "control of information," or simply through "the rhetoric of defence and national security."⁴ More common is the sense that the military's expansive presence grew inevitably and unavoidably from events and forces beyond our control.⁵ Such explanations may have merit, but they do little

² Rachel Woodward, *Military Geographies* (Malden, MA: Blackwell Publishing, 2004), 12, 35.

³ Gerald Nash's *The American West Transformed: The Impact of the Second World War* (Bloomington: Indiana University Press, 1985), 23, 158. For similar assessments, see Gerald Nash, *World War II and the West: Reshaping the Economy* (Lincoln: University of Nebraska Press, 1990); Richard White, "It's your misfortune and none of my own": A History of the American West (Norman: University of Oklahoma Press, 1991), 497; Hal Rothman, *On Rims and Ridges: The Los Alamos Area Since 1880* (Lincoln: University of Nebraska Press, 1992), 208; Maria E. Montoya "Landscapes in the Cold War West," in *The Cold War American West, 1949-1989* ed. Kevin J Fernlund (University of New Mexico, 1998), 11.

⁴ John Beck, *Dirty Wars: Landscape, Power, and Waste in Western American Literature* (Lincoln: University of Nebraska Press, 2009), 135, 129; Woodward, *Military Geographies*, 153.

⁵ On the sense of determinism during war, see Mary L. Dudziak, *War Time: An Idea, Its History, Its Consequences* (New York: Oxford University Press, 2012), 3-9, 23, 117-18.

to help us understand the policies, procedures, and practices that legitimized the military's acquisition and continuing control of public lands.

Contrary to common perceptions, the U.S. military's initial claims to public lands at the outset of World War II attracted significant controversy within Franklin D. Roosevelt's administration. To withdraw lands to the War Department's expectations, executive officials had to circumvent a number of legal controls. To explain how the U.S. military seemingly bypassed these obstacles, it is necessary to understand not only the history of executive emergency war powers but also the history of emergency land withdrawal powers.

Since the early 2000s, scholars have increasingly examined how the state of perpetual war has given rise to a permanent state of emergency in which the use of temporary emergency powers has become, as philosopher Giorgio Agamben has written, "the dominant paradigm of government." Studies on emergency wartime powers in the United States have looked into how such powers have eroded democratic controls and civil liberties, allowing executive agencies to, among other things, spy on, denounce, intimidate, or intern their own citizens and deport, detain, torture, invade, or execute their alleged enemies.⁶

⁶ Giorgio Agamben, *State of Exception* (Chicago: University of Chicago Press, 2005), 2. For works on emergency executive powers and permanent war, see Andrew J. Bacevich, *Washington Rules: America's Path to Permanent War* (Metropolitan Books, 2010); Andrew J. Bacevich, ed. *Long War: A New History of United States National Security Policy Since World War II* (Columbia University Press, 2007); John Brenkman, *The Cultural Contradictions of Democracy: Political Thought since September 11* (Princeton University Press, 2007); David Chandler, "War Without End(s): Grounding the Discourse of 'Global

Times of war and crisis have undoubtedly enhanced independent executive powers, but so has the practice of executive land withdrawal. The powers to defend the nation and the powers to protect public lands stem from the same indeterminate sources of emergency executive power. For too long, as this chapter argues, scholars have not fully recognized how a variety of independent executive powers, including those for contemporary war efforts and security programs, are rooted in the executive power to manage public lands. This chapter reveals how the U.S. military relied not only upon the president's prerogative to defend the nation to legitimize land claims but also upon the president's duty to protect America's public lands. In particular, the legal precedents that have ensued from the long-standing and frequent use of the president's emergency withdrawal powers played an important role in allowing calls for the exclusive use of public lands for military purposes to take hold.

This assertion of withdrawal power at the outset of World War II redefined the executive's ability to acquire public lands and shaped the general trajectory of U.S. military development. Once the military's land claims took hold, an unbound, independent system of executive military land withdrawals was quickly established. This system—originally intended to respond to a temporary wartime

War'," *Security Dialogue* 40(3) (2009): 243-262; Dudziak, *War Time*; Michel Foucault, "Society Must Be Defended": *Lectures at the College de France, 1975-1976*, trans. David Macey (New York: Picador, 2004); Oren Gross and Fionnuala Ní Aoláin, *Law in Times of Crisis: Law in Times of Crisis. Emergency Powers in Theory and Practice* (Cambridge University Press, 2006); Michael Hardt and Antonio Negri, *Multitude: War and Democracy in the Age of Empire* (New York: The Penguin Press, 2004); William G. Howell, Saul P. Jackman, and Jon C. Rogowski, *The Wartime President: Executive Influence and the Nationalizing Politics of Threat* (Chicago: University of Chicago Press, 2013); Antonio Negri, *Reflections of Empire* (Cambridge: Polity Press, 2008); Elaine Scarry, *Thinking in an Emergency* (New York: W.W. Norton & Company, 2011).

emergency—gradually became formalized as World War II ended and the military and political climate shifted to the Cold War. Despite this, land withdrawal powers remained ad hoc and uncircumscribed, which, as this chapter further contends, led to widespread abuse, inefficiency, and mismanagement.

Subsequent efforts to rein in and reform executive military land withdrawal powers were highly effective at detailing the abuse of power but less effective at rectifying its consequences. This chapter uncovers and demystifies the policies and procedures behind the executive assertion of power over public land that accompanied the mid-twentieth-century buildup of U.S. military forces. It provides a foundational overview of the broader federal land claim authority upon which all subsequent developments at U.S. military bases established during and after World War II are predicated.

THE PRESIDENT’S DUTY TO PROTECT THE LAND

Concerns about the relationship between war, abuses of power, and American democracy are not new. The framers of the U.S. Constitution recognized the inherent problems involved in granting specific constitutional powers to defend against threats that are “impossible to foresee or define.” They left the president with indeterminate powers to act in states of war and other national emergencies.⁷ These emergency powers, as attorney general Frank Murphy noted in 1939, “have never been specifically defined, and in fact cannot

⁷ Alexander Hamilton, “Federalist Paper No. 23: The Necessity of a Government as Energetic as the One Proposed to the Preservation of the Union,” 18 December 1787, available at www.constitution.org/fed/federa23.htm.

be, since their extent and limitations are largely dependent upon conditions and circumstances.”⁸

Emergency powers provide the U.S. government with the flexibility to respond to unforeseen crises that its regular, more restrictive form of government could not handle, with the ultimate goal being a return to constitutional normalcy. At the center of such powers stands the president, whose “functions under the Constitution are such as to point, to him[sic], and to him[sic] alone, as the active agent of the Government who can and must meet the emergency.”⁹ In addition to providing practical advantages to the president, emergency powers enhance opportunities for abuse of political power and authority. The alterations in government that emergency powers produce, moreover, are often far easier to establish than they are to retract. Of larger significance is the fact that war and other types of emergencies increasingly do not have clear beginnings or endings, making a return to normalcy all the more difficult. Wartime, as legal scholar Mary Dudziak puts it, “has become normal time in America.”¹⁰ Constitutional expert Clinton Rossiter was one of the first to recognize that, with the continuing threat

⁸ Request of the Senate for an Opinion as to the Powers of the President, “In Emergency or State of War,” 39 Opinion of the Attorney General, 343, 347-48 (1939). Whether these powers are constitutionally legitimate remains an open question, but no one denies they have been frequently employed throughout the nation’s history. The U.S. Congress has also recognized these powers through legislation and official reports, see 90 Stat. 1255; 50 U.S.C. 1601-1651 (1988); Harold C. Relyea, Congressional Research Service, *National Emergency Powers*, CRS Report for Congress, 98-505 GOV, 30 November 2007, 10-12, available at <https://fas.org/sgp/crs/natsec/98-505.pdf>.

⁹ Brief for Appellant, *United States v. Midwest Oil Co.*, 236 U.S. 459 (1915) as quoted in Maeva Marcus, *Truman and Steel Seizure Case: The Limits of Presidential Power* (Columbia University Press, 1977).

¹⁰ Brenkman, *The Cultural Contradictions of Democracy*, 60; Oren Gross and Fionnuala Ní Aoláin, *Law in Times of Crisis*, 8; Agamben, *State of Exception*, 1-4; Dudziak, *War Time*, 8.

of global war and weapons of mass destruction after World War II, the United States could not “go home again; the positive state is here to stay, and from now on the accent will be on power, not limitations.”¹¹

Investigations on the use of emergency powers have tended to focus on the tensions between liberty and security and the ways in which, as Supreme Court justice Robert H. Jackson noted in 1951, “passion, intolerance and suspicions of wartime . . . reduce our liberties to a shadow, often in answer to exaggerated claims of security.”¹² Missing from such important discussions have been questions of land use. The American vision of freedom is historically premised not only on the idea of inalienable rights but also on the idea that “the lands are initially infused with public not private rights.”¹³ The so-called “free” use of land, in other words, has been essential to understandings of American freedom and liberty, just as the nation’s security has continually depended on the welfare of its public lands and resources. Americans’ political, spiritual, moral, and material values and ambitions are all wrapped up in the conquest, governance, and shifting understandings of federal lands, which represent “the paragon and epitome of our democratic society.”¹⁴ For many contemporary environmentalists,

¹¹ Clinton L. Rossiter, *Constitutional Dictatorship: Crisis Government in the Modern Democracies* (Princeton, NJ: Princeton University Press, 1948), 313; Edward S. Corwin, *Total War and the Constitution* (New York: A.A. Knopf, 1947), 35-77.

¹² Robert H. Jackson, “Wartime Security and Liberty under Law,” *Buffalo Law Review* 1 (1951): 13.

¹³ Harold H. Bruff, “Executive Power and the Public Lands,” *University of Colorado Law Review* 76 (2005): 503-20, 508.

¹⁴ Richard Nelson, “Patriots for the American Land” in *Patriotism and the American Land* (Great Barrington, MA: The Orion Society, 2002): 17. For how the conquest of indigenous lands and resources shaped American imperial ambitions, see Richard Drinnon, *Facing West: The Metaphysics of Indian-hating and Empire-building* (Norman:

the responsibility to protect public lands is just as essential as the responsibility to protect essential liberties. Prominent military strategists have similarly recognized how the “government has as much a duty to protect the land, the air, the water, the natural environment against technological damage, as it has to protect the country against foreign enemies.”¹⁵

The use of emergency powers is typically understood as being justified only as a response to situations of great urgency that threaten the nation, such as wartime. Yet the area of governance in which presidents have most often and most liberally exercised powers reaching beyond accepted constitutional norms has been in their efforts to protect the nation’s public lands. In cases where, as the interior secretary E. A. Hitchcock described to the Senate in 1902, “emergencies appeared to demand such action in furtherance of public interest,” presidents have been compelled to independently withdraw lands from private exploitation or to reserve them for specific public uses.¹⁶ In making a case for

University of Oklahoma Press, 1997); Thomas Engelhard, *The End of Victory Culture: Cold War America and the Disillusioning of a Generation*, 2nd ed. (Amherst: University of Massachusetts Press, 2007); Richard Slotkin, *Gunfighter Nation: The Myth of the Frontier in Twentieth-century America* (Norman: University of Oklahoma Press, 1992).

¹⁵ Wallace Stegner, “Our Common Domain,” *Sierra* 74 (Sept.-Oct., 1989): 42-47; “Rickover: Technology Poses Greatest Risk to Society,” *The Free-Lance Star*, 10 April 1982 as quoted in Nelson, “Patriots for the American Land,” 13. For history of the multiple-use, public land management policy concept, see Leisl Carr Childers, *The Size of the Risk: Histories of Multiple Use in the Great Basin* (Norman: Univ of Oklahoma Press, 2015).

¹⁶ Senate Doc. 232, 57th Cong. 1st Sess., Vol. 17, March 3, 1902. The U.S. Constitution’s Property Clause gives Congress complete, unlimited control over the territory and other property of the United States, including the nation’s public lands. Through the enactment of land laws, Congress has delegated a variety of land management powers to the executive branch. For Constitutional standing and related Supreme Court decisions, see U.S. Const. art. 4, § 3, cl. 2; *United States v. Gratiot*, 39 U.S. (14 Pet.) 526 (1840); *United States v. San Francisco*, 310 U.S. 16 (1940). For further details on land law history, see Charles F. Wheatley, “Study of Withdrawals and Reservations of Public Domain Lands,” *Public Land Law Review Commission* 1 (1969): 47-88; George C. Coggins, Charles F. Wilkinson, and

such powers, Interior Secretary James R. Garfield contended in a 1908 report to Congress that it would be “a grave dereliction of duty if the Executive failed to act promptly in preventing public injury on the misuse of the public domain and its resources.”¹⁷ The best-known examples of independent withdrawals are those President Theodore Roosevelt famously made for conservation purposes in the early twentieth century. In challenging Congress’ long-standing directive to open public lands to anyone willing to develop them, Roosevelt employed a variety of tactics to set aside land for conservation purposes, including reinterpreting and expanding the powers granted in existing legislation, independently reserving lands without any clear legislative or other legal authority, and, in some case, acting in direct violation of land laws, particularly ones supporting the development of mineral and energy resources.¹⁸

Conservationists of all stripes have typically championed Roosevelt’s style of conservation, characterizing the practice of seizing “the initiative without

John D. Leshy, *Federal Public Land and Resource Law*, 5th ed. (New York: Foundation Press, 2002).

¹⁷ Secretary of the Interior, *Department of Interior Annual Report, Administrative Reports*, Vol. I (Washington: Government Printing Office: 1908), 12-13. The exercise of such powers falls closely in line with John Locke’s early understanding of executive emergency powers as “the power to act according to the discretion for the public good, without the prescription of the law and sometimes even against it.” See John Locke, *Of Civil Government: The Second Treatise* (Wildside Press LLC, 2008), 100.

¹⁸ For studies looking at the history of executive powers over public lands, see John D. Leshy, “Shaping the Modern West: The Role of the Executive Branch” *Colorado Law Review* 72(2) (2001): 287-310; Bruff, “Executive Power and the Public Lands,” 505-508; David H. Getches, “Managing the Public Lands: The Authority of the Executive to Withdraw Lands.” *Nat. Resources J.* 22 (1982): 279-235. The history of conservation is a well-known topic. Standard works include, Coggins, *Federal Public Land and Resource Law*; Paul Wallace Gates, *History of Public Land Law Development* (Arno Press, 1979); Samuel Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement* (Cambridge: Harvard University Press, 1959); David Stradling ed., *Conservation in the Progressive Era: Classic Texts* (Seattle: University of Washington Press, 2004).

pointing to any statutory authority” as an important element of the bold, visionary executive leadership style that contributed to “one of the great success stories of American government.” Natural resource historian John Leshy urges readers to “welcome rather than fear” this type of leadership since without such “bold executive actions, the federal lands would probably be much diminished in both size and quality today.”¹⁹ While the end result may indeed be praiseworthy, such standard assessments do not fully consider some of the broader consequences of natural resource policies. In challenging these triumphalist interpretations, environmental historians have highlighted the ways federally-driven conservation policies have not only disempowered and dispossessed local peoples, including a disproportionate amount of indigenous populations, from land and resources, but also expanded state power. Karl Jacoby, for instance, argues that conservation “extended far beyond natural resource policy, not only setting the pattern for other Progressive Era reforms but also heralding the rise of the modern administrative state.”²⁰ Less well-recognized is how conservation policies expanded presidential war powers.

¹⁹ Leshy, “Shaping the Modern West,” 287-310, 295, 301, 304, 309. Ken Burns’ 2009 PBS documentary on national parks brought popular acclaim to Wallace Stegner’s celebratory idea of national parks as “America’s best idea.” See Ken Burns and Dayton Duncan, “The National Parks: America’s Best Idea,” *Public Broadcasting System Series* (2009).

²⁰ Karl Jacoby, *Crimes against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley: University of California Press, 2001), 5 (quotation), 49, 195; Louis S. Warren, *The Hunter’s Game: Poachers and Conservationists in Twentieth Century America* (New Haven: Yale University Press, 1997), 11; Mark Spence, *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks* (Oxford University Press, 1999); Gregory Hooks and Chad L. Smith. “The Treadmill of Destruction: National Sacrifice Areas and Native Americans,” *American Sociological Review* 69(4) (2004): 558-575.

LAND WITHDRAWALS AND THE RISE OF THE INDEPENDENT PRESIDENCY

Since at least the time of Louisiana Purchase, Presidents' administrative actions toward public lands have had significant influence in shaping the nature of presidential power.²¹ This was especially the case during the conservation era. Roosevelt's theory of presidential stewardship, which represents one of the most far-reaching constructions of executive power ever put forward, was originally formulated as a defense for independent executive land withdrawals. Interior secretary James Garfield went so far as to claim that the "stewardship duty of the Executive is most concretely manifest in the care of the specific property known as the public lands and their resources."²² By themselves, theories of executive stewardship, and similar constructions of independent executive authority, generally attract controversy and do not hold up well to legal scrutiny, particularly in the courts.²³ Yet whenever the courts have been asked to review

²¹ For commentary on how Louisiana Purchase shaped presidential powers, see Jules Lobel, "Emergency Power and the Decline of Liberalism," *The Yale Law Journal* 98(7) (1989): 1392-1393; Henry P. Monaghan, "The Protective Power of the Presidency," *Columbia Law Review* 93(1) (Jan 1993): 24-26; Michael A. Genovese, *Presidential Prerogative: Imperial Power in an Age of Terrorism* (Redwood City: Stanford University Press 2010), 99-101.

²² Secretary of the Interior, *Department of Interior Annual Report, Administrative Reports*, vol. 1 (Washington, D.C.: Government Printing Office: 1908), 12.

²³ Theodore Roosevelt's belief that it "was not only his right but his duty to do anything that the needs of the nation demanded" perhaps represents the most controversial aspect of his stewardship theory. See, Theodore Roosevelt, *Theodore Roosevelt, an Autobiography* (Cambridge, MA: Da Capo Press, 1985), 372; Tara L. Branum, "President or King: The Use and Abuse of Executive Orders in Modern-Day America," *J. Legis.* 28(1) (2002): 2, 8. For contemporaneous reactions against Roosevelt's interpretations, see A.L. Weil, "Has the President of the United States the Power to Suspend the Operation of an Act of Congress?" *California Law Review* 1 (March 1913): 233-234; William H. Taft, *Our Chief Magistrate and his Powers* (Columbia University Press, 1916), 125-156; William Howard Taft, *The Presidency* (New York, Charles Scribner's Sons, 1916), 125-130. For court's role in limiting claims of independent executive powers, see Samuel Issacharoff, and Richard H. Pildes, "Between Civil Libertarianism and Executive Unilateralism: An Institutional Process Approach to Rights During Wartime," *Theoretical Inquiries in Law* 5 (2004): 2; Lobel,

cases in which presidents used stewardship-like powers for withdrawing public lands, the executive assertion of power has almost always prevailed.²⁴ Such rulings, moreover, have played an instrumental role in expanding the boundaries of presidential powers.

No land law case has exerted greater influence in shaping presidential authority than *United States v. Midwest Oil Company*, in which the Supreme Court upheld President William Taft's 1909 emergency withdrawals of extensive oil reserves from private exploitation.²⁵ In this case, the court argued that when emergencies and other conditions not anticipated by legislation occurred, the executive, as the active agent of government, was the only person in "a position to know when the public interest required particular portions of the people's lands to be withdrawn." The court recognized that independent executive withdrawals had taken place relatively frequently in the nation's history, and in not a single instance did Congress "repudiate the power claimed or the withdrawal orders made" but rather it "uniformly and repeatedly acquiesced in the practice." This

"Emergency power and the decline of liberalism," 1395; Monaghan, "The Protective Power of the Presidency," 24. For a counterview, see Genovese, *Presidential Prerogative*, 126, 138-139, 155, 158-159.

²⁴ Leshy, "Shaping the Modern West," 94; Bruff, "Executive Power and the Public Lands," 505-8; David H. Getches, "Managing the Public Lands," 280, 288-300.

²⁵ *United States v. Midwest Oil Co.*, 236 U.S. at 459. As major precedent, in *Grisar v. McDowell*, 73 U.S. 363 at 381 (1869), the Court also recognized that "from an early period in the history of the government it has been the practice of the President to order from time to time, as the exigencies of the public service required, parcels of land belonging to the United States to be reserved from sale and set apart for public uses."

acquiescence, the court further argued, “was equivalent to consent” and “operated as an implied grant of power.”²⁶

Out of this ruling emerged a more tangible construction of executive power in which, as constitutional historian Edward Corwin noted, “the President was recognized as being able to acquire authority from the silences of Congress as well as from its positive enactments, provided only the silences were sufficiently prolonged.”²⁷ To be clear, the justices in the *Midwest Oil* case emphasized that their decision did not “mean that the Executive can, by his course of action, create a power”; nonetheless, the decision legitimized and set the boundaries to the exercise of certain types of unilateral, executive powers. Under *Midwest Oil* a long-standing, historical executive practice of governance, known by and acquiesced to by Congress, could now be, as Taft put it, considered “legal as if there had been an express act of Congress authorizing it.”²⁸

This construction of implied executive power gained wider influence after the Supreme Court justices Felix Frankfurter and Robert H. Jackson relied on it in their highly influential opinions in the 1952 *Youngstown Sheet and Tube Co. v. Sawyer* case. Here the court struck down President Harry Truman’s effort to

²⁶ *United States v. Midwest Oil Co.*, 236 U.S. at 471, 481, 475. Solicitor General, John Davis’ Brief for Appellant was particularly influential in shaping the Court’s opinion, see Brief for Appellant, *United States v. Midwest Oil Co.*, 236 U.S. 459 (1915).

²⁷ Edward S. Corwin, *The President: Office and Powers, 1787-1984: History and Analysis of Practice and Opinion* (New York: New York University Press, 1984), 143.

²⁸ *United States v. Midwest Oil Co.*, 236 U.S. at 474; William Howard Taft, *William Howard Taft: Essential Writings and Addresses* (Hackensack, NJ: Fairleigh Dickinson, 2009), 198.

seize steel mills to avert a strike during the Korean War.²⁹ In addition to serving as one of the Court’s major “bulwarks against executive excesses in times of emergency,” *Youngstown* also formally recognized the “executive construction of the Constitution revealed in the *Midwest Oil* case.”³⁰ While using the *Midwest* construction as a yardstick, Frankfurter specifically noted that Truman’s seizure of the steel mills did not add up to “a systematic, unbroken, executive practice, long pursued to the knowledge of the Congress and never before questioned.” He did, however, acknowledge that presidential actions that conformed to these standards could become “part of the structure of our government, [and] may be treated as a gloss on ‘executive Power’ vested in the President” in Article II of the Constitution.³¹ Justice Jackson similarly observed that, in between executive actions that were in agreement with Congress and actions that were in violation of Congress’ will, lies a middle “zone of twilight” in which “congressional inertia, indifference or quiescence... enable, if not invite, independent presidential responsibility.”³² Justice Jackson’s rationale for recognizing certain types of independent executive powers rested on the realization that “while the Constitution diffuses power the better to secure liberty, it also contemplates that

²⁹ *Youngstown Sheet and Tube Co. v. Sawyer*, 343 U.S. 579 at 610-13 (1952) (Frankfurter, F., concurring); *Youngstown Sheet*, 343 U.S. at 637 (Jackson, J., concurring).

³⁰ Sarah H. Cleveland, “*Hamdi* Meets *Youngstown*: Justice Jackson’s Wartime Security Jurisprudence and the Detention of ‘Enemy Combatants,’” *Albany Law Review* 68 (2004): 1129; *Youngstown Sheet* 343 U.S. at 613 (Frankfurter, F., concurring).

³¹ *Youngstown*, 343 U.S. at 610-611 (Frankfurter, F., concurring).

³² Jackson believed the test of such independent authority could also depend “on the imperatives of events and contemporary imponderables rather than on abstract theories of law.” For further details, see *Youngstown*, 343 U.S. at 637 (Jackson, J., concurring). For a closer examination of the Justices’ in *Youngstown* views toward implied powers, see Patricia Bellia, “Executive Powers in *Youngstown*’s Shadows,” *Constitutional Commentary* 19(87) (2002): 101-106.

practice will integrate the dispersed powers into a workable government.”³³

Notably, the model for such a workable government is perhaps most clearly seen in the unique land management practices developed between the executive and legislative branches during the nineteenth and early twentieth century, as recognized in the *Midwest Oil* decision.³⁴

Today legal scholars see *Youngstown* as a landmark case that forms “the current dominant paradigm through which most important constitutional questions of war, foreign affairs, and separation-of-powers issues in general are

³³ *Youngstown Sheet*, 343 U.S. at 635 (Jackson, J., concurring). Jackson’s understanding of a “workable government” has been adopted in other Supreme Court cases, see *Mistretta v. United States*, 488 U.S. 361 at 381, 386 (1989).

³⁴ In the Brief for Appellant, *United States v. Midwest Oil Co.*, 236 U.S. 459 (1915), Solicitor General John C. Davis argued that while

perfect flexibility is not to be expected in a Government of divided powers, and while division of power is one of the principal features of the Constitution, it is the plain duty of those who are called upon to draw the dividing lines to ascertain the essential, recognize the practical, and avoid a slavish formalism which can only serve to ossify the Government and reduce its efficiency without any compensating good.... In other words, just as there are fields which are peculiar to Congress and fields which are peculiar to the Executive, so there are fields which are common to both.

In following these arguments, the ruling in *Midwest Oil* noted that

Government is a practical affair, intended for practical men. Both officers, lawmakers, and citizens naturally adjust themselves to any long-continued action of the Executive Department, on the presumption that unauthorized acts would not have been allowed to be so often repeated as to crystallize into a regular practice. That presumption is not reasoning in a circle, but the basis of a wise and quieting rule that, in determining the meaning of a statute or the existence of a power, weight shall be given to the usage itself, —even when the validity of the practice is the subject of investigation.

For further details, see *Midwest Oil Co.*, 236 U.S. at 472-473. For additional commentary on the unique land management practices developed between the Executive and Legislative branches, see Getches, “Managing the Public Lands,” 288-300; Bruff, “Executive Power and the Public Lands,” 503-512; Coggins, *Federal Public Land and Resource Law*, 126; Monaghan, “The Protective Power of the Presidency,” 44-47.

understood and evaluated by Congress, the President, and the courts.”³⁵

Ironically, the “executive construction of the Constitution revealed in *Midwest Oil* case” and recognized in *Youngstown* has become the “gold standard,” not necessarily because of how it promotes a workable government in times of crisis but, as the former solicitor general Neal Katyal noted, “because its all-things-to-all-people quality can provide arguments favoring any branch of government under many circumstances.”³⁶

In his 2006 testimony to Congress, John Dean, a former legal counselor for President Richard Nixon, observed that the *Midwest Oil* decision is too vague to serve as the “leading case on Congressional acquiescence.” It does not hold up particularly well against “executive attorney generals who take the most aggressive reading possible in all situations that favor executive power.”³⁷ A case in point being deputy assistant attorney general John Yoo’s notorious September 25, 2001, memorandum on the president’s authority to use military force. Yoo relied upon *Midwest Oil*, *Youngstown*, and Jackson’s language of integrating “the dispersed powers into a workable government” to support the Bush administration’s claims of having “inherent executive power” to use military force to retaliate and act “preemptively against terrorist organizations.”³⁸ While the

³⁵ Michael Stokes Paulsen, “Youngstown Goes to War,” *Constitutional Commentary* 19(87) (2002): 215-216, 220.

³⁶ *Youngstown Sheet* 343 U.S. at 613 (Frankfurter, F., concurring); Neal Kumar Katyal, “The Supreme Court, 2005 Term—Hamdan v. Rumsfeld: The Legal Academy Goes to Practice,” *Harvard Law Review* 120 (2006): 99.

³⁷ An Examination of the Call to Censure the President: Hearings before the Senate Committee on the Judiciary, 109th Cong. 78-79 (March 31, 2006).

³⁸ John Yoo, “The President’s Constitutional Authority to Conduct Military Operations against Terrorists and Nations Supporting Them,” 25 September 2001,

memorandum itself remains controversial, Yoo's arguments about the "independent authority" recognized in *Midwest Oil* and *Youngstown* have been adopted to justify a wide variety of contemporary executive war powers and security programs, including the detainment of enemies in Afghanistan, the George W. Bush administration's warrantless surveillance program, and President Barack Obama's 2011 interventions in Libya.³⁹ The powers to defend the nation and the powers to protect public lands are entangled together in ways that Constitutional, natural resource, and other scholars have not fully appreciated. The unique set of land management practices that had developed between Congress and the President through the nineteenth and early twentieth century have served as legal precedent for a variety of contemporary presidential war powers and security programs. Not only is the stewardship duty of the

www.justice.gov/sites/default/files/olc/opinions/2001/09/31/op-olc-v025-p0188.pdf. For *Midwest Oil's* possible influence on presidential war powers, see Louis Fisher and Gordon Silverstein, *Presidential War Power* (Lawrence, KS: University Press of Kansas, 1998), 21, 190-201; Martin S Sheffer, *The Judicial Development of Presidential War Powers*, (Praeger, 1999), 124, 133-37, 178; Arthur M. Schlesinger, *The Imperial Presidency* (Boston: Houghton Mifflin, 1973), 140-150; Francis Dunham Wormuth, *To Chain the Dog of War: The War Power of Congress in History and Law* (Champaign: University of Illinois Press, 1989), 133-44, 165-76. For recent works on *Youngstown's* and *Midwest Oil's* support for independent executive powers, see Steven G. Calabresi and Christopher S. Yoo, *The Unitary Executive: Presidential Power from Washington to Bush* (New Haven: Yale University Press, 2008); Bellia, "Executive Powers in *Youngstown's* Shadows," 87-154; Edward T. Swaine, "Political Economy of *Youngstown*." *Southern California Law Review* 83(2) (2010): 263-339. For counterviews, see Cleveland, "*Hamdi* Meets *Youngstown*,"; Alison Lacroix, "Historical Gloss: A Primer," *Harvard Law Review Forum* 126(75) (2012): 75-85; Gordon Young, "Youngstown, Hamdan, and 'Inherent' Emergency Presidential Policymaking Powers," *Maryland Law Review* 66(3) (2007): 787-804.

³⁹ See *Hamdi v. Rumsfeld*, 542 U.S. 507, 519 (2004); Attorney General Alberto R. Gonzales to Senator William H. Frist, 19 January 2006, www.justice.gov/ag/readingroom/surveillance9.pdf; Memorandum Opinion from Caroline D. Krass, Principal Deputy Assistant Attorney General, Office of Legal Counsel to the Attorney General, Authority to Use Military Force in Libya, 1 April 2011, www.justice.gov/sites/default/files/olc/opinions/2011/04/31/authority-military-use-in-libya.pdf. For important counter ruling, see *Hamdan v. Rumsfeld*, 548 U.S. 557 (2006).

president most concretely manifest in the care of the public lands, but the care of the public lands has also provided an important arena for the expansion of the stewardship presidency.

WARTIME URGENCY AND THE EXPANSION OF WITHDRAWAL POWERS

Strands of independent executive power first recognized in court rulings upholding presidential withdrawal powers are linked to variety of contemporary war powers and security programs in unexpected and underappreciated ways. The interconnections between land, executive power, and wartime security become more pronounced in the period during and after World War II, when both the exercise of emergency powers and the need for massive military reserves reached peak levels. On May 27, 1941, well before the Japanese attack on Pearl Harbor, President Franklin Delano Roosevelt declared that “an unlimited national emergency” existed in America that required “the strengthening of our defense to the extreme limit of our national power and authority.” FDR was no stranger to using executive emergency powers, having declared a national economic emergency two days after assuming office in 1933. In the early 1940s he made it clear to Congress and the American people that he was willing to ignore statutory legal provisions and “not hesitate to use every power vested in me to accomplish the defeat of our enemies.”⁴⁰

⁴⁰ Franklin D. Roosevelt, “Announcing Unlimited National Emergency,” 27 May 1941, https://en.wikisource.org/wiki/Roosevelt%27s_Fireside_Chat,_27_May_1941; “War Powers Act,” 48 Stat. 1689 (1933); Committee on Government Operations, *Executive Orders and Proclamations: A Study of a Use of Presidential Powers*, H.R. 89166, 15 (1957).

To assure victory, FDR issued hundreds of executive orders, with perhaps the most controversial one being Executive Order 9066, which gave the U.S. military the power to relocate and intern more than seventy thousand American citizens of Japanese descent. The overwhelming majority of executive orders issued during the “unlimited” wartime emergency were orders to withdraw public lands for military purposes.⁴¹ Contrary to popular understandings, the issuance of such withdrawal orders did not come without resistance at the federal level. During the early stages of the war, significant controversy existed within the administration over the question of whether the president held the power to acquire exclusive control of public lands for governmental uses. The confidential, cabinet-level decisions made during this time of military urgency redefined the president’s ability to acquire federal lands and shaped the trajectory of U.S. military development.

At the center of this controversy stood Robert H. Jackson, then serving as Roosevelt’s attorney general. Part of Jackson’s responsibilities included approving all of FDR’s executive orders.⁴² In July of 1940, Jackson made the unprecedented move of rejecting a withdrawal order. While the withdrawal

⁴¹ In June 1942, the power to make executive orders for the withdrawal of public lands was delegated to the Secretary of the Interior. Thereafter, all withdrawal orders became known as Public Land Orders; see Exec. Order No. 9146, 7 FR 3067, 28 April 1942. For compilations of both executive and public land orders, see U.S. Department of the Interior, Bureau of Land Management, “Land and Realty: Table of Public Land Orders, 1942-2012,” www.blm.gov/wo/st/en/prog/more/lands/public_land_orders.html; National Archives, Federal Register, “Executive Orders Disposition Tables Index,” www.archives.gov/federal-register/executive-orders/disposition.html.

⁴² Exec. Order No. 6247, 10 January 1932. For discussions about how this approval process was intended to be a self-regulating screen over executive withdrawal powers, see *The Administration and Use of Public Lands: Hearings Before a Senate Subcommittee on Public Lands and Surveys*, 78th Cong., pt. 11, 3524-27 (1943).

applied only to a small parcel of public land in Oregon, Jackson's rejection destabilized an important presidential power at the very moment this power was set to be liberally employed for the war effort. The crux of Jackson's concerns rested on how the 1910 Withdrawal Act limited the presidents' ability to establish reservations over which the federal government would have complete jurisdiction and control, and not be subject to public land laws.⁴³ The act itself had authorized, for the first time, nearly all of the withdrawal powers that presidents had long enjoyed. The catch was that all withdrawals under the act had to be open to private mining interests.⁴⁴ Perhaps of even larger significance was how the act restricted the president's preexisting implied withdrawal authority. As the chairman on the Senate Committee of Public Lands stated, one of the main purposes of the 1910 Withdrawal Act was "to put this power in direct and express statutory form rather than the common law of the courts, and limit it."⁴⁵

Emergency powers are far easier to institute than they are to retract, and presidents' notions of holding both stewardship and implied powers toward public lands did not die easily. Much like the period before the 1910 Withdrawal Act, the administrative practices of executive officials continued to have bearing on the nature of executive withdrawal authority. After 1910, most executive withdrawals were made in accordance with the terms of the act and, as late as

⁴³ Unpublished Opinion of Attorney General, 25 July 1940, reprinted in Wheatley, "Study of Withdrawals," B-6<-> B-11; A. J. Wirtz to Robert H. Jackson, 21 August 1940, reprinted in Wheatley, "Study of Withdrawals," B-12.

⁴⁴ Considered a "compromise" with mining interests at the time, this restriction reaffirmed the long-standing congressional mandate to open public lands to private interests, see Act of June 25, 1910, Ch. 421, § 1, 36 Stat. 847 (43 USC § 141); 45 Cong. Rec. No. 7475 (1910).

⁴⁵ 45 Cong. Rec. No. 7475 (1910); Wheatley, "Study of Withdrawals," 90-103.

1934, executive officials appeared comfortable with the idea that “the act of 1910 definitely limited... the withdrawal power vested in the President independent of statute.”⁴⁶ Yet when the conditions “appeared to demand such action in furtherance of public interest,” presidential officials continued to independently withdraw lands without clear legal authority and in direct violation of existing land laws, just as they had done before 1910. And just like today, attorney generals’ loose readings of *Midwest Oil* helped to enable such practices. In 1934, for example, Attorney General H.C. Cummings argued that 1910 Withdrawal Act “merely recognizes and does not circumscribe” the withdrawal powers recognized in *Midwest Oil*.

Congress’s supposed acquiescence to such unauthorized withdrawals emboldened executive officials to believe they held some type of independent withdrawal powers, and also, paradoxically, allowed claims of implied withdrawal power to resurface and gain legitimacy.⁴⁷ In response to Jackson’s rejection of FDR’s 1940 withdrawal order, for example, secretary of interior Harold Ickes contended that the repeated, consistent, and uncontested practice of independent executive withdrawals since the issuance of the 1910 act were “eloquently persuasive” in confirming the president’s “presumed inherent general withdrawal power.”⁴⁸ By themselves, such claims did not fully resolve the legal questions

⁴⁶ Grazing District upon Public Lands, 54 I.D. 353, 354 (1934).

⁴⁷ 37 Opinion Attorney Gen. 433 502 503 (1934); Charles F. Wheatley Jr., “Withdrawals under the Federal Land Policy Management Act of 1976,” *Arizona Law Review* 21 (1979): 311-27, 315 (quotation); Getches, “Managing the Public Lands,” 292-98.

⁴⁸ Harold L. Ickes to Robert H. Jackson, 13 February 1941, reprinted Wheatley, “Study of Withdrawals,” B-30.

concerning the 1910 act's restrictions. Few officials in the War and Interior departments were willing to accept that lands "vital to the national security" could be "subject at any and all time . . . to entry and exploration" from private mining interests. To obtain what war secretary Harold Stimson described as "the free and unrestricted use of its military reservations," leading members of the Roosevelt administration did not ignore the legislative mandates limiting presidential withdrawal power, as conservationists had done at the turn of the century. Nor did they follow through with Stimson's and others' suggestion to ask Congress for clarification. Rather, they chose to act internally and reinterpret the 1910 act as only applying to "temporary" executive withdrawals and not affecting "in any way the inherent authority of the President" to make permanent reservations.⁴⁹

In 1884 interior secretary L.Q.C. Lamar observed if presidents held inherent power to withdraw public lands for military purposes, they "might in violation of law put in reservation for military purposes any amount of lands and thus take them out of operation of the general laws. To assert such a principle is to claim for the executive the power to repeal or alter the Acts of Congress at will." Interestingly, such Constitutional issues were raised at a time when a relatively minuscule portion of America's public lands were devoted to military

⁴⁹ Thomas T. Emerson, Memorandum for Mr. Fahy, 9 May 1941; W. B. Woodson to Robert H. Jackson, 29 November 1940; Henry L. Stimson to Robert H. Jackson, 21 December 1940; J. Wayne C. Taylor to Robert H. Jackson, 30 December 1940; and Ickes to Jackson, 13 February 1941, all reprinted in Wheatley, "Study of Withdrawals," B-50, B-21, B-24, B-25, B-30.

use.⁵⁰ When far greater amounts of land were reserved for military purposes during and after World War II, similar questions about the extent of executive power or the ultimate authority to control the public domain were addressed confidentially by presidential officials without input from Congress, the courts, or the public. Jackson appears to have been the only person in Roosevelt's administration concerned with these broader Constitutional questions.

Despite significant opposition from some of the most powerful members of Roosevelt's administration, Jackson maintained his position, noting that he found "nothing in the language of the act or in its administration to support" such viewpoints. "The plain, unambiguous provisions of the act," he continued, "are to the contrary." He further pointed out that use of the word "temporarily" in the act was only intended to show that "no withdrawal made by the President can be permanent in nature" as the "withdrawal power of the President is at all times subject to the control of the Congress."⁵¹ His influential 1952 opinion in *Youngstown*—described "as the greatest single opinion ever written by a Supreme Court justice"—is just one of many reasons historians consider Jackson as America's foremost authority on wartime security and law.⁵² Standing up to

⁵⁰ The withdrawal order in question in the 1884 case embraced 638 acres of land, see U.S. Department of the Interior, *Decisions*, vol. 6 (1888), 16, 19 (quotation).

⁵¹ Robert H. Jackson to Harold L. Ickes, 11 April 1941, reprinted in Wheatley, "Study of Withdrawals," B35-B37.

⁵² Sanford Levinson, "Why the Canon Should Be Expanded to Include the Insular Cases and the Saga of American Expansionism," *Constitutional Comment* 17, no. 2 (2000): 242. For a recent overviews of Jackson as America's top authority on security and law, see Swaine, "Political Economy of Youngstown," 2-6; Mary L. Dudziak, "Law, Power, and 'Rumors of War': Robert Jackson Confronts Law and Security after Nuremberg," *Emory University School of Law Legal Studies Research Paper Series*, no. 12-191 (2012): 366-85.

presidential assertions of inherent withdrawal powers during a time of military urgency is not among these reasons. For within eight days of FDR's declaration of an unlimited emergency, Jackson made a complete reversal. Relying on the same basic points and evidence that he had forcefully rejected less than two months earlier, Jackson contended that Congress's 1910 Withdrawal Act and the Supreme Court's decision in *Midwest Oil* confirmed, beyond a doubt, the president's powers to reserve lands for exclusive government use.⁵³

Although Jackson's initial opinions rejecting presidential withdrawal powers were not disclosed until late 1960s, and largely remain in obscurity today, his revised published opinion affirming presidential withdrawal authority is well known. Commentators have noted how Jackson "strained to find authority," indulged in "tortured interpretation," and "rendered the [Withdrawal] Act virtually meaningless."⁵⁴ Despite these possible shortcomings, his reversal appears to have cleared up, at least to the satisfaction of the agencies within the executive office, any ambivalence held toward presidential withdrawal powers. Jackson's revised opinion came to serve as the de facto authorization to a presidential power that would, over the next thirty years, increasingly be

⁵³ 40 Opinion Attorney General, 71, (1941); Committee on Interior and Insular Affairs, "Military Public Land Withdrawals," S. Rep. No. 857, 12 (1957). Eight days after reversing his opinion, Jackson was nominated to the Supreme Court, see Getches, "Managing the Public Lands," 296.

⁵⁴ Getches, "Managing the Public Lands," 295, 297; Wheatley, "Study of Withdrawals," 124-25. Interestingly, the broader implications of Jackson's reversal were perhaps most clearly pointed out years later in the *Youngstown* case when Justice Frankfurter observed that when executive authorities "find secreted in the interstices of legislation the very grant of power which Congress consciously withheld... is not merely to disregard in a particular instance the clear will of Congress. It is to disrespect the whole legislative process and the constitutional division of authority between President and Congress." See *Youngstown*, 343 U.S. at 609 (Frankfurter, F., concurring).

understood as not only inherent and unfettered but also applicable to all presidential land management practices.⁵⁵ Most importantly, Jackson's authorization and Roosevelt's declaration of an unlimited national emergency set in motion an aggressive, independent assertion of presidential military land withdrawal powers that reshaped the U.S. military's relationship to America's public lands.

THE MID-TWENTIETH-CENTURY

MILITARIZATION OF AMERICA'S PUBLIC LANDS

Unilateral presidential actions to lock up public lands have almost always been met with stiff opposition, especially from Congress and state governments. At the same time, the imperative of responding to wartime emergencies has enabled presidents to assert powers that would, under normal circumstances, be unthinkable. From the start of World War II to the mid-1950s, the unthinkable became an accepted reality, as defense authorities rapidly withdraw nearly twenty million acres of "jealously guarded" public land from the public domain for military purposes.⁵⁶ The numerous war and security crises of this period

⁵⁵ Wheatley, "Withdrawals under the Federal Land Policy Management Act of 1976," 317; Wheatley, "Study of Withdrawals," 108; U.S. Public Land Law Review Commission, "One-third of the Nation's Land: A Report to the President and to the Congress by the Public Land Law Review Commission," (Public Land Law Review Commission, Washington, D.C. 1970) 43-44; Getches, "Managing the Public Lands," 97-100.

⁵⁶ 103 Cong. Rec. 5521 (1957). For figures, see S. Rep. No. 857, at 15, 18, 28-30, 40, 62, 67 (1957); Wheatley, "Study of Withdrawals," 299-300. Private lands acquired through condemnation, purchase, transfer, donation, lease, or temporary use agreements between private owners or federal officials under the Second War Powers Act 56 Stat. 176 (1942) or similar authorities are not included in this figure.

greatly enhanced the executive branch's control over public land, particularly during World War II.

Throughout his presidency FDR had relied upon declarations of national emergencies to justify controversial actions. So it not surprising that his claims to more than thirteen million acres of public land for military purposes rested upon "the findings of necessity for the emergency use of such lands" for "purposes incident to the national emergency and the prosecution of the war."⁵⁷ While the imperatives of responding to wartime threats are undoubtedly important, in practice the legitimacy of executive emergency powers often depends on claims of necessity as well as some type of Constitutional or legislative underpinning. Roosevelt's unlimited emergency, along with Jackson's authorization of withdrawal authority, seemingly worked together to provide the administration with ample grounds to justify its extensive World War II military land claims.

Relying explicitly on emergency powers instead of Jackson's authorization did make these land withdrawals contingent upon the wartime emergency. Consequently, most withdrawal orders issued during the war stated that the lands would be returned to their former "jurisdiction, uses, and administration" six months after the termination of the unlimited emergency. To remove all doubt that this would occur, FDR, shortly before his death in 1945, issued an executive order that amended all World War II military land withdrawals to include the six-month termination requirement.⁵⁸ Beyond the administration's

⁵⁷ Executive Order 9526, 10 FR 2423, March 2, 1945; S. Rep. No. 857 at 19-20 (1957).

⁵⁸ Executive Order 9526.

understanding of the war as a temporary crisis, there were additional strategic advantages in treating the withdrawals as provisional. Permanently removing thirteen million acres of public lands from federal land laws under the terms of Jackson's authorization would have likely upset the many public land users with long-standing interests in these lands, as well as the congressional members who represented them.

Notably, when the Interior Department did rely explicitly on Jackson's authorization to withdraw permanently millions of acres of public lands in Utah containing strategically important minerals in 1943, "immediate and violent protest on the part of the officials and citizens of the State of Utah" ensued, prompting congressional investigations and hearings. In its 1945 report on the withdrawal, Congress accused Interior Department officials of using subterfuge, obfuscation, and distorted interpretations to circumvent the 1910 Withdrawal Act and "thwart the laws and will of the Congress." Legislators strongly condemned "the many hasty, ill-considered and needless, though highly disturbing, withdrawal orders" made under the "broad powers of the President" and suggested that "the time has arrived for Congress to recapture and exercise its control over public land withdrawals."⁵⁹ Congress's numerous reproaches in this investigation ended up being merely cautionary, as legislation restricting the so-called "broad withdrawal powers of the President" did not come until many years later. The incident illustrates the volatile conditions under which certain

⁵⁹ Committee on Public Lands and Surveys, "Some Public Land Withdrawals in Utah: Their Relation to Oil, Potash, and Magnesium Resources, and to Executive Authority to Make Withdrawals," S. Rep. No. 908, at 8-9, 24, 48-58 (1945).

executive withdrawals were made during the war and why such withdrawals required careful handling. FDR's assurance that World War II military withdrawals would be "restored" to how they "existed prior to the withdrawal" can be understood as a measure to avoid potentially disruptive situations detrimental to the war effort. This may help explain part of the reason why protests against the military use of public lands were significantly less active during the war compared with the early to mid-1950s.⁶⁰

Incidentally, Roosevelt's unlimited emergency did not end officially until April of 1952, when the United States signed a peace treaty with Japan. By this time, it was clear to defense officials that the World War II withdrawals would still "be needed for an indefinite period" beyond the expiration date. Instead of taking transparent, authorized legal actions to handle the problem, Truman's administration relied entirely on internal administrative measures. One day before the withdrawals were set to revert to their former jurisdiction, a representative from the Interior Department sent letters to army and navy officials saying they could continue to occupy the lands under the assumption that an official order revoking the six-month termination requirement would soon be made.⁶¹ Four years after this date, eighty-five percent of the original World War II withdrawals, representing forty-nine individual withdrawals

⁶⁰ S. Rep. No. 857, at 19-20 (1957); Darrin Hostetler, "Wrong War, with the Wrong Enemy, at the Wrong Time: The Coming Battle over the Military Land Withdrawal Act and an Experiment in Privatizing the Regulation of Public Lands," *Environmental Law Review* 29 (1999): 309-10.

⁶¹ Joel D. Wolfsohn to Thomas E. Finletter, 27 October 1952, reprinted in Utter et al., "Military Land Withdrawals," 50. Also, see S. Rep. No. 857 at 21-23 (1957); Committee on Interior and Insular Affairs, Military Land Reform and Reassessment Act of 1992, H.R. 1031, 6 (1992).

covering 11.8 million acres of land, still remained under the control of the Defense Department (formerly known as the War Department), and no additional legal measures had been taken. Instead, the military's legal claims to the public lands taken during the war would continue to rely on the largely symbolic legitimacy of inter-cabinet correspondence for decades.⁶²

With the end of the unlimited emergency came an end to understanding military land withdrawals as being contingent upon wartime or emergency conditions. Land management powers once carefully justified as necessary responses to temporary emergency conditions became routine functions. By the mid-1950s defense officials based their legal claims to public lands entirely upon the presumed "express power" authorized in "the 1941 letter of the Attorney General, as supported by the Supreme Court in the *Midwest Oil* decision."⁶³ The one thing that did not change after the end of the unlimited national emergency was the need for military land. During the 1950s calls for new military proving grounds rivaled World War II demands. Between 1954 and 1955 alone, the

⁶² S. Rep. No. 857, at 19-20 (1957); Hearings on H.R. 627, H.R. 575, H.R. 608, H.R. 931, H.R. 1148, H.R. 3403, H.R. 3661, H.R. 3788, H.R. 3799, H.R. 3869, Before the Committee on Interior and Insular Affairs, 85th Congress, 244-46 (1957) (hereafter cited as "Hearings on H.R. 627 (1957).") For symbolic legitimacy of presidential assertions of power, see Kenneth R. Mayer, *With the Stroke of a Pen: Executive Orders and Presidential Power* (Princeton, NJ: Princeton University Press, 2002), 17-22; Richard E. Nuestadt, *Presidential Power and the Modern Presidents* (New York: Free Press, 1990), 184; Joseph M. Bessette and Jeffrey Tulis, "The Constitutional, Politics, and the Presidency," in *The Presidency in the Constitutional Order*, ed. Joseph M. Bessette and Jeffrey Tulis (Baton Rouge: Louisiana State University Press, 1981), 10.

⁶³ S. Rep. No. 857 at 12 (1957). Truman also declared his own national wartime emergency in December 1950, but his administration never appears to have connected these emergency powers with military land withdrawal powers, see *Proclamation No. 2914*, 15 *Fed. Reg.* 9029 (December 19, 1950).

Defense Department made requests amounting to nearly thirteen million additional acres of public land.⁶⁴

The actual process for withdrawing lands was fairly straightforward. After receiving clearance from the Defense Department, the heads of the requesting military agency—from either the navy, army, or air force—would file an application with the local land office of the Interior Department. In their applications they needed to provide a statement describing the general purpose for which the lands would be used (except when such purposes were classified) and a statement indicating whether the withdrawal should preclude grazing, mineral leasing, and mining rights.⁶⁵ The secretary of interior, who had been delegated to handle all military land withdrawals, had the option to afford the public an opportunity to object to an application. The Interior Department could also object on its own behalf, in which case the matter would be turned over the Bureau of Budget for settlement. If the interior officials decided the withdrawal should be made, an executive withdrawal order would be issued and passed on to the director of the Bureau of the Budget and the attorney general for final review and approval.⁶⁶

In practice, defense officials appear to have taken full advantage of this largely unrestricted and purely cabinet-level approach to land withdrawals.

⁶⁴ S. Rep. No. 857 at 15-19, 29 (1957).

⁶⁵ Hearings on H.R. 627, 84-85 (1957). Congress found evidence that defense agencies tended to classify objectives to avoid describing the general purposes of their land use, see S. Rep. No. 857 at 20-21 (1957).

⁶⁶ S. Rep. No. 857 at 20 (1957).

Applications, for example, largely consisted of the requesting military agencies, as the chairmen of a two-year congressional investigation into military withdrawals noted in 1957, simply taking “out a slip of paper in the nature of the application ...for an area perhaps one hundred miles long and fifty miles wide” and claiming that “it was absolutely necessary to their operations.”⁶⁷ The Defense Department, which was initially in charge of clearing these requests, had no procedures in place for assessing defense agencies’ actual need for new lands or for determining the proper utilization of current holdings.⁶⁸ In 1956 testimony to Congress, a witness representing the Defense Department further noted that requests for new military lands “comes to us signed by the Secretary of the military department involved. It has been approved by him.... and the figures have been approved by his staff, and by his expert. In the Office of the Secretary of Defense, we are not expert in that field and while we may question and ask them to restudy and recheck, in the final analysis we must accept their figures in those records.”⁶⁹ The end result was that the Defense Department “cleared without question applications for the withdrawal of millions of acres of additional lands solely on the basis of an asserted need by the requesting” military agency.⁷⁰

The Defense Department was not alone in deferring to a higher expertise, as the Interior Department also had “for years approved application after application on the basis of Defense Department request, since the Interior was

⁶⁷ 103 Cong. Rec. 5512 (1957).

⁶⁸ Hearings on H.R. 627, 58 (1957); S. Rep. No. 857 at 62 (1957).

⁶⁹ S. Rep. No. 857 at 36-37 (1957).

⁷⁰ S. Rep. No. 857 at 62 (1957).

without authority or the technical data needed to challenge them.”⁷¹ In their congressional testimonies, defense officials acknowledged that they had in fact never been held up nor “had a turndown from the Department of Interior.”⁷² This streamlined, administrative approach to land withdrawals allowed U.S. defense agencies to quickly amass the tracts of property deemed essential to their mission of defending the nation. As an apparent show of confidence in the way executive withdrawals were being carried out, Truman removed the requirement in 1952 that the director of the Bureau of the Budget and the attorney general screen and approve withdrawal orders before they became effective, which is what originally brought the issue of executive withdrawal authority to the attention of Robert Jackson in the early 1940s.⁷³

In retrospect, many of the major shortcomings and abuses stemming from this system of military land withdrawal seem predictable. The rather easy manner in which military lands were obtained gave way to a sense of entitlement. In August of 1952, for example, the Navy filed an application with the Interior Department for a 442,965-acre live-fire U.S. Marine training area in Southern California, and soon after, the Marines asserted exclusive control over this area known today as Twentynine Palms. Millions of dollars were invested in new facilities before it was revealed that the Interior Department never processed the

⁷¹ S. Rep. No. 857 at 62 (1957); Hearings on H.R. 627, 234-237 (1957).

⁷² Hearings on H.R. 627, 94 (1957).

⁷³ Exec. Order 10,355, 8 FR 5516, 29 April 1943; Wheatley, *Study of Withdrawals*, 155-156.

original application or filed the necessary withdrawal order, which made the Marines' occupation of these lands technically illegal.⁷⁴

The lack of procedures for assessing how current military land usage led to predictable problems of inefficiency, yet the severity of these problems is still surprising. It was revealed in 1957, for example, that for fifteen years the Air Force had held a three-hundred-thousand-acre area west of Salt Lake City, which it had never used and did not even know it controlled.⁷⁵ Partly as a result of such revelations, the Air Force conducted a formal land use review. After two years of study, it discovered that of the 14.4 million acres of land it had previously claimed to be “fully utilized,” only 60 percent was actually needed for the air force's current and long-range requirements. This “self-indictment” came around the same time the Air Force was proposing to create a ten-thousand-square-mile “super range” out of public lands near Albuquerque.⁷⁶

The Defense Department's inconsistent and frequently nonexistent land use policies led to what Congress described as “a recitation of incalculable wastefulness—of taxpayers' dollars, of resources within the reservations marked ‘closed’ for so many years to public multiple use and enjoyment, and of unquestionable but immeasurable damaging effect to the local economies from

⁷⁴ S. Rep. No. 857 at 2-3, 22 (1957); 103 Cong. Rec. 5526 (1957). The official history of Twentymiles Palms makes no reference to the problematic nature of initial land claims, see USMC-R, Col Verle E. Ludwig. *U.S. Marines at Twentynine Palms, California* (CreateSpace Independent Publishing Platform, 2013), 25.

⁷⁵ S. Rep. No. 857 at 65 (1957); Hearings on H.R. 627, 100-101 (1957); 103 Cong. Rec. 5521 (1957). The U.S. Air Force took control of these lands from the U.S. Army after becoming a separate branch of the military 1947.

⁷⁶ S. Rep. No. 857, at 53, 65-66 (1957); Hearings on H.R. 627, 90, 100-101, 112 (1957).

which each unneeded or unused acre was carved.”⁷⁷ Grazing had been the primary use of the vast majority of public lands acquired for military purposes. As early as 1942, Congress recognized that the many livestock operators who had been “forced out of business and damaged as a result of the taking of the land for war purposes” had suffered “a very serious injustice.” In response, Congress passed an emergency amendment in July 1942 that granted compensable interests to grazing leases lost because of military annexation. Despite the good intentions, the actual amendment was fraught with legal deficiencies. Most significant, legislators declined to “set up figures or a formula for recompense” and instead mandated that grazers be compensated by whatever amount of money the “head of the department or agency so using the lands shall determine to be fair and reasonable for the losses suffered.” Despite their seemingly good intentions, this emergency legislation, as the next chapter highlights, created a perfect storm of sorts for future legal disputes and grievances.⁷⁸

Although grazers may have suffered the most severe economic hardships, the military’s most vocal opponents were conservation advocates and officials. Far from being “khaki conservationists,” they accused the military of unnecessarily locking up land, disregarding conservation laws and programs, and obstructing federal and state officials charged with managing the fish, game,

⁷⁷ S. Rep. No. 857 at 65 (1957).

⁷⁸ Taylor Grazing Act, 43 U.S.C. 315 et seq. Section 315q. For history of this amendment, see Committee on the Judiciary, *Compensation for Cancellation of Grazing Permits*, S. Rep. No. 1045, 15 (quotations), 12-18 (1966). For prominent legal cases related to compensation due to lost grazing leases, see *Osborne v. United States*, 145 F.2d 892 (9 Cir., 1944); *United States v. Cox et al (United States v. Beasley et al.)*, 190 F.2d 293 (10th Cir., 1951); and *United States v. Jaramillo et al.*, 190 F.2d 300 1 (10th Cir., 1951).

wildlife, and other natural resources located on military reserves.⁷⁹ The “total disregard” of state fishing and hunting laws was an area of particular concern, as reports of the military killing illegal game, hunting out of season, and practicing controversial hunting methods, including the use of helicopters and bazookas, surfaced at military reserves across the country. Most damning were reports of the defense officials treating reserves as “baronial estates” or “deluxe officers’ shooting clubs” and offering special hunting and fishing privileges, as one military petition noted, to “members of Congress, high Government officials, city officials . . . and prominent citizens who have demonstrated active interests in military affairs.”⁸⁰

Author Seth Shulman has noted how during the 1970s and 1980s the U.S. military relied on its supposedly unique status within society and claims of sovereign immunity to resist environmental “regulations and oversight at every chance.” The story was no different in the 1940s and 1950s. The military’s understanding of holding complete jurisdiction over reserves conflicted with conservationists who argued that the military’s control did not extend to the wildlife and other natural resources located within the reserves. Despite the many

⁷⁹ For khaki conservation, see Rachel Woodward, “Khaki Conservation: An Examination of Military Environmental Discourses in the British Army,” *Journal of Rural Studies* 17, no. 2 (2001): 201-17; William Cronon, “Introduction: In Search of Nature,” in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: W. W. Norton & Company, Inc., 1995), 27-28, 57-66; Peter Harris, “Militarism in Environmental Disguise: The Greenwashing of an Overseas Military Base,” *International Political Sociology* 9(1) (2015): 19-36. For accusations against the military by conservationists, see S. Rep. No. 857 at 46-55 (1957); Hearings on H.R. 627, 17-36, 50-51, 78-83, 89-90, 142-98 (1957).

⁸⁰ Hearings on H.R. 627, 81 (1957); S. Rep. No. 857 at 50 (1957); 103 Cong. Rec. 5521, 5533 (1957).

concerns of conservationists, military leaders made it clear to legislators that conservation and recreational needs “must be subordinate to the primary mission” of defending the nation, and that they “would violently object to any . . . legislation” interfering with their exclusive jurisdiction.⁸¹ These differing understandings between the military and conservation interests gave rise to “repeated clashes” and unresolved complaints that often ballooned into prolonged “king-sized verbal battles” that ultimately undermined conservationists’ efforts at military installations across the country.⁸² That the powers conservationists and the military held over public lands derived at least partly from some of the same indeterminate sources of executive power was an irony lost on most of the individuals caught up in these disputes.

Conservationists’ opposition likely represented the most direct and prevalent challenge made to the military’s land claim authority since the military began aggressively asserting control over public lands in the early 1940s. This is not to say that there were not innumerable protests and legal challenges made against the military’s rapid acquisition of tens of millions of acres of public land. Yet the vast majority of these challenges did not directly question the “authority vested in the President” that was tied to national defense and, at least according to administrative interpretations, sanctioned by the Supreme Court and congressional legislation. Instead, opponents of the military’s land use practices

⁸¹ Seth Shulman, *The Threat at Home: Confronting the Toxic Legacy of the U.S. Military* (Boston: Beacon Press, 1992), 45-48; Hearings on H.R. 627, 185, 197 (1957). For competing claims of authority, see S. Rep. No. 857 at 46-47 (1957); Hearings on H.R. 627, 73-78, 189 (1957).

⁸² S. Rep. No. 857 at 50, 48 (1957).

largely focused on, as in the grazers' case, questions of compensation or whether the military actually required so much the land or, correspondingly, if the current use of the land outweighed the importance of the military's proposed use of it.⁸³

What little resistance there may have been toward executive withdrawal authority during this period had minimal impact on larger military withdrawal and land use policies. Beyond becoming more efficient and routine, the administrative military withdrawal practices introduced at the start of the World War II remained unchanged until the late 1950s, when Congress decided to step into the picture. It was not necessarily the many grievances of public land users that finally brought the issue of military withdrawals to the attention of Congress, but rather that the military's "appetite for the public domain" had reached a saturation point. As the chairmen of the congressional investigation into military withdrawals put it, "the military got to be such awful land hogs . . . we simply had to do something about it."⁸⁴

RECAPTURING EXECUTIVE POWERS

After nearly twenty years of practice, the executive branch's independent approach to military land withdrawals came under external scrutiny. The major goal of Congress's investigation sought to recapture "those powers which the

⁸³ For insightful case studies dealing with the nature of protests against the military land claims at the regional level, see Ryan Edgington, *Range Wars: The Environmental Contest for White Sands Missile Range* (Lincoln: U of Nebraska Press, 2014); David Loomis, *Combat Zoning: Military Land Use Planning in Nevada* (Reno: University of Nevada Press, 1993).

⁸⁴ 103 Cong. Rec. 5523 (1957); Hearings on H.R. 627 at 59-60 (1957).

executive branch of the Government has acquired over a long period of years with respect to the utilization of this Nation's most valuable assets, the human and natural resources of the public lands.”⁸⁵ In its 1945 report on an executive withdrawal of mineral lands in Utah, Congress outright rejected the Roosevelt administration’s interpretation of the president possessing implied withdrawal authority as laid out in Jackson’s 1941 opinion, accusing executive officials of using subterfuge and obfuscation to circumvent the will and laws of Congress. By 1957, Congress’s response to this same interpretation were still abrasive and, especially during testimonies, members raised considerable concerns over the legitimacy of these legal claims.⁸⁶ Despite such doubts, Congressional members acknowledged that they had “perhaps, since 1941 remained silent” and therefore “indulged in a practice ‘equivalent to acquiescence and consent.’” In actuality, legislators did not pursue the question of whether Congress had indeed acquiesced in much depth, as recapturing the withdrawal authority from the president under the terms of *Midwest Oil* merely required Congress to end its alleged silence—and the bill it drafted “specifically aimed at breaking that silence—if silence it be.”⁸⁷

In addition to recapturing executive withdrawal powers, Congress sought to encourage multiple-use land management polices at future military reserves. To achieve this goal, the 1958 legislation, commonly referred to as the Engle Act, required that military land withdrawals over five thousand acres be made only

⁸⁵ S. Rep. No. 857 at 73 (1957).

⁸⁶ S. Rep. No. 908 at 8-9, 24, 48-58 (1945); Hearings on H.R. 627, 64-66 (1957).

⁸⁷ S. Rep. No. 857 at 10, 12, 73 (1957); and Hearings on H.R. 627, 64 (1957).

through congressional action. This provision helped to assure that future military land withdrawals would not happen without first seeking advice, assistance, and consultation from the local people affected by the withdrawals.⁸⁸ The Engle Act also contained general rules for the management of wildlife and other natural resources on military reserves. After the Engle Act, conservation efforts at military reserves would be as much the product of legislative mandate as an unintended or ironic consequence of locking up land. Based on Congress's recommendations, the Defense Department agreed to adopt centralized procedures for the oversight and management of existing landholdings.⁸⁹

In many respects the 1958 Engle Act constituted an important step in rectifying some of the ills that had plagued military land withdrawals since the start of World War II, and it continues to have significant bearing on contemporary military land withdrawal policy.⁹⁰ Its most noteworthy impact may be with how it appears to have tempered new claims to public lands for defense

⁸⁸ 103 Cong. Rec. 5521 (1957).

⁸⁹ Public Law No. 85-337, 72 Stat. 27 (43 U.S.C. 155-58) (1958); S. Rep. No. 857 at 39-46 (1957); Committee of the Whole House on the State of the Union, Promoting Effectual Planning, Development, Maintenance, and Coordinations of Wildlife, Fish, and Game Conservation and Rehabilitation in Military Reservations, H. Rep. No. 767, 1-25 (1959). For studies on how Engle Act and related legislation shaped conservation policies at military reserves, see William A. Wilcox Jr. and Andrew J. Vliet III, "The Engle Act and Military Land Withdrawals: A Blueprint for Inter-Agency Cooperation," *Land & Water L. Rev.* 32 (1997): 461-475; Sharon E. Riley, "The Wolf at the Door: Competing Land Use Values on Military Installations," *Mil. L. Rev.* 153 (1996): 95-176.

⁹⁰ For the Engle Act's influence on subsequent military land withdrawals, see Hearings on H.R. 5426, 5470, 4932, 5965, and S. 837 (1984); Military Land Withdrawal Act of 1986, Public Law No. 99-606, 100 Stat. 3457 (1986); Committee on Interior and Insular Affairs, Military Land Reform and Reassessment Act of 1992, H.R. 1031 (1992); Military Land Reform: Hearings on H.R. 2080 Before the Subcommittee on National Parks, Forests, and Public Lands of the House Committee on Natural Resources, 103d Cong. (1994); Military Land Withdrawal Act of 1999, Public Law 106-65, 113 Stat. 885.

purposes.⁹¹ While numerous withdrawal orders have been made since the passage of the act, the major landholdings of the U.S. military have not changed significantly from what they looked like prior to the time Congress stepped in to take action. However, the military's continued occupation of the millions of acres of public land it acquired since the start of World War II illustrates some of the major limitations of Congress's reform efforts. Although most members acting on the legislation assumed the expired World War II withdrawal and other unauthorized withdrawals "would come under the purview of this legislation," the final bill did little to clear up the murky legal status of these land claims. Instead, under the rationalization that formal orders would undoubtedly be issued in the future, Congress left more than ten million acres of military land "just sitting there without any authority under the law to be there" and with the military being in effect "trespassers on these particular lands."⁹²

It is clear that, during this period, nobody wanted to deal with the troubling question of how temporary emergency powers exercised without clear legislative, judicial, or popular consent allowed military interests to gain seemingly permanent, exclusive control to millions of acres of public land. A quarter century after the passage of the Engle Act, Defense Department legal advisers seemed surprised to find "serious questions about the current legal adequacy of land withdrawals for some DOD installations" and predicted that ongoing "crisis reactions" were likely to occur within the department as

⁹¹ Loomis, *Combat Zoning*, 107, 109.

⁹² Hearings on H.R. 627, 59, 60, 64 (1957); and 103 Cong. Rec. 5526 (1957).

“continuing discoveries of inadequate or illegal public land control by the various armed forces” were made. Around the time of these findings were made, cultural critic Paul Virilio made the highly provocative claim that World War II did not conclude with Allied victory in 1945 but had, in fact, never ended. Regarding the administration of U.S. military lands, Virilio’s seemingly unconventional views could not be truer.⁹³

Notably, the Engle Act only dealt with the withdrawal powers of the Defense Department, and had no bearing on other executive withdrawal powers. The legal morass that ensued from these more sweeping executive powers proved more challenging to untangle. Initial efforts at enacting legislation to restrict the general withdrawal powers of the President in the early 1960s were unsuccessful.⁹⁴ After six years of further study and an additional six years of Congressional review and hearings, Congress, in 1976, finally passed a bill specifically designed to settle the “confused, unresolved conflict between the authority of the Congress and the President to make withdrawals” that largely ensued from Jackson’s 1941 authorization of executive withdrawals⁹⁵

Perhaps of even larger significance, the Engle Act focused only on limiting the president’s implied withdrawal powers and did nothing to address the use of

⁹³ Utter et al., “Military Land Withdrawals,” 46, 48; Paul Virilio and Sylvère Lotringer, *Pure War: Twenty-Five Years Later*, trans. Brian O’Keeffe (Los Angeles: Semiotexte(e), 2008), 34; Beck, *Dirty Wars*, 36.

⁹⁴ Committee on Interior and Insular Affairs, Non-Military Land Withdrawals, S. Rep No. 1669, (1960).

⁹⁵ For quote, see Wheatley, "Withdrawals under the Federal Land Policy Management Act of 1976," 317. For further details, see U.S. Public Land Law Review Commission, “One-Third of the Nation’s Land,” 2, 43-44; Federal Land Policy and Management Act of 1976, Pub. L. No. 94-579, § 704(a), 90 Stat. 2744.

executive emergency powers, specifically noting that in the event of war or national emergency, all provisions in the act could be waived. With such language, it is unlikely that the Engle Act, if it had been in place in 1941, would have made much difference in preventing the 800 percent increase in military real property holding that came within three years after the outbreak of the Second World War.⁹⁶ Although it is hard to imagine a future mobilization that would compare to World War II, it is not unthinkable. The volatile nature of military land claims means public lands will always be targets of military use. Legislative restrictions and the high stakes of public lands have kept controversial military land claims in check over the past few decades, but the inertia toward executive and administrative autonomy, especially regarding public lands and national security affairs, continues to hold sway.⁹⁷

Giorgio Agamben and others have warned that the increasingly common assertion of emergency wartime powers threatens to unravel the rule of law and other democratic institutions. In the case of mid-twentieth-century military land claims, however, the downward spiral into absolutism was not a free-fall descent. The need for legitimacy introduced the possibility of political and legal deliberation. Interestingly, the person at the center of this deliberation was one of twentieth century's top authorities on executive power in wartime. In retrospect,

⁹⁶ Public Law No. 85-337, 72 Stat. 27 (43 U.S.C. 155-58) (1958); S. Rep. No. 857 at 40 (1957).

⁹⁷ Lobel, "Emergency Power and the Decline of Liberalism," 1414-18; Coggins, *Federal Public Land and Resource Law*, 352-53.

Robert H. Jackson's eventual authorization of withdrawal powers may seem like an inevitable outcome; yet treating processes like these with a preordained certainty, or as unavoidable responses to overpowering events beyond our control, can serve as an excuse to not ask basic questions about the exercise of military and other forms of governmental power.⁹⁸

⁹⁸ Brenkman, *Cultural Contradictions of Democracy*, 60-62; Dudziak, *War Time*, 3-9, 117-18.

CHAPTER 2

MILITARY SACRIFICE ZONES AND THE ART OF PERMANENT WAR

The Establishment of Utah's Dugway Proving Ground, 1942-1954

During and after World War II, a new set of warfare and security concerns gave rise to not only new formations of political organization and power but also new forms of spatial organization and land segregation. By the mid-1950s, nearly twenty-million acres of American lands had been withdrawn from the public domain and put under the jurisdiction of defense interests. Places that a variety of land users had utilized and depended upon rapidly became blank spots, or more precisely, rectangles on maps where, as anthropologist Hugh Gusterson has observed, “an enormous secret world” was created “next to but separate from the everyday world inhabited by the rest of us.” Within these geographical chasms

new types of states arose: states of exception devoted to highly specialized tasks of security and permanent war.¹

Political order “is always a geopolitical order” and law is always “tied to the land.” Land appropriation has commonly served as “the foundation of political sovereignty and the essential precondition for public and private law, ownership, and order.” As legal theorist Carl Schmitt explained it, “every new age and every new epoch in the coexistence of peoples, empires and countries, of rulers and power formations of every sort, is founded on new spatial divisions, new enclosures, and new spatial orders of the earth.” For mid-twentieth century America, federal land appropriation was the key mechanism through which the political powers of the rapidly expanding military-security-industrial state obtained spatial form.² Chapter 1 demonstrated how, by relying upon presidential emergency war and land management powers, defense agencies circumvented a number of legal obstacles at the federal level to obtain near exclusive legal rights to vast tracts of public land. Chapter 2 investigates how the Department of Defense’s (DoD) assertion of unrestricted and increasingly formalized military land withdrawal powers played out at the regional level in the Intermountain

¹ Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley: University of California Press, 1996), 4; Tom Vanderbilt, *Survival City: Adventures among the Ruins of Atomic America* (Princeton Architectural Press, 2002), 69.

² Stuart Elden, "Reading Schmitt Geopolitically: Nomos, Territory and Großraum," *Radical Philosophy*. 161 (2010): 21, 20; Wendy Brown, *Walled States, Waning Sovereignty* (New York: Zone Books, 2010), 44; Carl Schmitt, *The Nomos of the Earth in the International Law of the Jus Publicum Europaeum*, trans. G.L. Ulmen (Telos Press Publishing, 2003), 79; John Beck, *Dirty Wars: Landscape, Power, and Waste in Western American Literature* (Lincoln: University of Nebraska Press, 2009), 34.

West, and specifically examines local citizens' and representatives' role in placing vast tracts of national territory under permanent military control.

One of the primary impetuses driving these political and spatial developments was the threat of unconventional weapons of mass destruction. Utah's Dugway Proving Ground was America's response to such growing threats. Since 1942, Dugway has served as America's primary site for field-testing chemical and biological weapons (CBW). Due to the extremely hazardous nature of these testing activities, Dugway represents a quintessential military sacrifice zone, or a purportedly expendable geographic area deemed as ideally suited for ecologically destructive military activities. Typically, military sacrifice zones are conceived of in terms of historical consequences, or the cumulative aftereffects of unchecked military prerogatives. Author Rebecca Solnit, for example, writes of how the politics of war invaded western American landscapes, and that these landscapes are "now a victim of history," and this "history is not only the history of human actions, of causes, but a history of effects, of ecological damage."³ In looking closer at the establishment of Dugway Proving Ground, this chapter finds that, far from being the sole result of overbearing military activities, ecological sacrifice zones such as Dugway were also products of American citizens' calculated and collective choices.⁴ In addition to tracing the origins of national

³ Rebecca Solnit, *Savage Dreams: A Journey into the Landscape Wars of the American West* (Berkeley: University of California Press, 1999), 47.

⁴ Historians of the American West have written at length about how westerners welcomed a variety of defense industries into their communities, but less has been written about the establishment of secretive and highly ecologically hazardous defense installations. This chapter on origins of a CBW proving ground adds to more recent investigations on nuclear weapons testing and development sites, see Kathryn L. Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters* (New York: Oxford

sacrifice zones, I also explore the wider economic, political, and social dimensions of the military's environmental footprint. Prior to Dugway's establishment, sheep grazing had been the dominant land use activity in western Utah. This chapter specifically looks at how the unique imperatives of a so-called "permanent peacetime" CBW field-testing program drove Dugway officials to seize valuable grazing areas that had been vital to Utah's economy. Temporary wartime emergencies may have justified extraordinary and sometimes unthinkable measures, but, from the perspective of land use, such crises have been less consequential than the condition of permanent war. As the chapter argues, in the Dugway region, the DoD's land use demands became more exacting as war shifted from a marked event to permanent condition.

To demonstrate these points, I first examine the contrasting ways defense officials and livestock grazers understood western Utah's land use history and how the respective origins stories of these two regional industries have served as one method of dispossession in a landscape full of past displacements. I then look at the fluid nature of weapons testing activities at Dugway during World War II, and the unexpected ways sheep grazers and defense interests accommodated each other's needs at a time when the military's presence was believed to be temporary and its land-claim rights uncertain. While fewer land use conflicts have taken place during the war, this does not render the military's environmental footprint insignificant. Chapter 2 also demonstrates how

Univ Press, 2013; Gretchen Heefner, *The Missile Next Door: The Minuteman in the American Heartland* (Cambridge: Harvard University Press, 2012); *Nevada Test Site Oral History Project*, Digital Collections, University of Nevada, Las Vegas, Nevada, <http://digital.library.unlv.edu/ntsohp/>.

environmental despoliation has served as one method through which the Defense Department has extended its control over additional tracts of lands in the Dugway region.

Dugway's personnel may have been willing to live and work temporarily in a harsh, isolated, camp-like environment during the World War II crisis, but they had no interest in enduring such conditions on a long-term career basis. A permanent CBW experimental station, it turns out, not only required vast, isolated expanses of open space but also landscapes that could support grass, trees and other so-called requisites of normal civilization.⁵ To resolve these seemingly incompatible requirements, military planners opted to relocate Dugway's headquarters and living facilities to a more hospitable location to the east—a move that entailed adding nearly 300,000 acres of additional land to Dugway's landholdings, including some of western Utah's most productive public grazing lands. In the years after the war, not only did Dugway covet more desirable lands for long-term use but its accommodation of non-military land uses also diminished. Land use relations that were once temporary, informal, and cooperatively worked out became one-sided and unyielding. Underlying this shift was the DoD's continuing power to independently seize and control public lands, which had only become more formalized in the years after the war.

⁵ E.F. Bullene, "Location of New Construction for Dugway Proving Ground and Deseret Chemical Depot," 27 Dec 1946, 1-10, 470.6 Dugway Proving Ground, 349 Station Files 1946 Confidential Arsenal/Procurement Districts/Proving Grounds, Records of the Chemical Warfare Service, Records Group 175 (RG 175), National Archives at College Park, Maryland (NACP).

Defense officials may have had minimal difficulties securing legal rights to additional public lands in western Utah at the federal level, but they still anticipated significant opposition from a variety of private and public interests at the regional level. The second half of the chapter looks beyond the legal dimensions of military dispossession, and examines how financial incentives, security considerations, practices of secrecy, as well as widely shared assumptions about American power and modernity all played a part in allowing Dugway to successfully resist local opposition and solidify its long-term claims to lands in western Utah. At its core, this chapter reveals that most Americans had few reservations about making the necessary material sacrifices for permanent war, and were glad to welcome even the most perilous kinds of warfare development activities into their own backyards. In fact, sheep grazers ended up being the only local constituency that did not readily accept Dugway's expansion as a simple and clear-cut decision. Yet, despite possessing considerable economic resources and political clout, the Intermountain West's sheep industry was no match against the various assumptions and prerogatives driving the establishment of a permanent military-industrial-scientific presence in the American West.

Before jumping into this story, some additional orientation is needed. Western Utah, like much of the Great Basin, is a region especially prone to historical forgetfulness. Here, perhaps more so than elsewhere, it is necessary to recognize that a deeper history of conquest, dispossession, and occupation

underpinned the divisions and displacements that accompanied mid-twentieth century military land withdrawals.

ORIENTATION, DISPLACEMENT, AND LEGITIMACY

Dugway Proving Ground was established during wartime conditions. Prompted by fears that Axis powers possessed more advanced chemical warfare capabilities as well as concerns over lack of adequate testing grounds at their main installation in Aberdeen, Maryland, the U.S. Army's Chemical Warfare Service began to search for a new testing area. In January 1942, the Army sent Major John R. Burns, who would become the first commander of Dugway, west to survey possible sites for a proving ground. He found a tract of arid land about eighty-five miles southwest of Salt Lake City to have the necessary open space for large-scale chemical weapon field tests. Soon after, President Franklin D. Roosevelt filed an executive order for 268,000 acres of Interior department-managed public lands "for use of the War Department as a Chemical Warfare Range."⁶ Located on the southeastern edge of Utah's Great Salt Lake Desert, the newly established Dugway Proving Ground was bordered on the northeast by the Cedar Mountains, and the southeast by the Dugway and Granite ranges, with vast

⁶ U.S. Army Test & Evaluation Command, "Dugway Proving Ground, Dugway, Utah," *Orientation Folder* (Dugway, UT: U.S. Army Test & Evaluation Command, 1964), Pam 8294, Utah State Historical Research Society, Salt Lake City, Utah (Utah Historical Research Society); Leonard J. Arrington and Thomas G. Alexander, "Sentinels on the Desert: The Dugway Proving Ground (1942-1963) and Deseret Chemical Depot (1942-1955)" *Utah Historic Quarterly* 32 (Fall 1963): 32-36. Roosevelt initially withdrew 126,720 acres in February of 1942 and two months later an additional 138,180 were added. It appears no Executive Order or Public Land Order was ever filed for this additional land claim. For original Executive Order, see Executive Order 9053, 7 FR 840, 10 February 1942.

expanses of salt flat deserts lying on its western boundaries (for map, see page 14).

As with many origin stories, the story of Burns' founding of Dugway "obscures more about actual historical events than it reveals."⁷ The typical account portrays Major Burns as a pioneer or early explorer who "ventured into the Great Salt Lake Desert" to "scout out a location for a new installation." After finding a suitable area in what the Army understood as "the desert wasteland of Utah," Burns, much like Brigham Young a century earlier, directed a local construction contractor to build the Chemical Warfare Service's new military camp "anywhere on desert. Do you see where that range of hills breaks off into the desert, well build it there."⁸ While most official historical accounts emphasize the installation's remoteness from population centers, they are also quick to highlight some of the more prominent national historical developments that occurred in the surrounding region. The explorations of the Jedediah Smith and John C. Fremont are frequently recounted. As is the establishment of well-known pioneer trails and the routes for the Pony Express, Overland Mail Company, and

⁷ A number of historians have noted how heroic place-stories often cover up colonial violence and oppression in the American West, see Coll Thrush, *Native Seattle: Histories from the Crossing-over Place* (Seattle: Univ of Washington Press, 2009), 20 (quotation); Ned Blackhawk, *Violence over the Land: Indians and Empires in the Early American West* (Cambridge: Harvard University Press, 2006); Jared Farmer, *On Zion's Mount: Mormons, Indians, and the American Landscape* (Cambridge: Harvard University Press, 2008); Kerwin Lee Klein, *Frontiers in Historical Imagination: Narrating the European Conquest of Native America, 1890-1990* (Berkeley: University of California Press, 1997).

⁸ Directorate of Environmental Programs, *Integrated Natural Resource Management Plan, U.S. Army, Dugway Proving Ground* (2001), 15; Leo P. Brophy, Wyndham D. Miles, and Rexmond C. Cochrane, *United States Army in World War II: The Technical Services; the Chemical Warfare Service. From Laboratory to Field* (Office of the Chief of Military History, Department of the Army, 1959), 39; Elmer G. Thomas, "Autobiography," 49, MSS A 2245, Utah Historical Research Society.

the Lincoln Highway—America’s first coast to coast automobile highway. In these accounts, the establishment of Dugway becomes a part of a larger story of celebratory national developments. Explorers, Pony Express riders, and early automobilers all set the stage for the eventual arrival of the Chemical Warfare Service.⁹ Missing from such portrayals is the local history of land occupation and use. Official reports have gone so far as to deny the existence of local land use, claiming that there “have never been any agricultural or grazing leases” on Dugway proper.¹⁰ By the time the military arrived on the scene, moreover, such developments were, like early explorers or the Pony Express riders, part of the distant past, and the Dugway area had again been “preempted by the jackrabbits, coyotes, and deer which had inhabited it in historic times.”¹¹

Not surprisingly, if one looks beyond official military accounts and more closely at the local history of land use different kinds of stories about this region emerge. Lookout Pass, which lies southeast of Dugway Proving Ground, offers one of the best places to view the Dugway region. Off the side of the dirt road that winds over the top of this pass sites a monument that highlights a different regional history. Erected in honor of E. Ray Staley, a local leader in Utah’s livestock industry, this monument pays homage to the local sheep grazers who

⁹ For a sampling of official histories of Dugway, see Arrington, “Sentinels on the Desert,” 34-37; Mike Boyd, “The History of Dugway Proving Ground,” *Test Run* (Dugway), 24 February 1967, L. Tom Perry Special Collection Library, Harold B. Lee Library, Brigham Young University, Provo, Utah (BYU Special Collections Library); U.S. Army, “Orientation Folder,”; U.S. Army, “Dugway Proving Ground: History,” *US Army Dugway Proving Ground*, available at dugway.army.mil/History.aspx.

¹⁰ Engineering Technological Associates, Inc., *Preliminary Assessment, Dugway Proving Ground, Utah* (Lakewood, CA: Engineering Technological Associates, Inc., 1994), 4.

¹¹ Arrington, “Sentinels on the Desert,” 34.

trailed millions of sheep “through this pass on their way to and from the west desert ranges,” which helped to create an industry that “formed the basis of rural culture” in Utah and provided “food, clothing, and income to thousands of families.”¹²

As with the military, local sheep grazers also have their own set of origin stories they tell about the Dugway region. One of the more prominent ones came from Glynn Bennion, a third-generation Utah livestock operator. According to Bennion, the “story of the beginning of the modern practice of wintering sheep on the western deserts of Utah” began in November of 1874, when Bennion’s fifteen-year-old father, Israel, and Glynn’s uncle David, who was only 11, led a band of 5,000 sheep through Lookout Pass into the low and arid valleys of the Dugway region. Equipped with a wagon, a couple of horses, and a few other basic necessities—including a bible and book of Shakespeare—the two boys wandered alone with their herd all winter through “the vast spaces and melancholy silence of the desert, seeing no one, sending no messages, until they returned, themselves and their sheep all in good order, back through Lookout Pass the following May.” Bennion further notes how sending these two “soprano-voiced” boys alone into Utah’s western deserts was not act of carelessness or desperation, but the deliberate plan of a hardy pioneer family “who, having come to Utah for religion’s sake, found their souls enlarged not only by the opportunity to assist in

¹² Utah Division of State History, “E. Ray Staley at Lookout Pass,” *Markers and Monuments Database*, available at https://heritage.utah.gov/apps/history/markers/detailed_results.php?markerid=2290.

'building up the Kingdom,' but by the rich abundance of material resources of the new land that could be had for the taking."¹³

The Bennion boys' remarkable journey may not have been the first herding of sheep on the arid lowlands and ranges of the Utah's western deserts, but theirs and similar ventures helped to ensure that winter grazing in the region spread rapidly. By the turn of the century, the mountains and valleys of Utah's western deserts sustained over three million sheep annually, which utilized the area's grazing resources as vital winter feed. From this time until at least the 1930s, the sheep industry was the mainstay of Utah's economy, providing close to half of all agricultural revenue in a state in which agriculture constituted "almost the sole source of income for most... rural communities."¹⁴

¹³ Glynn Bennion, "Let's Stop Kidding Ourselves (Sow Sheep Manure—and Reap the Dust)," 1-2, Works Progress Administration (Utah Section) "History of Grazing" Notes, 1940-1941, MSS B 100, Box 3, (WPA Utah "History of Grazing" Notes, 1940-1941), Utah Historical Research Society. Glynn Bennion, "Some Things I have Read, Heard, and Seen Relating to Range Use in Utah," 5-7, WPA "History of Grazing" Notes, 1940-1941, Utah Historical Research Society; Charles M. Sypolt "Keepers of Rocky Mountain Flocks: A History of the Sheep Industry in Colorado, New Mexico, Utah, and Wyoming to 1910 (PhD Diss., University of Wyoming, 1974), 65; John Bennion, "The Chimerical Desert," *BYU Studies* 32 (Summer 1992): 27-42.

¹⁴ Walter P. Cottam, "Is Utah Sahara Bound?" *University of Utah Bulletin* 37 (Feb. 1947): 20. For sheep numbers, see George Stewart, "Economic Importance of Range Lands," 16 Oct 1940, WPA Utah "History of Grazing" Notes, 1940-1941, Utah Historical Research Society; Charles S. Peterson, "Grazing in Utah: A Historical Perspective," *Utah Historical Quarterly* 57 (Fall 1989): 305-306. A number of range scientists have concluded that roughly 90% of Utah's sheep utilized winter grazing resources in Utah's western deserts, see Langdon White, "The Insular Integrity of Industry in the Salt Lake Oasis," *Economic Geography* 1 (July, 1925): 420; George Stewart, "Economic Importance of Range Lands," 16 Oct 1940, WPA Utah "History of Grazing" Notes, 1940-1941, Utah Historical Research Society; Parker L. Mayland, "Economic Geography of Utah's Sheep Industry," (MS Thesis, University of Utah, 1951), 97. For half of all agricultural revenue, see A.C. Esplin et al, "Sheep Ranching in Utah," *Utah Agriculture Experiment Station Bulletin* 204 (Logan: *Utah Agriculture Experiment Station*, 1928), 13, BYU Special Collections Library; Charles S. Peterson, "'Touch of the Mountain Sod': How Land United and Divided Utahns 1847-1985," (Paper presented at the Dello G. Drayton Memorial Lecture, Weber State College, Ogden, Utah, 1988), 12, Pam 20551, Utah Historical Research Society.

Much like the military's story of founding Dugway, this celebratory history of Utah's sheep industry also fails to acknowledge the local history of land use and habitation. Far from being the natural sounds of an untouched wilderness, the silence and emptiness the two young Bennion brothers supposedly encountered that winter in Utah's western deserts was more likely the abnormal stillness that comes in the aftermath of battle. The lands that were there "for the taking" became available only after a "maelstrom" of colonial violence had swept through and pacified the region. The fact that two boys could safely trail thousands of sheep and other valuable goods through a region where colonial relations had only recently been "as violent as anywhere in North America" attests to the efficacy of this violence against local Native Americans, which ranged from raiding and enslavement to full-scale military campaigns and massacres.¹⁵ For the Skull Valley and Deep Creek Goshutes, whose historical homelands and resource base encompassed much of what would become Dugway Proving Ground, the signing of an 1863 treaty with the U.S. Government may have deescalated decades of open colonial violence, but it also marked the

¹⁵ Blackhawk, *Violence over the Land*, 5, 230, 260, 265. In both oral historical accounts and documentary records, highly disturbing recollections of military-sponsored genocide, mutilation, rape, dismemberment, and massacres against Goshutes and neighboring indigenous groups commonly surface. Since Goshutes have, historically, been one of North America's most neglected and denigrated groups of Native Americans, the revelation of heretofore unrecognized massacres of untold numbers Goshutes by U.S. military forces is not out of the question. For source materials and recent studies dealing with these widely forgotten and unacknowledged incidents of brutal state-sponsored violence, see Sylvester L. Lahren, Jr., *A Shoshone/Goshute Traditional Property and Cultural Landscape, Spring Valley, Nevada* (Ibapah, UT: Confederated Tribes of the Goshute Reservation, 2010); David Thompson, "The Goshute Indian War of 1863," *The Nevada Observer* 10(23) (October 2013): 1-112.

beginning of a long-term struggle for self-preservation, sovereignty, and land rights that continues to present day.¹⁶

The Great Basin, as historians Ned Blackhawk and Jared Farmer have both made clear, is a region especially prone to historical forgetfulness. Historical knowledge considered discomfiting or dangerous has been readily suppressed or incidentally forgotten, and the origin stories of settlers, scientists, churches, military establishments, and others have served as a key method of dispossession. In writing about Utah Valley, which lies roughly fifty miles directly east of Dugway, Farmer notes how the “senses of place that makes present-day Americans feel at home would not exist without past displacements.”¹⁷ The only major difference at Dugway is that these past displacements are more deeply sedimented. The military’s visions of an empty desert wasteland supplanted grazers’ visions of an untouched, pastoral oasis, just as grazers’ visions had displaced and disrupted far deeper and more legitimate land occupations.

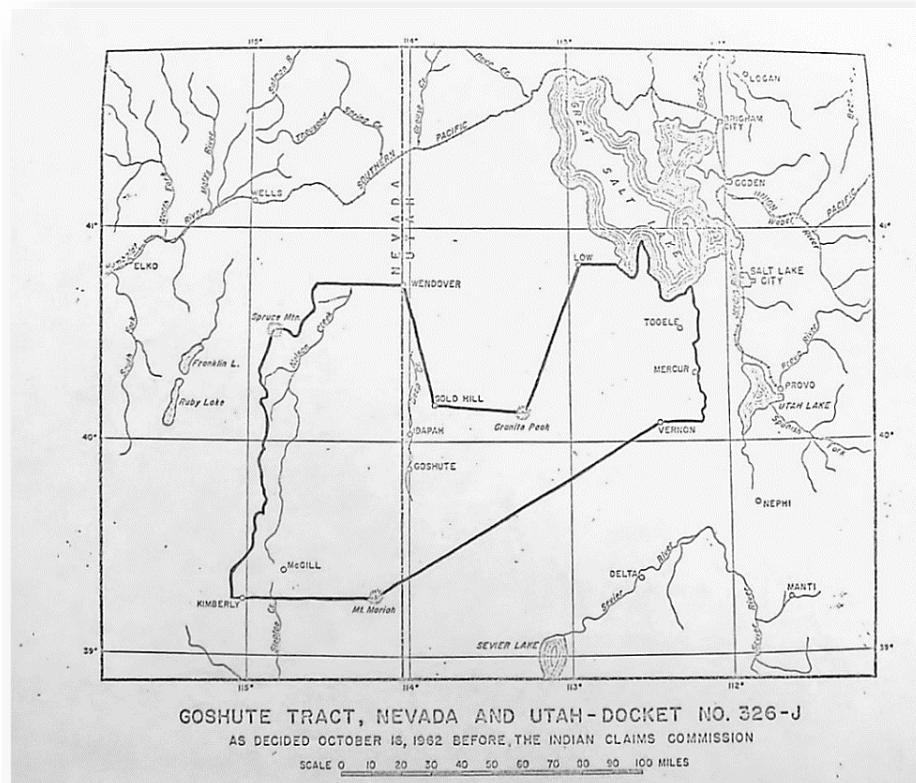
A particularly widespread and persistent case of historical amnesia surrounds Goshute territorial rights. The Goshutes’ 1863 treaty with the U.S. government was a “treaty of peace and friendship,” and not of land cession. Article V of the treaty specifically laid out the “the boundaries of the country claimed and occupied” by Goshutes. Over the course of a U.S. Indian Claims

¹⁶ Steven J. Crum, "The Skull Valley Band of the Goshute Tribe—Deeply attached to their Native Homeland." *Utah Historical Quarterly* 55 (1987): 251-267; David Rich Lewis, "Skull Valley Goshutes and the Politics of Nuclear Waste," in *Native Americans and the Environment: Perspectives on the Ecological Indian* eds. Michael Eugene Harkin and David Rich Lewis (Lincoln: Univ of Nebraska Press, 2007), 304-342.

¹⁷ Blackhawk, *Violence over the Land*, 1-5, 13, 265, 287, 292; Farmer, *On Zion's Mount*, 12-16, 126, 130-131, 229, 370; Thrush, *Native Seattle*, 15.

Commission case that lasted from 1951 to 1975, moreover, the federal government formally recognized that Goshutes held unceded title to close to six million acres of land in western Utah and eastern Nevada.¹⁸ Goshutes' claims

Figure 4: The Goshute Tract



to lands of western Utah and Eastern Nevada were, in short, more legitimate than the land claims of any federal agency or private interest, including the Defense

¹⁸ G.P. Sanger, ed., *Statutes at Large, Treaties and Proclamations of the United States of America: from Dec. 1863 to March 1865*, Vol 13 (Boston: Little, Brown and Company, 1886), 681-684; "Attorney's Report to the Confederated Tribes of Goshute Reservation," 4 Sept 1960 - 23 Jan 1975," Folder 11, Box 91, Wilkinson, Cragun, and Barker Indian Claims Commission records, 1950-1980, MSS 2291, BYU Special Collections Library.

Department—a fact commonly overlooked in most discussions of the region’s past.

The situation was the same for much of America’s public domain lands. From the 1950s through the 1970s, a number of government investigations suggested that the U.S. had “never acquired a valid proprietary interest in some 750 million acres” of federally-controlled lands, and that these areas may have “still legally belonged-and belongs-to Native people.”¹⁹ As might be expected, however, the primary motive behind the Indian Claims Commission’s formal recognition of Goshute as well as other indigenous groups land title rights was not to rectify past encroachments or broken promises, but to clear up “the confused ‘title cloud’ that allegedly had hung over vast acreage in the nation.” Instead of considering the possibility of reinstating lands to their rightful possessors, the Commission merely offered indigenous peoples a nominal monetary settlement in exchange for conceding their title rights, a legal imbroglio that, as one critique of the Commission put it, “left Native Americans with countless compelling, unresolved moral claims, and little hope of satisfactory resolution in US courts or political forums.”²⁰

¹⁹ Ward Churchill, "Charades, Anyone? The Indian Claims Commission in Context," *American Indian Culture and Research Journal* 24(1) (2000): 55; H.D. Rosenthal, *Their Day in Court: A History of the Indian Claims Commission* (New York: Garland, 1990), 151.

²⁰ Mary B. Davis, *Native America in the Twentieth Century: An Encyclopedia* (New York: Routledge, 2014), 303; Thomas E. Luebben, “The United States Indian Claims Commission: A Remedy for Ancient Wrongs, A Source of New Wrongs” in *Redressing Injustices through Mass Claims Processes, Innovative Responses to Unique Challenges*, ed. Permanent Court of Arbitration (New York: Oxford University Press, 2006), 177–78; David E. Wilkins, *Hollow Justice: A History of Indigenous Claims in the United States* (New Haven: Yale University Press, 2013), 96-124. For a revealing investigation of an ICC case closely related to the Goshute case, see Richard O. Clemmer, "Land Rights, Claims,

In seeking to understand how a permanent military presence was first established in western Utah, this chapter focuses primarily on the resistance and displacement of, what at least at the time were, dominant local land use interests, particularly one of the nation's largest livestock corporations. Goshutes may not have been a dominant territorial force in the 1940s and 50s, but they were still around when Major Burns arrived on the scene. Goshutes' extant reservations—the approximately 18,000-acre Skull Valley reservation directly west of Dugway and the 112,870-acre Deep Creek reservation to the southwest—represent only a fraction of claimed “Goshute Tract” territory. Throughout the 1940s and 50s, however, basic survival was a bigger concern for most Goshutes, whose total population sat below 300 individuals, than resisting further dispossession, this time by the military. This was especially the case for Skull Valley Goshutes. From 1930s to the mid-1950s, the Bureau of Indian Affairs made a number of what turned out to be unsuccessful attempts to abolish the Skull Valley reservation and remove its sixty plus inhabitants to distant reserves.²¹

Although the DoD never directly encroached upon Goshute reservation lands, the defense industry nevertheless has had a profound impact. As some of the only permanent residents living directly downwind of Dugway Proving Ground, the Skull Valley Goshutes have suffered the brunt of Dugway's environmental footprint. Most notoriously, in 1968, Dugway officials secretly buried up to 1,600 sheep that had been accidentally contaminated with VX nerve

and Western Shoshones: The Ideology of Loss and the Bureaucracy of Enforcement," *PoLAR: Political and Legal Anthropology Review* 32(2) (2009): 279-311.

²¹ Crum, "The Skull Valley Band of the Goshute Tribe," 251-267.

agent somewhere on reservation lands.²² Yet Dugway, it should be noted, was not the area's first major environmental offender. Skull Valley Goshutes may have actively participated in the early livestock industry, particularly as shearers, but their land rights were also continually "trampled upon by traveling stockmen, and their domestic water [was] constantly rendered unfit for use by the great bands of sheep which range[d] up and down this valley."²³ More recently, Utah's west desert has hosted a variety of toxic industries, including a low-level nuclear waste dump, a hazardous waste incinerator, a massive hog production farm, and a magnesium chloride plant once labeled as the nation's worst air polluter.²⁴ The influence of such environmentally abusive local industries has had far-reaching consequences, particularly on Goshute economic development choices. As one Skull Valley Goshute member told a journalist in 2000, "we can't do anything here that's green or environmental. Would you buy a tomato from us if you knew what's out here? Of course not. In order to attract any kind of development, we

²² Brenda Norrell, "Skull Valley's Nerve Gas Neighbors," *Indian Country Today*, 26 October 2005; Jim Woolf, "Tribe Digs into Mystery of Sheep that Died near Dugway in 1968," *Salt Lake Tribune*, 14 December 1997; Jim Woolf, "Army: Nerve Agent Near Dead Utah Sheep in '68; Feds Admit Nerve Agent Near Sheep," *Salt Lake Tribune*, 1 January 1998.

²³ The livestock industry's depredations on Goshute lands were a long-standing problem, being not only a key source of tension with early settlers but also part of what originally prompted the creation of the Skull Valley reservation in 1914. For quote and further details, see House Documents, *Indians of Skull Valley and Deep Creek, Utah*, H.R. 398, 7 (1911). For Goshute contributions to wider livestock industry, see Clel Georgette, *Golden Fleece in Nevada* (Reno: Venture Publishing Company, 1972), 510.

²⁴ For more detailed overviews on these toxic industries, see Chip Ward, *Canaries on the Rim: Living Downwind in the West* (New York: Verso, 1999); J. Shumway and Richard H. Jackson, "Place Making, Hazardous Waste, and the Development of Tooele County, Utah," *Geographical Review* 98(4) (2008): 433-455; The Center for Land Use Interpretation, *Points of Interest in the Great Salt Lake Desert Region* (Culver City, CA: The Center for Land Use Interpretation, 2004); Lee Davidson and Joe Bauman, "Toxic Utah: A Land Littered with Poisons," *Deseret News*, 12 February 2001.

have to be consistent with what surrounds us.”²⁵ For the Skull Valley Goshutes that has meant possibly converting part of their reservation into one of the nation’s primary storage sites for spent nuclear fuel rods—a turn of events that attracted considerable public debate and created huge divisions within Goshute communities.

In representing “a microcosm of the impact of the military on Native people,” the Goshute nuclear waste storage proposal has also attracted scholarly attention. Studies of the proposal have touched on a number of relevant issues related to indigenous sovereignty and land rights, environmental racism, and toxic economic determinism.²⁶ These important discussions, however, have lacked a clear understanding of how the military established a permanent presence in the region. As we have seen, one prominent strategy guiding Dugway’s long-term control of land has been to deny and distort the local history of land use and habitation. The Skull Valley Goshute reservation may be located less than twenty miles away from Dugway’s entrance, but there is no trace of evidence of Dugway officials ever engaging with or even recognizing the existence of these local inhabitants during the early years of operation. Even after being

²⁵ Kevin Fedarko, “In the Valley of the Shadow,” *Outside* (May 2000), available at <http://www.outsideonline.com/1887886/valley-shadow>.

²⁶ More prominent works include, Winona LaDuke and Sean Aaron Cruz, *The Militarization of Indian Country* (East Lansing: MSU Press, 2013), 39-41, 41 (quotation); Tracylee Clarke, “Goshute Native American Tribe and Nuclear Waste: Complexities and Contradictions of a Bounded-constitutive Relationship,” *Environmental Communication* 4(4) (2010): 387-405; Lincoln L. Davies, “Skull Valley Crossroads: Reconciling Native Sovereignty and the Federal Trust,” *Maryland Law Review* 68(2) (2009): 290-376; Noriko Ishiyama, “Environmental Justice and American Indian Tribal Sovereignty: Case Study of a Land-use Conflict in Skull Valley, Utah,” *Antipode* 35(1) (2003): 119-139; Lewis, “Skull Valley Goshutes and the Politics of Nuclear Waste.”

neighbors with Goshutes for close to three decades, official military historical accounts showed an alarming lack of understanding. A 1968 Dugway newsletter, for example, described Goshutes as being “outcasts” who “had been forced to live on the Great Salt Lake Desert because of some crime they had committed in their tribe” long ago.²⁷ While its legal status may sit on shaky grounds, the prospect of the Goshute Tract still serves, among other things, as a reminder of the region’s erased histories of violence, conquest, dispossession, and occupation. As a cultural landscape that has served as a place of origins, sustenance, kinship, identity, story, memory, refuge, endurance, resistance, and ascendancy, the idea of the Goshute Tract also offers a stark contrast to a settler society’s predominant understanding of the area as a historically uninhabited, sacrificial piece of “land that could be had for the taking.” Starting with Major Burns’ arrival into the region in 1942, the sheep and defense industries, who both held and promoted such viewpoints, vied over the control of local land and resources. Interestingly, during World War II, relations between these two influential land use interests were marked not by contestation but by flexibility and accommodation.

WARTIME LAND USE ACCOMMODATIONS

Likely due to Major Burns’ apparent desire to locate facilities in some of the most inhospitable locations in the region, up to 126,000 acres of the initial 268,900-acre withdrawal were on lands unsuitable for livestock grazing. The

²⁷ Boyd, “The History of Dugway Proving Ground.”

remaining areas, located mainly along Dugway's northeastern and southern boundaries, had traditionally been important to grazers. Granite, Camels Back, and other low-lying mountains, foothills, and ridges had provided forage and moisture in the form of snow during the winter, and the adjacent valleys, particularly in areas known as the Old River Bed and Government Creek, accumulated runoff water that tens of thousands of sheep utilized during their seasonal treks. After the enactment of the Taylor Grazing Act in 1934, these unrestricted grazing patterns changed and, in addition to trailing sheep through the region semi-annually, grazers also leased rights to government-drilled wells and grazing land on these more productive areas.²⁸

During World War II, grazers did not necessarily lose their rights to these valuable grazing resources. Rather Dugway officials followed certain provisional agreements between the War and Interior Departments "regarding fencing arrangements and part time use of lands for grazing purposes." The actual procedures for part-time grazing appear to have been informal in nature and made under the "sufferance" of the commanding officer, who had ultimate

²⁸ Corps of Engineers, U.S. Army Office of the District Engineer, San Francisco District, "Real Estate Planning Report (Military), Dugway Proving Ground, Tooele County, Utah," (15 June 1950): 1-10, Corps of Engineers: Sacramento District, Sacramento, California; John Fredrick Bluth, "Confrontation with an Arid Land: The Incursion of Gosiutes and Whites into Utah's Central West Desert, 1800-1978" (PhD Diss., Brigham Young University, 1979), 142-145; Sidney W. Nicholes Jr. interview by John Bluth, 14 & 16 May 1974, transcript, Simpson Springs Oral History Project, 17, 35, 42-43, 80-82, 93, MSS 7752, BYU Special Collections Library; Delbert Chipman interview by John Bluth, 5 June 1974, transcript, Simpson Springs Oral History Project, 57, 21-25, MSS 7752, BYU Special Collections Library.

authority over the area.²⁹ In addition to allowing limited, part-time grazing, the Chemical Warfare Service's control of land in the Dugway region was also temporary. The basis of the military's claims to land at Dugway, as well as all other World War II military land acquisitions, rested upon President Roosevelt's "findings of necessity for the emergency use of such lands" for "purposes incident to the national emergency and the prosecution of the war." Accordingly, the Chemical Warfare Service was expected to return all of its appropriated land back to the Interior Department no later than "6 months after the present war has been officially terminated."³⁰ Sheep grazers would have likely viewed such arrangements as an inconvenience. Yet the concessions and adjustments that would have to be made were only temporary, and, in the not too distant future, the lands would be restored to their former use. Many Americans made temporary sacrifices during the war, and for grazers, sharing land with the Army's Chemical Warfare Service must have appeared as a necessary sacrifice for the greater national war effort.

The Army's flexible boundaries and land use accommodations, however, were not one-sided. During the wartime emergency, the Chemical Warfare Service readily utilized lands outside of Dugway's official boundaries as weapons targets or downwind testing grids on an as needed basis. Most significantly, under "Project Sphinx," a weapons test series that addressed the tactical

²⁹ Acting Commissioner, General Land Office to Register, District Land Office, 1 May 1942, Bureau of Land Management Office, Salt Lake City, Utah; Committee on the Judiciary, *Compensation for Cancellation of Grazing Permits*, S. Rep. No. 1045, 9-11, 15 (1966).

³⁰ Executive Order 9526, 10 FR 2423, 2 March 1945; S. Rep. No. 857, at 19-20 (1957); Acting Commissioner, General Land Office to Register, District Land Office, 1 May 1942, Bureau of Land Management Office, Salt Lake City, Utah.

challenges of penetrating subterranean fortifications on Japanese-controlled Pacific islands, weapons scientists tested rockets, bombs, mortar, and numerous chemical warfare agents, including “hundreds of tons” of mustard gas, against mines, caves, riverbeds, and artificially-constructed replicas outside of and along Dugway’s southern boundaries.³¹

While Project Sphinx had strategic value, it also had long-lasting ecological costs, particularly to local resource industries. The Army, for example, temporarily leased numerous active mineral mines in the nearby Dugway Mountains to use as subterranean targets, and promised to leave the privately-owned mines “in as good condition as it is on the date of the government's entry.” Instead copious amounts of “toxic, smoke, and flame agents in bombs, mortar and artillery shells, rockets, and light case tanks” as well as “gasoline, butane, the non-persistent agents Phosgene, Hydrogen Cyanide, and Cyanogen Chloride, and the persistent agent Mustard Gas” made the mines too hazardous to restore in the years immediately following the war.³² Over forty years later, an assessment report noted how “discussion with long-time employees indicate that the surface

³¹ For quote, see Department of the Army, “Report of the Interagency Ad Hoc Committee for Review of Testing Safety at Dugway Proving Ground,” (Washington, D.C.: Department of the Army, 1968), 12, PAM 21492, Utah Historical Research Society. For history of Project Sphinx, see U.S. Army, “A Memorandum Report on Attack against Cave-type Fortifications,” (Dugway, UT: Dugway Proving Ground, 1945); John Ellis van Courtland Moon, “Project SPHINX: The Question of the Use of Gas in the Planned Invasion of Japan,” *Journal of Strategic Studies* 12 (Summer 1989): 303-322.

³² Lee Davidson, “Army Tests Ravaged Family’s Land: Military Blasted Mines Owned by Utahns with Tons of Chemical Agents,” *Deseret News*, 26 Nov 2004; Theresa Sauer, “DANGER! Bombs May Be Present. Cannon V. Gates: A Jammed Cannon Preempts Citizen Suit Indefinitely,” *Denver Law Review* 86(3) (2008): 1215-1237; *M. Louise Cannon and Allen Robert Cannon vs. United States of America* (10th Cir., August 2003), available at caselaw.findlaw.com/us-10th-circuit/1293261.html.

UXOs [unexploded ordnance] and empty containers were cleared from the area but some subsurface UXOs could exist.” Neighboring public grazing lands shared the same story. A 42,700-acre, heavily-used grazing area known as the Southern Triangle served as a “danger space” for toxic clouds and stray rounds during Project Sphinx as well as later testing activities. A 1988 survey reported that subsurface unexploded ordnance items containing both chemical and biological agents as well as high explosives likely still existed in this area.³³

Despite the possible risks, there were no reported incidents of locals suffering direct physical harm from exposure to explosives or hazardous contaminants during the war. Yet risk can come in many forms. To grazers, one of the primary dangers of testing chemical and biological weapons came from how the “poisonous gases,” as the head of a local wool growing association put it after the war, “damage and make useless a much larger area surrounding” the test sites, making “it dangerous to graze livestock even in the vicinity of these lands and for many miles adjacent to them.”³⁴ Indeed, contamination has served as a mechanism through which the military has extended its control over additional lands. Due to fears of liability, clean-up costs, as well as their proven usefulness as field-testing sites, defense authorities at Dugway have sought,

³³ Environmental Science and Engineering, Inc., “Update of the Initial Installation Assessment of Dugway Proving Ground, Utah,” (Dugway, UT: Environmental Science and Engineering, Inc., July 1988), 2-1. 2-3 t- 2-4; Montgomery Watson, “Draft, Formerly Used Defense Site, UXO/CWM Investigation and Engineering Evaluation/Cost Analysis Report, Southern Triangle,” (Salt Lake City: Montgomery Watson, August 1996), 2-2 to 2-4, 2-11 to 2-22.

³⁴ L.G. Montgomery to Thomas, 13 April, 1950, Folder 2, “Dugway Project (Army-2),” Box 217, *Elbert D. Thomas papers, 1933-1950 (Elbert D. Thomas papers)*, Utah Historical Research Center, Salt Lake City, Utah.

numerous times, to add these contaminated areas to their land-holdings. To date, most of the public grazing lands and privately-controlled mines utilized during Project Sphinx remain restricted to the public and under the military's legal control due to long-term contamination.³⁵

During the wartime emergency, land use needs at Dugway were in flux and land users attempted to accommodate each other. Yet, after only a couple years of operation, Dugway's weapons scientists felt compelled to push into adjacent areas, which extended their control over land and magnified the element of risk in the region. Similar land use patterns would continue to unfold as the temporary wartime emergency shifted to a permanent security crisis.

The Art of Permanent War

Whether conducted in the deserts of Utah or the prairies of Alberta, large-scale field tests proved essential to the successful Allied development of chemical and biological warfare capabilities during World War II.³⁶ This reliance on large-

³⁵ Clean up cost for one of the most contaminated mines were estimated at \$12.3 million, see Davidson, "Army Tests Ravaged Family's Land." For attempts to acquire these lands, see Col. Donald H. Hale, "Expansion of Dugway Proving Ground," 16 Oct 1952, 601 Dugway Proving Ground 1952, 366 Station Files 1951 Secret Procurement/Districts/Proving Grounds, RG 175, NACP; Environmental Engineering, Inc., "Initial Installation Assessment," 2-4; Joe Bauman, "Dugway Seeks to Obtain More Land: Base Officials are not Saying How Much Land – Or Why," *Deseret News*, 28 Oct 2004.

³⁶ The two main Allied Chemical and Biological Weapons Proving Ground were Dugway Proving Ground, Utah and Suffield Experimental Station, Alberta. Britain also tested Chemical Agents in French-controlled proving ground in Algeria in the late 1930s. In regards to nature's role in World War II, Edmund Russell writes that "World II demonstrated that enormous power- personal, professional, institutional, economic, political, military, and geographic – flowed from the control of nature (usually under the term of "science"). For further details, see Edmund Russell, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (Cambridge: Cambridge University Press, 2001), 46.

scale field tests led British intelligence sources to conclude, at the end of war, that only “first-class industrial powers” that possessed the necessary “large open spaces for weapons testing” could develop credible threats in these unconventional fields of warfare.³⁷ U.S. intelligence advisors took the possibility of such threats seriously. After acknowledging how such weaponry still constituted “a threat which must be guarded against,” Secretary of War Henry Stimson directed the Chemical Warfare Service to take steps to “continue a reasonable research and development program... during the postwar period.”³⁸ Recognizing that their “rather elaborate system” of wartime operations would likely not be continued after the war, the Chemical Warfare Service prepared to make significant “curtailments and consolidations.” Beyond maintaining their main chemical and biological research centers, respectively located at Edgewood Arsenal and Fort Detrick in Maryland, the Chemical Warfare Service also insisted on retaining a large-scale proving ground.³⁹

³⁷ J.F.S. Stone, "The Capabilities of our Defeated and possible Future Enemies in the field of B.W. during the next Ten Years," 21 Dec 1945, War-General, Biological Warfare Specialized Files, 1941-47, Records of Preventive Medicine Division, Records of the Office of the Surgeon General, Records Group 112 (RG 112), NACP.

³⁸ Henry L. Stimson, "Research in Biological Warfare," 13 Sept. 1945, BW-Intelligence 61.249, BW Surgeon General Records, entry 295A, Box 4, RG 112, NACP. For assessment of threat in immediate postwar period, see George W. Merck, Report to the Secretary of War, 3 Jan 1946, BW-Intelligence 61.249, Biological Warfare Specialized Files, 1941-47, RG 112, NACP; Graydon C. Essman, "Future Planning in Chemical Warfare," 7 Sept. 1945, 381 Dugway Proving Ground, Station Series 1942-1945, Records of the Chemical Warfare Service, Records Group 175 (RG 175), NACP.

³⁹ For quotes and importance of future proving ground, see Board of Officers, "Suitability of Dugway Proving Ground and Deseret CWS Depot as Permanent Peacetime Installation," [1946], 4, Dugway Development 7/44-7/76 600.1, Dugway Proving Grounds, Utah, 1942-46, RG 175, NACP.

Despite the clear need for a CBW proving ground, Dugway's status after the war remained unsettled.⁴⁰ Burns' selection of the Dugway area as site for CBW testing happened during an urgent wartime crisis and based primarily on safety considerations. Beyond the obvious advantages of "isolation and practically unlimited space," postwar planners found that Dugway had "little to nothing to recommend it" as a permanent proving ground.⁴¹ Its main facilities, or "the Dog Area," were located in low sand flats, and exposed to severe dust storms and extreme temperatures. The buildings were of "temporary wartime construction" quality and did little to protect against these elements. Water was also limited and of low quality, and the lack of any public utilities meant that Dugway had to be entirely self-sufficient in providing waste management, electricity, heating, and other essential public works. The ad hoc setup not only created many inconveniences but also potentially dangerous conditions, with, for example, the Post's Hospital being located adjacent to the Toxicity Agent Laboratory. Tooele, the closest civilian town, was also over 50 miles away, and lacked basic shopping, entertainment, and recreational amenities.⁴²

⁴⁰ John P. Willey, "Regional Review Board Meeting at Presidio of San Francisco," 24 Oct 1946, Dugway Development 7/44-7/76 600.1, Dugway Proving Grounds, Utah, 1942-46, RG 175, NACP.

⁴¹ Board of Officers, "Suitability of Dugway Proving Ground," 6.

⁴² For quote, see Adrian St. John, "Special Report," [1946], Dugway Development 7/44-7/76 600.1, Dugway Proving Grounds, Utah, 1942-46, RG 175, NACP. For further detail on conditions at Dugway during and immediately after World War II, see Dugway Proving Ground, "Permanent Peacetime Construction for Complete Installation," [1945], Dugway Development 7/44-7/76 600.1, Dugway Proving Grounds, Utah, 1942-46, RG 175, NACP; Board of Officers, "Suitability of Dugway Proving Ground," 9; E.F. Bullene, "Location of New Construction for Dugway Proving Ground and Deseret Chemical Depot," 27 Dec 1946, 1-10, 470.6 Dugway Proving Ground, 349 Station Files 1946 Confidential Arsenal/Procurement Districts/Proving Grounds, RG 175, NACP.

Figure 5: Dugway's Dog Area (known today as Ditto Area), [1944].



Figure 6: The Road to Dugway, 1946.⁴³



⁴³ For images, see U.S. Army, "Dugway Proving Ground: History, 1950-1953." *US Army Dugway Proving Ground*, available at <http://www.dugway.army.mil/1950-1963.aspx>; Historical Branch, DPG, "History of Dugway Proving Ground, 1 January through 30 June, 1946," Box 30, 470 Dugway Proving Ground, 1950, RG 175, NACP.

Understandably, personnel stationed at Dugway during the war commonly referred to it as “hell on earth,” “oblivion,” “limbo,” and other colorful pejoratives. Even local civilian employees purportedly considered the Dugway area as “the jumping off place.” The prevalence of such viewpoints led postwar planners to conclude that working at Dugway “could easily be likened to serving a sentence in Siberia.”⁴⁴ Planners found so many disadvantages that they recommended the “complete abandonment of Dugway and the construction of permanent peacetime proving ground at another location.” A proposed site near Idaho Falls “appeared on paper to be the most promising” alternate location. Unlike the Dugway area, Idaho Falls had several attractive amenities, including “two first class hotels... a complete assortment of stores, churches, moving picture houses and.... a golf and country club.” In addition, the proximity of Yellowstone National Park and Sun Valley was also believed to “be an improvement on the present location [of Dugway] from the viewpoint of morale.” Water from the nearby Snake River could also be used to grow “grass, trees and other requisites of normal civilization.”⁴⁵

Before such plans had a chance to materialize, the newly named Chemical Corps’ (formerly known as Chemical Warfare Service) programs were temporarily

⁴⁴ Ronald Ives, “Dugway Tales,” *Western Folklore* 6(1) (January 1947): 53, 58; Bullene, “Location of New Construction for Dugway,” 2.

⁴⁵ Board of Officers, “Suitability of Dugway Proving Ground,” 4, 9; Bullene, “Location of New Construction for Dugway,” 6-8. Historian Ric Rias notes that most military installations were successful because they formed symbiotic relationship with nearby cities, see Ric Dias, “The Great Cantonment: Cold War Cities in the American West” in *The Cold War American West, 1949-1989*, ed. Kevin J Fernlund (University of New Mexico, 1998) 77; Gregory Fontenot, “Junction City – For Riley: A Case of Symbiosis” in *The Martial Metropolis: US cities in War and Peace 1900-1970*, ed. Roger Lotchin (New York: Pregor, 1984), 39.

scaled down in early 1947, and Dugway, along with possible plans for new a proving ground, were put on standby status.⁴⁶ When a reenergized and generously-funded Chemical Corps remerged in 1950 amid the outbreak of hostilities in Korea and fears that the U.S. lagged far behind the Soviet Union in chemical and biological warfare capabilities, the development of a permanent, large-scale proving ground became one of the corps' top priorities.⁴⁷ When plans for the Idaho Falls site failed to materialize, the Chemicals Corps decided to try to make the best out of a less than ideal situation at Dugway for what was expected to be a greatly expanded testing program.⁴⁸

Converting Dugway from an ad hoc wartime operation into a “permanent peacetime installation” involved numerous challenges. Since being put on standby status, the many unfavorable conditions at Dugway had only gotten worse, with most of buildings, roads, and related infrastructure having

⁴⁶ Dugway Proving Ground, “Manual No 1: Organization and Functions, Part 1,” [n.d.], 310.1 Dugway Proving Grounds, 366 Station Files 1951 Secret Procurement/Districts/Proving Grounds, RG175, NACP; Dugway Proving Ground, “Historical Resume of Dugway Proving Ground,” 11 April 1952, 248 DPG 1952, 366 Station Files 1951 Secret Procurement/Districts/Proving Grounds, RG 175, NACP; Officer of the Chief Chemical Officer, “Summary of History of Chemical Corps Activities, 9 September 1951 to 31 December 1952,” (February 1953), 1, 22, *Lee Davidson’s (Salt Lake Tribune) Private Collection*; Edmund Russell discusses change of the Chemical Corps name in detail and also notes how “Chemical Corps always had a harder time in peace than in war.” See, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (Cambridge: Cambridge University Press, 2001), 177, 183.

⁴⁷ For overviews of U.S. early Cold War CBW policies, see Jonathan B. Tucker, *War of Nerves: Chemical Warfare from World War I to Al-Qaeda* (New York: Anchor, 2007), 126-129, 156-157; John Ellis van Courtland Moon, “The U.S. Biological Weapons Program,” in *Deadly Cultures: Biological Weapons since 1945*, eds. Mark Wheelis, Lajos Rózsa, and Malcolm Dando (Cambridge: Harvard University Press, 2006), 12-16, 30.

⁴⁸ Committee on Biological Warfare, “Information Concerning Proposed CEBAR Proving Ground Establishment,” 1949, 1-3, *Defence Technical Information Center*, available at [www.dtic.mil/dtic/ \(DTIC\)](http://www.dtic.mil/dtic/ (DTIC)); John A McLaughlin, “Permanent Proving Ground at Dugway,” 31 May 1949, DTIC.

deteriorated beyond functionality. It would be “no small task,” as one of the new scientists at Dugway put it, “to clean up the desert and make it suitable for our new mission and future usages.”⁴⁹ Recruiting qualified personnel was one of the biggest challenges. During World War II, Dugway’s unfavorable conditions were tolerated mainly “due to the impetus of war” and how working at Dugway was “no worse than many other situations in the field.”⁵⁰ Without the impetus of war, it was doubtful anyone would willingly live and work at Dugway. High grade weapons scientists, it was reasoned, would not “accept temporary war time conditions on a permanent career basis” and enlistees would probably transfer out of the Chemical Corps “rather than undergo an extended tour of duty with their families at Dugway.”⁵¹ People, in short, were not fond of being “forced to exist in isolated desert areas, such as Dugway,” nor did they “produce their best work when they are dissatisfied.”⁵² Without a full-scale mobilization, staffing Dugway’s new testing program proved to be “a tremendous task.”⁵³

As the temporary wartime emergency that accompanied the outbreak of hostilities in World War II became a permanent, underlying condition, the so-called “art of war” became a life-long career option for many Americans. In this

⁴⁹ St. John, “Special Report”; Cecil G. Ash, “Biography and family record of Cecil Grant Ash, 1990,” 161, MS 13133, Church History Library, Salt Lake City, Utah (Church History Library).

⁵⁰ Bullene, “Location of New Construction for Dugway,” 6; Board of Officers, “Suitability of Dugway Proving Ground,” 7-8.

⁵¹ Board of Officers, “Suitability of Dugway Proving Ground,” 8. During the first half of 1946 there was a reported turnover of ninety percent of personnel at Dugway. For further details, see Historical Branch, “History of Dugway Proving Ground (January 1946 thru 30 June 1946)” 15 August 1946, 6-7, Dugway Proving Ground, Utah 1950, entry 11015, RG 175, NACP.

⁵² St. John, “Special Report”; Bullene, “Location of New Construction for Dugway,” 6.

⁵³ Dugway, “Manual No 1: Organization and Functions.”

permanent state of war, the successful development of chemical and biological warfare capabilities not only required large, isolated expanses of land, but also “grass, trees and other requisites of normal civilization.” For Dugway to succeed, its commanders had to find a way to safely isolate extremely hazardous weapons testing activity while not overly isolating the administrative and technical personnel charged with conducting these tests. Unable to relocate their proving ground to a more suitable area, Dugway officials determined that “the worst features of the present set-up [could] be somewhat obviated” by building new permanent facilities at a more hospitable location. Planners found such a location at the southern end of the Cedar Mountains in Skull Valley, approximately ten miles southeast of the original central facilities. Known at the time as “Easy Area,” Dugway’s new headquarters and living arrangements would look quite a bit different from its ad hoc World War II counterparts.⁵⁴

With an estimated budget of \$21 million, plans to build “a completely new Dugway” were put into motion.⁵⁵ In order to become a permanent post, Dugway would need to be “complete unto itself in all respects, including housing, recreation, educational, religious, and other facilities.”⁵⁶ In his book on Cold War architecture, Tom Vanderbilt notes how the Cold War “evokes images of poured-concrete bunkers, steely grey doors, red phones on desks..., radiation symbols,

⁵⁴ Bullene, “Location of New Construction for Dugway,” 8.

⁵⁵ For quote, see Army Corps of Engineers, “Regional Planning Board Meeting at San Francisco, California,” 13 June 1946, 10, Dugway Development 7/44-7/76, 600.1, Dugway Proving Grounds, Utah, 1942-46, RG 175, NACP. For funding at Dugway, see Chief Chemical Officer, “Summary of History of Chemical Corps Activities,” 1-3, 12-13; Dugway, “Manual No 1: Organization and Functions.”

⁵⁶ Dugway, “Permanent Peacetime Construction.”

and ghostly green clock hand-sweep of radar.”⁵⁷ While these images hold true in many cases, at the heart of certain major military operations at this time were not the signs and symbols of impersonal military power, but replications of the heart of 1950s America. Even before construction was finished Dugway’s official orientation materials boasted how the facilities “already completed give to Dugway the essential features of a typical American community,” with “buildings, institutions and services to satisfy the material and spiritual needs of the men, women, and children who compromise the community.” These buildings included “modern” houses with ranges, refrigerators, TV antennas, yards, and private garages.⁵⁸ Since the post was so isolated, the construction of recreation facilities was deemed of “utmost importance.” Planners devoted special funds for the constructions of a gymnasium, bowling alley, post theatre, swimming pool, and, eventually, a nine-hole golf course.⁵⁹ Together, these features produced what orientation materials described as “the atmosphere of any suburban American community.”⁶⁰

⁵⁷ Vanderbilt, *Survival City*, 17; Valerie L. Kuletz, *The Tainted Desert: Environmental and Social Ruin in the American West* (New York: Rutledge, 1998), 40.

⁵⁸ Editorial Branch, “Living at Dugway,” *Dugway Proving Ground, Tooele Utah*, (1953), BYU Special Collections Library.

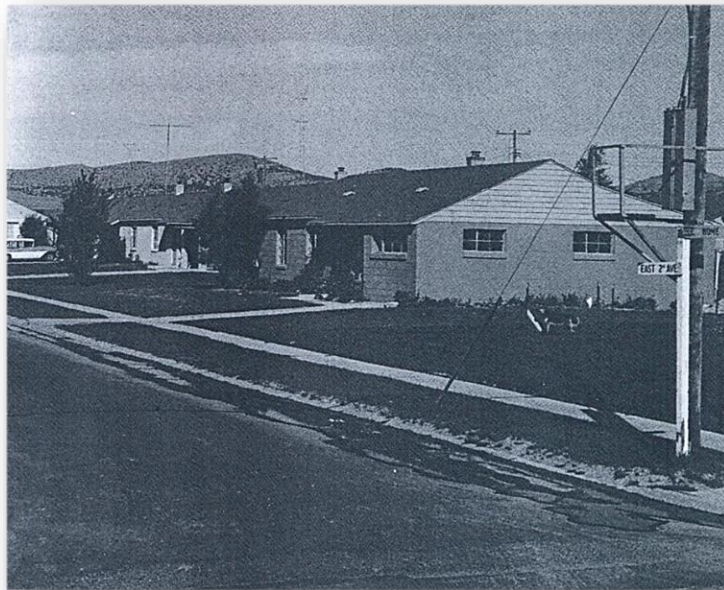
⁵⁹ Kenneth A. Cunin, “Welfare Funds for Construction at Dugway Proving Ground,” 26 June 1950, Dugway Proving Ground, Utah 1950, entry 11015, RG 175, NACP.

⁶⁰ U.S. Army, “Orientation Folder.”

Figure 7: Dugway Golf Club.



Figure 8: Dugway as American Suburban Community.⁶¹



⁶¹ For images, see Dugway Proving Ground, *Welcome to Dugway: Directory and Guide of Dugway Proving Ground*, [1963?], PAM 7916, Utah Historical Research Center.

At Dugway, the domestication of war in the years after World War II was not a product of a unchecked, creeping militarism; rather, it resulted from meticulous and very deliberate engineering and design. Interestingly, the Chemical Corps already had ample experience in building simulated replicas of towns at Dugway. To test the effectiveness of incendiary munitions during World War II, the Corps famously constructed exact replicas of typical Japanese and German towns on testing grids at Dugway. Author Mike Davis described these towns as a splendid example of the characteristic American approach to war as a vast engineering project.⁶² In the early 1950s, the Chemicals Corps would rely on this same engineering experience to approach a different strategic problem for a different style war.

Out of all the new features at the reactivated Dugway, none was as important as the presence of lawns, trees, and similar reminders of greener, more familiar landscapes. The Chemical Corps was originally drawn to the Idaho Falls area partly due to the region's superior lawn and tree growing capabilities. With such considerations in mind, planners established Dugway's new headquarters and living space in a lush, more hospitable area in the expectation that it contained "good soil which will support lawn grass, flowers, and shrubs."⁶³ In retrospect, it is easy to treat such considerations as trivial or excessive but, at the time, they appeared to yield the desired results. Having just recently finished his

⁶² Mike Davis, *Dead Cities: And Other Tales* (New York: The New Press, 2002) 68. For simulated American towns at overseas U.S. military bases, see Mark L. Gillem, *America Town: Building the Outposts of Empire* (Minneapolis: University of Minnesota Press, 2007)

⁶³ Bullene, "Location of New Construction for Dugway," 8.

PhD in Agricultural Bacteriology at University of Wisconsin on the GI Bill, Utah native Cecil G. Ash considered a job offer at Dugway in the early 1950s. Ash was attracted to Dugway not only for its research potential, but also by the prospect of contributing to “the defense of the Nation as it faced a new communist threat.” Even with these advantages, Ash recalled wondering to himself after his first visit to Dugway how he and his wife could ever learn to live “in this hellish dust bowl.” Ash, who would soon become Chief of Dugway’s Bacteriological Development Branch, was one of the first employees to move into the new housing units at “Easy Area” in April of 1952. Content finally to be able to settle down with his young family in a spacious and well-equipped home, he fondly remembered how he made himself comfortable at his new home during his first year at Dugway:

By fall I had planted grass all around the building and planted the first few trees and shrubs in the area. I transplanted numerous shrubs and flowers from Dad and Mother's yard. I dug several tree starts from the roadsides in the lower Lehi: white ash, Russian elm, tamarack, silver poplar, willow, etc. Not everything grew! Probably about half of the plants survived the harsh new environment. They added greatly to our comfort and enjoyment. Best of all the plants helped settle the sand and dirt and make it stay in one place.⁶⁴

ENVIRONMENTAL CONFLICT AND DISPOSSESSION

Grass, as it turns out, was a highly prized commodity in the Dugway region. Dugway’s 1950 expansion eastward into the Cedar Mountains and the

⁶⁴ Ash, “Biography and Family Record of Cecil Grant Ash, 1990,” 161, 166. For a similar account, see John C. Spendlove, “The Time of My Life: A Personal History,” (1994), Church History Library.

southern end of Skull Valley required the Chemical Corps to add an additional 279,210 acres to its landholdings. In May 1950, the Corps gave notice to nearly fifty different local livestock operations that the “urgent interests of National Defense require exclusive use by the Chemical Corps, U.S. Army, of certain lands... being used principally for grazing purposes by you and other livestock owners.”⁶⁵

At Dugway, a “permanent peacetime” military operation had a different set of environmental demands than its wartime counterpart. Near the end of World War II, state economic planners optimistically observed how, “in contrast to what has happened in some other states, the new war industries have been essentially a net addition to the old basic industries in Utah rather than a displacement or modification of them.”⁶⁶ Yet, as war shifted from a marked event to a permanent condition, the defense industry’s land use needs became more exacting. Not only did the Chemical Corps covet more desirable lands for long-term use, but their accommodation of other land uses diminished, heightening land use conflicts in the region.

⁶⁵ Public Land Order 678, 15 FR 7299, 24 Oct 1950. Not all of these acres were devoted to grazing. According to initial estimates 128,760 acres of grazing land were subject to annexation, see J. Earl Palmer to ALL NORTH DUGWAY AND SKULL VALLEY GRAZERS, 24 April 1950, Folder, 5, Box 4, Deseret Live Stock Company Records, 1891-1976, MS 105, Western Americana, J. Willard Marriot Library, Special Collections Division, University of Utah, Salt Lake City (Deseret Live Stock Company Records). For quote, see Col. F.S. Tandy to Deseret Livestock Company, 31 May 1950, Folder 5, Box 6, Deseret Live Stock Company Records.

⁶⁶ J.T. Mahoney, *After Victory: Plans for Utah and the Wasatch Front, Report of the Cooperative Planning Program* (Salt Lake City: The Utah State Dept. of Publicity and Industrial Development, 1943), 107.

Underlying this shift in power was the DoD's continuing ability to obtain and control land, which had only become more formalized in the years after the war. During the war, military land withdrawal powers were carefully justified as necessary responses to a temporary wartime emergency. Instead of reverting back to constitutional norms in the years after the war, these emergency withdrawal powers became routine administrative practices. Defense agencies simply submitted applications to the interior department officials, who invariably filed the necessary withdrawal order without raising any questions. This unrestricted assertion of executive withdrawal power allowed U.S. defense agencies not only to retain their supposed temporary World War II land holdings but also acquire the additional tracts of property that they deemed essential to their mission of defending the nation.⁶⁷

Even with their legal rights to public land ensured, military planners at Dugway still anticipated "an unfavorable reaction." One internal, classified planning report titled "Impact of Acquisition Proceedings on Public Opinion" noted how, "in general, withdrawal of Government lands from public usage meets with opposition from the private interest involved," which is "normally reflected among county and state officials." To reduce the "impact of protest to the proposed action," the report continued, these "state officials may be invited to consider that expansion of Dugway facilities will mean larger sources of income

⁶⁷ 103 Cong. Rec. 5512 (1957); S. Rep. No. 857, at 12, 20, 36-37, 62, (1957); Hearings on H.R. 627, H.R. 575, H.R. 608, H.R. 931, H.R. 1148 H.R. 3403 H.R. 3661 H.R. 3788 H.R. 3799 H.R. 3869, Before the Committee on Interior and Insular Affairs, 85th Congress, 58, 94, 234-237 (1957) (hereafter cited as "Hearings on H.R. 627 (1957)").

to the state of Utah... and to commercial interests of all kinds.”⁶⁸ Such strategies appear to have quickly won over some of Utah’s leading authorities. After being briefed on Dugway’s reactivation plans, Utah’s Governor J. Bracken Lee noted that it was regrettable “some individuals will suffer because of the grazing land withdrawals... but it appears to me that the advantages of the army plan will far outweigh the losses.” U.S. Senator Elbert D. Thomas agreed, noting to Bracken that the “BENEFITS TO BE DERIVED FROM \$21 MILLION PROJECT AND \$4 MILLION ANNUAL PAYROLL FAR OUTWEIGH DETRIMENT TO LIVESTOCK OPERATORS.”⁶⁹ At the county level, local representative John Newburry contended that he, and the majority of residents in Tooele County, felt that “with a possible permanent boost in our future economic security, Dugway will be a bigger asset to our county and state as a military base.” The president of a local union felt even more strongly about the project, urging Senator Thomas to do “ALL THAT IS POSSIBLE TO MAKE DUGWAY IN TOOEELE COUNTY A REALITY. THERE ARE A FEW SELFISH INDIVIDUALS WHO ARE TRYING TO BLOCK THIS PROJECT REGARDLESS OF THE MASSES OF PEOPLE IT WILL BENEFIT.”⁷⁰

In addition to a supposed financial boom, defense officials also maintained that “the importance of the project to our national defense preparations far

⁶⁸ Hale, “Expansion of Dugway Proving Ground.”

⁶⁹ J. Bracken Lee to Senator Elbert D. Thomas, 26 April 1950, *Elbert D. Thomas papers*; Elbert D. Thomas to Hon. J. Bracken Lee, 27 April 1950, *Elbert D. Thomas papers*.

⁷⁰ Rep. John W. Rowberry to Senator Elbert D. Thomas, 19 April 1950, *Elbert D. Thomas papers*; Union Local 55 HY Jordon President to Elbert D. Thomas, 26 April 1950, *Elbert D. Thomas papers*.

outweighs the disadvantages to the livestock people.”⁷¹ To most state officials, such security considerations were beyond reproach. Governor Lee, for instance, believed “the issue of national defense should receive precedence over any other use at this time,” while Senator Thomas asserted “NO ONE CAN CONSCIENTIOUSLY OPPOSE PROJECT IF THEY FULLY UNDERSTAND ITS IMPORTANCE TO OUR NATIONAL DEFENSE PROGRAM.” In emphasizing the permanence of the Cold War security crisis, Thomas’ colleague Senator Arthur V. Watkins contended that “since it seems that this government for some time in the future must act to protect the nation and the free world, I am glad that the Dugway expansion is to be expedited.”⁷²

Like many U.S. citizens at the time, Utahns approached such controversial issues “knowingly and with their eyes open.”⁷³ One editorial in the *Salt Lake Telegram* written during the height of the expansion controversy made it clear that “Utah welcomes the army’s proposed reactivation of the Dugway Proving Ground.” Even though it was not “pleasant to contemplate American preparations in our own backyard to carry on a dirty kind of warfare with poisonous gases and deadly germs,” the editorial continued, it was “a job that has to be done. And we’re glad that a part of our state which has mighty little

⁷¹ Paul L Badger to Marcellus Palmer, 21 March 1950, *Elbert D. Thomas papers*.

⁷² J. Bracken Lee to Senator Elbert D. Thomas, 26 April 1950; “Graziers Ready Protests on Dugway Usage,” *Salt Lake Telegram*, 28 April 1950; Elbert D. Thomas to Hon. J. Bracken Lee, 27 April 1950; “Dugway Work Slated in '51,” *Salt Lake Telegram*, 2 Nov 1950.

⁷³ Lochtin, *The Martial Metropolis*, 230.

otherwise to offer the nation can serve so ideally as a station for experimentation.”⁷⁴

A number of widely shared assumptions guided this seemingly unconditional embrace of the Dugway development. By the 1950s, most Americans recognized defense jobs as being part of a modern, high-growth and high-wage industry. According to state economic planners, for example, the “net effect” of the World War II had been to provide the state of Utah with “modern productive facilities of factories, building, machinery, tools and training in proportions far greater than that necessary to employ all of the Utah population that can be induced by high wages and appeals to patriotism to work.” In contrast, wool growing and other long-standing rural industries were widely perceived as outmoded with questionable future potential. According to such assumptions, the Dugway region’s supposed economic underdevelopment derived primarily from how the region was “desolate and utterly good for nothing.” These assumptions also lent credence to claims about how grazing interests represented just “a few selfish individuals.”⁷⁵ Even popular literary works critical of military dispossession, such Edward Abbey’s 1962 novel *Fire on the Mountain*, relied on these basic assumptions, pitting military technocrats

⁷⁴ “A Good Use for a Utah Wasteland” *Salt Lake Telegram*, 3 March 1950.

⁷⁵ Mahoney, *After Victory*, 106; Adele Howell to Elbert D Thomas, 15 April 1950, Elbert D Thomas Papers; Union Local 55 HY Jordon President to Elbert D. Thomas, 26 April 1950.

against marginal, individualistic, freedom-loving cowboys.⁷⁶ Despite the appeal of such depictions, the reality was both more complicated and more interesting.

Historians and other commentators have frequently championed Utah as “the military nerve center of the west” or as a state that “epitomizes the extraordinary influence of federal expenditures on the economics of most western states.”⁷⁷ Yet, as late as the mid-1950s, economic planners also described the state as “the geographic center of the nation’s sheep industry.”⁷⁸ While the overall economic importance of sheep would soon contract, in the years after World War II sheep numbers in the U.S. reached all-time highs. In contrast to national trends, total sheep numbers in Utah declined to under two million head during the 1940s, but, due to favorable wartime markets, annual profits nearly doubled, increasing from \$12 million in 1940 to over \$20 million in 1945, a total annual earning that would remain steady over the next decade.⁷⁹

By 1950, there were close to 4,000 sheep raising organizations operating in Utah, some run by individual owners but many representing larger collectives.

⁷⁶ Edward Abbey, *Fire on the Mountain* (Harper Perennial, 1992); Alex Hunt, “The New Atomic Wilderness: Ed Abbey’s Post-apocalyptic Southwest,” *Southwestern American Literature* 34(1) (Fall 2008): 41-55.

⁷⁷ Leonard Arrington, “The U.S. Army Overlooks Salt Lake Valley: Fort Douglas 1862-1965.” *Utah Historical Quarterly* 63 (Fall 1995): 344; Gerald Nash, *World War II and the West: Reshaping the Economy* (Lincoln: University of Nebraska Press, 1990), 6.

⁷⁸ Elroy Nelson, *Utah’s Economic Patterns* (Salt Lake City: University of Utah Press, 1956), 55.

⁷⁹ For sheep numbers and profits, see footnote 14; Cottam, “Is Utah Sahara Bound?,” 20; Elroy Nelson, *Utah’s Economic Patterns*, 55-56; Keithly G. Jones, “Trends in the U.S. Sheep Industry,” *Agricultural Information Bulletin No. 787* (January 2004): iii; E. Bruce Godfrey, “Livestock Grazing in Utah: History and Status,” *Utah’s Public Lands Policy Coordinating Office* (Nov 2008), available at publiclands.utah.gov/wp-content/uploads/2013/08/LivestockGrazinginUtahHistoryStatus.pdf.

Notably, the sheep operation that stood to lose the most from Dugway's expansion was not run by a marginal, individualistic rancher but by one of the nation's largest livestock corporations. Formed in 1891 by a group of Mormon sheepmen, many people considered the Deseret Live Stock Company to be "the undisputed giant of Utah's sheep industry."⁸⁰ Over the years, Deseret had acquired an "empire of range" consisting of nearly 220,000 acres of privately-owned summer grazing land in northeastern Utah, 20,000 acres of private farming land in Skull Valley, and an additional 268,000 acres of leased federal winter grazing land in western Utah, including resource-rich lands in the Cedar Mountains. This integrated super ranch, which at the time surpassed the military's total land holdings at Dugway, allowed the company to consistently maintain between 40,000 and 50,000 sheep as well as a few thousand cattle.⁸¹ In the year before annexation, Deseret had a net worth of over \$2 million dollars

⁸⁰ For quote, see James Moyle, "The Deseret Live Stock Company," (1946), Folder 18, Box 1, Ernest L. Poulson Papers, ACCN 594, Western Americana, J. Willard Marriot Library, University of Utah, Salt Lake City. Other larger, corporate-based livestock operations affected by the Dugway appropriation included Clegg Livestock Company, Island Improvement Company, Hatch Brothers, A.B. Adams Livestock, C.W. Wright, William S. Young. For further details, see Ken Garff to Senator Arthur V. Watkins, 6 July 1953, Folder 7, Box 4, Deseret Live Stock Company Records.

⁸¹ For quote see, Sidney W. Nicholes Jr. interview by John Bluth, 14 & 16 May 1974. For Deseret's total land holdings, Everett L. Cooley and Margery W. Ward, Folder 11, Box 3, "Register of the Records of the Deseret Live Stock Company Records, 1891-1976,"; Deseret Live Stock Company Records; Deseret Livestock Company v. The U.S. Government," 2; Walter Dansie to Mr. C.F. Moore, 19 August 1952, Folder 6, Box 4, Deseret Live Stock Company Records; Jean Ann McMurrin, *The Deseret Live Stock Company: A Brief History, 1891-1991* (Woodruff: Deseret Land and Livestock Company, 1991), 7-10; James Moss, "The Deseret Live Stock Company, 1891-1933" (MA Thesis, Brigham Young University, 1965), 17-25. For average number of sheep trailed by the DLC in the 1940s, see "A Comparative Summary of the Financial Operations of the Deseret Live Stock Company from December 31, 1950 to December 31, 1951," Folder 18, Box 1, Ernest L. Poulson Papers, ACCN 594, Western Americana, J. Willard Marriot Library, University of Utah, Salt Lake City; "Statement of Dean W. Frischknecht," 20 June 1952, Folder 6, Box 4, Deseret Live Stock Company Records; Walter Dansie to Mr. C.F. Moore, 19 August 1952, Folder 6, Box 4, Deseret Live Stock Company Record.

and a net income of \$636,864.⁸² These earnings benefited many people and interests across the region. To manage such large livestock operations, the company employed close to one hundred individuals.⁸³ Since the company owned so much land, it, unlike federal defense installations, had to pay substantial federal, state, and county taxes.⁸⁴ The company also had a reputation for paying out generous dividends to its nearly 250 community-based stockholders and also tithed another ten percent of its annual earnings to the LDS Church.⁸⁵

When grazing interests as powerful as Deseret claimed that the Dugway expansion would “restrict the grazing operations which are so vital to the economy of the nation and particularly the State of Utah where the livestock business is the foundation,” they were not necessarily overstating their case. Sheep grazing had been one of the dominant economic forces in the region since at least the turn of the century, and it was deeply embedded in all facets of the regional economy. Far from being economically marginalized, homegrown companies such as Deseret enjoyed record-breaking profits at the time of Dugway’s annexation. Not surprisingly, local grazing associations were unanimously “opposed to any further expansion of the Dugway Proving

⁸² “A Comparative Summary of the Financial Operations of the Deseret Live Stock Company from December 31, 1950 to December 31, 1951,” Folder 18, Box 1, Ernest L. Poulson Papers, ACCN 594, Western Americana, J. Willard Marriot Library, University of Utah, Salt Lake City.

⁸³ Moss, “The Deseret Live Stock Company,” 49-50.

⁸⁴ Walter Dansie to Harlan B. Watkins, 1 July 1952.

⁸⁵ While there was variation in the amount given and in certain troublesome years like 1893 no dividends were given, James R. Moss notes how during stable years the average was around 25%. For further details, see Moss, “The Deseret Live Stock Company,” 83-84, 88, 97; Walter Dansie to Harlan B. Watkins, 1 July 1952, Folder 6, Box 5, Deseret Live Stock Company Records; McMurrin, *The Deseret Live Stock Company*, 4.

Grounds.” To most grazers it did not “appear logical for the Army to extend [Dugway] to the South and the East, thereby jeopardizing the livestock industry,” especially since Wendover Air Base, a million-plus acre World War II reserve lying directly west of Dugway, had recently been declared surplus. Surely this surplus military reserve, as Utah grazers contended, could serve the interests of the Chemical Corps better than the highly productive rangelands to the east.⁸⁶

Confidentially, defense land appraisers acknowledged that the appropriated land was a “valuable grazing area, vital to the local economy.”⁸⁷ Publicly, however, these same officials claimed they could not openly discuss the rationale behind their decision to move into these more productive lands because of the supposed “classified nature” of their plans. Instead, they simply contended that the annexed lands were not only “essential to the success of highly important experimental work” but also “much more desirable for security reasons than the Wendover area.”⁸⁸ Grazers countered such claims with their own security arguments by reminding Senator Thomas about the “strategic importance” of wool and how during the present “war emergency, we must import 60% of our requirements.”⁸⁹ Interestingly, during the same time grazers were protesting the expansion of Dugway, defense authorities in Washington D.C. were strongly

⁸⁶ Howard Clegg to Senator Elbert D Thomas, 8 April 1950, *Elbert D. Thomas papers*; Ken Garff to Senator Arthur V. Watkins, 6 July 1953; Marcellus Palmer, “Appraisal Report for Deseret Livestock Company, Inc.,” Folder 8, Box 4, Deseret Live Stock Company Records; Marcellus Palmer to Elbert D. Thomas, 18 March 1950, *Elbert D. Thomas papers*.

⁸⁷ Corps of Engineers, “Real Estate Planning Report (Military), Dugway Proving Ground,” 6.

⁸⁸ “Germ Warfare Plan due Utah Hearing,” *Salt Lake Telegram*, 27 April 1950; Paul L Badger to Marcellus Palmer, 21 March 1950; Senator Elbert D. Thomas to Adele Cannon Howells, 5 April 1950, *Elbert D. Thomas papers*.

⁸⁹ Don Clyde to Elbert D. Thomas, 21 August 1950, *Elbert D. Thomas papers*,

urging “Congress to extend itself in encouraging wool production as a matter of national security.” Far from being a mode of life extraneous to the demands of national security, the sheep industry produced a fiber that, according defense experts, had “a place in the military picture for which no other fiber is as well suited.”⁹⁰

By all appearances, grazing interests in Utah had far more resources and influence than most of Dugway’s supporters and other commentators would care to acknowledge. Even the National Wool Growers Association, the U.S. sheep industry’s most powerful coalition, had its headquarters in the state. Certainly grazers’ concerns merited at least some consideration and debate. Perhaps Skull Valley and the Cedar Mountains could have indeed served the interests of grazers “to a much greater extent than the benefit of this area would be to the National Defense.”⁹¹ Yet, the assumptions guiding mid-century military developments carried a powerful inertia. Not only did defense interests have economic and security considerations on their side, but, due to how the DoD’s military land withdrawal practices took place beyond the pale of constitutional norms, virtually no legal mechanisms existed through which claims about the additional lands being “the only area in the United States presently available which meets all their requirements” could be challenged.⁹² And while Defense officials may have

⁹⁰ Beck, *Dirty Wars*, 134; Karl V. King to Elbert D. Thomas, 23 August 1950, Folder 4 “Wool Industry (W-1),” Box 203, Elbert D. Thomas papers, 1933-1950, Utah Historical Research Center.

⁹¹ Don Clyde to Elbert D. Thomas, 21 August 1950, Elbert D. Thomas papers.

⁹² Both the defense and the interior departments had no procedures in place for assessing defense agencies’ actual need for new lands or for determining how current holdings were being utilized, and, as a result, they would invariably accept defense planning decisions without question. For further details, see 103 Cong. Rec. 5512 (1957); Committee on

actively shaped the public's assumptions toward the Dugway development, much of Utah's population was already predisposed toward the military's financial incentives and security rhetoric. Even if the economic choices and security decisions had been presented more openly, most Utahns would have still undoubtedly agreed with Senator Thomas' assessment about there being "no question about the project going through."⁹³

Grazers were the only local constituency that did not readily accept Dugway's expansion as a simple and clear-cut decision. However, their spirited attempts to disrupt the military's economic and security arguments with their own economic and security claims had minimal impact on appropriation proceedings. Even the manager of the Deseret Livestock Company later acknowledged that Dugway's expansion was "of course... something that has to be submitted to." To Deseret and other livestock operations, the real question was not how to resist military dispossession but how, as Deseret's manager Walter Dansie further noted, to obtain "compensation for damage done to our outfit as a result of this withdrawal."⁹⁴

"Run up against a stone wall"

During the height of World War II, Congress passed emergency legislation geared toward preventing "a very serious injustice... to those who are forced out

Interior and Insular Affairs, Military Public Land Withdrawals, S. Rep. No. 857, at 12, 20, 36-37, 62, (1957); "Hearings on H.R. 627, 58, 94, 234-237 (1957).

⁹³ Paul Badger to Hon Grant Macfarlane, 17 April 1950, Elbert D. Thomas papers.

⁹⁴ Walter Dansie to Mr. C.F. Moore of Colorado, 19 August 19. 1952, Box 4, Folder 5, Deseret Live Stock Company Records.

of business and damaged as a result of the taking of the land for war purposes.” Passed without debate in April of 1942, the amendment mandated grazers be compensated by whatever amount of money the “head of the department or agency so using the lands shall determine to be fair and reasonable for the losses suffered.” The congressional representatives who drafted the bill recognized that compensation would likely be “far less than what is given up” but they hoped it would still “enable users of the public range to continue livestock operations in instances where they might otherwise be driven out of business.” Despite the possible good intentions, this ad hoc legislation created a perfect storm of sorts for future legal disputes and grievances.⁹⁵

In the case of the Dugway annexation, “most of the operators” in the Dugway area found the Army’s compensation offers to be “entirely inadequate.” However, with little recourse to challenge the Army’s offers, most of these wool growers ended up accepting offers of compensation. In contrast, the Deseret Live Stock Company, whose losses represented thirty-five percent of all land lost to annexation and up to twenty percent of the company’s total winter range, refused the Army’s offer of \$35,000 in protest, arguing that this offer was “both inadequate and discriminatory.” Specifically, the company believed the Army’s offer fell well below both market rates as well as the average rate of compensation

⁹⁵ Taylor Grazing Act, 43 U.S.C. 315 et seq. Section 315q; Committee on the Judiciary, *Compensation for Cancellation of Grazing Permits*, S. Rep No. 1045, 15 (quotations), 15-17 (1966). For prominent legal cases related to compensation due to lost grazing leases, see *Osborne v. United States*, 145 F.2d 892 (9 Cir., 1944); *United States v. Cox et al (United States v. Beasley et al.)*, 190 F.2d 293 (10th Cir., 1951); and *United States, v. Jaramillo et al.*, 190 F.2d 300 1 (10th Cir., 1951).

neighboring livestock operations received from the Army.⁹⁶ Deseret further contended that the Army's assessment of damage did not fully take into account how the lost winter range functioned as a crucial link to a larger ranch consisting of a complex yet balanced "collection of operating units varying in seasonal uses" that could not "be sold and replaced on the spur of the moment without... [reducing] the use and value of the remaining parts." Hence, according to Deseret, a fair and reasonable offer that compensated "the real damage" to the company would exceed the Army's original offer by "several times."⁹⁷

Deseret's damages appear to have been very real. The company went from making record profits in the years before annexation to severe losses in the immediate years following the takeover. These losses stemmed primarily from the costs of acquiring replacement rangeland in Nevada, which added up to a combined cost of at least \$185,000, or over five times the Army's compensation offer.⁹⁸ In fall of 1952, Deseret's manager Walter Dansie noted to a federal range administrator how "this last 20% decrease to the Dugway Proving Ground is just about the last straw. Unless we get some relief it appears that we will be forced

⁹⁶ The Army offered an average payment of \$10.08 for each grazing unit. Deseret, on the other hand, was offered \$6.51 per grazing unit. A settlement offer at the average price of \$10.08 by contrast would have been \$54,160. Even this was well below market value, which the Deseret estimated at \$22.91 per grazing unit. For further details, see "Deseret Livestock Company v. The U.S. Government," Box 4, Folder 8, Deseret Live Stock Company Records, 7-8.

⁹⁷ "Deseret Livestock Company v. The U.S. Government," 1, 3; Palmer, "Appraisal Report for Deseret Livestock Company, Inc.,"; David A. Peterson to Harlan Watkins, 7 December 1953, Folder 7, Box 4, Deseret Live Stock Company Records.

⁹⁸ "A Comparative Summary of the Financial Operations of the Deseret Live Stock Company from December 31, 1952 to December 31, 1953." This figure is totaled from the expenses of shipping sheep to California and buying replacement range in Nevada. It does not include loss of investment in resources on the private range holdings, the additional operating costs to transport and herd sheep on inferior lands Nevada, the cuts in sheep numbers they were forced to make, or the legal fees spent in challenging the Army's appraisal offer.

out of business.”⁹⁹ Through the first half of 1953 Deseret’s operations continued to suffer losses, which put the company in a desperate situation that likely forced a radical transformation.¹⁰⁰ In July 1953, a syndicate of wealthy business associates headed by Ken Garff, one of Utah’s most successful and well-known business entrepreneurs, gained control of Deseret by gradually purchasing the majority of the destabilized company’s stock.¹⁰¹ With Garff and his associates appearing to have as much interest in using Deseret’s vast landholdings as private hunting reserves than as rangelands, the takeover essentially severed the company from its roots. The closely-knit group of owners who had managed the company for three generations were all replaced by Garff and his associates.¹⁰² For the Intermountain West’s most prominent, successful, and longstanding livestock operation, the Army’s 1950 military appropriation at Dugway proved to be a “crippling blow.”¹⁰³

⁹⁹ Walter Dansie to J. Kent Giles, 22 September 1952, Folder 5, Box 4, Deseret Live Stock Company Records.

¹⁰⁰ In 1953 the company also was forced to reduce their sheep from 41,108 to 35,294. For further details, see “A Comparative Summary of the Financial Operations of the Deseret Live Stock Company from December 31, 1952 to December 31, 1953”; David A. Robinson to Dugway Proving Ground Commanding Officer, 14 December 1953.

¹⁰¹ Since its inception, control of the DLC was held by the individuals who owned the most stock. For further details on the takeover of the company, see McMurrin, *The Deseret Live Stock Company* 14; Moss, “The Deseret Live Stock Company,” 96-97; Cherie Voss, “The Story of the Deseret Livestock Company,” (1971), Folder 17, Box 1, Ernest L. Poulson Papers, ACCN 594, Western Americana, J. Willard Marriot Library, University of Utah, Salt Lake City.

¹⁰² Moss, “The Deseret Live Stock Company,” 96-97; Voss, “The Story of the Deseret Livestock Company”; Walter Dansie to Ken Garff, “Letter of Resignation,” [July 1953], Folder 1, Box 29, Deseret Live Stock Company Records. Stockholders increased from 95 in 1891 to 250 in 1928-1929 to 275 in 1952. These stockholders were mostly descendants of the original incorporators. The number of stockholders dropped to 65 after the company was taken over in 1953. For further details, see Moss, “The Deseret Live Stock Company,” 97; Walter Dansie to Harlan B. Watkins, 1 July 1952.

¹⁰³ Palmer, “Appraisal Report for Deseret Livestock Company, Inc.”

One thing the rapid ownership change did not end, however, was Deseret's legal battle with the Army. Over the course of three years, old and new owners alike made a number of time-consuming and costly requests for reappraisal.¹⁰⁴ All of these were summarily rejected by the Army, which maintained that its original offer fell under the authority of the 1942 amendment and that "under existing law no authority exists for reimbursement in an amount in excess of \$35,000.00."¹⁰⁵ When Deseret asked Edward W. Clyde, a leading authority on natural resource law, to interpret the significance of such statements, Clyde feared "there is no way you can compel them to pay more."¹⁰⁶ Since the Army "absolutely refused to alter their arbitrary decision and since there is no appeal to the courts," Deseret's only recourse was to, as the company had done since the announcement of the appropriation, appeal to members of their congressional delegation.

In a July 1953 letter to Utah Senator Arthur V. Watkins, Ken Garff noted how Deseret had "been dealt a rank and costly injustice by the U.S. Army's Corps of Engineers." After "years of negotiation, appeals and contention," Deseret was

¹⁰⁴ Palmer, "Appraisal Report for Deseret Livestock Company, Inc."; Walter Dansie to Colonel Henry Walsh, 31 Oct 1952, Folder 6, Box 4, Deseret Live Stock Company Records; David A. Robison to F.R. Carpenter, 2 June 1953, Folder 7, Box 4, Deseret Live Stock Company Records; Ken Garff to Jesse B. Witty, 30 September 1953, Folder 7, Box 4, Deseret Livestock Company; David A. Robison to Harlan B. Watkins, 7 December, 1953; Deseret Live Stock Company to Ernest L. Wilkinson, 13 October 1953, Folder 7, Box 4, Deseret Live Stock Company Records.

¹⁰⁵ Colonel Henry Walsh to the Deseret Livestock Company, 3 Oct 1952, Folder 6, Box 4, Deseret Live Stock Company Records. Col. Geo. H. Walker to Walter Dansie, 10 December 1952; Harlan B. Watkins to the Deseret Livestock Company, 19 June 1953, Folder 7, Box 4, Deseret Live Stock Company Records.

¹⁰⁶ Edward W. Clyde to Marcellus Palmer, 8 Oct 1952, Folder 6, Box 4, Deseret Livestock Company Records.

still “unable to get any basic information as to how the Corps’ appraiser arrived at the severance damages” or “any basic facts concerning how the appraisal was made.” Instead the company had repeatedly been “run up against a stone wall.” Besides a lack of transparency, they also noted the lack of any resemblance of legal procedure, noting how the Army’s appraiser, George Mathis, had served as “investigator, principal witness, judge, jury, and court of appeal” to their case. In conclusion they “felt that the treatment accorded us by the U.S. Army... has been unfair, discriminatory, arbitrary, capricious, and the result outrageous.”¹⁰⁷ As with earlier protests against the annexation, Garff’s spirited appeals to Senator Watkins produced minimal results (at least immediately). By early 1954, the new owners of Deseret were “hard pressed for money” and had been “forced to borrow heavily to operate.” Reasoning that they had “spent more than we could afford to spend in handling this case,” Garff and his associates decided to “take what the Army will give us rather than fight what looks like a losing battle which may be stretched out over a period of several years.”¹⁰⁸

Deseret’s inability to repel or effect change effectively turned it into the type of outmoded and unprofitable ranching operation that many local people had already perceived it to be. The company made the fatal mistake of assuming that it playing on a level playing field, when in fact the battle had been lopsided from outset. Deseret’s status as the “undisputed giant of Utah’s sheep industry” may have led the company’s owners to believe they could resist annexation or

¹⁰⁷ Ken Garff to Senator Arthur V. Watkins, 6 July 1954.

¹⁰⁸ David A. Robison to F.R. Carpenter, 16 March 1954, Folder 7, Box 4, Deseret Live Stock Company Records.

compel adequate compensation; yet, as was the case for many other public land users, they could do little to resist the momentum of mid-twentieth century military developments.

Far from being surprising or shocking, the DoD's "treatment" of Deseret and other land users has been widely accepted as an inevitable requirement of American security, power, and modernity. Perhaps the only thing that may be surprising is the calculated and collective nature of this treatment. The congressional representatives who wrote the compensation laws in 1942 could have likely predicted Deseret's outrage a decade later. Well before the official announcement of Dugway's expansion, moreover, military planners knew what sacrifices had to be made to create a permanent peacetime CBW testing station in western Utah and also what needed to be done to overcome any possible resistance. Both state officials and local citizens also required little convincing when it came to creating a massive testing site in their "own backyard" for "a dirty kind of warfare with poisonous gases and deadly germs." And even as most Americans continue to have a hard time accepting that "the United States is a war state," they have had, from the outset, minimal apprehension in making the necessary sacrifices for permanent war.¹⁰⁹

¹⁰⁹ Shiloh R. Krupar, *Hot Spotter's Report: Military Fables of Toxic Waste* (Minneapolis: University of Minnesota, 2013), 271; Tom Engelhardt, *The American Way of War: How Bush's Wars became Obama's* (Chicago: Haymarket Books, 2010), 2-3.

A NEW ENTITY DOMINATING THE COUNTRYSIDE

In contrast to wartime projects, permanent peacetime defense installations required more strategic planning and execution. Spatial relations that were once temporary, informal, and cooperatively worked out became more one-sided and unyielding. More than anything else, the setting of boundaries at the reactivated Dugway helped to demarcate these “new divisions, new enclosures, and new spatial orders of the earth.”¹¹⁰

Upon Dugway’s official reactivation, the “informal arrangement” that had allowed grazers “to use portions or all of Dugway Proving Ground” was cancelled, and grazers were “put on notice to remove all livestock from the area immediately.”¹¹¹ Once the new boundaries at Dugway were set, they have largely remained fixed. Unlike during World War II, Dugway officials treated unauthorized entries of sheep onto the Dugway as trespassing and formal requests to temporarily use rangelands, which had almost always been accepted in the past, were summarily denied.¹¹² Revealingly, one of the main reasons for denying livestock entry was to promote the growth of vegetation. As the Commanding Officer Colonel Donald Hale put it 1953:

¹¹⁰ Schmitt, *The Nomos of the Earth*, 79.

¹¹¹ J. Earl Palmer to ALL NORTH DUGWAY AND SKULL VALLEY GRAZERS, 24 April 1950; J. Earl Palmer to ALL NORTH DUGWAY AND SKULL VALLEY GRAZERS, 21 Aug. 1950, Folder 5, Box 4, Deseret Live Stock Company records. “Army to Close Dugway Land,” *Salt Lake Telegram*, 26 June 1950; “Graziers Ready Protests on Dugway Usage,” *Salt Lake Telegram*, 28 April 1950; “Parley Planned on Dugway,” *Salt Lake Telegram*, 25 April 1950.

¹¹² Elbert D. Thomas to Marcellus Palmer; David A Robinson to DPG Commanding Officer, 14 December 1953, Folder 7, Box 4, Deseret Live Stock Company Records; Colonel Donald H. Hale to David A. Robinson, 23 December 1953, Folder 7, Box 4, Deseret Live Stock Company records.

considerable sums of money have been spent and thousands more will be expended in order to provide vegetation to prevent the dust problem which must be considered seriously because excessive dust reduces the morale of our workers and, thus, indirectly affects our operations. It is also a direct effect on our operations in that many of our operations require dust free areas. Permission to graze sheep on the reservation would create an additional dust hazard.... Therefore, I have made the decision that grazing of either cattle or sheep cannot be permitted on the reservation.¹¹³

Dugway's power to shape spatial relations went well beyond its ability to secure and control its reservation. It also had a heavy hand in determining the economic and ecological flows of the region. Through the careful setting of boundaries, the erection of drift fences, and "reconnaissance and use of guards," Dugway administrators attempted to control the "free movement" of livestock through the region while assuring that the "minimum safety and security limits demanded by the nature of their proposed program" were met.¹¹⁴ Notably, their willingness to permit this movement of livestock in areas surrounding the Dugway reserve ensured that the western deserts of Utah would continue to accommodate the needs of both sheep grazers and weapons scientists for the foreseeable future, thereby creating a bustling industrial landscape and immensely complex hybrid ecosystem in which hundreds of thousands of sheep would travel beside areas where a variety of weaponized pathogenic organisms and deadly chemical and radiological agents were readily dispersed.

¹¹³ Colonel Donald H. Hale to David A. Robison, 23 December 1953.

¹¹⁴ "Current Status of Dugway Proving Ground and Wendover AF Base," 2-3; Corps of Engineers, "Real Estate Planning Report (Military), Dugway Proving Ground, 8-12; Elbert D. Thomas to Marcellus Palmer, 11 April 1950, *Elbert D. Thomas papers*; Associated Press, "Thomas to Ask Dugway Shift," *Salt Lake Telegram*, 23 March 1950.

Despite the military's more authoritative and imposing presence, military decisions and plans were, as during World War II, haphazardly constructed. The expansion eastward was largely based on a seemingly benign idea of locating headquarters and living facilities in a more hospitable area. The various mechanisms used to achieve these ends, however, were more heavy-handed. Defense planners at Dugway approached the problem of expansion with a complete arsenal of techniques and strategies, which included actively shaping assumptions and narratives about military development, holding a virtual monopoly on information, possessing superior security mandates, legal prerogatives, and financial incentives, as well as the use of fencing, surveillance, reconnaissance, and policing to safe-guard boundaries. Underlining all of these tactics was the DoD's unrestricted authority to withdrawal and exclusively control public land.

When all was said and done, little doubt existed over who dominated the countryside. The influence defense interests held over the Dugway region appears almost absolute, and indeed the Defense Department's power to segregate land and shape spatial relations reached its zenith in the first half of the 1950s. In 1957, Senator Arthur Watkins—the same senator Deseret appealed to in 1953—introduced a bill that called for limiting executive withdrawal powers. This bill eventually led to the 1958 Defense Withdrawal Act, better known as the Engle Act. During the congressional debates leading up to the passing of the bill, Representative William A. Dawson of Utah—whose warnings about “the pace and capriciousness” of military land withdrawals were highlighted in the opening of

this dissertation—specifically drew attention to how every acre taken for defense needs “also takes something away from a sheepman, a cattleman, a prospector, or a miner.”¹¹⁵ This legislation represented the first major erosion of the Defense Department’s land management powers. While subsequent land laws and environmental regulations have further diminished these powers, the defense department nonetheless still controls much of its land holdings with a heavy hand. Dugway itself has also never been more relevant to America’s military-security agenda than it is today.

Yet, while Dugway may be one of America’s most important and long-lasting permanent peacetime installations, its length of tenancy still falls a little short of its Canadian counterpart in southeastern Alberta, the Suffield Experimental Station. In the case of Dugway, we saw how the origin stories told about its development have served as one method of dispossession in a landscape full of past displacements. In examining the establishment of Suffield, Chapter 3 takes a closer look at how the mobilization of history has served as a key strategy of military occupation.

¹¹⁵ 103 Cong. Rec. 5520-5521 (1957).

MILITARY DISPOSSESSION AND THE MOBILIZATION OF HISTORY

The Establishment of Alberta's Suffield Experimental Station, 1939-1947

In November 1940, E. Ll. Davies, the United Kingdom's Chief Chemical Warfare Officer, set out to investigate "certain barren areas in Canada as to suitability as a site for a full scale C.W. Experimental Station."¹ Davies required a flat and traversable 2,500 square mile inhabited reserve that contained landing grounds for large aircrafts, was near a railroad, and did not experience any unusual weather conditions or contain thick forests or large rivers. Eight months later, U.K and Canadian chemical weapons scientists commenced operations in an area that fit most of these specifications in the short grass prairies of southeastern Alberta (for map, see page 15).

¹ E.A. Flood to G.P. Morrison, 9 December 1940, 4-C9-19 vol. 1, Box 6, RG 77, Library and Archives Canada, Ottawa, Ontario, Canada (LAC).

At the time of its establishment, Alberta's Suffield chemical and biological warfare field experimental station represented an unprecedented bounding and transformation of Canadian territory—both in terms of the scale of land involved as well as with how the government handled the acquisition. The urgent demands of war gave a select group of defence and scientific authorities the mandate to rapidly take exclusive control of a huge tract of land and clear it of all of its inhabitants. The dispossessed landowners, as one displaced resident later recounted, “were forced to give up their land, leave their homes, find somewhere to live, on very short notice.” To many of the evacuees, the government's heavy-handed approach to the Suffield land acquisition represented a “grave injustice.”²

Most wartime military endeavors demand sacrifice, and the establishment of Suffield was no different. Instead of lives lost or harmed in battle, people were displaced and livelihoods were disrupted and lost. In the years after the war, some Suffield evacuees sought recognition and redress for the sacrifices they made during a time of national emergency. “Now that the war is over and the day of adjustment of wrongs committed under the strain of war is at hand,” as a 1946 resolution noted, “I take this opportunity to draw the attention of our Government and the people of Canada to the grievance of the evacuees of the British Block. We refuse to believe that it was the wishes of the British and Canadian people that any individual should assume loss from any national

² William Lokier, “Mr. and Mrs. W.R. (Bill) Lokier,” Bill and Gertude Lokier History, M2007.2.4, William and Gertrude Lokier fonds, Esplanade Archives, Medicine Hat, Alberta, Canada (Esplanade); John W McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament” reprinted in Grace Roth, ed., *Prairie Crucible: Roads of History, 1891-1941-1991* (Prairie Sod History Book Society, 1991), 104-105, Esplanade.

emergency of such great importance.”³ As with previous efforts to draw attention to their grievances, this resolution appears to have gone unheeded. To explain why the Suffield evacuees’ sacrifices have largely gone unrecognized, it is first necessary to understand how militarized environments compare and contrast to other landscapes.

Militarized environments can be found in a variety of locations and serve numerous purposes. The one thing most of them have in common is that they are products of environmental change. Environmental historians have been keen to remind us how every “environmental story is a story about power” and that most environmental changes are “the product of competing environmental agendas forwarded by specific social groups.”⁴ As with other environmental transformations, the creation of militarized environments typically involves the enclosure of land and formation of new spatial divisions that disrupt or displace previous spatial orders. The militarization of the environment, in other words, invariably entails some kind of dispossession.

In addition to being products of power and dispossession, many militarized environments also hold the unique distinction of deliberate concealment. Due to the demands of security and secrecy, much of the information regarding military occupation remains restricted from the public’s view. More often than not, assessing the workings of power and consequences of

³ McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament.”

⁴ Douglas R. Weiner, “A Death-Defying Attempt to Articulate a Coherent Definition of Environmental History,” *Environmental History* 10(3) (2005): 409; Andrew Hurley, *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary, Indiana, 1945-1980* (Chapel Hill: University of North Carolina Press, 1995), xiv.

environmental change at restricted military sites is “dependent on *knowing* a history that is not easily seen.”⁵ What is known about militarized environments, in contrast, rests heavily upon what has been left unconcealed. Instead of histories about competing environmental agendas, our knowledge of military developments is often limited to the officially-approved accounts of the military.

The “very authority with which narrative presents *its* vision of reality,” as historian William Cronon has noted, “is achieved by obscuring large portions of that reality.”⁶ Part of the reason the consequences of military development go unrecognized has to do with the way history has been told about places such as Suffield. Not only did a select group of authorities at Suffield hold the power to take control of a large tract of land and clear it of all of its inhabitants, but they also have had considerable power to define the ultimate significance of this event. In contrast to the grievances of evacuees, the official story by which the Canadian Department of National Defence acquired its 700,000-acre area reserve in southeastern Alberta is well-known and has been told repeatedly, and repeatedly told the same way. Official accounts insist that the Suffield development converted a hopelessly unproductive landscape to the cause of defence and security, and, in the process, rescued 125 destitute farm families from their futile

⁵ Jeffrey Sasha Davis, Jessica S. Hayes-Conroy, Victoria M. Jones, “Military Pollution and Natural Purity: Seeing Nature and Knowing Contamination in Vieques, Puerto Rico,” *GeoJournal* 69 (2007): 173.

⁶ Cronon, “A Place for Stories,” 1349.

attempts to make a living on lands deemed “useless for any normal agricultural purposes.”⁷

The stories we tell about environmental change matter. In the case of Suffield, official accounts have had a disproportionate influence in shaping understandings of history and place. More specifically, by overlooking the consequences of military development and distorting the local history of land use, official representations of Suffield’s development have served as a key method of dispossession and legitimation.

From the beginning, the dispossessed landowners, who had held property or lease rights to over 230,000 acres of land within the area, told remarkably different stories about the region’s recent land use history. Nearly thirty years after the acquisition, some evacuees were still trying to “lay hands on facts and figures that would disprove” common misleading claims about how, for example, “all but 5 of the 125 of the families were destitute.” Yet, in contrast to the official accounts, these counter histories of place and people have only made a modest impact.⁸ Due, in a large part, to how much of the information regarding the expropriation remained restricted to the public, evacuees had limited powers to challenge the official narratives.

⁷ "Information Brief: Field Experimental Station, Suffield, Alberta," n.d, 4354-26-1-1, C-5013, LAC.

⁸ Most of these latter efforts were conducted by Ruth Daw and William Lokier, who were both teenagers at the time of expropriation. For correspondence between William Lokier and Ruth Daw and some of the records they came up with, see “Bill Lokier History Book Project for British Block,” William and Gertrude Lokier fonds, M2007.2.6, Esplanade. Their findings and personal accounts were not only valuable to this study, but also to a 1970 *Calgary Herald* article on the expropriation, see Don Thomas, “British Block Wiped out many Farm Homesteads,” *The Calgary Herald*, 20 October 1970.

Given the weight of the military's representations, counter claims can appear controversial or suspect—even when the history of local land use flies in the face of the military's assertions about the region. Nevertheless, by examining formerly classified documents and the counter histories of the evacuees, this chapter reveals how the Suffield region's sparse population was not, as has been commonly suggested, an indicator of the region's inherent unproductivity. This sparsity was instead a sign of adaption to local environmental conditions. At the time of the military takeover, moreover, most of the remaining settlers in the Suffield area were not the last remnants of failed federal settlement polices, but the chief benefactors of a successful, long-standing, provincially-sponsored, land-use rehabilitation program.

Understanding counter histories of place and people is valuable, but investigating the consequences of military developments at restricted sites such as Suffield is not just a matter of re-appropriating “knowledge that has been distorted or buried.” Defence interests, as geographer Rachel Woodward has reminded us, “exert control over space in ways and through means which frequently render this control invisible.”⁹ When we take a longer view of defence developments, the logics of military security and practices of land-use legitimation become clearer. Like many militarized environments, Suffield can trace its origins to the emergency conditions of war. However, the installation's continuing presence, as this chapter reveals, is based on the less openly

⁹ Michel Foucault, *“Society Must Be Defended”: Lectures at the College de France, 1975-1976*, trans. David Macey (New York: Picador, 2004), 72 (quotation), 250; Rachel Woodward, *Military Geographies* (Malden, MA: Blackwell Publishing, 2004), 3.

acknowledged demands of permanent war. Too often the consequences of controversial military activities are blamed entirely on the strain of war. Suffield and other military sites, for example, have been commonly passed off as necessary products of wartime emergencies, “created,” as one evacuee put it, “to assist in saving the world from Hitler’s beasts.” What is harder to accept are various ways in which the exceptional conditions of war have become normalized at places such as Suffield and continue to shape spatial and power relations to the present day.

Perhaps the most important reason the consequences of military development go unrecognized has to do with how militarism is present in Canada in ways that are not readily acknowledged. In the context of U.S. history, it is easier to discuss such things as the military-industrial complex or permanent war; yet when elements of these phenomena manifest within Canadian society, they are harder to grapple with. Canada, after all, is supposed to have “avoided the long history of militarism that so corrupted American society.”¹⁰ According to some perspectives, however, the normalization of war into everyday life represents the essence of militarism. From this perspective, one of the clearest signs of militarism is the lack of debate or scrutiny toward prominent military developments and activities. By looking closer into both the establishment and continuing operations of one of the world’s largest, most active, and longest-lasting chemical and biological weapons proving grounds, this chapter makes

¹⁰ Donald Worster, “Wild, Tame and Free: Comparing Canadian and U.S. Views of Nature,” in *Parallel Destinies: Canadian-American Relations West of the Rockies* eds. John M. Findlay Kenneth S. Coates (Seattle: University of Washington Press, 2002), 289.

visible the “repressed condition of permanent war” that underlies the workings of power between government, local citizens, and the environment.¹¹ In the process, it also provides a conceptual framework for thinking about war and military developments in ways that move beyond the standard assumptions that drive most discussions about Canada’s so-called distinct way of war.

Undoubtedly, far worse injustices occurred during World War II than the rapid and forcible removal of close to 600 settlers in southeastern Alberta. Even in the context of Canada, the plight of the Suffield evacuees looks relatively mild in comparison to the internment and relocation of approximately 23,000 Canadians of Japanese descent or to the approximately 3,000 thousand Canadian soldiers exposed to harmful chemical agents at Suffield during the war (see chapter 4). Far from being uncommon, moreover, expropriations and relocations have also been a relatively frequent occurrence throughout Canadian history, particularly in the twentieth century. The Suffield acquisition, by comparison, stands out not because of its extraordinary injustice but because it represents one of the first cases in which the principle of sacrificing both landscapes and livelihoods to higher needs of security- and defence-related developments was first put into practice on a large scale.

While the Suffield expropriation may have had few precedents at the time of its development, the forced displacements, disruptions, and relocations that

¹¹ J. Morris, "Review of Chemical Warfare Policy," 22 June 1944, 4354-32-1, Box 10, RG 77, LAC; John Beck, *Dirty Wars: Landscape, Power, and Waste in Western American Literature* (Lincoln: University of Nebraska Press, 2009), 228.

accompanied its establishment would soon come to epitomize how much of Canada's contemporary defence estate came into being. Some of the same techniques of land acquisition and practices of legitimation first worked out at Suffield were applied—often by the same defence officials—during the development of other prominent Canadian defence-and security-related projects over the next fifteen years. The grievances of the evacuated settlers of the Suffield Block would soon be shared by members of the expropriated Stoney Point First Nation reserve in Ontario, the displaced farmer-lumberers of Gagetown, Nova Scotia, the uprooted trappers at Cold Lake, Alberta, or the nearly one hundred Inuit who were forced to relocate to the High Arctic during the height of the Cold War tensions in the mid-1950s. Far from remaining a novelty or aberration, the principle of sacrificing people and places to the higher needs of defence and security quickly became a defining characteristic of Canada's contemporary defence estate.¹²

In this chapter, I first look at how a “full-scale” chemical and biological warfare field experiment station came to be established in southeastern Alberta. I then detail how differing visions and portrayals of state-sponsored land reform have shaped history and landscapes in southeastern Alberta. The next sections provide a differentiated overview of how military dispossession and compensation played out in the Suffield area, and the final sections examines

¹² P. Whitney Lackenbauer, *Battle Grounds: The Canadian Military and Aboriginal Lands* (Vancouver: UBC Press 2007), 115-176; Joy Parr, *Sensing Change: Technology, Environments, and the Everyday, 1953-2003* (Vancouver: University of British Columbia Press, 2010, 4-5, 25-51; Alan R. Marcus, *Relocating Eden: The Image and Politics of Inuit Exile in the Canadian Arctic* (Dartmouth College: University Press of New England, 1995).

how both the demands of war and demands of permanent war allowed defence interests to resist local opposition and solidify their land claims.

ARRIVING AT SUFFIELD

“Now it came to pass that the exigencies of war called for a Station to be built in a barren land far removed from the congested areas where men had built cities. And, behold, it was ordered that such a Station should be built in the most barren land there was. Now there was a place on the map (believe it or not) where there was a large tract of nothingness; no town was shewn thereon for many miles; no habitation seemed possible in such a waste. So the gentlemen with the pin planted it firmly and said ‘Here’ and that is how the Experimental Station came to occupy its present site.”¹³

Intended as a humorous aside in Suffield’s first periodical, *The Experimenter*, this 1942 description of how “most of us think” Suffield came to be was not far off the mark in reflecting popular assumptions about the origins of most militarized environments. The official histories of military installations have done little to offset such notions. The almost ceremonial recounting of how installations such as Suffield are ideally located on empty and useless lands suitable only for military use represents one of the most common tactics defence interests use to naturalize their presence. Such official accounts not only simplify

¹³ H. Stonier-Hammett, "And it Came to Pass (or Getting Settled)," *The Experimenter: The Journal of the Experimental Station, Suffield, Alberta* 1.2 (June 1942): 2, Ralston Public Library, Ralston, Alberta.

the land use history of the places on which installations are established, but also the complex factors involved in locating military installations.¹⁴

In the case of the establishment of Suffield, several different considerations came into play. The station's initial formation stemmed primarily from the strategic problem of air defence, particularly against chemical weapons. In the early years of World War II, opinions seemed "to be quite unanimous that when chemical warfare does break out," aircrafts would "undoubtedly play a very large part." Due to "a lack of space," British chemical warfare scientists "had not been able to test potential weapons and methods of neutralizing them, except on a small scale." Experiments with large aircrafts using real chemical agents simply could not be undertaken in the British Isles. Consequently, finding a suitable place "for carrying out C.W. trials on a scale of the same order as Actual C.W. operations in war" became a matter of "major importance."¹⁵

Before France fell to Germany in the early 1940s, British and French scientists conducted a number of large-scale chemical weapons tests at a French-controlled site in Algeria. In addition to validating the importance of full-scale field tests, these short-lived north African trials also provided "very useful information" for what was thought to be the essential features of a permanent

¹⁴ Chris Pearson, *Mobilizing Nature: The Environmental History of War and Militarization in Modern France* (New York: Manchester University Press, 2012), 6-9.

¹⁵ I.M. Rabinowitch to J.C. Murchie, 1 March 1940, 32-1-12-vol. 2, Box 69, 87-88-104, RG 77, LAC; "Information Brief: Field Experimental Station, Suffield, Alberta," n.d., 4354-26-1-1, C-5013, LAC; T. A. Crerar, "A Project to Establish a Chemical Warfare Experimental Station in Canada," n.d., 4354-2, C-5002, LAC; "Notes on Specifications of an experimental C.W. Base in Canada," 7 November 1940, 4354-2, C-5002; P.C. 1/6687, 26 August 1941, 112.352009 (D51), National Defence Headquarters Directorate of History and Heritage, Ottawa, Canada (DHH).

large-scale field testing station. According to the U.K.'s Chief Chemical Warfare Experimental Officer E. Ll. Davies, the "chief requirement" was a "practically flat," 2,500 square mile area that was "devoid of population," contained "suitable landing grounds for large aircrafts," was near "a convenient railway siding," could "be traversed by army vehicles," and did not "experience any freak meteorological conditions," or contain large rivers or thick forests.¹⁶ Despite the apparent difficulties involved in finding a site that fulfilled all these requirements, British weapons scientists remained optimistic. While "it was realised no such area could be found in the British Isles," it was believed "one of the Dominions, (say Canada), could easily meet the requirements laid down." Specifically, "Canada's geographical position, large areas of suitable land, and research facilities already available, together formed ideal conditions for fulfilling the requirements of a project of this nature."¹⁷

The U.K. government's initial inquiry "as to the possibility of suitable ground being made available in Canada for the conduct of larger scale C.W. experiments" received highly favorable responses from leading scientific and defence authorities in Canada. Fortunately for the U.K., not only did Canada possess attractive geographic assets but it had also been primed, as historian Donald Avery describes it, to "assume a major role in allied chemical warfare research, development, production, and testing." Early warnings from Frederick

¹⁶ "Notes on Specifications of an experimental C.W. Base in Canada," 7 November 1940; "Canadian Chemical Warfare Experimental Station, Suffield, Alberta," n.d., 745.043 (D1), DHH; C. Ross, "Brief Specification of Experimental Area, n.d., 4-C9-19 vol. 1, Box 6, RG 77, LAC.

¹⁷ C. Ross, "Brief Specification of Experimental Area"; P.C. 1/6687, 26 August 1941.

Banting—Canada’s first Nobel laureate—and other influential scientists helped to assure Canada’s military and scientific establishments receptivity to the demands of both chemical and biological warfare. By the time the U.K. made a request for an experimental area, scientists from Canada’s defence-oriented National Research Council (NRC) had already established close working relations with the scientists at the U.K.’s central chemical and biological warfare research centre at Porton Down.¹⁸

This “close liaison” between the two countries’ weapons scientists was undoubtedly important, yet geographic determinism likely played the biggest role in bringing about the Suffield development. Without the availability of “large areas of suitable land,” it is doubtful “one of the largest chemical warfare field experiments stations in the world” would have ever been established in Canada. This is not to say that NRC scientists did not feel they had “a definite need for an experimental field for our own requirements.” Yet their own requirements were on a far smaller scale than what their British counterparts had in mind. Whereas the Canadians initially believed a small experimental field on the coast of New Brunswick would suffice, the British wanted, as one Canadian surveyor put it, a

¹⁸ Crerar, “A Project to Establish a Chemical Warfare Experimental Station in Canada”; Donald Avery, *The Science of War: Canadian Scientists and Allied Military Technology During the Second World War* (University of Toronto Press, 1998), 122-150, 149 (quotation); Donald Avery, *Pathogens for War: Biological Weapons, Canadian Life Scientists, and North American Biodefence* (Toronto: University of Toronto Press, 2013), 14-56; Jon Bryden, *Deadly Allies: Canada’s Secret War, 1937 to 1947* (Toronto: McClelland & Stewart Inc., 1989), 1-134.

“quantity of land... some 300 square miles larger than the Province of Prince Edward Island.”¹⁹

Upon realizing that Davies envisaged “a much larger organization and programme of work than was originally contemplated,” scientists at the NRC quickly adjusted their expectations and plans. They dropped the proposed site in New Brunswick, and, since Davies’ expectations were “quite beyond the scope and facilities of the National Research Council,” the Department of National Defence to assist in handling Britain’s requests and arrangements. While Canadian authorities would provide assistance in locating a site, the final choice for a location was ultimately “placed at the disposal of British CW advice.”²⁰

In October 1940, Davies arrived in Canada with the message that the “need for a large scale experimental field was now of the greatest urgency.” Soon after, a “paper survey” of possible large-scale sites was initiated. Under the rationale that a 2,500-square mile area could “only be obtained where climatic conditions are abnormal” authorities shifted their focus to lands in the semi-arid west. In both the U.S. and Canada, the supposed emptiness and underdevelopment of western landscapes have made them attractive targets to a variety of federal development schemes. In the case of a large-scale chemical warfare proving ground, the situation was no different. In “spite of the large areas involved,” defence surveyors in Ottawa confidently believed that Davies’ exacting

¹⁹ Morris, “Review of Chemical Warfare Policy”; P.C. 1/6687, 26 August 1941; Crerar, “A Project to Establish a Chemical Warfare Experimental Station in Canada”; John E. Lyon, “D.M.A,” 16 August 1940, 4354-2, C-5002, LAC.

²⁰ P.A. Chester to S.G.S., 7 November 1940, 4354-2, C-5002, LAC; O. Maass to C.P. Morrison, 16 October 1940, 4-C9-19 vol. 1, Box 6, RG 77, LAC.

specifications could “be easily met in Saskatchewan.”²¹ The “whole difficulty” was not finding an area fitting Davies’ unique criteria, but the costs involved. If National Defence closed “an area 50 miles by 50 miles within reasonable distances of ordinary facilities,” they would “have to dispossess a number of people.” Yet if they went so far north that population was very sparse, it would “cost a lot of money to bring necessary facilities to the site.” In the end, authorities concluded that the “cost of the former policy might be less, particularly in the ‘poor crop’ area of Saskatchewan.”²²

With such rationales in mind, Davies set out west with representatives from both the National Resource Council and Department of National Defence to investigate “certain barren areas in Canada as to suitability as a site for a full scale C.W. Experimental Station.” Once in the Prairie Provinces, they gathered figures and information regarding land characteristics, ownership patterns, and costs. In addition to this more general information, they also quizzed local authorities on such things as the prevailing wind patterns, average days of cloud cover, or whether “Army trucks could be driven anywhere.” After deciding upon the general location, they instructed local surveyors to select “the most nearly level” areas they could find, and then, from the middle point of these level areas, lay out larger fifty by fifty square mile blocks of land for further investigation. As shown on the map below, this process led them to demarcate “two very suitable

²¹ Crerar, “A Project to Establish a Chemical Warfare Experimental Station in Canada”; Defence Research Board, “Suffield Experimental Station, 1941-1961,” 1, LAC; O. Maass to C.P. Morrison, 16 October 1940; John E. Lyon, “D.M.A.,” 16 August 1940.

²² John E. Lyon, “D.M.A.,” 16 August 1940.

properties,” one in southeastern Alberta and the other in southwestern Saskatchewan.²³

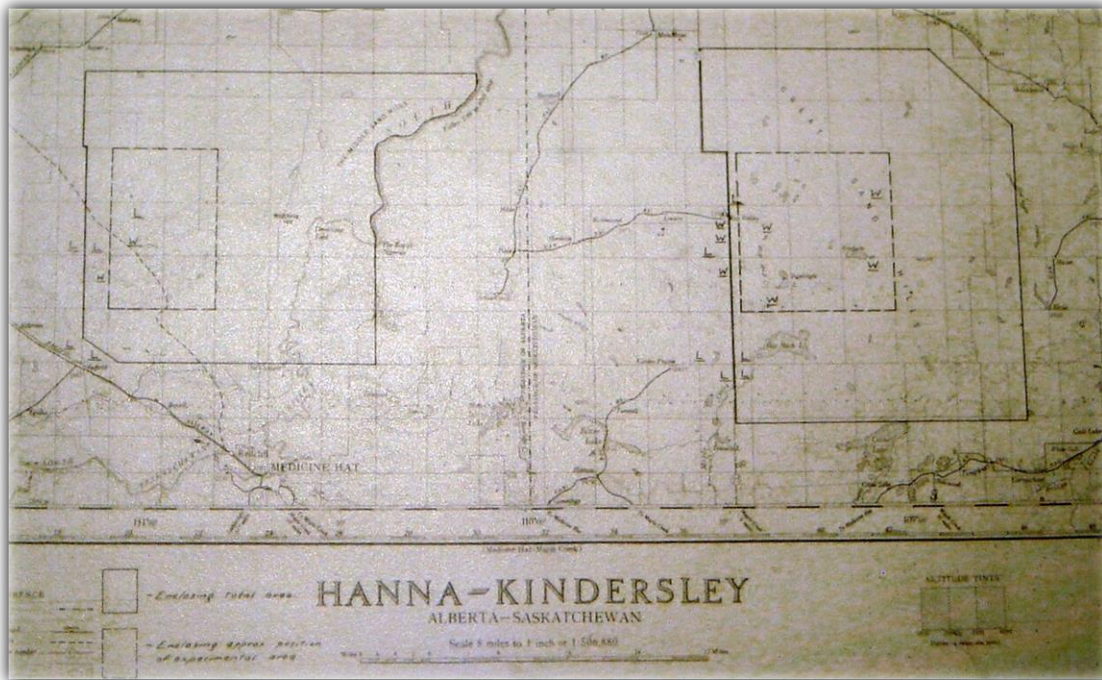


Figure 9: The Final Two Choices for an Experimental Station: Davies initially envisioned that the smaller rectangular areas within the larger blocks of land would serve as testing grids, while the surrounding land would be used as buffer zones for the downwind travel of chemical agents. Due to the occurrence of prevailing eastward winds, Davies decided it would be safe to cut down the size of the western side of both reserves.²⁴

Both proposed sites were “very desirable for full scale C.W. trials” and indistinguishable “from a technical point of view.” The major difference was costs. With over “a 1000 farms,” the Saskatchewan site was considered “not as

²³ E.A. Flood to G.P. Morrison, 9 December 1940, 4-C9-19 vol. 1, Box 6, RG 77, LAC; E.A. Flood and E. L. Davies, “Notes on Visit Paid to Maple Creek and Medicine Hat,” 9 November 1940, 4-C9-19 vol. 1, Box 6, RG 77, LAC; D.A. Smith to J.R. Hill, 9 November 1940, 4-C9-19 vol. 1, Box 6, RG 77, LAC; Crerar, “A Project to Establish a Chemical Warfare Experimental Station in Canada.”

²⁴ John E. Lyon, “D.M.A.,” 16 August 1940, 4354-2, C-5002, LAC.

impoverished” as its Albertan counterpart, which was thought to contain “only 125 farms.” Interestingly, one apparent advantage of the Saskatchewan site was how, according to Saskatchewan’s Director of Surveys, it was “settled with people, largely of German descent.”²⁵ However, with initial estimates suggesting that the purchase of land and removal of residents in Alberta would cost one-tenth as much as in Saskatchewan, the Alberta area soon became regarded as “the only practical site” available.²⁶ Davies, who was “very keen on the Alberta site,” relayed his recommendations to London, noting how the “whole scheme very similar to what we discussed before I embarked.” To expedite the “necessary approval” from the government, Canadian officials “strongly recommended that authority be granted immediately to proceed with the project in order that essential trials may be carried out in May, 1941.” While these administrative wheels were set in motion, residents living within the proposed site remained largely in the dark about the Canadian and British governments’ newly hatched plans.²⁷

Unlike with Major John R. Burns’ establishment of Dugway Proving Ground in Utah the following year, E. Ll. Davies had a clear vision for the type of field experiment station he hoped to develop based upon his previous testing

²⁵ Dr. D.A. Smith to J.R. Hill, 9 November 1940, 4-C9-19 vol. 1, Box 6, RG 77, LAC.

²⁶ E.A. Flood to G.P. Morrison, 9 December 1940; Crerar, “A Project to Establish a Chemical Warfare Experimental Station in Canada”; Defence Research Board, “Suffield Experimental Station, 1941-1961,” 1; E.A. Flood and E. Ll. Davies, “Notes on Visit Paid to Maple Creek and Medicine Hat,” 9 November 1940; E. Ll. Davies to DDG/CD(R), 4 December 1940, 4-C9-19 vol. 1, Box 6, RG 77, LAC; “Canadian Chemical Warfare Experimental Station, Suffield, Alberta,” n.d., 745.043 (D1), DHH.

²⁷ Goodwin Gibson to Minister, 5 March 1941, 4354-2, C-5002, LAC; Ll. Davies DDG/CD(R), 4 December 1940; A. Chester to S.G.S., 7 November 1940; Crerar, “A Project to Establish a Chemical Warfare Experimental Station in Canada.”

experience in North Africa. Despite the vastly different geographic settings, Davies found a site in the Canadian Prairies that he believed could simulate the unique environmental conditions found in the Saharan Desert. Throughout the search process authorities never doubted that suitable lands could be made available in Canada. Instead, the key consideration was costs, and, at least according to initial impressions, the site in southeastern Alberta fully appeared to satisfy the surveying team's strategy of targeting the Prairie Provinces' "poor crop" areas.

MOBILIZING HISTORY ALONG STRICT LINES

The supposed underdevelopment and impoverishment of the Suffield site not only made it attractive from the standpoint of initial costs, but also helped to legitimize the removal of existing settlers. Official accounts have consistently held to the view that the Suffield development converted unproductive lands to the cause of defence and security, and, in the process, rescued 125 destitute farm families from their futile attempts to make a living on lands deemed "worthless from an agricultural point of view." This latter notion was based on the impression that, at the time of the military's takeover, most local residents had already abandoned the area and the few that were left were living in destitute circumstances.²⁸ In forcing these remaining settlers' hands, the government was merely taking the necessary course of action that the landowners would not have been able to take on their own. Instead of a threat to their livelihoods, "the

²⁸ A. Ross to J.A.G, 7 February 1945, 4354-2, C-5002, LAC; Defence Research Board, "Suffield Experimental Station, 1941-1961," 16.

Canadian government should have been regarded as a great benefactor by many of these people by helping them establish themselves in more prosperous agricultural areas.” It was, as one more recent military publication put it, “a welcome decision taken out of their hands.”²⁹

That such “federally constructed” conceptions of sparseness and destitution helped to legitimize the military’s presence and free it from blame is hardly surprising. As is the case with other large-scale development projects, the militarization of landscapes has commonly been buttressed by rationalities of progress and modernization. In the case of Suffield, the “simplification of local economies and environments” appears to have only grown firmer over time.³⁰ Whereas, for example, the Suffield area was initially seen as being “very poor agriculturally” in 1940, by the late 1950s official accounts firmly asserted that the area had contained “only one hundred and twenty-farms, of which only five were paying propositions.”³¹ Such oft-repeated claims, moreover, have been excerpted, ad nauseum, in nearly every official military history of Suffield, and stood as the authoritative source of information for newspaper articles, government studies, websites, academic theses, and other works dealing with the history of Suffield.³²

²⁹ Defence Research Board, “Suffield Experimental Station, 1941-1961,” 16; BATUS, *Dinosaurs to Defence*, 105.

³⁰ Beck, *Dirty Wars*, 30; Pearson, *Mobilizing Nature*, 12.

³¹ For quotes, see Davies to DDG/CD(R), 4 December 1940; Donald James Goodspeed, *A History of the Defence Research Board of Canada* (Queen’s Printer, 1958), 145-146.

³² For a sampling of sources that highlight the official history of Suffield, see *Wilfrid Eggleston, Scientists at War* (Toronto: Oxford University Press, 1950); Goodspeed, *Defence Research Board*; C.H. Baker and DRES, “A Brief History of DRES, 1941 to 1981,” Ralston Public Library, Ralston, Alberta; Canadian Wildlife Service, *Kangaroo Rats & Rattlesnakes* (Canadian Forces Base Suffield, 1972); Canadian Forces Base Suffield “Short Grass Country,” Medicine Hat Public Library, Medicine Hat, Alberta; Barry J. Dau, “The Suffield Military Reserve: An Examination of Land Utilization Patterns through Time,” (M.A. Thesis, University of Calgary, 1983), 99-103; Defence Research Board, “Suffield

As authoritative and influential as these official accounts may be, they fall well short of capturing southeastern Alberta's complex environmental history. Contrary to official understandings, the previous land use history of the Suffield Block had been anything but stagnant. As at Dugway and other large-scale defense sites in the North American West, the military's arrival in southeastern Alberta in the early 1940s followed a pattern of displacement and resettlement that had marked the country for close to a century. As buffalo numbers declined and the treaty and reservation system was enacted in the 1870s and 1880s, the Siksika and neighboring indigenous groups were driven away from their historic homelands in the Suffield area.³³ In their place came cattle and sheep ranchers, some whom established large, permanent ranches along the South Saskatchewan River. Grazing dominated land use in the Block until 1909, when the area was opened for homesteading.³⁴ The presence of a railroad siding in the town of Suffield as well the surrounding region's supposed potential for irrigation made the lands within the Suffield Block particularly attractive. From 1909 to 1921,

Experimental Station, 1941-1961"; "Defence Research Establishment Suffield, 50th anniversary Open House, 1941 to 1991," 6 September 1991, "M93.22.7, Esplanade; Defence Research Establishment Suffield, "A Brief History of DRES, 1941 to 1985," June 1986, Medicine Hat Public Library, Medicine Hat, Alberta; "Defence Research Establishment Suffield," December 1986, Medicine Hat Public Library, Medicine Hat, Alberta; Editor, "Defense research station 40 year old," *Brooks Bulletin*, 8 July 1981; J.B. Emson, Martin Farndale, BATUS, *Dinosaurs To Defence: A Story Of The Suffield Block* (Purnell, 1986); D.J Lowry, "Drill Rigs, Tanks, Pronghorns: The Suffield Military Reserve (Alberta Department of Environment: 1981), 20-22.

³³ For a vivid portrayal of the ways in which indigenous peoples were driven out of southwestern Saskatchewan and southeastern Alberta, see James Daschuk, *Clearing the Plains: Disease, Politics of Starvation, and the Loss of Aboriginal Life* (Regina: University of Regina Press, 2013), 96-126.

³⁴ For homesteading, see D.C. Jones, *Empire of Dust: Settling and Abandoning the Prairie Dry Belt* (Calgary: University of Calgary Press, 2002); G.P. Marchildon, "Institutional Adaptation to Drought and the Special Areas of Alberta, 1909-1939," *Prairie Forum* 32(2) (2007): 1-33.

over 2,000 farm homesteads arose within the Block, making it one of the most densely homesteaded areas in southeastern Alberta.³⁵ Around the town of Suffield, the British-based *Canada Wheat Lands* company embarked on what one local commentator described as “the most auspicious undertakings ever attempted in Canada,” which included an investment of approximately \$11 million dollars in farming and irrigation works in the surrounding area.³⁶

Despite the initial optimism, the semi-arid conditions of the North American West were never suitable for the 160 acre, family-based crop farms that both American and Canadian homestead policies promoted. For many western settlers, this reality became especially evident during the notorious and widespread droughts of the 1930s. Yet, in southeastern Alberta, settlers recognized the limitations of homestead farming years earlier. Due largely to the occurrence of a series of localized droughts, which began in 1917, the newly arrived settlers endured enormous hardships, with farmers in the thickly homesteaded areas of the Suffield Block suffering some of the worst of these calamities. With conditions so bad, it soon became apparent that lands within southeastern Alberta’s so-called “Dry-Belt” were incapable of supporting most types of small-scale homestead crop farms, and were much better suited to large-

³⁵ Alex Johnston and Harold G. Vriend, "Historical Overview" in *Range and Wildlife Committee, Canadian Forces Suffield: Effects of Livestock Grazing on Mixed Prairie Range and Wildlife within PFRA Pastures, Suffield Military Reserve* (13 January 1977), A4-A5, Alberta Government Library Great West Life, Edmonton, Alberta; Wallace Tewinkel, "Wallace Tewinkel's story of life in the British Block," Bill Lokier history book project for British Block, Gertrude Lokier fonds, M2007.2.6, Esplanade.

³⁶ L.P Ericksen, "Sketch on Canadian Wheatland Company and Suffield Alberta, 1969," M3734, Glenbow Archives, Calgary, Alberta, Canada (Glenbow Archives); Dau, "The Suffield Military Reserve," 86-89.

scale grazing or mixed grazing-farming operations. To their credit, local government authorities recognized early on the need to correct misguided settlement policies and adapt agricultural practices to local conditions. Starting in 1921, plans to reduce the region's population and convert small-scale homestead farms "into large scale, self-sufficient ranching-farming" operations were initiated, with the bulk of these efforts focused on lands in the Suffield area.³⁷

Popular accounts have highlighted the general exodus of homesteaders from the southeastern Alberta region starting in the early 1920s. Notably, this outward migration, as economist G.P. Marchildon notes, "was not simply the product of families abandoning their farms and moving to greener pastures," but "a major institutional effort, spearheaded by the provincial government of Alberta, to depopulate its portion of the Dry Belt." While the majority of homesteaders left the area, a certain number remained behind. These stickers, according to government assessments at the time, were just the "class of farmer that the area requires." Planners treated these "most desirable settlers" with particular regard, seeking out their knowledge and recommendations and making special efforts to ensure that they had "the first opportunity to use the vacant lands."³⁸

³⁷ Marchildon, "Institutional Adaptation to Drought," 8-23; Jones, *Empire of Dust*: 219-223; Range and Wildlife Committee, "Historical Overview," A4-A5; Tilley East Area Commission, "Report on Land Sections - Tilley East Report," M85.23.1, Esplanade.

³⁸ Marchildon, "Institutional Adaptation to Drought," 7; Commission, "Report on Land Sections - Tilley East Report," (1924), M85.23.1, Esplanade.

The transition from small crop farms to large-scale mixed farming and grazing operations began in earnest in the late 1920s after the passage of a law that put the Suffield Block, then known as the Tilley East Area, under the stewardship of a provincially-appointed land management board. By 1935, this board—considered the predecessor to what would become the Special Areas Board of Alberta—had, through land exchanges and confiscation, taken control of up to eighty percent of the Tilley East Area. After making a number of reclamation efforts—including regrassing and the construction of fencing, waterworks, and fireguards—the Board sold and leased “back some of this land to the few viable rancher-farmers left in Tilley East and create[d] community pastures out of the rest.” By 1940, over a hundred and fifty thousand acres of land had successfully been converted to grazing and mixed grazing-farming operations.³⁹

This conversion was still in progress at the time of the military’s takeover. According to former Tilley East resident John W. McLachlan, many Suffield settlers “were just getting into livestock and mechanical farming” and “could see a future ahead.” Former resident Ruth Daw likewise recalled how her father, J.C. Hulland, had, after struggling through much of the 1920’s and early 30’s, built up a successful sheep ranching and mixed farming operation in the immediate years before the military’s arrival. Similar findings about how Suffield landowners had

³⁹ Marchildon, “Institutional Adaptation to Drought,” 13; Jones, *Empire of Dust*: 219-223; Range and Wildlife Committee, “Historical Overview,” A4-A5; Commission, “Report on Land Sections - Tilley East Report,” M85.23.1, Esplanade.

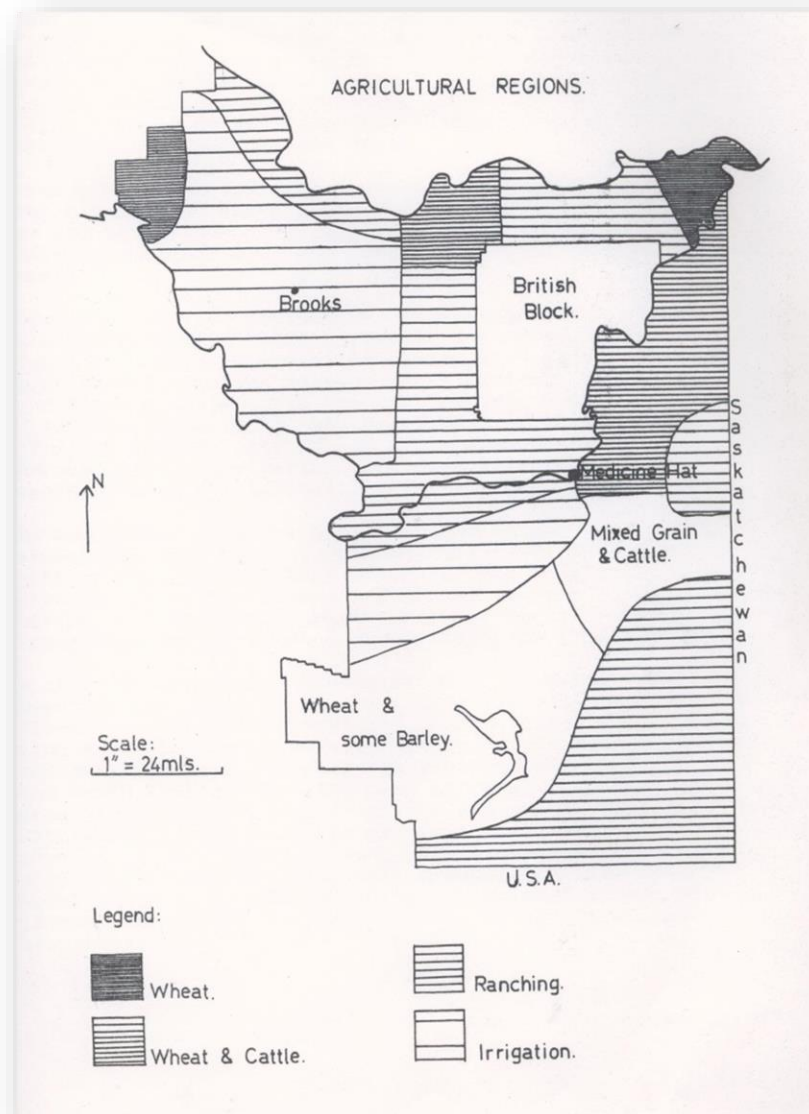
“become well established in their farming enterprise” prior to the military’s arrival can be found in a number of different records and accounts.⁴⁰

Even though this history of land reform in the Tilley East Area has been simplified, distorted, and largely forgotten about, the adaptations and legal innovations originally adopted in this area spread to other arid districts in southeastern Alberta. These adaptations, coupled with more favorable climatic and economic conditions, led to what geographer D.J. Flower describes as a “dramatic change” in southeastern Alberta’s agricultural productivity. Flower’s study of the area “shows that far from simply being sensationalized by the droughts and despair of the 1920s and 1930s, the region developed through the 1940s and on into a solid and prosperous” agricultural district.⁴¹

⁴⁰ John W. McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament” reprinted in Grace Roth, ed., *Prairie Crucible: Roads of History, 1891-1941-1991* (Prairie Sod History Book Society, 1991), 104-105; Don Thomas, “‘British Block’ Wiped out many Farm Homesteads,” *The Calgary Herald*, 20 October 1970; A.A. Kjeersgaard, “Soils of the Suffield Military Reserve,” *Alberta Institute of Pedology*, No. M-73-9 (1973): 2-3, Alberta Government Library Great West Life, Edmonton, Alberta.

⁴¹ Notably, Flower’s observations mainly concern the development of wheat dry-farming, but similar statements could also be made about cattle ranching and the growing other types of grain crops. For further details and quotes, see David John Flower, “Survival and Adaptation: An Analysis of Dryland Farming in the 1940s and 1950s in Southeast Alberta,” (PhD dissertation, University of Alberta, 1997), 3, 11-13, 209.

Figure 10: Agricultural Areas, Southeastern Alberta, 1968.⁴²



Instead of being “worthless from an agricultural point of view,” Flower’s 1968 map portrays the areas surrounding Suffield (or the “British Block”) as dedicated grain and livestock growing districts. As early as 1944, the *Medicine Hat Daily News* reported on the rising appeal of local agricultural lands, noting how “the prosperous position of the farming community is reflected in the

⁴² D.J. Flower, *Atlas of Medicine Hat Region* (n.p./n.c., 1968), 30.

demand for farms in this district. The younger men are on the lookout for lands of their own." Flower himself estimated that land prices in the region soared to as high as \$50.00 an acre by 1960.⁴³ Today, many experts regard Alberta's Special Areas as one of the most successful and longest-lasting state-sponsored adaptations to arid conditions in North America, with some advocates recently holding this "special type of administration" up as a paragon for how societies can respond to a warming climate.⁴⁴

To defence surveyors, the Tilley East Area may have appeared like an ideal "poor crop" area; yet, in their efforts to highlight how this area was "very poor agriculturally" and its resident population "extremely sparse," E. Ll. Davies and others mainly saw what they wanted to see.⁴⁵ Upon closer investigation, this sparseness was not necessarily an indicator of the region's inherent unproductivity, but rather a sign of adaption to local environmental conditions. Most of the remaining settlers, moreover, were not the last remnants of failed settlement polices, but the chief benefactors of a provincially-sponsored, twenty-year-long, land-use rehabilitation plan. That the formation and administration of Alberta's Special Areas is generally considered a success, further suggests that,

⁴³ Flower, "Survival and Adaption," 207-209.

⁴⁴ For quote, see order-in-council 1376/60, Government of Alberta, Sept. 13, 1960, in PAA, Government of Alberta, Report of the Special Areas Investigation Commission, Jan. 1961 as quoted in Marchildon, "Institutional Adaptation to Drought," 21. For paragon, see G.P. Marchildon, ed., *A Dry Oasis: Institutional Adaptation to Climate on the Canadian Prairies* (Regina: CPRC Press, 2009).

⁴⁵ Davies to DDG/CD(R), 4 December 1940.

instead of a life of destitution and failure, most of the remaining settlers in the Suffield Block likely “had a reasonably assured future” to look forward to.⁴⁶

At Suffield, history follows strict lines, with official boundaries unofficially marking the borders between two distinct and irreconcilable histories of land rehabilitation. Within Suffield’s boundaries sit lands considered “useless for any normal agricultural purposes.”⁴⁷ Outside these boundaries, however, lands have sustained a viable mixed farming and grazing economy for decades. If Suffield had never been established or had closed down after World War II, the history of the Suffield Block would likely be remembered much as how the history of the surrounding region is remembered: a story not of failure and futility, but of institutional and agricultural adaptation to arid conditions. Yet, instead of being recognized as the centre of a twenty-year experiment to adapt agriculture practices to arid conditions, earlier understandings reemerged and took prominence in the Suffield Block, and the hardships of homesteaders from an earlier generation helped to legitimize a drastically different kind of government-sponsored rehabilitation.

A LACK OF LOCAL KNOWLEDGE

Despite their assertions, Davies’ and other officials’ actual understanding of the lands within the Suffield Block appears to have been quite limited. “Owing to the immensity of the site, the lack of roads, difficulty of transportation, and the fact that the ground was covered with snow, it was not practical” for any official

⁴⁶ Alex Johnston and Harold G. Vriend, "Historical Overview," A4-A5.

⁴⁷ "Information Brief: Field Experimental Station, Suffield, Alberta," n.d., 4354-26-1-1, C-5013, LAC.

associated with the Suffield project to actually set foot on the proposed site before or during the initial stages of the acquisition. As late as 1945, defence authorities internally agonized over how “noone here in Ottawa really” knew the Suffield area “sufficiently well to speak or answer any question with authority.” This lack of local knowledge, coupled with the differing understandings and assumptions about the recent land use history of the area, heavily influenced the governments’ approach to the Suffield development as well as the evacuees’ reactions to being pushed off their lands.⁴⁸

Most official accounts portray acquisition proceedings as being a “cooperative” and “amicable” process for all parties involved, particularly between the provincial and dominion governments. Undoubtedly, the Department of National Defence (DND) was dependent on the services and knowledge of provincial authorities. Defence advisors felt that taking up negotiations directly with the affected landowners without provincial assistance “would be a very formidable task, and would take a great deal of time.” Not only was it a “very large” area for the federal government to deal with, but “the patented lands, grazing leases, and cultivated leases” were “dotted all over this area, without system or regularity.” The provincial government, on the other hand, had the “necessary machinery and an intimate knowledge” of all the lands involved to facilitate the acquisition process.⁴⁹

⁴⁸ Goodwin Gibson to Minister, 9 April 1941, 4354-2, C-5002, LAC; E.A. Flood and E. Ll. Davies, "Notes on Visit Paid to Maple Creek and Medicine Hat"; G. Kitching, "Experimental Station, Suffield," 12 December 1945, 4354-2, C-5002, LAC.

⁴⁹ A.G.L. McNaughton to E.C. Manning, 3 August 1945, 4354-2, C-5002, LAC; Major General, Quartermaster General to The Honourable the Minister, 1 April 1941, 4354-2, C-5002, LAC; Goodwin Gibson to John Ralston, 9 April 1941, 4354-2, C-5002, LAC.

Premier William Aberhart was willing to cooperate so long as the Crown leased the lands as opposed to purchasing them.⁵⁰ The two sides eventually reached a tentative agreement in which the Province of Alberta would lease all lands to the DND for a period of ninety-nine years for the nominal fee of a dollar per year.⁵¹ In addition to the lease agreement, the Province also offered to acquire all the private property and leases, remove all the settlers to new locations in the province, and carry out all the necessary negotiations, surveys, and other legal procedures. In return for these services the Province asked for \$600,000 in cash. After considerable deliberation, Davies and the DND's Real Estate Advisor Goodwin Gibson concluded that the Province's proposal represented the quickest and cheapest method of acquiring the area. On April 9, 1941, an order-in-council detailing the lease agreement and other arrangements with the Province was approved.⁵²

As these administrative measures were worked out, residents living within the proposed site only heard rumours about the Canadian and British government's plans for the area. By March of 1941, the military's intentions had

⁵⁰ Aberhart's insistence on a lease arrangement was primarily due to fears that his government would be criticized for selling Albertan lands out to Crown. Defence Minister John Ralston was not happy with these conditions, but felt obliged to accept them. For further details, see Goodwin Gibson to John Ralston, 9 April 1941, 4354-2, C-5002; Major General to The Honourable the Minister, 1 April 1941; Ralston to C.C. Power, Minister of Defence for Air, 31 March 1941, 4354-2, C-5002, LAC.

⁵¹ For an insightful look into the longer history of such nominal 99-year leases and their implications toward contemporary understandings of sovereignty, see Steven Press, "Sovereignty at Guantánamo: New Evidence and a Comparative Historical Interpretation," *The Journal of Modern History* 85(3) (September 2013): 592-631.

⁵² The \$600,000 total was said to represent the estimated cost of carrying out these extensive services, with no profit motive involved. For further details, see Goodwin Gibson to John Ralston, 9 April 1941, 4354-2, C-5002, LAC; P.C. 2508, 9 April 1941, 112.352009, DHH; Fallow to Goodwin Gibson, 1 April 1941, 4354-2, C-5002, LAC; Goodwin Gibson to Minister, 5 March 1941.

become apparent enough that the affected landowners formed a committee to contact provincial and federal authorities to represent their interests. At this time, most settlers faced the question of whether they should plant their seed stocks and commence other routine spring operations on their farms and ranches. Farm owner John W. McLachlan noted how if settlers in the area “had to move, this could be done in time to seed and provide feed for our livestock in our new location, and save the seed that would be wasted on land that was going to be used for purposes other than farming.” To McLachlan’s and others’ disappointment, the committee reported no appreciation of their efforts from either government. Instead, the affected landowners had to wait until nearly a month after the April 9th order-in-council had been passed before the Province made its first official contact with them about the acquisition.⁵³

During their negotiations with National Defence, provincial authorities had guaranteed the “speedy acquisition... of the entire area and were prepared to definitely give the Crown possession in three months.” Through the 1920s and early 1930s, it should be remembered, homesteaders in the Suffield area had been receptive to the Province’s assistance in relocating them to other agricultural districts. By all appearances, the Aberhart government believed such assistance would continue to be just as welcomed by the remaining settlers in the early 1940s.⁵⁴ Far from being amicable, however, Suffield settlers developed

⁵³ Wallace Tewinkel, “Wallace Tewinkel's story of life in the British Block”; John W McLachlan “A Letter to the Prime Minister of Canada and Members of Parliament,” 104-105.

⁵⁴ E. Ll. Davies to DDG/CD(R), 4 December 1940; William Aberhart to James Ralston, 13 May 1941, 4354-2, C-5002, LAC.

“considerable opposition” to the province’s ready-made plans to relocate them and, in a resolution addressed to the Prime Minister and Governor General of Canada, formally declared that they “absolutely refuse individually and collectively to co-operate further under the present set up.” According to Aberhart, the evacuees “were not willing to accept an exchange of land and demanded a minimum of \$10.00 per acre for their land together with \$6.00 per acre for crops sown, and full value of other improvements.” After five days of unsuccessful negotiations with the increasingly recalcitrant landowners, provincial authorities gave up.⁵⁵

A defeated and likely embarrassed Aberhart noted to Defence Minister Ralston that it was “financially impossible for us to take the responsibility of moving those people out and making their land available to you.” Provincial authorities “felt that not only were they extremely low in the appraisal of the cost, but that the Federal Government was in a better position to enforce such a move of the occupants concerned.” Aberhart was still willing to lease out all the requested provincial lands and provide other types of support, yet he insisted that the “Dominion Government deal directly with the settlers of the area.”⁵⁶

Both provincial and federal authorities viewed the settlers as an unpleasant and intractable problem in need of a quick fix. For National Defence,

⁵⁵ Major General to The Honourable the Minister, 1 April 1941, Fallow to Goodwin Gibson, 1 April 1941; Goodwin Gibson to John Ralston, 9 April 1941; William Aberhart to James Ralston, 13 May 1941; P.C. 4458, 20 June 1941, 112.352009, DHH; “Goodwin Gibson to Deputy Minister of Army,” 17 November 1944, 4354-2, C-5002, LAC.

⁵⁶ William Aberhart to James Ralston, 13 May 1941; P.C. 4458, 20 June 1941, 112.352009, DHH; “Goodwin Gibson to Deputy Minister of Army,” 17 November 1944, 4354-2, C-5002, LAC.

the loss of time that might occur in dealing with this problem was, according to Defence Minister Ralston, a “particularly serious factor.”⁵⁷ The settlers themselves saw things differently. “The exchange policy,” in the words of McLachlan, “had very little to offer that appealed to the majority of us, for reasons too numerous to mention.” The most notable problem was that the lands being offered as a replacement were in a recently depopulated Special Area district. After “spying out” these proposed lands, as one Suffield Block farmer later recalled, “we decided against it on the grounds that we would be moving onto lands that had been abandoned by other settlers, and would be taking land the people still in that district needed to make a living.” As an alternative to the Province’s seemingly ill-advised plan, the affected residents, during a mass meeting held shortly after negotiations with provincial authorities broke down, adopted a resolution that asked for an arbitration board to be set up composed of one man from the government, one elected by the settlers, and a chairman chosen by the two. The goal of the board would be to work out a solution that would be agreeable to all sides.⁵⁸

Residents of the Suffield Block already had over fifteen years of experience working with provincially-appointed Special Area Board representatives at solving difficult land management problems. “In all sincerity,” as McLachlan

⁵⁷ J.L. Ralston to W. Aberhart, 16 May 1941, 4354-2, C-5002, LAC.

⁵⁸ John W McLachlan “A Letter to the Prime Minister of Canada and Members of Parliament,” 104-105; Wallace Tewinkel, “Wallace Tewinkel’s story of life in the British Block.” Records found in “CW – Experimental Station Suffield, Land and Property, 4354-9-14, C-5004/5, LAC” seemingly contain thorough lists of the all individual claims processed. Out of all the claims, the author could only find one in which the affected resident took the exchange of lands offer instead of a cash settlement.

noted, “we felt entitled to the courtesy of our government and civil servants that our request be granted or acknowledged because all our efforts were in a spirit of co-operation.” The urgent need to defend against the threat of unorthodox weapons of mass destruction, however, pressed defence authorities to take a drastically different course of action. In order to “make the whole area available as expeditiously as possible,” the Dominion proceeded to expropriate the entire 700,000-acre area.

EXPROPRIATION

Due to its divisions of government, and specifically Congress’ control over public land, the legal power to acquire land for military purposes moved into grey areas in the United States, with the military’s land claims resting on emergency conditions and executive prerogatives more than anything else. In contrast, Canada’s land acquisition powers were considerably more accommodating to needs of contemporary warfare and national security. While purchase or lease appears to have been the DND’s preferred method of land acquisition, they also, when such measures were not convenient, relied on the government’s extensive statutory expropriation powers.⁵⁹ Typically understood as a last resort, in case of Suffield and other mid-twentieth military land acquisitions, the sovereign power

⁵⁹ Historically, Canada had been very generous in supporting development interests, giving expropriation powers “to virtually anyone that in meeting a public need might require land.” At both the provincial and federal level, governments have granted the power to take property to thousands of expropriating authorities. For the acquisition of military lands, defence officials could rely on War Measure Act, National Defence Act, the Expropriation Act, Atomic, among other statutory powers. For further details, see Law Reform Commission of Canada, *Report on Expropriation* (Ottawa: Information Canada, 1976), 5 (quotation); Elizabeth Brubaker, *Property Right in the Defence of Nature* (Toronto: Earthscan, 1995), 186-187.

to expropriate property—something the Canadian Supreme Court would later dub as “one of the ultimate exercises of governmental authority”—was frequently employed as a blunt instrument.⁶⁰ In the case of Suffield, the choice to take such a heavy-handed approach was largely a matter of military expediency and appears to have been made with little deliberation. Under pressure from leading U.K. defence and scientific authorities, the Canadian state—at the federal, provincial, and departmental levels—operated with relentless efficiency.

As in the case of many expropriation orders at the time, the government’s heavy-handedness extended to the actual removal of residents. The official notice of the expropriation, which had been filed under the authority of the Expropriation Act, was registered on May 31, 1941. During the first week of June, RCMP officers served notices to local landowners stating that they were “hereby required to quit, vacate, and deliver up possession ... on or before the 30th of June, A.D. 1941 ... lands and premises as are occupied by you or are in your possession.”⁶¹ After serving the notices, authorities realized the settlers “were experiencing difficulty in effecting their moving arrangements” within the allotted period of time. The option of obtaining “possession by forcible means” was discussed but not recommended. Instead, it was decided that \$100,000 of the evacuees’ expected compensation claims be made available to them in advance to help to defray moving expenses and “make it practicable... to vacate

⁶⁰ For quote, see *Dell Holdings Ltd. v Toronto Area Transit Operating Authority* [1997] 1 SCR 32; For broader overview of how expropriation powers were employed to establish Canadian military reserves, see Lackenbauer, *Battle Grounds*.

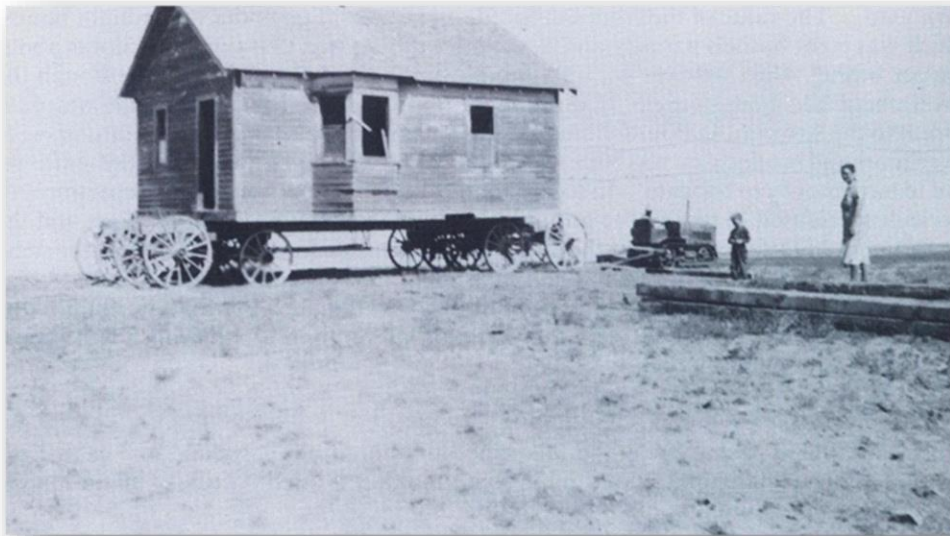
⁶¹ John W McLachlan “A Letter to the Prime Minister of Canada and Members of Parliament,” 104-105; “Re: British Block Alberta,” 8 November 1944, 4354-2, C-5002, LAC; Barnes-Tinney Family Fonds, M85.25.4 1-3 F.4, Esplanade.

the land promptly.”⁶² While Suffield officials and personnel offered assistance in helping the evacuees move out of the area, they also kept a close eye on their activities. Defence planners anticipated “difficulties... with the local inhabitants” during the initial stages of operation. To help deal with potential problems, they recruited “a man of tact and experience as well as a sound disciplinarian.” They also took care to assure that the whole area was “properly policed until actually taken over for Experimental purposes.” During the final stages of the takeover, the Judge Advocate General of Canada’s Armed Forces personally alerted local RCMP forces about possible “action to be taken in the event of a strike of evacuees from Tilley East Area.” Predictably, unexpected encounters with suspicious police officers became one of the most commonly reported experiences described by the evacuees as they moved out.⁶³

⁶² Howe to The Minster, 27 June 1941, 4354-9-14, C-5004/5; Minister of Defence to Governor in Council, 11 June 1941, 4354-2, C-5002, LAC; P.C. 4458, 20 June 1941, 112.352009, DHH.

⁶³ C.P. Morrison to M.G.O, 19 May 1941, 4354-2, C-5002, LAC. The official rationale for the presence of police was to prevent settlers from stealing other settlers’ property and to prevent them from trying to harvest crops, see Goodwin Gibson to Quartermaster General, 23 July 1941, 4354-2, C-5002, LAC. For RCMP support, see W.F.W Hancock, Commanding Officer “K” Division, “Re: Block near Tilley, Alta, Expropriated by Department of National Defence,” 17 Sept. 1941. For evacuee accounts of interactions with police, see Bill Musgrove, “After Expropriation,” reprinted in Grace Roth, ed., *Prairie Crucible: Roads of History, 1891-1941-1991* (Prairie Sod History Book Society, 1991), 101; Wallace Tewinkel, “Wallace Tewinkel’s Story of Life in the British Block.”

*Figure 11: Suffield Block Landowners Moving Out, June 1941.*⁶⁴



⁶⁴ “Pratt home being moved out on expropriation of British Block, Bingville area, Alberta,” n.d., NA-37A-3704-6, Glenbow Archives; “Homestead house of the Tewinkles’, being moved from British Block area, Alberta,” n.d., NA-4360-3, Glenbow Archives.

Figure 12: National Defence moving into the Suffield Block, June 1941.⁶⁵



These various measures had their desired effect. Within less than thirty days of receiving expropriation notices, the evacuees removed most buildings, machinery, fences, and other salvageable materials from the area—with many of

⁶⁵ Engineer Services - Suffield, "D.E.O.'s Field Office," n.d., 4354-2, C-5002, LAC.

these belongings ending up just outside the new boundaries of the Suffield reserve.⁶⁶ As would be expected, most residents found the whole experience to be quite unpleasant. Many resented not being asked, but ordered to leave. They also did not understand the rush to get them out. Shock and disbelief was commonly reported.⁶⁷

DEFENCE EXIGENCIES VERSES THE PUBLIC INTEREST

Clearing the residents out was the Department of National Defence's first challenge. The government still had to settle compensation claims. Officials considered the transaction to be "one of considerable magnitude" involving "many factors and angles which in previous expropriations have not existed." The matter not only required "delicate handling" but was also, as with all previous dealings with the local residents, "one of considerable urgency."⁶⁸ To expedite the

⁶⁶ Goodwin Gibson to Quartermaster General, 23 July 1941; "Wallace Tewinkel's Story of Life in the British Block", *Bill Lokier's History Book Project for British Block*, M2007.2.6, William and Gertrude Lokier fonds, Esplanade, Medicine Hat, Alberta.

⁶⁷ For evacuees' removal experience, see Wallace Tewinkel, "Wallace Tewinkel's Story of Life in the British Block"; McLachlan "A Letter to the Prime Minister of Canada and Members of Parliament"; Thomas, "British Block' Wiped out many Farm Homesteads"; Jack Lust to Mr. Mackenzie King, [date unreadable], 4354-9-14, C-5004, LAC; H. Barnes to Soldier Settlement Board, [date unreadable], 4354-9-14, C-5004, LAC; *Arthur Ion Family fonds*, M86.26.1a-C, Esplanade; "Pioneer Rancher," ranch expropriation, M2007.1.2, Thomas and Eliza Lokier Fonds, Esplanade; "Bill and Gertude Lokier history," M2007.2.4, William and Gertrude Lokier fonds, Esplanade; "Mr. and Mrs. Thomas Lokier," River Bend Ranch, M2007.1.1, Thomas and Eliza Lokier fonds, Esplanade; "History of British Block, M2009.20.2 and M2009.20.3, Dan and Marion Jensen fonds, Esplanade; Bob Shields, "Life is Different at Suffield, A Riddle Wrapped inside a Mystery Inside of Enigma," *The Calgary Herald Magazine*, 4 June 1960.

⁶⁸ In terms of property, the government had to deal with 84,841 acres of private landholdings, with 24,047 of these owned by the Hudson Baby Company, and the remaining being under the control of approximately 125 farm families and a few private land companies. There were also thirty-eight grazing leases compromising 158,000 acres of land, as well as twenty-two cultivation leases compromising 12,460 acres. For figures, see Goodwin Gibson to The Minister, 9 April 1941; W.A. Fallow to E.L Davies, 6 December 1940, 4354-2, C-5002; P.C. 2508, 9 April 1941, 112.352009, DHH; F.P. Varcoe to Pacific Railway Company, 1 October 1941, 4354-9-14, C-5004, LAC; Deputy Minister to Hudson

process, Defence asked the Department of Justice to send an official to Alberta to help “facilitate the speedy occupation of the land which is a matter of urgency and, at the same time, serve, so far as the exigencies of the moment permit, to protect the public interests.”⁶⁹

How well the government managed to balance the tensions between the exigencies of defence and the public interest remains an open question. What is clear is that the entire process of expropriation ended up being both cheaper and less time-consuming than originally anticipated. The Province’s original estimate of \$600,000 for the land acquisition rested on a policy of land exchange and mainly took into account moving and re-building expenses. Notably, before deciding to accept the Province’s original offer, Defence officials specifically concluded that the “direct acquisition of patented lands by the Dominion.... would certainly be more than \$600,000.00, and would certainly require a minimum of six months to complete.” Despite these initial fears, the Dominion managed to settle the majority of claims by the end of July 1941. The whole process, including filing of expropriation, the removal of residents, the appraisal of land holdings, and the negotiations over settlement, took a little more than two months to complete. The total cost of compensation amounted to \$635,037.60. For a transaction of such unprecedented magnitude, National Defence handled it more efficiently than even the most ambitious planners could have predicted.⁷⁰

Bay Company, 22 November 1941, 4354-9-14, C-5004, LAC. For quotes, see H. DesRosiers to Department of Justice, 6 June 1941, 4354-9-14, C-5004, LAC.

⁶⁹ H. DesRosiers to Deputy Minister of Justice, 19 June 1941, 4354-9-14, C-5004, LAC.

⁷⁰ The few claims that were not settled by August were either cases in which individuals who had title interest in the area but did not actually reside there – making negotiations more time-consuming – or cases in which there were unresolved questions concerning claims.

In regards to the question of compensation, most military accounts simply state that the “farmers who had to be evacuated were given fair compensation.” Landowner John W. McLachlan, on the other hand, thought that the price offered for compensation “was ridiculous, in our estimation, as it served one purpose only, that of getting possession of land and removal of fences, buildings and livestock, but contained no moral or social value in the way of re-establishment credit to purchase land and feed for livestock for winter and seed for the following year’s operations, and a loss for one year’s operations.”⁷¹ Considering the contentious nature of the transaction, such differences of opinion are not unexpected. That there appears to have been considerable differences between the evacuees’ asking price and what was actually paid out did not help matters. The evacuees had previously asked the province for a minimum of \$10.00 per acre for their land and \$6.00 per acre for crops sown, and the full value of other improvements. National Defence ended up paying out, on the average, one dollar per acre for private lands and fifty cents an acre for leased lands. Payments made out for improvements, such as wells, were also decidedly undervalued.⁷²

For further details, see Goodwin Gibson to Quartermaster-General, 23 July 1941, 4354-2, C-5002; H.A. Young to Deputy Minister, 9 January 1946, 4354-2, C-5002

⁷¹ Goodspeed, *Defence Research Board*, 145-146; McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament.”

⁷² For figures, see Defence Research Board, “Suffield Experimental Station, 1941-1961,” 1-2; Howe to The Minister, 27 June 1941; H.A. Young to Deputy Minister, 9 January 1946; Mr. and Mrs. W.R. (Bill) Lokier,” M2007.2.4, William and Gertrude Lokier fonds, Esplanade. For price of improvements, see Alex Johnston and Harold G. Vriend, “Historical Overview,” A4-A5. Defence did pay up to \$4.00 per acre for crops sown, but, at least initially, denied responsibility for losses incurred from the loss of evacuees’ summer fallow bonus, see Wallace Tewinkel, “Wallace Tewinkel’s story of life in the British Block”; McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament.”

National Defence's offers may have been low, but this does not mean the government did not fulfill its legal responsibilities. With no guarantees or provisions specifying the criteria of compensation, Canada possessed, as one top federal judge described it in 1959, "the most arbitrary system of expropriation of land in the whole civilized world."⁷³ That there was even an effort to provide fair compensation is noteworthy in itself. The Suffield evacuees also had the option to refuse their claims and have them independently reviewed in the Exchequer Court. Although it remains unclear how many pursued this option, some word-of-mouth accounts note that the landowners who did go to court ended up receiving more money. For many of the recently uprooted evacuees, however, pursuing potentially expensive and time-consuming legal cases against the government was likely not a practicable option.⁷⁴

In any case, settlement claims only provide one indication of the government's treatment and handling of the expropriation. Assessing the broader consequences of military dispossession at Suffield is more challenging. With no policy of land exchange, many evacuees scattered across North America after being pushed off their lands, leaving few traces of their experiences behind.⁷⁵ The

⁷³ *Grayson v. The Queen* [1956-1960] Ex. Court 331, at 226 (1959). For overview of compensation laws, or lack thereof, see Eric C.E. Todd, *The Law of Expropriation and Compensation* 2nd ed. (Ontario: Carswell, 1992), 12-13, 31-38; George S. Challies, *The Law of Expropriation* (Montreal: Wilson & Lafleur, Limited, 1954), 78-79, 88-89.

⁷⁴ John W McLachlan "A Letter to the Prime Minister of Canada and Members of Parliament"; Wallace Tewinkel, "Wallace Tewinkel's story of life in the British Block"; Alex Johnston and Harold G. Vriend, "Historical Overview."

⁷⁵ Don Thomas, "British Block Wiped out Many Farm Homesteads"; Wallace Tewinkel, "Wallace Tewinkel's story of life in the British Block."

varying accounts of those who remained in the region do offer glimpses into how military dispossession shaped the lives the Suffield evacuees.

Some Suffield landowners, as government accounts have often suggested, may have indeed benefited from the chance to move away and start a new life somewhere else with their cash settlements. For example, Eliza Lokier lost a prosperous 13,000-acre ranch to expropriation. After recovering from the shock of the news, she purchased a home north of Medicine Hat with the settlement money. Using salvaged lumber from the ranch, she, with the help of other family members, built a barn and hennery on adjoining farmland, which allowed her to raise horses and some cows, and carry on a successful egg business in the later years of her life.⁷⁶ For Eliza's husband Thomas, however, the loss of the ranch was an altogether different matter. Thomas and his family had spent nearly forty years developing their land into "a fine ranch and beauty spot on the prairie." The abrupt loss of it, according to his son William, was "a terrible wrench.... One from which Tom never fully recovered." Thomas, who would eventually settle down in his own home in Victoria, B.C. after working in the shipyards during the war, never figured out why "a block producing range was chosen in a country with millions of acres of wild land that would never produce at all." While Thomas was able to re-establish himself, for him, and likely other evacuees, no amount of

⁷⁶ "Mr. and Mrs. W.R. (Bill) Lokier," Bill and Gertrude Lokier History, M2007.2.4, William and Gertrude Lokier fonds, Esplanade. Medicine Hat, Alberta; "Pioneer Rancher," ranch expropriation, M2007.1.2, Thomas and Eliza Lokier Fonds, Esplanade; "Bill and Gertrude Lokier history," M2007.2.4, William and Gertrude Lokier fonds, Esplanade; "Mr. and Mrs. Thomas Lokier," River Bend Ranch, M2007.1.1, Thomas and Eliza Lokier fonds, Esplanade; "History of British Block, M2009.20.2 and M2009.20.3. For a similar case as Eliza Lokier's, see *Arthur Ion Family fonds*, entries May through July, 1941, M86.26.1a-C, Esplanade.

compensation “could pay for the work, thought and love which had gone into the development of the homes they were forced to leave.”⁷⁷

Others were not as fortunate as the Lokiers. The expropriation left rancher Jack Lust and his family not only resentful but also in dire economic straits. Like the Lokiers, the Lust family ran a ranch in the Suffield Block, although one quite a bit smaller at about 1,000 acres. In a 1942 letter to Prime Minister Mackenzie King, Jack noted how he received \$1608.25 in compensation even though he had originally paid \$2,725.00 for the place, something the Defence Real Estate Advisor had openly acknowledged at the time of the transaction. After being forced off his property in less than thirty days, Lust had to sell his livestock in order to raise enough money to get a new place, and he apparently went into debt in the process. By the time he wrote the letter to King in February of 1942, he claimed to have “lost what little I got together in years of hard work.” He further noted how “we are living on next to nothing now the children are out of school now they haven’t enough cloath to go to school in as much as I hate to do it but I can’t help it if you don’t do something by the end of the month will have to take the family and turn em over to the police.” He concluded by noting how he wished Mr. King would “realize that I’ve made a living until this was forced on me by a Government which I been loyal to and supported” and that he had “come to

⁷⁷ William Lokier, “Mr. and Mrs. W.R. (Bill) Lokier,”; “Pioneer Rancher,” ranch expropriation, M2007.1.2, Thomas and Eliza Lokier Fonds, Esplanade.

the conclusion that if this is the kind of justice and freedom we are fighting for we might as well quit.”⁷⁸

Lust’s case demonstrates how the creation of militarized geographies meant to ensure security could also make some people’s lives much less secure. While planners took some measure to lessen the “costs” of the Suffield development; more often than not, the “exigencies of the moment” outweighed the need “to protect the public interest.”⁷⁹ The government’s forcible and rapid dispossession, unwillingness to negotiate or directly engage with the displaced population, and inadequate compensation all came together to create numerous ill-fated consequences in the lives of some evacuees.

THE DEMANDS OF WAR

As many evacuees discovered, standing in the way of military developments was not an easy position in which to find oneself, especially during a wartime emergency. Wartime thinking can, as legal historian Mary Dudziak writes, carry “a powerful sense of determinism. Actions that would normally transgress a rule of law are seen as compelled by the era, as if commanded by time.”⁸⁰ Indeed, the whole notion of an evacuation taking place on the Suffield Block was predicated on the idea of evacuees having to respond to larger forces and events beyond their control. In many respects, wartime emergencies are not that dissimilar to natural disasters. As with natural disasters, many of the

⁷⁸ Jack Lust to Mr. Mackenzie King, 7 February 1942, 4354-9-14, C-5004/5, LAC; Real Estate Advisor to Harry Allen, 3 March 1942, 4354-9-14, C-5004/5, LAC.

⁷⁹ H. DesRosiers to Deputy Minister of Justice, 19 June 1941,

⁸⁰ Mary L. Dudziak, *War Time: An Idea, its History, its Consequences* (New York: Oxford University Press, 2012), 23.

evacuees found the whole experience disorientating. Years after the expropriation, some were still confounded over why government authorities chose to do things the way they did. In reflecting on the expropriation, Wallace Tewinkel noted how it was

an unpleasant experience with plenty of worries. The Army did very little in the line of bombing or other experimenting for the first year. Just why there was such a rush to get us out, I don't know, except that that is the way the Army does things. After seeing how much money was spent and a lot of it wasted, I think the government could have been a little more liberal with us, but moving out was much better than being bombed out.⁸¹

From the perspective of the U.K. and Canadian chemical weapons scientists and defence authorities, getting a large-scale weapons testing installation off the ground in such a relatively affordable and timely manner must have, in contrast, appeared as a considerable achievement. This timeliness and affordability did, at least in part, come at the expense of the people who had once lived within Suffield's new boundaries; yet the demands of war require sacrifices, and the benefits of a large-scale chemical and biological warfare field testing station, according to the assessment of most authorities, clearly outweighed such sacrifices.

As in the case of other prominent wartime developments, a select group of defence and scientific authorities made most of the key decisions guiding the Suffield expropriation. "Paradoxically," as author John Beck puts it, "decisions made in the defense of democracy were made undemocratically, in secret by a

⁸¹ Wallace Tewinkel, "Wallace Tewinkel's story of life in the British Block."

small elite.”⁸² At Suffield, some of these decisions, as Tewinkel’s comments suggest, were open to question. Undoubtedly, the decision to displace close to 600 settlers and take exclusive control of a large swath of land would have attracted more scrutiny in a normal, peacetime situation. Yet, during the emergency period of the war, such seemingly controversial measures were far easier to implement. In “this desperate struggle for existence,” as Cabinet Minister T.A. Crerar bluntly stated in 1942, “every act of government becomes an emergency act which cannot wait for the operation of the leisurely processes of peaceful times.”⁸³

For their part, most evacuees appear to have understood how the demands of the war required them to make sacrifices. Even in their protests, they took care not to blame the government outright and instead recognize how, as John W. McLachlan put it, “owing to the urgency of war preparation, a grave injustice in the matter of compensation was inadvertently committed against the evacuated settlers of what is known as the ‘British Block.’” Yet, while Jack Lust and others may have recognized the nature of the situation and “been loyal to and supported” the government, they also believed the government would, in turn, be responsive to their needs and ultimately protect their interests. While critical of the government’s actions, Lust’s hand-written appeal to “Mr. Mackenzie King” also displayed a certain faith in the Canadian government’s ability to recognize and address alleged wrongdoings. This same faith led many evacuees to refuse “to

⁸² Beck, *Dirty Wars*, 103.

⁸³ Crerar to Greenbird, 4 May 1942, 27029-2, Pt. 1, Vol 7754, RG 10, LAC as quoted in Lackenbauer, *Battle Grounds*, 129-130.

believe that it was the wishes of the British and Canadian people that any individual should assume loss from any national emergency of such great importance.”⁸⁴

For Lust, McLachlan, and others, it was the government’s lack of responsiveness that troubled them the most. Under the management of the Special Areas board, farmers and ranchers in the Suffield area had grown accustomed to working with local officials who not only valued their experience and knowledge but were also willing to make special provisions on their behalf. Under this new wartime regime, however, the residents of the Suffield Block were rapidly transformed from being the “most desirable” class of settlers into an inconvenient problem in need of a quick fix.⁸⁵ Above all, the Suffield development signaled a new type of relationship between the government and its citizens, one in which the “urgency of war” superseded normal governmental priorities and democratic controls, making authorities far less responsive to the public interest.

THE DEMANDS OF PERMANENT WAR

Both the evacuees and government authorities were well aware of how the demands of war could make controversial actions easier to implement. Even though there was little opportunity for public input or debate at time of the acquisition, if given a chance to weigh in, most Canadians would also have likely recognized how the urgent need to defend against pressing threats pushed the government to ignore the appeals of Suffield residents and take a number of

⁸⁴ McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament”; Jack Lust to Mr. Mackenzie King, 7 February 1942.

⁸⁵ Commission, "Report on Land Sections - Tilley East Report," M85.23.1, Esplanade.

heavy-handed measures to enforce their removal. It is harder to explain why, after World War II had ended, little willingness existed to address the possible “wrongs committed under the strain of war” at places such as Suffield.⁸⁶ War undoubtedly makes demands and requires sacrifices, yet in Canada some of these sacrifices have seemingly occurred with minimal recognition, debate, or redress.

Something that might not have been clear to evacuees at the time, and is still not readily acknowledged today, is how the imperatives that drove developments such as Suffield did not cease with the end of hostilities in 1945. Unlike many wartime projects, the threats that initially brought Suffield into existence only expanded in the years after the war, as both the scale and lethality of chemical and biological weapon technologies increased. If anything, authorities in Canada were ahead of the curve in recognizing how unorthodox weapons of mass destruction would shape global defence and security in the years after the war. In an August 1945 letter to Alberta Premier E.C. Manning, for example, outgoing Defence Minister Andy McNaughton insisted that it had become “very clear that our future safety depends at least in some considerable measure on the continued investigation and experiments in these fields [of chemical and biological warfare] so that we may know definitely what may be in prospect should unscrupulous forces seek to break out against world security.” McNaughton specifically believed Suffield held a “unique and far-reaching importance,” and that its continued operation on “a permanent post war basis”

⁸⁶ McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament.”

was “one of the essential means by which Canada may contribute effectively to the system of collective security.”⁸⁷

In taking a longer view of defence developments, the situation at Suffield becomes more complex than the government simply not acknowledging possible wrongdoings committed under the strain of war. Suffield may have initially been seen as a temporary, militarized landscape “formed during the emergency period of war,” but, with its mission so closely tied to the primary tenets of national security doctrine, it quickly outgrew such characterizations. At both Suffield and Dugway Proving Ground, the questions are not only about wartime exigencies but also about how the biopolitics of security and ongoing demands of permanent war have shaped spatial and power relations. In other words, a large part of the reason for the scant willingness to address the possible “wrongs committed under the strain of war” is that, at places such as Suffield, “the urgency of war preparation” has become a permanent, underlying condition.⁸⁸

Perhaps if Suffield had closed at the end of the war or the threat of chemical and biological weapons had subsided more opportunities would have arose to debate the rapid and forcible manner in which the area had been taken over. At Suffield, however, the postwar period was marked not by reparation but by entrenchment. Instead of closing down, Suffield greatly expanded in the immediate years after the war. During a time when public debates over the

⁸⁷ Gen. McNaughton to E.C. Manning, 20 August 1945, 4354-2, C-5002, LAC; C.J. Dewar, “Minutes Thirty-Seventh Meeting Canadian CW Inter-Division Board,” 10 September 1945, 4-C9-19 vol. 1, Box 6, RG 77, LAC; A.G.L. McNaughton to E.C. Manning, 3 August 1945.

⁸⁸ “Proposed Postwar Experimental Station Suffield,” n.d., 4-C9-41, Box 10, RG 77, LAC; McLachlan, “A Letter to the Prime Minister of Canada and Members of Parliament.”

government's wartime internment and relocation of Canadians of Japanese descent began to gain traction, Canada was devoting considerable sums of its defence budget to the construction of permanent facilities at Suffield.⁸⁹

Far from dying down in the years after the war, disputes over land claims in the Suffield region reached peak levels. As defence interests were making a case for "the urgent need for Suffield as a post-war CW Field Testing Station," the Province of Alberta began to reassert its own claims to Suffield Block. "Now that hostilities have ceased," as Premier E.C. Manning noted to the Defence Minister in September of 1945, "we feel that the area required for the continuation of experimental work might be reduced in size which would make available to the Province portions of this tract of land which are required for local purposes which the Government considers important." One of the main issues, according to officials at Suffield, was that the Province "looked upon the [Suffield] project as only a temporary wartime measure," and were "reluctant to tie up the area with consequent prevention of other possible developments."⁹⁰ While McNaughton and other officials may have been able to address such concerns from the strategic perspective of postwar defence needs, the bigger question of why such a large, permanent field testing station had to be specifically located in southeastern Alberta remained unsettled.

⁸⁹ Goodspeed, *Defence Research Board*, 148-150.

⁹⁰ O. Maass, "Draft of Organization for Suffield," 8 August 1945, 4354-2, C-5002, LAC; E.C. Manning to Douglas C. Abbott, 17 September 1945, 4354-2, C-5002, LAC; Colonel R.W. Catto, "Accommodations and Fire Prevention," 26 June 1945, 4354-2, C-5002, LAC.

That the Suffield Block was not the hopelessly unproductive area that defence officials had made it out to be may have been clear to many local Albertans, but defence authorities did not have any more interest in understanding the local history of land use than they had been during the war. When it came to assessing the suitability of the Suffield area for military use, defence officials and scientists had been inclined to see what they wanted to see from the outset. The only thing to change in the years after the war was that their haphazardly constructed understandings of history and place gained even more importance. As counter claims for land and resources on the Suffield Block intensified, so did the need to define the area as an unproductive wasteland fit only for military use. Much as it had during the war, Suffield's continuing viability in the post war period would rest upon the assertions that 1) there was no other place "where conditions are as suitable for work of this nature as are found in the Province of Alberta" and 2) that "much of the land [at Suffield] is of very little value for any other purposes."⁹¹

In taking a longer view, the 1941 expropriation of the Suffield Block marks not the end of National Defence's land acquisition proceedings but the beginning of a continuous, ongoing process of mobilization and legitimation. Having been formed during a temporary wartime emergency, the military's continuing control of land at places such as Suffield has depended on their acquisitions being

⁹¹ Deputy Minister of the Army to N.E. Tanner, 29 May 1945, 4354-2, C-5002, LAC; Gen. McNaughton to E.C. Manning, 20 August 1945.

“legitimately seen as landscapes of emptiness or sacrifice.”⁹² More than anything else, historical portrayals of impoverished farmers trying to make a living on unforgiving lands have been relied upon, again and again, to explain why the military has remained on this particular piece of land in southeastern Alberta for so long. And just as these portrayals have helped to justify Suffield’s existence, Suffield’s continuing existence has helped to ensure that these sustaining myths will continue to persist.

The mobilization of history is an essential strategy of military occupation. The various assumptions about people and places embodied in the official stories told about Suffield’s development have had critical influence on how military occupation has played out, not only shaping the military’s initial approach to the acquisition but also its continuing claims to lands within the Suffield Block. Through such sustaining myths, moreover, Suffield became recognized not as a temporary landscape of wartime controversy and militarized exception but as a natural outgrowth of ongoing security imperatives and collective defence efforts—a place, as geographer Shiloh Krupar puts it, that is “accepted by the vast majority of the population as part of the ‘natural environment’ of the nation.”⁹³ In looking more closely at the history of military land claims at Suffield, new understandings about militarism, military development, and war’s permanent presence in Canadian society emerge. Such understandings become even more

⁹² Sasha Davis, “The US Military Base Network and Contemporary Colonialism: Power Project, Resistance and the Quest for Operational Unilateralism,” *Political Geography* 30 (2011): 223.

⁹³ Shiloh Krupar, *Hot Spotter's Report: Military Fables of Toxic Waste* (University of Minnesota Press, 2013), 8, 71.

complex when the focus shifts from military dispossession and land use to questions of open-air weapons testing and human experimentation.

EXCEPTIONAL WEAPONS, SPACES, AND POWERS

Experimentation and Development at Suffield Experimental Station

On a cold, spring night in 1951 at the Suffield chemical and biological warfare field experimental station in southeastern Alberta, a trailer carrying five men crept along toward the exposure site “slowly so as not to stir up contaminated snow.” Shortly before sunset a couple hours earlier, a B-25 Mitchell bomber had sprayed 120 gallons of mustard gas over a 650 by 300-yard rectangular grid. Sitting on benches and surrounded by specially-designed sampling equipment, each man wore protective clothing as well as oral-nasal respirators and eye shields. “On arrival at the exposure site,” all of the men removed their eye shields. Over the next five hours, the “persons in charge of the test” took careful measures to ensure that all five test subjects “keep their eyes open during the exposure.” The field trial sought to determine whether mustard

gas vapor could “produce eye lesions” in cold weather. Suffield conducted the trail on the behalf of the United Kingdom, as part of a larger effort to study “the possible use of mustard gas attacks against cities in winter.”¹

That mustard gas could inflict severe lesions to eyes, lungs, and skin had been a well-established fact since the First World War. Research with human subjects at a military laboratory in Ottawa in 1941 had also revealed that “mustard lesions can be produced experimentally on humans with the greatest of ease.” To the lead scientist conducting these initial tests, it was plainly evident that mustard experiments involving “eye injuries must be done with animals” because the potential risks were too high for humans.² When some of the first open-air, chemical weapons field trials involving human subjects were conducted at the newly established Suffield Experimental Station in early 1942, however, precautions to reduce such high-risk injuries were not a high priority. As one former participant of Suffield’s human testing program noted, “people were scarred, some were left half blind. Others had terrible coughs.” Another test victim remembers being taken to a large hospital that was normally off-limits to him and seeing more than seventy badly burned men, some with testicles that

¹ Field Experiment No. 392," 14 March 1951, Field Experiments, Experimental Station, Suffield, Alberta, Box 1224, Records of the Army Staff, Records Group 319 (RG 319), National Archives at College Park, Maryland, United States of America, (NACP); "Suffield Field Experiments, Trial Record # 22-27, 32," 8 January 1951 - 26 May 1951 & Aug 1951, Suffield Report Experimental Station, Suffield Alberta, Box 3322, RG 319, NACP.

² For overview of mustard gas’s properties and clinical effects, see U. S. Army, *Medical Management of Chemical Casualties Handbook*, 4th ed. (Aberdeen: Aberdeen Proving Ground, 2007), 62-122; Constance M. Pechura and David P. Rall, eds. *Veterans at Risk: The Health Effects of Mustard Gas and Lewisite* (Washington D.C.: National Academy Press, 1993). For quotes, see J.G. Malloch, "Remarks on Comments by DDG/CW(r) on Canadian C.W. Project," n.d., 4-C9-25 Vol 1, Box 6, RG 77, Library and Archives Canada, Ottawa, Ontario, Canada (LAC).

“had swelled to football size.” One of the things that stuck out to another participant was “all the blind guys walking behind each other with their hands on the next guy's shoulder in front of them.” According to one 1942 testing report, the ones with the most severe eye injuries laid in darkened rooms for weeks and “were usually silent, depressed and introspective at the height of the eye effects.”³

As shocking as such scenes may be, the “many terrible things that have happened there [at Suffield] in the past” – as one former test victim put it – are not uncommon.⁴ They may not always be easy to access, but similar scenes of horror and trauma also mark the histories of Dugway Proving Ground, Edgewood Arsenal, Fort Detrick, Porton Down, the Biopreparat complex, the Nevada and Semipalatinsk nuclear test sites, Los Alamos, the Hanford Site, the Maiak plant, and other prominent installations devoted to the testing and development of nuclear, chemical, and biological weapons.⁵ The rise of unorthodox weapons

³ Wendy Dudley, “Vet has Mustard Gas Scars,” *Calgary Herald*, 13 Feb 1991; Brain Hauk, “In WWII, Canada Army Used Soldiers as Guinea Pigs for Chemical Weapons,” *Vancouver Sun*, 19 November 2002; Rod Edwards, “Memories of the Horror of It All” *Medicine Hat News*, 5 May 2000; 4354-26-10, RG 24, LAC as quoted in Jon Bryden, *Deadly Allies: Canada's Secret War, 1937 to 1947* (Toronto: McClelland & Stewart Inc., 1989), 170.

⁴ Peter Hays, “Empress Residents Worry about Winds from Suffield Base,” *Medicine Hat News*, 28 Feb 1990.

⁵ For horrorism, see Francois Debrix and Alexander D. Barder, *Beyond Biopolitics: Theory, Violence, and Horror in World Politics* (New York: Routledge, 2013); Adriana Cavarero, *Horrorism: Naming Contemporary Violence* (New York: Columbia Univ Press, 2010). For similar cases of human experimentation, see Ken Alibek, *Biohazard: The Chilling Story of the Largest Covert Biological Weapons Program in the World* (New York: Random House, 1999); Kathryn L. Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters* (New York: Oxford University Press, 2013); Carroll Michael Christopher, *Lab 257: The Disturbing Story of the Government's Secret Germ Laboratory*. (New York: Harper, 2004); Carole Gallagher, *American Ground Zero: The Secret Nuclear War* (Lunenburg, VT: The Stinehour Press, 1993); Bridget Goodwin, *Keen as Mustard: Britain's Horrific Chemical Warfare Experiments in Australia* (Brisbane: Univ. of Queensland Press, 1998); Barton C. Hacker, *Elements of Controversy: The Atomic Energy Commission and Radiation Safety in Nuclear Weapons Testing, 1947–1974* (Berkeley: University of California Press, 1994); Barton C. Hacker, *The Dragon's Tail: Radiation Safety in the Manhattan Project, 1942-1946* (Berkeley: Univ of California Press, 1987); National

technologies that could inflict violence on a mass scale not only destabilized the global political order but also produced a multitude of disruptions at local sites. As has been well established, the seizure of vast tracts of terrain, or what one Pentagon official once dubbed “national sacrifice zones,” for so-called “weapons work” was one of the first requisites for developing capabilities with weapons of mass destruction.⁶ Less well-recognized is how weapons work also required “free and juridically empty” spaces where defence scientists and officials could perform inherently risky research and development activities, including experiments on human bodies, outside of common legal and ethical constraints. As the chapter argues, the very weapon technologies that contributed to the rise of permanent war and state of exception also produced spaces of exception where, as philosopher and jurist Carl Schmitt put it, nearly “anything could happen as long as it was held to be de facto necessary according to circumstances.”⁷

Broadly speaking, space of exception are places where the normal law no longer holds and the emergency conditions of war are given permanent spatial arrangements. Common examples include Nazi extermination camps, where nearly anything was possible, or Guantanamo Bay’s detention camp, where enemy combatants have been detained indefinitely without guarantees of equal

Public Radio, “World War II Secret Mustard Gas Testing,” (2015-2016), <http://www.npr.org/series/417162462/world-war-ii-secret-mustard-gas-testing>; Ulf Schmidt, *Secret Science: A Century of Poison Warfare and Human Experiments* (Oxford: Univ of Oxford Press, 2015); Eileen Welsome, *The Plutonium Files: America's Secret Medical Experiments in the Cold War* (New York: Random House, 1999).

⁶ Seth Shulman, *The Threat at Home: Confronting the Toxic Legacy of the U.S. Military* (Boston: Beacon Press, 1992), 8.

⁷ Carl Schmitt, *Das Nomos von der Erde* (Berlin: Duncker & C. Humbolt, 1974) as quoted in Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. Daniel Heller-Roazen (Redwood City, CA: Stanford Univ Press, 1998), 27.

protection, due process, or other standard judicial controls.⁸ The history of Suffield's early testing and development program offers a compelling case for how weapons sites function as spaces of exception.

At the most basic level, Suffield provided a suitable location where the necessary conditions for the development of capabilities with unconventional weapons of mass destruction could be realized. Yet, contrary to common perceptions, these necessary conditions involved much more than just "large open spaces for weapons testing."⁹ Developing capabilities with such potentially consequential weapons technologies also opened up certain realms of authority. In the name of war and security, defence officials and scientists were invested with extraordinary powers over people and places. In the case of Suffield, weapons scientists not only exercised all functions of command but they also had the power, as geographer Trevor Paglen puts it, "to create places where anything can happen, and do it with impunity." More than anything else, Suffield represented a secret geography where authority superseded domestic governing

⁸ Agamben, *Homo Sacer*, 96; Judith Butler, *Prekarious Life: The Powers of Mourning and Violence* (Brooklyn: Verso, 2006), 51-100, 155-157 Derek Gregory, "The Black Flag: Guantánamo Bay and the Space of Exception," *Geografiska Annaler: Series B, Human Geography* 88(4) (2006): 405-427; Minca, "The Return of the Camp," *Progress in Human Geography* 29 (4) (2005): 405-412. For overviews of studies on spaces of exception, see Claudio Minca, "Geographies of the Camp," *Political Geography* 49 (2015): 74-83; Richard Ek, "Giorgio Agamben and the Spatialities of the Camp: An Introduction," *Geografiska Annaler: Series B, Human Geography* 88(4) (2006): 363-386.

⁹ J.F.S. Stone, "The Capabilities of our Defeated and Possible Future Enemies in the Field of B.W. during the Next Ten Years," 21 Dec 1945, War-General, Biological Warfare Specialized Files, 1941-47, Records of Preventive Medicine Division, Records of the Office of the Surgeon General, Records Group 112 (RG 112), NACP.

controls and the customary conventions governing injury, liability, criminality, informed consent, and individual rights did not apply.¹⁰

Due in part to its highly secretive nature, the history of Suffield's human testing program remains an understudied topic. Until recently, test records were strictly classified and most insights into the experiments came from chance references found in documents from British and American archives.¹¹ Even today, records of some of the more controversial experiments, such as ones involving eye exposures or more lethal chemical agents, can only be found in records outside of Canada. The actual scale of Suffield's human testing program also remains difficult to determine. A recent government study, for example, estimated that approximately 3,000 Canadian soldiers and an untold number of employees likely participated as human test subjects at Suffield, but the report acknowledged the figure could be as high as 8,812 individuals.¹² Test subjects themselves took strict oaths of secrecy, and faced imprisonment or even execution for speaking out. After the Canadian government finally acknowledged

¹⁰ Trevor Paglen, *Blank Spots on the Map: The Dark Geography of the Pentagon's Secret World* (New York: Penguin, 2009), 60-61, 141; Butler, *Precarious Life*, 51, 59.

¹¹ For works on Suffield's human testing program, see Bryden, *Deadly Allies*; Patrick Corbett, *Secret War: The Odyssey of the Suffield Volunteers* directed by Chick Snipper (Vancouver: Insight Film & Video, 2001); Christopher Robin Paige, "Canada and Chemical Warfare, 1939-1945." (M.A. Thesis, Univ of Saskatchewan Saskatoon, 2009). For works that engage with recently declassified materials, see Susan Wright, "Alberta Advantage: A Canadian Proving Ground for American Medical Research on Mustard Gas and Polio in the 1940s and 1950s" in *Locating Health: Historical and Anthropological Investigations of Health and Peace*, ed. Erika Dyck and Christopher Fletcher (London: Pickering & Chatto, 2011), 71-89; Schmidt, *Secret Science*.

¹² The estimate of 3,000 test subjects based upon estimates from two government studies, see Jim Thompson et al, "Nominal Rolls: Lessons Learned from Developing the 'Mustard Gas List,'" (Charlottetown, PEI: Veterans Affairs Canada, 2010); Clément H. Laforce, "The Use of Human Subjects in Chemical Warfare Agent Experiments: An Ethical Perspective" (2006), available at www.cfc.forces.gc.ca/259/281/278/laforce.pdf

the program's existence in 2004, secrecy over Suffield's human experiments has been gradually lifted. Not only have certain testing documents been declassified, but survivors of the experiments also began to increasingly speak out about their experiences, usually in local newspapers.¹³

Even with the expanded attention, it has still been hard for outsiders to grapple with or make sense of this troubling history. "If all of this sounds incredible," as one critic of the experiments observed in 2004, "it is only because of its rank indecency." It is the kind of story, as another commentator similarly reflected, "most people find hard to believe because it's so horrendous."¹⁴

Examining underlying questions regarding what motivated the testing program, how it gained approval, why troops showed up for experiments, what kinds of research questions were pursued, and what types of experiments were carried out will help to demystify Suffield's human testing program. However, part of the reason some of the "terrible things" that have gone on at Suffield may be difficult to comprehend also likely has to do with how the experiments not only represent grave injustices but also violate basic norms and legal order. In writing about

¹³ At least two accounts refer to threats of execution, see Schmidt, *Secret Science*, 132; Ron Edwards, "Hatter Has Ill Health Not Ill Will," *Medicine Hat News*, 22 March 2000. For history of secrecy and the government's acknowledgment of testing program, see André Marin, *Complaints Concerning Chemical Agent Testing during World War II* (Ottawa: Department of National Defence and Canada Forces, 2004), available at www.ombudsman.forces.gc.ca/en/ombudsman-reports-stats-investigations-chem-testing/report.page. Pressure of class-action lawsuit and taking case of human rights abuse to the United Nations prompted the Canadian government to offer of \$24,000 compensations for surviving victims in 2004, which was thought to be a comparable amount "to previous payments to Canadian veterans." For further details, see "Chemical Warfare Agent Testing Recognition Program." <http://www.forces.gc.ca/en/news/article.page?doc=chemical-warfare-agent-testing-recognition-program/hnocfono>. Locating these victims, however, has presented many challenges, see Thompson et al, "Nominal Rolls."

¹⁴ Marin, *Complaints*, 1; Natalie Bank, "Searching for Surviving Veterans," *Medicine Hat News*, 8 November 2003.

Nazi concentration camps, legal philosopher Giorgio Agamben observes that it is only because the camps constitute a space of exception “in which not only is law completely suspended but fact and law are completely confused—is everything in the camps truly possible. If this particular juridico-political structure of the camps... is not understood,” he further contends, “the incredible things that happened there remain completely unintelligible.” Thus, in addition to looking at the nature of Suffield’s testing program itself, it is also necessary, as Agamben suggests, “to investigate carefully the juridical procedures and deployments of power by which human beings could be so completely deprived of their rights and prerogatives that no act committed against them could appear any longer as a crime.”¹⁵

The extraordinary powers exercised over test subjects may offer the clearest illustration of how Suffield functioned as a space of exception, but these controversial experiments are far not the only example of how Suffield operated outside the normal order. The camp-like conditions of the installation; the immense scale of field trials; the haphazard and sometimes surreal nature of development; the exacting safety ideals and training practices; as well as the grave dangers involved in routine tasks all played a central role in this story. Attention to the full spectrum of research and development activities at Suffield, reveals that not only was nothing ever “normal” about Suffield, but this very lack

¹⁵ Agamben, *Homo Sacer*, 97; Giorgio Agamben, *Means without End: Notes on Politics* trans. Cesare Casarino and Vincenzo Binetti (Minneapolis: Univ of Minnesota Press, 2000), 36-42.

of normalcy opened up great possibilities as far as the testing and development of chemical and biological weapons (CBW) was concerned.

In addition to the many exceptional conditions at Suffield, it also important to recognize how the imperatives of war and security brought about many significant developments at Suffield, including a massive, multi-national investment in land, resources, labour, and expertise; the construction of highly specialized labs, storage facilities, and field testing sites; as well as the creation of an ambitious and well-equipped scientific city. Also, while this chapter mainly focuses on humans and human-dominated developments, this does not mean that nonhuman actors were not important. As noteworthy as the experiences of test subjects may have been, they were not the only casualties of Suffield's research activities. During the open-air period of field testing—which lasted until at least the early 1970s—a host of extremely hazardous and unpredictable chemical, biological, and radioactive warfare agents were released into the environment. These toxic warfare agents not only posed immediate dangers to nearly every living creature that happened to come into contact with them, but they also contributed to a slow, often imperceptible “environmental violence” against both human and non-human populations.¹⁶ In this chapter, the stories of

¹⁶ Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge: Harvard Univ Press, 2011); D. Wadiwel, "Cows and Sovereignty: Biopower and Animal Life," *Borderlands* 1(2) (2002): www.borderlands.net.au/vol1no2_2002/wadiwel_cows.html; Joseph Masco, "Mutant Ecologies: Radioactive Life in Post-Cold War New Mexico," *Cultural Anthropology* 19(4) (2004): 517-550; Linda Nash, *Inescapable ecologies: A History of Environment, Disease, and Knowledge* (Berkeley: Univ of California Press, 2006).

human test subjects take precedence over other casualties not because the violence inflicted against them was more noteworthy, but because this violence was more visible. It can, to provide one example, be exceedingly difficult to establish direct connections between weapons testing activities and the injuries or deaths of exposed wildlife or livestock, to say nothing of the slow rise of disease clusters in neighboring civilian populations or former employees of Suffield. With human test subjects, on the other hand, such connections are far easier to make, as the “production of casualties” usually formed one of the chief objectives of human experimentation.

Whether immediately evident or slow and imperceptible, the many remarkable risks and incidents affecting test subjects (both human and animal), workers, wildlife, livestock, or neighboring civilians at Suffield were all tied to the disruption of normal order and exercise of extra-legal authorities. Here as well as at similar weapons sites, seemingly simple questions over the threat and potential of unorthodox warfare technologies had enormous consequences, bringing about new forms of land use, risk, and power.

Inauguration

In many respects, Alberta’s Suffield Experimental Station was founded upon one simple question: what would happen if a large toxic gas cloud were used against England as a prelude to invasion? At the time of Suffield’s establishment in June of 1941, the “threat of an invasion of England was still very great.” According to intelligence authorities, there was “good reason to believe that when or if the Germans did try to cross the Channel, they would precede it by

releasing from barges off the coast, an enormous gas cloud, so strong that it would penetrate any gas mask, and so lethal that it would roll a path of death for miles inland.” As a result of such fears, “Suffield's first priority task,” as an unpublished, postwar press release noted, “was to find out just how effective such a large gas cloud would be.” To create the massive cloud, scientists loaded nearly 100 tons of phosgene, a highly lethal choking chemical agent, into 280 explosively-charged oil drums and stacked them together on a field testing grid at Suffield. Men equipped with gas masks and sampling equipment were “placed at half-mile, 2½ mile, 5 mile, 10 mile, and 15 mile lines” on the downwind area of the grid, with goats, rats, and guinea pigs tethered at each of these observation lines. “As large groups of British, American, and Canadian scientists and soldiers watched, the biggest concentration of poison gas ever released at once on the earth's surface was set free. Under constant surveillance by scientific instruments for strength and toxicity, it rolled across the prairies in dangerous concentrations for a distance of over 17 miles.”¹⁷

Beyond the practical objectives, this trial also represented an inauguration of sorts for the recently established Suffield Experimental Station. As with most undertakings at Suffield, the field test grew out of a “very closely integrated” effort between Canada, the United Kingdom, and the United States. The U.K. provided the initiative and scientific expertise, Canada provided land, facilities, and technical personnel, while the U.S. provided mass quantities of phosgene.

¹⁷ Suffield, "Proposed Press Release"; Otto Maass, "Report on the Large Scale Experiment at the Experimental Field, Suffield," 31 Mar 1942, 4354-1-8, C-5002, LAC.

With so much invested into the field trial, representatives from each country were eager to see Suffield “put up a bit of a show.” Getting the nearly 1,000 square mile experimental station up and running, however, proved far more challenging than anticipated, and the “first of the major large-scale trials that were to justify Suffield’s existence” did not end up taking place until March 1942, nearly ten months after Suffield’s founding.¹⁸

Despite the delay, this first large-scale field trial still amply demonstrated the Suffield site’s unique capabilities and potential, leaving observers from all three countries immensely satisfied. British authorities reported that “a great deal of importance” had been attached to the March 1942 field trial, and “that work of this nature was invaluable, as experiments of this type cannot be carried out in England owing to the restricted area.” The American observers were also “greatly impressed with the way in which this field experiment was carried out,” and they immediately took steps to supply Suffield with large amounts of hydrogen cyanide—a more lethal chemical warfare agent that would soon become notorious for its extensive use in Nazi extermination camps— “for experiments on a large scale.” C.J. Mackenzie, president of Canada’s National Research Council, similarly boasted how “altogether it was a remarkable show. Probably the most expensive experiment ever performed in Canada – probably \$200,000 spent in something like a couple of hours but the results are well worth it.”¹⁹

¹⁸ Suffield, "Proposed Press Release"; Otto Maass to Mr. E. Ll. Davies, 19 August 1941, 4-C9-19 Vol 1, Box 6, RG 77, LAC; Defence Research Board, “Suffield Experimental Station, 1941-1961,” 9.

¹⁹ J. Morris, “18th Meeting of the C.W. Inter-Service Board,” 7 Dec 1942, 4-C9-41, Box 10, RG 77, LAC. Maass, "Large Scale Experiment"; Mackenzie Diary, 28 March 1942 as quoted in

“Chaos seemed to reign everywhere”

This first large scale field test stands out largely due to its unprecedented scale, the massive effort put into pulling it off, as well the attention that it, by design, attracted from influential Canadian and international observers. While each country made its own distinct contributions, one person, above all, made the field trial possible: The U.K.'s former Chief Chemical Warfare Officer and Suffield's first Chief Superintendent, E. Ll. Davies. Considered by many the “Father of the Establishment and the ‘first settler’ in Suffield,” Davies spearheaded the movement to establish a full-scale field testing station in Canada, personally guided “all of the spade work in building up the organization at Suffield,” and played a central role in the design and implementation of several hundred chemical and biological warfare field trials during the war.²⁰ Davies did report to Otto Maass, who, as Canada's Director of Chemical Warfare and Smoke, oversaw all things related to chemical and biological warfare in Canada. However, Maass, a McGill University chemist with limited field testing experience, was all too willing to allow the more experienced Davies to, as Maass himself put it, exercise “all functions of command” at Suffield.²¹

Maass' Directorate of Chemical Warfare and Smoke itself was formed in August of 1941 as an “independent subdivision” under the jurisdiction of the

Donald Avery, *The Science of War: Canadian Scientists and Allied Military Technology during the Second World War* (Toronto: Univ of Toronto Press, 1998), 133-134, 320.

²⁰ DRB, “Suffield, 1941-1961,” Forward; E.A. Flood to W.W. Goforth, 28 May 1942, 745.043 (D1), National Defence Headquarters Directorate of History and Heritage, Ottawa, Canada (DHH).

²¹ The DND did assist Davies with managing Canadian Service personnel, see J. Morris, “16th Meeting of the C.W. Inter-Service Board,” 25 Aug 1942, 4-C9-41, Box 10, RG 77, LAC.

Army's Master-General of the Ordnance (MGO), a division of the military chiefly concerned with research, development, and procurement as opposed to combat operations. Officially Maass reported through the MGO to the Defence Minister and General Staff, but in reality, as historian Donald Avery points out, "this hierarchical system was a myth," as DND officials rarely showed much interest in monitoring Canada CBW activities and developments.²² Instead of military leadership, select advisory committees and secret scientific organizations made most major decisions regarding CBW policy, research, and development in Canada. Made up of a representative from Canada's National Research Council, the United Kingdom, and from each of the three Canadian armed services, the Canadian Chemical Warfare Inter-Service Warfare Board was a largely aboveboard committee that served as the "authoritative advisory body" for all matters related to chemical warfare. In contrast, the C-1 Committee (formerly M-1000 Committee) was a highly secretive organization made up of a closely-knit group of Canadian bio-scientists that examined and advised "upon all questions relating to the offensive or defensive use of biological agents in war." While Otto Maass held ultimate authority over the two committees, E. Ll. Davies, who not only served as Suffield's Chief Superintendent but also as the U.K.'s official

²² Avery's comments mainly apply to biological warfare. While the DND may have had more sustained interest in Chemical warfare, this interest was also fleeting. For further details, see Avery, *Science of War*, 131; Donald Avery, *Pathogens for War: Biological Weapons, Canadian Life Scientists, and North American Biodefence* (Toronto: Univ of Toronto Press, 2013) 26; Donald Avery, "The Canadian Biological Weapons Program and the Tripartite Alliance," in *Deadly Cultures: Biological Weapons since 1945*, eds. Mark Wheelis, Lajos Rózsa, and Malcom Dando (Cambridge: Harvard Univ Press, 2006), 86-87.

representative on the Canadian Chemical Warfare Inter-Service Warfare Board, also held ample power within this exclusive CBW research community.²³

Davies, who specialized in meteorology and mathematics, was undoubtedly the most influential CBW scientist to hail from the U.K., but he was not alone. Close to a dozen scientists from the British Chemical Warfare Establishment at Porton accompanied Davies to Suffield. This “nucleus of British scientists” quickly set themselves to the task of recruiting and training a much larger workforce. Drawn from Canadian military, industry, and universities, Suffield employed close to 600 personnel, including over 150 specially-trained lab and field technicians as well as about 50 professional staff with backgrounds in such wide-ranging fields as chemistry, physics, meteorology, mathematics, pharmacology, pathology, bacteriology, physiology, entomology, veterinary science, and mechanical and chemical engineering. These recruits included some of “the best scientific brains” from Canadian universities and industry, according to a postwar press report. While a number of civilians worked at Suffield, nearly three quarters of the station’s wartime staff were in uniform including service members from the Canadian Women’s Army Corps. This already robust workforce was further supplemented by a “constant stream of notable British and American military scientists” who “became temporary members of the Suffield staff while work was being carried out on projects of special interest to them.” Initially founded as a joint U.K.-Canadian project, the collaborative nature

²³ P.C. 1/6687, 26 August 1941, 112.352009 (D51), DHH; G.R. Vavasour, "Advisory Committee on BW Research Minutes of the 59/1 Meeting," 2-3, Nov 1959," SES.S 170-80/B1 Vol 1, RG 24, LAC; J. Morris, "16th Meeting."

of Suffield's research and testing program was present from the outset and quickly became a defining feature of the installation. By war's end, "visitors referred to the Station as a 'Scientific League of Nations' – that works."²⁴

To many of the early arrivals, the rapid transformation of the Suffield area in southeastern Alberta from a devoted ranching and farming district to a military experimental station disrupted common understandings of property and place, lending a confused and sometimes surreal quality to the new installation. One Canadian scientist, for example, vividly remembered how he and another new arrival "saw a house disappearing over the horizon" while looking over the prairies one evening. It turns out they were "not seeing things but simply the last of the dwellings being moved off the area by the people who had been living there." Adding that almost no trace of the former settlements "now remain, but in that first summer the remnants of the habitation were very apparent over the great part of the area." Despite considerable effort, construction progressed slowly. Months after taking over the area field conditions remained, to the dismay of E. Ll. Davies, in a "chaotic state... with only temporary living quarters." As large crews rushed to construct more suitable working and living facilities before winter set in, "chaos," as another new arrival put it, "seemed to reign everywhere."²⁵

²⁴ "Progress Report for the Experimental Station, Suffield, Alberta," 4/1- 9/30 1947, 91/364, DHH; DRB, "Suffield, 1941-1961," 35; Goodspeed, *Defence Research Board*, 146-147; Experimental Station Suffield, "Information Brief," n.d., 4354-26-1-1, C-5013, LAC; Suffield, "Proposed Press Release."

²⁵ DRB, "Suffield, 1941-1961," 8, 10, 17; Dr. O. Maass to Mr. R. Kingan, 26 August 1941, 4-C9-19 Vol 1, Box 6, RG 77, LAC.

The final site held “76 buildings of temporary wartime construction” representing an investment of over \$2.7 million. The facilities included an assortment of barracks, mess halls, offices, labs, garages, toxic stores, as well as a general hospital, canteen, aerodrome, parade ground, recreation area, and housing for test animals. As at Utah’s Dugway Proving Ground, personnel at Suffield lived and worked in “rather primitive conditions” during the war. Some of the early buildings lacked windows, doors, electricity, and running water, while the “labs were at first pretty make shift,” with some of them “located on the toxic storage sites.” Whether it was due to the poorly maintained roads, improperly heated and sheltered rooms, lack of bathing water, or the fly-infested kitchens and mess halls, many early arrivals remember having to struggle constantly with the elements. Largely because the station was set up with such “poor regard to water supply and sanitary facilities,” one of Suffield’s first major challenges was dealing with a “colossal” dysentery outbreak. Tellingly, Suffield personnel named the station’s primary outhouse after the recently dispossessed town of Bingville, one of Suffield Block’s most prosperous former settlements.²⁶

Even though conditions remained in a “chaotic state,” the sense of “urgency, and the concept of the field testing on a large scale as the focal point for all activities, seemed to give a unified approach to” the different problems faced at Suffield in the early years.²⁷ While certain characteristics of Suffield’s first large scale field trial stand out, this widely-praised March 1942 test

²⁶ N.J.W. Smith to Q.M.G., 4 Aug 1945, 4354-2, C-5002, LAC; G.M. Bowes to Deputy Minister (C), 6 September 1944, 4354-2, C-5002, LAC; DRB, “Suffield, 1941-1961,” 18, 40, 37, 33, 21, 31; Goodspeed, *Defence Research Board*, 146.

²⁷ DRB, “Suffield, 1941-1961,” 35.

was far from unique. A number of similar large scale trials with phosgene took place over the summer of 1942, and Suffield also hosted innumerable chemical, biological, and radiological weapons field tests both during and well after the war—with each test having its own set of objectives and methods but still conforming to overriding testing procedures and imperatives.

Stockpiling

The acquisition of suitable testing grounds, facilities, and personnel all contributed to the success of Suffield's wartime field testing programme, but the first essential for large scale CBW field trials was the availability of large stocks of toxic warfare agents and munitions. Out of all the adversities faced during Suffield's early development, none was as taxing as the accumulation of toxic stores. The story behind these struggles encapsulates both the enormous scale and haphazard nature of development activity at Suffield. Initially, the nearest supply of phosgene, mustard, and other standard warfare toxicants came from overseas in the U.K. While "several railway carloads" of materials arrived from the U.K. in the fall of 1941, it was only after U.S. stockpiles became readily available that truly large-scale field trials could take place at Suffield.²⁸

The availability of toxic agents and munitions was just the beginning of the problem. Many of the processes involved in manufacturing standard warfare toxicants, for example, were not only hazardous but also "required the

²⁸ DRB, "Suffield, 1941-1961," 3; O. Maass to E. El Davies, 28 Oct 1941, file 4-C9-19 Vol 2, Box 6, RG 77, LAC.

application of rather subtle scientific principles which were in a continual state of change and improvement.” For this reason, “the closest collaboration between scientists on the research level, development engineers, and production authorities was continually necessary.” Since environmental conditions at Suffield “were unique and unlike those pertaining in the U.S. or the U.K.,” the “design of the facilities for storing and handling toxic material at Suffield had to be undertaken from scratch.” Due to the urgency of the wartime situation, moreover, the construction of these facilities “was carried out concurrently with design and the work was put in hand before all drawings had been completed.” This was decidedly “not a desirable method of approaching the problem.” Each individual toxicant also presented its own set of challenges. Construction crews, for example, had to add lead lining to massive storage vats at the last minute after concerns arose about the “considerable risk” potentially involved “in storing mustard in contact with concrete walls.” Since phosgene inflicts most of its lethal damage before any visible symptoms occur, it had to be stored “much further from camp, probably ten miles North of Experimental Station.” Phosgene also could only be stored “in one-ton containers,” which were “scarce and subject to priorities.” Orders for hydrogen cyanide were put off entirely until further investigation into the “action of this material in storage, and the type of container best suited” for it could be determined.²⁹

²⁹ C.E. Olive, "Construction of Bulk Storage Tanks at Suffield," 5 Feb 1943, 4354-6-5-2, C-5003, LAC; J.R. Dacey, "Chemical Warfare Production Problems," 30 Nov 1948, DRBS 4-901-43-2, RG 24, LAC; C.E. Olive to V. Young, 8 Dec 1943, 4354-24-5-1, C-5013, LAC; V. Young to C.E. Olive, 15 Dec 1943, 4354-24-5-1, C-5013, LAC; W.W. Goforth, "Suffield C.W. Experimental Station and Area," 27 May 1942, 745.043 (D1), DHH; D.C. Turner, "Status of Toxic Stores Projects," 44 Dec 1942, 354-6-5, C-5003, LAC.

With so many technical hitches at hand, the construction of suitable storage facilities lagged far behind schedule, which left officials scrambling for ways to deal with the large amounts of hazardous materials piling up at Suffield's doors. Erecting a \$125,000 special railway line directly to the toxic storage area alleviated some of the problems. Since the storage facilities for mustard were still under construction, it "was necessary to cache the toxic materials in trenches which had been dug for the purpose." Phosgene, a gas at room temperature, could not be stored in open-air pits. Instead, "during the first few months of operation," as one service member recalled, "we had about 300 tons of phosgene in drums and cylinders around the camp."³⁰

It did not help matters when, in June of 1942, the Canadian government chose Suffield to be the country's primary site for housing an "emergency stock pile" of strategically-important chemical warfare agents, with ambitious target levels set for the acquisition of 10,000 tons of mustard, 2,000 tons of lewisite, and 1,000 tons of phosgene by March 1943. Even without suitable storage facilities available, Suffield had still somehow managed to become a central node in a massive global distribution network of extremely hazardous warfare toxicants. For their part, the Canadian federal government took the task of acquiring these strategic stockpiles quite seriously. In addition to purchasing large quantities of chemical toxicants from the United States, Canada also hastily

³⁰ C.E. Olive to Munitions & Supply, 25 Oct 1942, 4354-6-5-1, C-5003, LAC; E.C. Thorne, "15th Meeting of the C.W. Inter-Service Board," 1 July 1942, 4-C9-41, Box 10, RG 77, LAC; DRB, "Suffield, 1941-1961," 3, 39.

erected individual factories to produce mustard, phosgene, and anthrax. By the end of 1943, Canada had spent over \$7 million on mustard stores alone.³¹

Risk and Safety Discipline

Learning to live under the constant threat of dysentery outbreaks or phosgene leaks provided ideal preparation for the typical working conditions encountered at Suffield. More than anything else, the overriding element of risk unified all the station's research and testing activity. From start to finish, every stage of a typical field trial carried elements of danger. Take the 1942 large-scale, phosgene field trials, for example. Numerous hazards were involved in manufacturing mass quantities of phosgene, in shipping tons of it across North America on rails, as well as in the haphazard storage of large stocks of it around the Suffield camp. These, moreover, were just the initial dangers. H.J. Fish, one of the experienced British weapon scientists from Porton, remembered how loading mass quantities of phosgene into hundreds of oil drums in preparation for the field trials was "a very hazardous business in which dependence was placed on the cooling of the liquid which resulted from evaporation of a certain percentage of what one tried to run into the drum! One serious exposure did occur and Army doctors from a number of stations in Alberta helped in this, their first experience of a gas casualty." Measuring downwind toxic clouds during the trial also carried untold risks. Fish further describes how, especially during early morning field trials, "the dense vapour cloud rolled along the ground like liquid,"

³¹ Miles Benson, "5th Meeting of the C.W. Research Panel," 21 Feb 1951, DRBS 171-80/C10 Vol 1, RG 24, LAC; O. Maass, "SES and Weapons," 3 June 1942, 4-C9-41, Box 10, RG 77, LAC.

and he vividly recalls one time “seeing a chemist pumping away with a detector looking for the cloud, with a thin layer of the stuff visible as a white blanket swirling around his feet.” A major goal of these first large-scale trials was to test whether standard issued military gas masks could withstand extremely dense concentration of phosgene, and the mask-clad technicians standing on the downwind grid alongside goats, guinea pigs, and rats were very much active participants in these first experiments. Fortunately, “military respirators, even at the half-mile gave perfect protection.”³²

With so many dangers involved in what were effectively routine tasks, casualties were not entirely unexpected. Yet the acceptance of an occasional exposure or accident does not mean that safety was not a major priority. Training for field trials was approached with an almost religious zeal, and no opportunities were spared to promote individual safety discipline. The core group of CBW scientists brought over from the U.K. “spent the first few months pounding some sense into the heads of their young innocents.” Training with live agents was considered especially beneficial. One training specialist recalls how they “took over an abandoned building, equipped it with chlorine cylinders and had everybody who was on the field trials do physical jerks in highly chlorinated atmospheres.” Administrators even used the threat of leaks from improperly stored toxic materials as training opportunities, forcing everyone to carry respirators with them at all times. While the “person and his respirator seldom landed in the same place together” when periodic alarms went off, on at least

³² DRB, “Suffield, 1941-1961,” 22-23; Maass, “Report on the Large Scale Experiment.”

“one occasion they were found to be useful” after a drum of phosgene sprung a leak during the station’s highly popular weekly movie night. When reliance on accidental leakages proved unsatisfactory, administrators also sometimes deliberately released gas. The same training specialist recalled how during “morning parade we would frequently open a cylinder of chlorine gas and let the cloud drift down over our troops without warning until they learned to adjust gas masks automatically.” As he further observed, “training also produced a few casualties.”³³

Physiological Research

The early chaotic conditions at Suffield may have eventually settled down, but the station never approached a state of normalcy. The surreal, haphazard, and frequently dangerous living and working conditions at Suffield were just one indication of how, as one former employee observed, “nothing was ever ‘usual’ about S.E.S [Suffield Experimental Station].” Both during and after the war, Suffield’s staff “worked and lived under highly unusual conditions as viewed from the norm for peacetime scientific and technical establishments.” In “working with the most toxic chemical substances known to mankind,” Suffield’s staff, as one 1957 report noted, “engaged daily in a far from normal situation.” To many of Suffield’s employees, such atypical conditions offered “great possibilities” as far as the testing and development of chemical and biological weapons was concerned.³⁴ Yet, as unusual as these conditions may have been, they were not

³³ DRB, “Suffield, 1941-1961,” 37-39, 11.

³⁴ DRB, “Suffield, 1941-1961,” 10, 43; V.L. Dixon, “Compensation for Injury or Death Resulting from the Carrying out of Official Duties,” DRBS 356-4-31/0, RG 24, LAC.

necessarily outside the law. After all, most of Suffield's staff members willingly chose to be there and they also had some awareness of the possible dangers involved in their work and how to avoid them. Furthermore, while certain types of research activities undoubtedly posed more dangers than others, no disproportionate levels of risk appeared to have existed between different ranks of staff. Accidents, injuries, and deaths occurred to section heads and field testing hands alike. Incentive pay, extra leave time, and special life insurance benefits also helped to offset the burden of taking on these risks and improve morale.

The full spectrum research activities at Suffield exposes how the station was "designed to exist outside the law" from the outset. Beyond exploring the behavior of chemical and biological warfare agents under realistic field conditions, one of the most important yet rarely acknowledged objectives of obtaining the Suffield site was to secretly perform highly hazardous experiments on human subjects. At Suffield, a "realistic scale" entailed more than just studying the behavior of large, toxic gas clouds under suitable field conditions. CBW scientists were especially eager to investigate the potential of chemical weapons "on troops actually engaged on field exercises." Despite rarely being mentioned in official records or correspondence, the imperative to include soldier-subjects in field trials was one of the principle motivations guiding Suffield's establishment.³⁵

³⁵ Paglen, *Blank Spots*, 140; P.C. 1/6687, 26 August 1941; W. Sommerville, "The Effect of the Lesions Produced by Mustard Spray on the Performance of Troops Engaged in a Field Exercise," 17 Aug 1943, SES-O81, Defence Research Reports, Defence Research and Development Canada, pubs.drdc-rddc.gc.ca/pubdocs/pcow1_e.html (DRDC).

One of the earliest signs pointing to the importance of human testing at Suffield was the inclusion of a “Military General Hospital” in Suffield’s initial building plans. According to official accounts, Suffield needed such a hospital due to “its remote position.” In practice, however, the hospital’s chief functioned was to treat the many subjects of Suffield’s secret human testing program. Every month a quota of up to one hundred new soldier-subjects arrived at Suffield from different military units from across the country, and one early problem was having to send “physiological subjects back to units from Suffield before burns were properly healed” to make room for new arrivals. According to Chief Superintendent E. Ll. Davies, “it would be quite impossible to keep men at Suffield until burns were completely healed, this might mean months.” Due to a combination of extreme secrecy and poor record keeping, the nature of care provided to these subjects is hard to ascertain. Available records do suggest a substantial scale of operation. In August of 1943, for example, a head scientist of Suffield’s Physiology Section recalled having treated “several thousand mustard lesions... within the past 12 months at this station.”³⁶

The importance of physiological research can also be gleaned from Davies’ and other CBW researchers’ eagerness to implement experiments on human subjects. One month before Suffield’s take over for military purposes, Davies and a small team of investigators conducted a couple preliminary field trials at Camp Petawawa, a military reserve near Ottawa. With only limited supplies of standard

³⁶ Goforth, “Suffield C.W. Experimental Station and Area”; E.C. Thorne, “Reports on Visit to Pacific Command,” 16 April 1942, 4354-1-8, C-5002; Sommerville, “Lesions Produced by Mustard Spray.” For secrecy and poor record-keeping, see Marin, *Complaints*, 3, 8.

warfare toxicants available in Canada at this time, Davies' team decided to use a novel chemical agent known as cadmium oxide. Laboratory research at the University of Toronto had suggested that cadmium was "at least as toxic as phosgene" and that it could be "dispersed in a suitable form on a laboratory scale" when mixed with explosives. In the first field trial at Camp Petawawa rats were placed in cages 250 yards downwind of the explosion. Due, however, to the high temperature of the explosion, the cadmium oxide was "apparently destroyed," and the rats escaped unscathed. In a follow-up test a few days later, investigators added a substance to the cadmium mixture to reduce the temperature of the explosion. More significantly, fifty recently trained troops from Camp Petawawa replaced the caged rats as test subjects. The all-male subjects were positioned at 100, 300, and 1,000 yard lines downwind of the explosion and instructed to "run into the cloud from a suitable sheltered position." To keep conditions as realistic as possible, subjects were told to wear their respirators at alert as they might during actual combat but to not adjust them on their face. After being exposed, soldiers were expected to "rendezvous" at the main headquarters where they were to undergo inspections from a medical officer.³⁷

The stated objective of the May 1941 Camp Petawawa field trials was to "establish a relationship between the laboratory and field scales of explosions."³⁸ Answering such basic and preliminary research questions did not require the use

³⁷ E. Ll. Davies, "Field Experiment No. 1," n.d., 4-C9-19 Vol 1, Box 6, RG 77, LAC; E. Ll. Davies, "Field Experiment No. 2," 29 May 1942, 4-C9-19 Vol 1, Box 6, RG 77.

³⁸ Davies, "Field Experiment No. 1."

of human subjects. Not only were human subjects unnecessary, but investigators also had virtually no idea how large quantities of cadmium oxide, an extremely toxic substance, would behave under open-air, field conditions. So why was Davies still so willing to put Canadian soldiers in harm's way? In all likelihood, this field trial had less to do with scientific considerations; rather the chief aim was to provide Davies' team with field testing experience. The whole trial, in other words, was essentially a practice run for the type of field work envisioned at Suffield. The fact that they took such pains to include humans in these trials only shows the level of priority given to physiological research.

Field trials involving human subjects at Suffield commenced in early 1942. While the research questions and types of experiments carried out at Suffield may have had more scientific validity than at Camp Petawawa, weapons scientists' willingness to put test subjects in harm's way remained constant no matter where field trials occurred. Suffield's vast stores of mustard gas were also more than simply an "emergency stock pile," as investigators readily deployed thousands of tons of these strategic reserves against approximately 3,000 Canadian soldier-subjects at Suffield both during and after World War II.

Mustard Spray

Air warfare was still a relatively new concept in the early 1940s. The effectiveness of spraying chemical warfare agents from aircrafts was, as one joint Canadian-American defence report put it, "distinctly unclear." Due to "its ability to persist for days, months, and even years" and cause "terrible burns to any

living creature” coming in contact with it, CBW scientists believed mustard gas offered the most potential as an aircraft spray. However, the surprising effectiveness of German anti-aircraft technology made low altitude sprays impractical. Consequently, one of the first orders of business at Suffield was to establish the “casualty producing power of mustard spray” from high altitudes.³⁹

Over the first half of 1942, Suffield carried out a series of large scale mustard spray trials using Canadian soldiers as test subjects. These experiments sought “to determine the actual physiological effects of spraying mustard from high altitude on troops in the open.” Each trial required a minimum of sixty soldiers. Scientists placed the soldier-subjects on open-air grids in patterns calculated to maximize potential exposure based upon aiming marks and expected wind conditions. To simulate the actual conditions of war, soldier-subjects were “dressed in issue underwear, battle dress, helmets, and wore their respirators during the period of spraying.” After the spray, the subjects had to march for over two miles and then remain “in a hut or in the open in their contaminated clothing until 4 hours after the spray.”⁴⁰

³⁹ Maurice Strauss, "Studies of Aircraft Spray," n.d., 334.8 (U.S. & Canadian CW Advisory Comm), Subject Series, 1942-1945, Box 142, Records of the Chemical Warfare Service, Records Group 175 (RG 175), NACP; Experimental Station Suffield, "Information Brief," n.d., 4354-26-1-1, C-5013, LAC; Paige, "Canada and Chemical Warfare 1939-1945," 74-76; Bryden, *Deadly Allies*, 169.

⁴⁰ *ibid.*

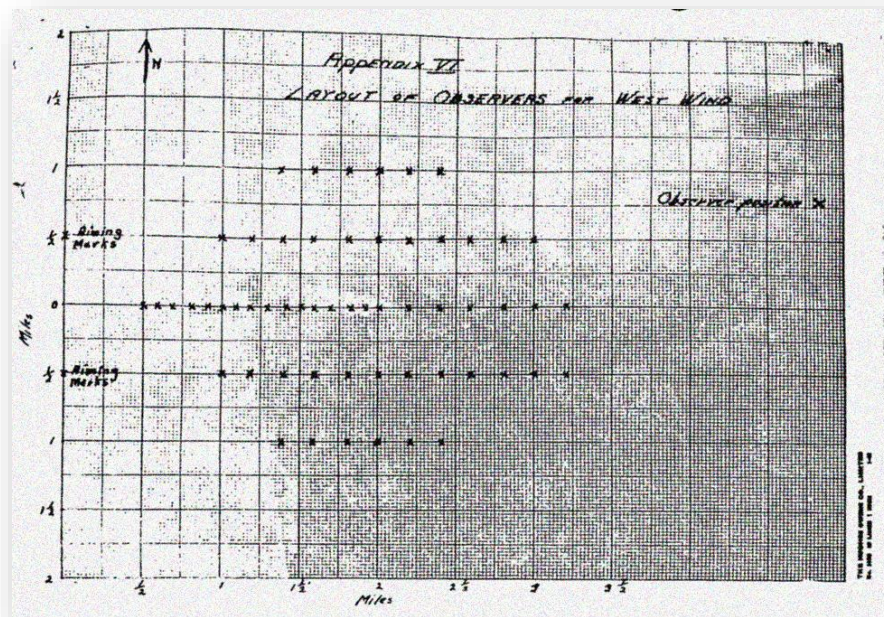


Figure 13: Layout for Field Trials: In official records, human test subjects were referred to as either “observers” or “volunteers.” In this layout, each “x” represents the position of one observer.⁴¹

In this initial test series, Suffield carried out a total of six mustard spray field trials. Fortunately for the soldiers, the results were “not as good as was hoped for.” As Chief Superintendent E. Ll. Davies noted, there were “no casualties in the first 4 trials and three in the fifth. The sixth one was more successful from the offensive point of view. Eight people were hospital cases, six of whom were really bad.” According to Davies, the failures in the first four trials resulted in part from “the immature technique. As these experiments were entirely new in execution, considerable modification of the procedure had to be made as each trial was done and lessons learned therefrom.” Davies also

⁴¹ J.T. Hugill, “Trials of High Altitude Mustard Spray on Human Observers,” 20 Dec 1942, SES-039, DRDC.

expressed concern over the supposed “artificial” spraying conditions in these early trials due to the fact that the men wore respirators, were allowed to decontaminate exposed portions of their bodies, and were also “aware at all times that they were being sprayed.”⁴²

As researchers at Suffield gained experience and their spraying techniques improved, they overcame many of these initial shortcomings. This increased confidence allowed them to conduct more elaborate and realistic field experiments. One of the most ambitious mustard spray trials took place in May 1943. In this large-scale experiment, Suffield sprayed a company of one hundred troops with mustard gas from high altitude aircrafts and then subjected them, as the test report stated, “for eight days to the rigours of a field exercise, designed to simulate active service conditions.” Investigators compared the performance of this sprayed group with a “control group” of one hundred troops who had not been sprayed. To make the field experiment as realistic as possible, both the experimental and control groups “took part in field manoeuvres which simulated actual operations.” These manoeuvres included taking long, thirty-five-mile marches, building up defensive positions, and conducting “full tactical” attacks and counterattacks. Throughout these exercises, Suffield’s natural environment stood in for what was thought to be typical combat conditions in Western Europe. To motivate the troops to give their best performance, “every effort was made to encourage a spirit of competition and rivalry between” the experimental and

⁴² E.A. Flood, “5th Meeting CW Laboratories Advisory Committee,” 28 Aug 1942, 4-C9-41, Box 10, RG 77; J.T. Hugill, “Trials of High Altitude Mustard Spray on Human Observers,” 20 Dec 1942, SES-039, DRDC.

control groups. Scientists also took careful measures to monitor some of the most severely injured troops to see at what stage they “would be forced to give up, however willing” they might be to continue.⁴³

Beyond determining the “impairment of military efficiency brought about by mustard lesions of non-casualty severity,” investigators also hoped to observe the occurrence of secondary bacterial infections. In previous experiments at Suffield, test subjects had not been “exposed to the dirt and grime of battle which would contaminate and infect the lesions.” Accordingly, “every effort was made to expose [the mustard burns] to as many hazards as could be provided by a trial of this sort, at the same time, to keep treatment as realistic and as practical as possible.” The medical officer accompanying the troops “was supplied with a few simple and readily procurable expedients for the treatment of the lesions in the field.” When “making observations and carrying out treatment of lesions,” medical specialists deliberately withheld the use of “sterilization of instruments and dressings” and other “aseptic methods.” Investigators also restricted the use of water, and instructed troops to not wash their bodies “or change their underclothing which they had worn for several days before the exercise commenced.” After eight days in the field, observers of the test satisfactorily reported how the troops all looked “grimy and dirty.”⁴⁴

As with the earlier spray tests, the results of this more realistic field trial were also disappointing from a so-called offensive point of view. Beyond one

⁴³ Sommerville, "Lesions Produced by Mustard Spray."

⁴⁴ Sommerville, "Lesions Produced by Mustard Spray."

severely injured troop who was shipped off to the hospital shortly after being sprayed, only two other test subjects were “unable to continue with the field exercise in its entirety.” For the remaining troops, “the mustard lesions were an added discomfort” but “no deterioration was noted in their military efficiency compared with that of the control company.” The story was the same for the occurrence of infections. Despite exposing the wounds to as many hazards as was practical, “none of the lesions was complicated by secondary infection.”⁴⁵

Even though high altitude mustard spray had less of an impact on test subjects than anticipated, investigators still drew some useful conclusions from the experiment. Prior to this field trial, for example, most experts believed that secondary infections occurred frequently. This trial, on the other hand, suggested that “the danger of infection is slight with the use of ordinary field first-aid treatment.” Spared from having to deal with “very difficult” infections, the sprayed troops undoubtedly benefited immensely from the such findings. Other findings, however, were less advantageous, especially for future test subjects. After assessing the results of this as well as earlier spray tests, researchers discovered that the “production of casualties” was influenced as much as “by the behaviour of the men after contamination” than by “the actual weight of agent or number of drops striking the subject.” The length of time skin was in contact with mustard, the specific body parts involved, as well as the humidity and temperature conditions in which exposures occurred all had critical influence on both the rates and severity of casualties. With these new principles in mind,

⁴⁵ *ibid.*

Suffield's weapon scientists developed increasingly imaginative experiments that yielded "very successful" results as far as the production of casualties were concerned.⁴⁶

Absolute Casualties



Figure 14: Observer 25F of Suffield Field Experiment 229, 26 May 1944. Observer 25F's photo was among a select group of photos said to represent "some of the more interesting" cases involved in Field Experiment 229. A military-issued name tag possibly hung from his necklace, but Observer 25F's name likely never made it into any official records.⁴⁷

Approximately twenty-four hours prior to taking this photo, Observer 25F and nineteen other test subjects "stood facing downwind" on an open-air testing grid at Suffield. At 1250 Mountain Time, an aircraft flying a mere fifty-five feet

⁴⁶ *ibid*; Flood, "5th Meeting"; Suffield Experimental Station, "The Casualty Producing Power of Mustard Spray," 4 Jan 1943, SES-047, DRDC; Suffield Experimental Station, "Vapour Danger from Gross Mustard Contamination," 14 Jul 1943, SES-FE-141, DRDC.

⁴⁷ Suffield Experimental Station, "Casualty Producing Power of Unthickened Mustard Gas Sprayed from Low Altitudes under Temperature Weather Conditions," 14 Jun 1944, SES-FR-076, DRDC.

overhead released 326 pounds of red-dyed mustard spray across the grid, hitting all twenty subjects. Shortly after being sprayed, investigators split the participants of Field Experiment 229 into two groups. One group received instructions to perform menial tasks such as raking gravel, or digging trenches outdoors; while the other group, the one Observer 25F had been assigned to, were instructed to “lay or set about” in their contaminated clothing in a warmed room. According to researchers at Suffield, the latter behaviour “frequently accentuate[d] the severity of a lesion due to pressure of contaminated clothing on the underlying skin.”⁴⁸

Unlike earlier high altitude spray tests, this low altitude spray test that required subjects to perform a number of high-risk activities produced “a significant percentage of casualties.” In total, thirteen of Field Experiment 229’s twenty subjects ended up suffering casualty-level injuries, and, in four of these cases, “severe vesication developed... necessitating the admission of these men to hospital.” While all four hospital cases suffered similar types of casualties, Observers 25F’s injuries appear to have been the worst. A clinical description of his injuries painted an unsettling picture:

Twenty-four hours after the spray both shoulders showed areas of intense vesication. Erythema extended from the nape of the neck to the waist. The buttocks were involved by vesication.... By the 2nd day the vesication had spread forwards to involve the perineum. The scrotum was intensely inflamed and swollen and numerous small blisters were scattered over it. The penis was swollen with small areas of excoriation due to minute

⁴⁸ Suffield, “Unthickened Mustard Gas Sprayed from Low Altitudes,” 14 Jun 1944, SES-FR-076.

broken blisters.... The glands in the groins became swollen and tender and insomnia was marked.

Typically, Suffield's test reports only described test participants' physical injuries, but Observer 25F's profile also included his mental state, noting that on "the 4th day after the spray this man was very distressed, the vesication on the buttocks and perineum having continued to develop. Even after application of different types of treatment to the lesions, he complained of incessant pain and irritation, particularly of the scrotum and penis." Medical officers believed Observer 25F, as well the three other hospital cases, would require "at least three weeks" of hospital treatment.⁴⁹

Suffield's shift to conducting low altitude spray tests came about primarily because of American CBW scientists' interest in studying "the casualty producing power of unthickened mustard sprayed from low altitudes under temperate weather conditions." U.S.-backed Field Experiments 229 and 147 both produced similar percentages and types of casualties, while the immediate injuries resulting from a number of other U.S. supported spray tests were less pronounced.⁵⁰ Mustard spray tests themselves had been the mainstay of

⁴⁹ Suffield, "Unthickened Mustard Gas Sprayed from Low Altitudes," 14 Jun 1944, SES-FR-076; Wright, "Alberta Advantage," 95.

⁵⁰ Suffield, "Mustard Gas Sprayed from Low Altitudes," 14 Jun 1944, SES-FR-076; W. Sommerville, "Comparison of the Protection against Liquid Mustard Offered by 1 and 2 Layers of U.S. Impregnated Clothing," 20 Sep 1943, SES-087, DRDC; Suffield, "The Casualty Producing Power of Mustard Spray," 4 Jan 1943, SES-047; Suffield Experimental Station, "Casualty Producing Power of Unthickened Mustard Gas Sprayed from Low Altitudes under Temperate Weather Conditions," 03 Nov 1944, SES-121, DRDC; W. Sommerville, "High

Suffield's physiological research from the outset, and they continued to have importance well after the war. Yet, as experience grew and technologies advanced, researchers increasingly explored alternative types of experiments with soldier-subjects. No matter the method, the production of casualties was the norm.

In early 1943, Suffield began to conduct experiments using small thermal generators that could vaporize up to five pounds of mustard gas. Field tests with the generators varied. In one trial, testing officials instructed groups of three men to take up positions over varying intervals of time in an abandoned barn where four generators had been running. In another trial, investigators dressed ninety-six test participants in typical British, American, and German protective clothing and gear and asked them to perform a variety of tasks directly downwind of 561 individual generators. While the generators posed a number of technical challenges, they still appear to have consistently produced casualties at high rates of efficiency.⁵¹

Assessing the dangers of mustard contamination led to some of Suffield's more remarkable physiological experiments. The most common contamination experiments consisted of blasting an area with mustard filled bombs, mines, or artillery and then having subjects perform various exercises in the resulting

Spray from S.C.I Type S/L 400 on Observers," 15 Sep 1943, SES-086, DRDC; Paige, "Canada and Chemical Warfare 1939-1945," 76.

⁵¹ Suffield Experimental Station, "Comparison of the Physiological Activity of the Cloud from a Normally Functioned 3 lb H Thermal Generator and the Cloud from one which Inflames," 31 Dec 1943, SES-FE-176, DRDC. J.T. Hugill, "Preliminary Trial with "T" Thermal Generators," 24 May 1943, SES-FE-124, DRDC; H.J. Fish, "The Physiological Activity of the Cloud Produced by the Comings' H Thermal Generator," 25 Nov 1943, SES-098, DRDC.

mustard-contaminated craters. In one such trial done at the request of the U.K., scientists simultaneously detonated 210 mustard-filled mines in a 100 square-yard testing grid. One half-hour after the explosion, six troops traversed directly through the contaminated grid while thirty-six other troops stood on the downwind edge. All of these subjects were allowed to wear respirators and protective clothing. After the initial vapour dangers were thought to have subsided, however, investigators instructed six additional troops to sit or lie down in the contaminated area for a period of four hours while not wearing respirators or protective underwear.⁵²

In one of the most ambitious contamination experiments, weapon scientists detonated twenty-five drums containing nearly 14,000 pounds of mustard gas on a circular grid, about 115 yards in radius. They then sent seven groups, consisting of five men each, onto the contaminated grid at various times after the explosion. Once there, the troops were asked to dig trenches, chop wood, or saw logs for at least thirty minutes. Initial indications suggested “that the trial was very successful.”⁵³ Injuries of “casualty severity were inflicted upon a considerable proportion of the men” who occupied the grid during the first four hours after the explosion. Unsurprisingly, the first groups to enter suffered the worst injuries. Two of the men from this group

were admitted to hospital 7 hours after exposure complaining of severe nausea, vomiting and weakness. The skin over the entire body, except

⁵² Edwards, "Memories of the Horror of it All"; Suffield Experimental Station, "Heavy Contamination of an Area with Mustard," 27 May 1943, SES-FE-114, DRDC.

⁵³ Suffield Experimental Station, "Vapour Danger from Gross Mustard Contamination," 14 Jul 1943, SES-FE-141, DRDC.

where protected by the respirator, impregnated underpants and boots and glove, showed severe erythema. These men stated that they first noted skin irritation 4 hours after exposure. One week after exposure both men were extensively vesicated on both sensitive and non-sensitive area of the skin.... and they complained of extreme irritation of the skin. They were classed as casualties (Class 1). Ten days after exposure these two men were still in a serious condition.

Similar though less severe illnesses and injuries were present in all groups who entered the contaminated area within 24 hours of the initial blast, and one subject “lost all the skin” from his thighs down to his ankles.⁵⁴

Contamination studies produced high rates of severe casualties, but some of Suffield’s most notorious physiological tests took place in gas chambers. To the surprise of many Allied scientists, it was discovered that the effectiveness of mustard gas increased tremendously under hot, tropical weather conditions.⁵⁵ In a crash-course effort to assess this increased potency, Suffield researchers constructed a makeshift gas chamber that evidently simulated the “severe conditions of temperature (101 - 103° F.) and relative humidity (83-89 per cent)” found in the tropics. The chamber itself was a compact, eleven square meter, windowless bunkhouse that sat within a room of a larger building. Electric radiators provided heat while the chamber’s “relative humidity was increased by

⁵⁴ Suffield Experimental Station, “Vapour Danger from Gross Mustard Contamination,” 14 Jul 1943, SES-FE-141, DRDC; B.A. Griffith and A.W. Birnie, “Vapour Danger from Gross Mustard Contamination,” 08 Oct 1943, SES-092, DRDC; Suffield Experimental Station, “Vapour Danger from Gross Mustard Contamination,” 31 Dec 1943, SES-FR-006, DRDC; Schmidt, *Secret Science*, 138.

⁵⁵ Paige, “Canada and Chemical Warfare 1939-1945,” 54-55, 67-68.

injecting steam through one of the ports in the wall of the chamber” after the entire chamber “had been thoroughly wetted by means of a power driven sprayer.” Mustard vapour was created by evaporating “pure mustard gas on an electric hot plate” and the “air in the chamber was thoroughly mixed by means of electric fans.” The whole set up was technically inventive but also volatile. Not only was it “difficult to maintain” temperatures and humidity “at any selected level,” but the combination of extreme humidity, electric equipment, and toxic chemical warfare agents posed a variety of untold hazards.⁵⁶

In a test series that ran from February to June of 1945, investigators set out to determine the severity of “physiological effects on the human skin” exposed to mustard gas under “simulated tropical conditions in the chamber.” In the first trial, scientists exposed six subjects to high dosages of mustard vapour in the chamber for forty minutes, and then asked them to sit in their contaminated clothing in a nearby heated room for three and half hours. All six participants showed rapid signs of intense blistering on their arms and legs that made “movement very uncomfortable.” One participant also “complained of systemic symptoms of nausea and vomiting.” In the next trial carried out four days later, six test subjects received lower dosages of mustard but remained in the gas chamber for four hours and in the heated room for an additional twelve hours.

⁵⁶ W. Sommerville, “The Protection against Mustard Gas Vapour in the Chamber Afforded By A.V. Impregnated Khaki Drill Shirts and Trousers,” 08 Jun 1944, SES-TM-058, DRDC; Hauk, “Guinea Pigs for Chemical Weapons”; W. Sommerville, “Effectiveness of Given CT's of Mustard Gas Vapour for Long Exposure Periods under Tropical Conditions,” 13 Aug 1945, SES-TM-103, DRDC; Suffield Experimental Station, “The Protection Afforded against Mustard Gas Vapour by CC2 Impregnated (Aqueous Method) Khaki Drill Trousers,” 22 Jun 1944, Technical Minute NO. 65, DRDC.

Similar adjustments in dosages and time intervals were made in two subsequent trials. In the end, however, none of these variations made much difference as all subjects were found to exhibit “a high percentage of absolute casualties” no matter the period of exposure or dosage level. In the end, investigators concluded that “a dosage of this magnitude” may have been “too high for small differences in the severity of the burns to become apparent” and recommended cutting dosage rates by up to three-fifths in future chamber trials.⁵⁷

Health and War

In April 1945, Suffield’s research team used a cold-air chamber to test the impact of exercise on genital injuries. During a forty-five-minute chamber exposure to mustard gas, five men remained at rest while five others exercised. Neither group wore any protective underwear, or what was commonly referred to as “panties” due to their resemblance to “women’s undergarments.” While the former subjects were “partially disabled as result of genital injuries,” the participants “who exercised during their exposures were considered to be totally disabled by their genital lesions.” All five ended up as hospital cases, suffering from a long list of symptoms including “erythema,” “vesication,” “swelling” “massive edema,” “oozing,” “crusting,” “cracking,” “moist desquamation,” and “secondary infection” of their penises and scrotums.⁵⁸

⁵⁷ Sommerville, “Mustard Gas Vapour for Long Exposure Periods under Tropical Conditions,” 13 Aug 1945, SES-TM-103; Schmidt, *Secret Science*, 138.

⁵⁸ Griffith and Birnie, “Mustard Contamination,” 08 Oct 1943, SES-092; H.J. Fish, “The Physiological Effects of Mustard Vapour at Low Temperatures,” 09 Aug 1945, SES-FR-133, DRDC.

Since the First World War it had been widely recognized that, in addition to such common painful short-term symptoms, mustard gas lesions could also cause permanent genital deformities and life-long sexual dysfunction.⁵⁹ These, moreover, were just a few of the many potential long-term health problems linked to mustard gas exposure. As highlighted below, medical authorities have established a direct causal relationship between mustard exposure and many serious health conditions.⁶⁰

⁵⁹ For genital susceptibility, see U. S. Army, *Chemical Casualties*, 68-69, 73; Pechura and Rall, eds., *Veterans at Risk*, 65, 160, 168.

⁶⁰ This list only contains ailments directly linked to mustard exposure. Studies also suggest mustard has possible mutagenic, reproductive, immunological, and other health-related effects. The list itself is adapted from Pechura and Rall, eds., *Veterans at Risk*, 4-5, 64,

Figure 15: Health Consequences of Mustard Gas Exposure

- Chronic respiratory diseases
 - Asthma
 - Chronic bronchitis
 - Emphysema
 - Chronic obstructive pulmonary disease
 - Chronic laryngitis
- Respiratory cancers
 - Nasopharyngeal
 - Laryngeal
 - Lung
- Skin cancer
- Certain types of leukemia
- Pigmentation abnormalities of the skin
- Chronic skin ulceration and scar formation
- Recurrent corneal ulcerative disease
- Delayed recurrent keratitis of the eye
- Chronic conjunctivitis
- Genital deformities and impaired sexual function
- Psychological disorders, including depression, anxiety, and post-traumatic stress disorder (due to exposure experience not mustard itself)
- Acute bone marrow depression and resulting immunosuppression
- Short-term nausea, vomiting, fever, and, in high enough concentrations, complete systemic breakdown and death.

For defence scientists at Suffield, the long-term health consequences of mustard exposure, many of which had been observed in mustard gas victims of World War I, had minimal relevance to their investigations. Mustard's effectiveness as a weapon technology was instead evaluated solely in terms of its immediate military impact on troops and civilians. Instead of long-term consequences, researchers at Suffield mainly focused on the effects of short-term, incapacitating injuries and illnesses. Of particular interest were injuries to sensitive or vulnerable areas of the body such as the eyes, lungs, bends of limbs,

or genitals. Many of Suffield's physiological experiments were designed to produce lesions to at least one of these vulnerable areas. Achieving desired results, however, was often more difficult than anticipated. Spray tests in which subjects "were forbidden to protect the genital region with their hands," for example, yielded minimal results, while tests designed to injure other body parts sometimes unexpectedly led to a high percentage of severe genital injuries.⁶¹ As lessons were learned and testing methods modified, investigators' confidence at producing injuries improved. The biggest advancement came with the advent of chamber tests. In contrast to open-air spray and contamination trials, the

⁶¹ Sommerville, "Mustard Spray on Troops Engaged in a Field Exercise," 17 Aug 1943, SES-81; Suffield, "Unthickened Mustard Gas Sprayed from Low Altitudes," 14 Jun 1944, SES-FR-076.

conditions of chamber tests were far easier to control and test subjects invariably suffered injuries to their exposed body parts.

REF LTS	
Human Observers	Rabbits.
No lesions apparent in 7 days.	2/2 showed corneal clouding, conjunctival and lid edema in 24 hours. 2/2 had both eyes closed by oedema; a plastic exudate covered the corneas. A nasal discharge was present in both rabbits.
6/6 showed neck & ear erythema in 24 hours, progressing to neck vesication in two instances. 6/6 developed pigmentation of the neck. 3/6 developed erythema and scrotal irritations progressing to incrustations in two instances on the seventh day. 3/6 developed scalp incrustations.	2/2 rabbits showed conjunctivitis, corneal hazing and discharge at 24 hrs. 2/2 rabbits dead by 72 hrs.

Figure 16: Protective Gear Makes a Difference: Unprotected rabbits were sometimes used as control subjects in chamber tests. During one such test, the soldier-subjects did not wear protective hoods or underwear, but were otherwise fully protected. As detailed in the lower section of the test report, all six of these human subjects suffered notable injuries; yet the injuries inflicted upon two unprotected rabbits were more consequential.⁶²

Beyond becoming more efficient, the overriding objective of producing casualties remained unchanged at Suffield. Even the situation overseas had minimal impact, as some of Suffield's most harmful experiments took place during the summer of 1945 after Germany had been defeated. Physiological

⁶² Suffield, "Mustard Gas Vapour Khaki Drill Trousers," 22 Jun 1944, Technical Minute NO. 65; Wright, "Locating Health," 96

experiments involving humans were scaled back after the war, but continued to occasionally take place at Suffield for at least another decade and half—sometimes using chemical agents far more lethal than mustard gas. The various long-term health consequences of physiological experiments were further compounded by the extreme secrecy surrounding the tests. When test victims sought support from Veterans Affairs Canada for various health problems years later, they were called liars, denied treatment, and sometimes dismissed as delusional. It was, after all, common knowledge that mustard gas had never been used in World War II.⁶³

Questions and Uncertainties

That investigators were willing to inflict extremely painful injuries and put test subjects' long-term health in danger is clear, yet the question of why they were so determined to conduct such ethically and legally controversial experiments is harder to grasp. Due in part to its highly secretive nature, weapons scientists rarely had to justify Suffield's human testing program. On the rare occasions when they did, they almost always emphasized the defensive nature of their work and how, for example, physiological experiments were "of prime importance to our chemical warfare defence" and "must continue in order to assure that nothing be left to chance in the event our troops overseas are exposed to Chemical Warfare." Similar claims about how "the active participation of test subjects" helped to "advance the protection capability of Canadian Forces

⁶³ Bryden, *Deadly Allies*, 178; Marin, *Complaints*, 3; Edwards, "Memories of the Horror of it All"; Laforce, "Human Subjects in Chemical Warfare Agent Experiments," 6.

personnel” also arose when the Canadian government formally acknowledged the existence of Suffield’s human testing program in 2004. Many controversial military developments have been justified in the name of defence and protection, and Suffield’s physiological research program was no different.⁶⁴

Yet, as important as troop protection may have been, the prospect of developing what Chief Superintendent E. Ll. Davies referred to as a “war-winning weapon”—or the prospect of falling behind adversaries in developing such a weapon—ultimately drove Suffield’s as well as other mass-casualty weapon testing programs. This becomes apparent if one looks beyond official justifications and more closely at how defense authorities actually applied Suffield’s research findings. In referencing physiological field trials carried out at Suffield, for example, an October 1943 report from the Chief Technical Director of the U.S. Chemical Warfare Service noted how it had “been recently shown at Suffield” that the “heavy contamination of terrain with liquid mustard is the form of attack likely to produce a maximum of casualties or force evacuation most readily” against both enemy troops and civilian populations. In the case of attacks against enemy cities it appeared “likely from experiments carried out at Suffield that a contamination of 60 tons per square mile would paralyse an area for 24 hours after the attack or probably longer” and put residents at “the risk of becoming an almost certain casualty.” American researchers further speculated that such “a contamination over a large section of dense population, followed by

⁶⁴ H. Browne to District Officer Commanding, " 17 Oct 1941, 4354-8-8, C-5002, LAC; “Physiological Observers,” 4 July 1944, 4354-25-10-1, C-5015, LAC; National Defence, *The Experimental Station, Suffield Monument*, 9 February 2004, Ralston, Alberta.

an attack with incendiary bombs would possibly result in complete destruction of the city.”⁶⁵

At the outset of the war, nuclear, biological, and chemical weapons were believed to all hold great potentialities but also numerous uncertainties. Years before atomic bombs would be ready for use, field trials at Suffield had suggested that mustard spray could serve as a decisive mass casualty weapon. That such conclusions were made around the same time Allied forces were publicly promising to bomb Berlin “until the heart of Nazi Germany ceases to beat” only magnifies the potential significance of these findings.⁶⁶

Considering what was at stake, it should come as no surprise that the offensive potential of mustard gas and the chance to shape the outcome of the war bolstered the case for the use of human subjects in chemical warfare field trials. The more pressing question may be how weapons scientists at Suffield were allowed to deliberately sacrifice the health of their test subjects with near absolute impunity? In writing about the United States’ indefinite detention of enemy combatants at Guantanamo Bay, philosopher Judith Butler identified what she described as “a new exercise of state sovereignty, one that not only takes

⁶⁵ E. Llewellyn Davies, “The Scientist and the Services,” *Journal of the Alberta Military Institute* (1945): 157; James J. Doheny, “Comparison of Casualties Caused by Chemical Warfare Material versus H.E.,” 15 October 1943, 334.8 (U.S. & Canadian CW Advisory Comm), Subject Series, 1942-1945, Box 142, RG 175, NACP.

⁶⁶ For mustard gas’ potential and why it was not used in World War II, see Karen Freeman, “The Unfought Chemical War,” *Bulletin of the Atomic Scientists* 47(10) (1991): 30-39; John Ellis van Courtland Moon, “Project SPHINX: The Question of the Use of Gas in the Planned Invasion of Japan,” *The Journal of Strategic Studies* 12(3) (1989): 303-323. For quote, see Charles Messenger, “Bomber” Harris and the Strategic Bombing Offensive, 1939-1945 (New York, 1984), 15 as quoted in Mike Davis, *Dead Cities: And Other Tales* (New York: The New Press, 2002), 73.

place outside the law, but through an elaboration of administrative bureaucracies” in which so-called petty sovereigns, who reign “in the midst of bureaucratic army institutions,” are “delegated with the power to render unilateral decision, accountable to no law and without any legitimate authority.”⁶⁷ A remarkably analogous situation shaped Canada’s CBW research and development activities in the 1940s and beyond.

As noted above, most major decisions regarding CBW policy, research, and development in Canada were made by a select group of CBW authorities who sat on the Chemical Warfare Inter-Service Warfare Board, the biological warfare-oriented C-1 Committee, or Otto Maass’ Directorate of Chemical Warfare and Smoke, which oversaw all CBW research and development activity in Canada. Not only did these committees enjoy a certain degree of autonomy from the Department of National Defence, but they, or at least certain members, also possessed special and sometimes enormously consequential powers and responsibilities. In a seemingly rare admission made in a 1959, Dr. Charles Mitchell, a former member of the C-1 Committee who had worked in the Department of Agriculture, described how members of the C-1 committee did not possess “precise executive powers,” but they “nevertheless did exert these powers through the Director of Chemical Warfare and Smoke.” Mitchell further noted how, during a private, closed door meeting in 1940, Prime Minister Mackenzie King granted him, and him alone, the “personal and unofficial responsibility for

⁶⁷ Judith Butler, *Precarious Life: The Powers of Mourning and Violence* (New York: Verso, 2006), 51, 56, 65.

deciding what microorganisms could be introduced and studied in Canada as part of a BW program.” With Mackenzie King’s “behind the stage support,” Mitchell and other bio-scientists also secured a small island in the St Lawrence River where they could, along with their colleagues from the United States, investigate “diseases that could not otherwise have been dealt with in this country.” For over 15 years at this highly secretive research station known as Grosse Isle, bio-scientists investigated what Mitchell described as “exotic conditions, which no man in his right senses would attempt to carry out on the mainland.” Among other things, investigators worked toward “establishing definitely the potentialities of Rinderpest, Fowl Plague, and African War Hog Fever” as anti-animal warfare agents. At one point in the mid-1950s, Mitchell even boasted about having almost had “invented a new disease.”⁶⁸

Developing capabilities with such potentially consequential weapon technologies opened up certain realms of authority. In the name of war and security, CBW scientists were, to quote Butler, invested “with an extraordinary power over life and death.” In Mitchell’s case, not only was the delegation of executive power made without any legitimate legal backing, but these highly consequential powers also remained in effect long after the emergency wartime conditions that had brought them into being had subsided. In 1957, for example, Mitchell admitted that he “did not know how many of the present Cabinet are aware of these past arrangements [with the former Prime Minister] or are aware

⁶⁸ G.R. Vavasour, “59/1 Meeting”; G.R. Vavasour, “Future Program at GIES,” Jan 1957, 1800-20, RG 24, LAC; Avery, *Pathogens of War*, 28-33.

that there is a [biological warfare] program now in existence” at Grosse Isle.⁶⁹ The authority to inflict serious mustard lesions on human bodies, in contrast, was not secretly granted during a closed, door meeting with the Prime Minister; rather this exceptional power appears to have been primarily a product of E. Ll. Davies’ high-ranking status within Canada’s CBW community as well as his near exclusive control over the Suffield reserve.

With the first physiological field trial at Camp Petawawa in May of 1941, E. Ll. Davies secured fifty troops for experimentation under what appears to have been informal arrangements with local authorities at the camp. Formal approval from the Department of National Defence to use troops as experimental subjects did not come until a few months later. The precedent for testing relatively small amounts of chemical warfare agents on human subjects in laboratory settings had been set years earlier in the U.K. at Porton Down, as had the whole arrangement for bringing in soldier-subjects “from their units in other parts of the country.” While defence-minded scientists within Canada’s National Research Council (NRC) showed little reluctance in following suit, a few high-ranking DND officials were apparently uneasy with the idea of using troops as test subjects.⁷⁰ After some convincing from British and NRC scientists, however, the Army’s Chief of the General Staff eventually relented and, in late July of 1941, formally agreed to provide regular monthly quotas of physiological subjects. Notably, the DND did

⁶⁹ Butler, *Precarious Life*, 59; Vavasour, “Future Program at GIES.”

⁷⁰ J.G. Mallock to Dr. Maas, 3 Sept 1941, 4-C9-25 Vol 1, Box 6, RG 77, LAC. As several authors have pointed out, scientists in both Canada and the U.K frequently tested small quantities of CW agents on themselves, see Bryden, *Deadly Allies*, 166-169, 172, 176; Schmidt, *Secret Science*, 74-157.

not sign off for the type of hazardous, open-air field trials that would soon take place at Suffield. Instead defense officials only gave permission for soldiers to “be exposed to the gas on small areas on the forearm... under carefully controlled conditions” at a newly established chemical warfare laboratory in Ottawa.

Medical scientists from the new lab, most of whom came from the NRC, took pains to assure DND authorities that “in most cases the only result is a red spot or a blister no bigger than the exposed area (1/2 inch). These spots or blisters are not painful and are not dangerous, generally the only discomfort being itching.”⁷¹

Physiological experiments at the Ottawa lab appear to have gone largely according to expectations, with approximately 3,500 soldiers participating in these so-called “arm tests” between 1941 and 1945.⁷² Months after these experiments began in Ottawa, authorities at Suffield relied on the same July 1941 General Staff authorization to obtain physiological subjects from military training units in the Pacific Command. The exact nature of Suffield’s first field trials involving soldier-subjects is uncertain, but the troops clearly suffered significant injuries. When the first wave of subjects returned to their stations after undergoing experiments at Suffield, several of them underwent immediate

⁷¹ T.D. Switzer to D.G.M.S., 1 Aug 1941, 4354-2-1, C-5003, LAC; J.G. Mallock to Dr. Maas, 3 Sept 1941.

⁷² As with all CW experiments involving humans, the exact numbers are uncertain. Some sources list 770 soldiers participating others note that as many 5,459 may have participated, see Marin, *Complaints*, 5; Laforce, "Human Subjects in Chemical Warfare Agent Experiments," 8. There are also some indications that “arm tests” occasionally led to severe injuries. In August 1944, for example, a medical officer at the Ottawa lab noted how “in actual practice” test subjects can remain under medical care “for periods that have extended up to nine weeks, due to the fact unhealed lesions, infection, etc., have interfered with the return of personnel at the end of periods stated,” see R.A. Weitzel to Secretary of National Defence, 2 Aug 44, 4354-25-10-1, C-5015, LAC; J.L. Fowler to Major Taylor, 13 Dec 1941, 4-C9-25 Vol 1, Box 6, RG 77, LAC.

hospitalization “in order to cure them of the ill-effects suffered from the tests.” Not long after, Army officers from the Pacific Command expressed “dissatisfaction... in respect of the treatment of Physiological test subjects” and, among other things, inquired about “whether the rules as published were in use at Suffield.”⁷³

Fearing that such complaints might endanger the “situation for getting new volunteers,” Suffield’s Chief Superintendent E. Ll. Davies and other authorities took action.⁷⁴ In what was dubbed as a “re-draft” of the rules governing physiological tests, the expectations for sending a quota of up to 100 troops to Suffield each month as well as the specific “administrative arrangements” for their stay were laid out in detail. Guidelines for extra pay (“\$1 per exposure”), leaves of absence, and other modest perks to attract soldiers to Suffield were also clarified. Authorities also re-wrote the statement “outlining in a general way the nature and purpose of test.” Unlike the initial statement for experiments at the Ottawa lab, the revised statement provided minimal details about the actual nature of experiments or types of expected injuries. Instead it simply stated that “human subjects are needed in studying the action of chemicals used in War on the body” and that “the actual tests on the human subject are carried out under scientific control, so that no personal injury is likely to result.” In June of 1942, the Canadian Chemical Warfare Inter-Service Board unanimously passed these re-drafted rules. Notably, E. Ll. Davies, who not only

⁷³ D.C. Turner, "The Special Meeting of the Administrative Committee Canadian CW Inter-Service Board," 6 April 1942, 4-C9-41, Box 10, RG 77, LAC.

⁷⁴ Thorne, "Reports on Visit to Pacific Command."

spearheaded Suffield's physiological experimental program but also helped to write the re-drafted rules, also served as the U.K.'s official representative on this select, five-member executive board.⁷⁵ Davies may not have been able to assert his prerogatives completely unilaterally; yet, after the DND initially granted permission to use soldier-subjects for physiological experiments in the Ottawa lab, it was still relatively easy for a well-positioned weapons scientist such as Davies to influence military hierarchy on crucial decisions. This in itself "constitutes an enormously consequential delegation and seizure of power."⁷⁶

Clearly, the major emphasis of the re-drafted rules was not to mitigate the risk of injury but to keep the flow of soldier-subjects coming to Suffield each month. One of the most divisive issues surrounding Suffield's physiological testing program is the question of why troops showed up and participated in the experiments. The promise of extra money, special leave time, a change of scenery, along with assurances that no injuries would occur, likely induced some soldiers to participate in the experiments. Authorities at Suffield also put considerable pressure on the District Officers Commanding to supply monthly quotas of troops, and not surprisingly, a number of soldier-subjects, as Suffield officials acknowledged, arrived "thinking they were on a [mandatory] course rather than

⁷⁵ Actual minutes from the board meeting in which decision was made read as follows: "After consideration, the Board agreed to these revisions, subject to concurrence and approval of the Chief Superintendent, Suffield, Superintendent of Research, Ottawa, and the Director of Staff Duties. As these officers are directly concerned with the administration of physiological subjects, the Board agreed to accept their recommendations as final, without further reference to the Board." See D.C. Turner, "The Third Administrative Committee Canadian Chemical Warfare Inter-Service Board," 12 June 1942, 4-C9-41, Box 10, RG 77, LAC; Thorne, "15th Meeting"; Colonel DSD (W), "Physiological Subjects: Amended Regulations," 16 May 1945, 4354-25-10-1, C-5015, LAC.

⁷⁶ Butler, "Precarious Life," 62.

as volunteers for physiological observers.” A number of other troops also showed up knowing hardly anything about what they had gotten themselves into. As one test victim observed years later: “A kid came to me and he said they wanted volunteers to go out to an experimental farm. He didn't know anymore about it than I did. So I volunteered. And then I find out it wasn't an experimental farm, it was a gas experimental station, and poison gas at that.”⁷⁷ While they may have come to Suffield for a variety of reasons, at no point were soldier-subjects provided with anything resembling voluntary, informed consent.⁷⁸

Once at Suffield, soldier-subjects had few choices. “There was only one option – turn and run. But we were at war. That thought never entered my mind or anyone else's,” noted one former test subject. “I was just at the bottom of the totem pole,” recalled another participant. “I couldn't do anything. You're just a dumb bunny that goes along with the rest of the sheep, and that's it.” Both veterans indicated that “the penalty for going AWOL would have likely been death at that time. Disobeying a military order was not an option.”⁷⁹ As at more notorious camps, Suffield's soldier-subjects were quickly reduced to the condition

⁷⁷ W. Sommerville, “Physiological Observers,” 6 June 1944, 4354-26-10-1, C-5015, LAC; “A Secret No More, *Melfort Journal*, 24 Feb 2004.

⁷⁸ Questions of consent have been discussed at length, see Bryden, *Deadly Allies*, 177-178; Laforce, “Human Subjects in Chemical Warfare Agent Experiments,” 15; Marin, *Complaints*, 3; Schmidt, *Secret Science*, 135-136; Wright, “Alberta Advantage,” 92-93. For broader discussions on this issue, see Ruth Faden, *A History and Theory of Informed Consent* (New York: Oxford University Press, 1986); Ruth Faden, R., K. R. Feinberg, and E. Glatstein, *Final Report of the Advisory Committee on Human Radiation Experiments* (New York: Oxford University Press, 1996); J. Moreno, *Undue Risk: Secret State Experiments on Humans* (New York: Routledge, 2013), 157-189; Pechura and Rall, eds., *Veterans at Risk*, vii-x, 61-7, 378-382, 386-389.

⁷⁹ Kara Kinna, “The Pain Was Horrific’ – Suffield Survivor,” *The Montreal Gazette*, 18 Jan 2004. For original source of quotes as well as a more detailed discussion on how military obedience shaped soldiers' participation in such experiments, see Marin, *Complaints*, 3, 11.

of bare life. Their names were replaced with experimental numbers, they were segregated into special areas of the camp, and they were forbidden, among other things, to speak about the experiments or even mention the word mustard. During the actual experiments, their job was to simply react as a soldier might act during actual warfare. In most cases, the less they knew about the experiments, the more authentic the experiments would be. While plenty of uncertainties may still surround the experiments, one thing is clear: once within Suffield's boundaries, to quote Agamben, the human body was "separated from its normal political status and abandoned, in a state of exception, to the most extreme misfortunes."⁸⁰

A number of scholars have emphasized how Agamben's procedures and deployments of power are "not merely 'juridical' in character; to an important extent, they are a matter of concrete territorial control." At Suffield, Davies not only exercised all functions of command but he and other CBW authorities also had the power "to create places where anything can happen, and do it with impunity." Beyond the obvious benefit of avoiding unwanted scrutiny, perhaps the biggest advantage of Suffield's secret geography was how it made it easier to keep knowledge of Suffield's many exceptional conditions and activities contained within the installation's boundaries.⁸¹ At no point were authorities at

⁸⁰ Edwards, "Hatter Has Ill Health Not Ill Will"; Wright, "Alberta Advantage," 92-93; Sommerville, "Lesions Produced by Mustard Spray"; Agamben, *Homo Sacer*, 91, 97.

⁸¹ For territorial control, see, Matthew G. Hannah, "Spaces of Exception and Unexceptionally," ed. Deborah Cowen and Emily Gilbert *War, Citizenship, Territory* (New York: Routledge, 2008), 62; Claudio Minca, "Agamben's Geographies of Modernity," *Political Geography* 26(1) (2007): 78, 84. For secret geographies, see Paglen, *Blank Spots*, 61 (quotation); John Beck, "The Purloined Landscape: Photography and Power in the American West," *Tate Papers* 21 (2014): www.tate.org.uk/research/publications/tate-papers/21/the-purloined-

Suffield compelled to acknowledge the hazardous nature of physiological experiments. Instead the obvious contradictions between Suffield's claims about the nature of experiments and the reality of them only intensified over time. No amount of unhealed wounds, long-term illnesses, or stories of horror and trauma (assuming test victims dared speak out about their experiences) could challenge Suffield's increasingly elaborate claims about how the majority of physiological subjects left "the Experimental Station with a favourable impression" or how, as the 1945 revised regulations stated, "all tests are carried out under very careful medical supervision and under scientifically controlled conditions and consequently NO permanent injury is likely to result." According to authorities at Suffield, soldier-subjects were not "guinea pigs' to some weird scheme." Nor were they "called up to make sacrifice." Instead, their job, as Suffield insisted to various DND authorities, was "merely to render cooperative understanding to those who conduct the trials, which... are carefully planned and carried out."⁸²

Suffield offered much more than physical space for testing chemical, biological, and radiological weapons; it also provided a space of permissiveness where scientific curiosity over, as Davies put it, the "ability of the weapons to kill the enemy or protect our own troops" could prevail over customary conventions

[landscape-photography-and-power-in-the-american-west](#). For secrecy and CBW science, see Schmidt, *Secret Science*; B. Balmer, *Secrecy and Science: A Historical Sociology of Biological and Chemical Warfare* (Burlington: Ashgate Publishing, Ltd., 2013).

⁸² For increasingly elaborate claims, see Bryden, *Deadly Allies*, 174-175. For quotes, see "Physiological Observers," 4 July 1944; "Regulation Governing Use of Subjects in Physiological Tests," 21 May 1945, 4354-25-10-1, C-5015, LAC.

governing injury, liability, informed consent, and individual rights. Within Suffield's boundaries, not only were "the rules as published" a mutable and relative concept, but investigators also had free reign to develop increasingly imaginative physiological experiments, produce more consistent and severe casualties, as well as let loose a variety of unpredictable and extremely hazardous contaminants into the local environment. To paraphrase Agamben, the question of whether atrocities were committed at Suffield depended not on law but on the civility, ethical sense, and safety methods of the CBW scientists who controlled the area and were invested with extraordinary powers over both people and places.⁸³

⁸³ Davies, "The Scientist and the Services," 151; Turner, "The Special Meeting"; Agamben, *Homo Sacer*, 99.

CONCLUSION

Near the end of the First World War and shortly before his death from the global influenza pandemic, progressive intellectual Randolph Bourne wrote of how “wartime brings the ideal of the State out into very clear relief, and reveals attitudes and tendencies that were hidden.”¹ Similar things could also be said about the procedures, policies, and practices governing the establishment, early operational activities, and ongoing control of North American defense lands. This study has explored the environmental underpinnings of permanent war, and detailed not only how the legal foundation of mid-century military land claims rested upon the assertion of exceptional, emergency powers, but also how the military control of land has, conversely, facilitated the practice of a variety of exceptional, emergency powers and defence-related activities. One issue perhaps not fully addressed is how the origins of militarized environments, or the unique administrative controls first established at defense sites, have continued to have bearing on governmental practices and developments. This conclusion will explore how some of the more prominent emergency military developments and assertions of power detailed in this study became permanent, normalized, and, in some cases, dominant features of contemporary politics.

In pushing back against prevailing understandings of emergency powers, I first highlight how the history of U.S. military land claims serves as a more

¹ Randolph Bourne, *The State* (1918): s1p10, available at <http://fair-use.org/randolph-bourne/the-state/#s1p10>.

realistic model of the dominant attitudes and tendencies shaping contemporary presidential war and security powers. I then look at the rogue nature of Suffield's early weapons testing program. In paying particular attention to the longer history of secrecy and duplicity surrounding Suffield's human testing program, I reveal how certain exceptional prerogatives and practices have few, if any, temporal bounds. The final section makes a case for the importance of investigating war's permanent presence in society.

Toeing the Line between Lawfulness and Unlawfulness

The widespread embrace of German legal theorist Carl Schmitt's conceptions of sovereignty in the years after the September 11, 2001 terrorist attacks may have been an unanticipated but not necessarily unforeseeable development. Schmitt's now well-known exceptionality thesis—or the idea that the “sovereign is he who decides the exception”—spoke to rising concerns about how the Bush administration's increasingly common assertions of unilateral war and security power threatened to unravel the rule of law and, as Giorgio Agamben put it, become “the dominant paradigm of government in contemporary politics.”² However, some commentators believe this turn toward exceptional, executive powers misses the point, and that, as American constitutional scholar and former presidential legal adviser Jack Goldsmith points out, “the real evil in modern presidential emergency powers, and the main hurdle to executive branch accountability in the current era of secret war, is not prerogative power, but rather executive auto-interpretation of executive authorities, and in particular

² Giorgio Agamben, *State of Exception* (Chicago: University of Chicago Press, 2005), 2.

secret executive branch interpretation of law.” Supporters of this point of view argue that, “in practice, governments faced with emergencies today do not have to break the rules because they can either change them or reinterpret them to serve their needs.”³

In looking more closely at the history of mid-century U.S. military land claims, such contentions seem particularly apt. One of the most remarkable things about the creation of U.S. defense lands was how they reshaped the laws around them. At the outset of World War II, the War Department desired the free and unrestricted use of large tracts of public land across the western U.S. and territory of Alaska. Instead of ignoring or openly violating the various land laws that stood in their way, FDR’s cabinet chose to act internally and reinterpret these laws in favor of defense needs. Even though Attorney General Robert H. Jackson’s 1941 opinion authorizing independent presidential land withdrawal powers “strained to find authority,” indulged in “tortured interpretation” that contradicted his previous opinions, and rendered existing land laws “virtually meaningless,” it still had some semblance of legality.⁴ This insistence on having some claim to legality does not conform well to prevailing understandings of emergency powers. In following Schmitt’s framework, Agamben, Judith Butler,

³ Jack Goldsmith, “The Irrelevance of Prerogative Power, and the Evils of Secret Legal Interpretation”; Clement Fatovic and Benjamin A. Kleinerman, “Introduction: Extra-Legal Measures and the Problem of Legitimacy” both in *Extra-legal Power and Legitimacy: Perspectives on Prerogative*, eds. Clement Fatovic and Benjamin A. Kleinerman (New York: Oxford University Press, 2013), 3-5, 215.

⁴ David H. Getches, “Managing the Public Lands: The Authority of the Executive to Withdraw Lands.” *Nat. Resources J.* 22 (1982): 295, 297; Charles F. Wheatley, “Study of Withdrawals and Reservations of Public Domain Lands,” *Public Land Law Review Commission 1* (1969): 124-25, B-24.

and others influential thinkers tend to speak of emergency powers in terms of absolutes: not only “is law completely suspended” but executive powers are deployed “without any legitimate authority.”⁵ Yet, in the case of mid-century military land claims, the exercise of exceptional, presidential powers was a matter of degrees not absolutes. As in the case of other prominent security and defense measures at the time, the establishment of a permanent military presence in the U.S. largely took place not completely outside of the law or without any legitimate authority, but in the grey areas, or interstices, of law. Some of the most secretive, consequential, and seemingly unilateral assertions of presidential war and security powers all had a certain amount of legal backing, and, as a number of constitutional scholars have pointed out, this tendency to place each and every independent presidential action—no matter how extraordinary—on seemingly more solid legal foundations has, despite claims otherwise, only intensified in the years after the attacks of September 11, 2001.⁶

Part of the problem, according to authors Eric Posner and Adrian Vermeule, is the tendency to view emergency powers through “the lens of Weimar.” “The specter of Weimar’s collapse, in which repeated invocations of emergency powers were followed by an authoritarian takeover, looms ominously in the civil libertarian imagination.”⁷ Yet, as foreboding as the rise of the Nazi

⁵ Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. Daniel Heller-Roazen (Redwood City, CA: Stanford Univ Press, 1998), 97; Judith Butler, *Prekarious Life: The Powers of Mourning and Violence* (Brooklyn: Verso, 2006), 56.

⁶ Fatovic and Kleinerman, "Introduction," 5.

⁷ Eric A. Posner and Adrian Vermuele, *Terror in Balance: Security, Liberty, and the Courts* (New York: Oxford University Press, 2006), 38-39 as quoted in Mary L. Dudziak, *War Time: An Idea, Its History, Its Consequences* (New York: Oxford University Press, 2012), 117.

regime may be, Jackson's 1941 reinterpretation of land laws offers a far more representative example of "the dominant paradigm of government in contemporary politics" and how presidential war and security powers actually operate in the United States. Jackson's authorization may not have been the first instance of, as Goldsmith describes it, "tendentious, controversial, and possibly erroneous, power-enhancing interpretations of executive authorities by the executive branch" and it certainly has not been the last, but it still stands out for a number of reasons.⁸

In contrast, for example, to more contemporary assertions of independent presidential power, the FDR administration's reinterpretation of presidential land withdrawal authority offers an extended view into how such assertions of power play out. From Jackson's initial resistance to the long-standing difficulties of shoring up the uncertain legal status of U.S. defense lands, Jackson's authorization provides critical insight into how "power-enhancing interpretations" are formed within presidential cabinets; how they are asserted and take hold, especially at the regional level; and how, once in effect, they can be extremely difficult to rein in or retract. Jackson's 1941 opinion also marks an important shift of emphasis. Internal, executive interpretations of the law gained particular prominence around the turn of the twentieth century, when President Theodore Roosevelt, Secretary of Interior James Garfield, and other conservationists adopted expansive readings of the president's so-called stewardship powers over public domain lands. In the early 1940s, FDR's cabinet

⁸ Goldsmith, "The Irrelevance of Prerogative Power," 223.

relied on some of these same readings of inherent, stewardship powers to justify independent presidential land withdrawals, but for defense purposes not conservation interests—and this shift towards the priorities of national defense and security has continued to the present day. In addition to expanding and reinforcing inherent presidential powers, the 1941 authorization also facilitated the rapid formation of a massive federal land base that has served “as a cornerstone” for the operations of “the greatest military machine the world has ever known.”⁹ To put it another way, from 1941 onwards, both the material and legal grounds for permanent war have rested upon unbound, internal administrative interpretations of the law.

With their emphasis toward having some claim to legitimacy, these independent assertions of presidential powers may not conform exactly to the more dramatic and fatalistic understandings of exceptional powers, as conceived by Schmitt, Agamben, and other influential thinkers. But this does not mean these kinds of presidential actions deserve any less scrutiny or debate. In questioning the logic of executive authority and uncovering the so-called invisible rules that governed the military’s control over public lands, it becomes apparent that the foundation of much of America’s vast defense estate sat upon very shaky legal grounds. With many military installations, the Department of Defense had “not a vestige of authorization... they are just sitting there without any authority

⁹ Jack Utter et al., “Military Land Withdrawals: Some Legal History and a Case Study,” (University of Arizona) *College of Agriculture Paper* no. 541 (1985): 48; 103 Cong. Rec. 5520 (1957).

under the law to be there.”¹⁰ That the same type of questionable legal practices and administrative interpretations used to legitimize mid-century military land withdrawals continue to guide presidential war powers and security programs is a testament to the continuing need to provide critical representations of the workings of executive power, especially as the presidency itself moves into new and unpredictable realms.

Jackson’s 1941 opinion authorizing independent presidential land withdrawal powers mainly sought to help the War Department obtain what Secretary of War Harold Stimson described as “the free and unrestricted use of its military reservations.” The story of Suffield’s chemical and biological weapons testing program highlights how, in addition to extralegal administrative actions, the exercise of exceptional, executive powers also rested upon the military’s “free and unrestricted” use of such reservations.¹¹

The Thin Divide Between Fact and Falsehood

When leading members of FDR’s cabinet encountered land laws that did not favor defense interests, they internally reinterpreted them to serve their needs. Land laws in Canada, in contrast, were far more accommodating to national defence and security objectives, and Canadian defence authorities showed few qualms about putting them to use. In the case of the Suffield

¹⁰ 103 Cong. Rec. 5526 (1957).

¹¹ Henry L. Stimson to Robert H. Jackson, 21 December 1940 reprinted in Wheatley, “Study of Withdrawals,” B-24.

acquisition, the government's heavy-handed, one-sided approach extended to nearly all aspects of the expropriation, including initial negotiations, the actual removal of residents, and with providing compensation and redress. In the name of military necessity and urgency, the Department of National Defence (DND) displayed minimal regard for the concerns and needs of the dispossessed inhabitants, and this lack of engagement with local interests only became more firmly entrenched as war shifted from a marked event to a permanent condition. If anything, the lasting disconnect between the place stories of local inhabitants and those of the military highlights how the exigencies of war continued to outweigh the need to protect the public interest well after the end of the Second World War. Far from being uncommon, such fractured understandings of place and people represent one of the chief characteristics of landscapes devoted to permanent war.

Suffield's establishment may have complied with Canada's lax expropriation laws, but what happened within Suffield's boundaries was another matter. While the law was not completely suspended at Suffield, authorities did have considerable freedom to act outside of common legal and ethical constraints, especially in the case of Suffield's human testing program. From the outset, a clear disconnect existed between the officially-approved guidelines set out for experiments and actual practices at Suffield. Within Suffield's restricted boundaries, rules were mutable, basic human rights intentionally overlooked, and extremely injuries acts were not treated as crimes. Investigators also had virtual free reign to conduct a variety of hazardous and often unpredictable chemical and biological weapons (CBW) field trials, including chemical weapons

experiments on actual Canadian soldiers. Not only were these controversial human experiments conducted without the informed consent of the soldier-subjects, but there was also marked duplicity involved in their recruitment. Authorities at Suffield showed few qualms about making false assurances about the safety of the experiments to potential test participants, their unit commanders, or other military personnel.

Critics and supporters alike have defended Suffield's secrecy and duplicity, arguing that these practices, as historian Ulf Schmitt put it, "should not necessarily be seen as a Machiavellian ploy deliberately to mislead or harm [test participants], but only as an attempt to preserve the utmost secrecy about Suffield's activities in times of war. In balancing the rights of individuals to make informed decisions about taking part in non-therapeutic experiments on the one hand with demands for military security on the other, the government clearly prioritized Canada's national security interests."¹² As reasonable as such justifications may appear, they do not hold up well to scrutiny. For one, Suffield investigators took careful measures to keep soldier-subjects in the dark about the true nature of the experiments from the outset, and, at no point, were participants privy to test results or other pertinent information surrounding Suffield's research activities or Allied chemical warfare capabilities. Rather than possessing secrets vital to national security interests, the most compromising thing test participants learned from their experiences at Suffield was that,

¹² Ulf Schmidt, *Secret Science: A Century of Poison Warfare and Human Experiments* (New York: Univ of Oxford Press, 2015), 136; Clément H. Laforce, "The Use of Human Subjects in Chemical Warfare Agent Experiments: An Ethical Perspective" (2006), 48-49, available at www.cfc.forces.gc.ca/259/281/278/laforce.pdf.

contrary to official claims, the experiments did indeed cause injuries, sometimes significant ones. Despite assertions to the contrary, the extreme measures taken to keep soldiers-subjects from ever speaking out about their experiences were not primarily aimed at keeping sensitive research findings away from the prying eyes of enemy nations, but at keeping Suffield's controversial activities concealed from the program's host nation.

Studies of chemical and biological warfare invariably emphasize how nearly all research and development activities have been "cloaked in utmost secrecy."¹³ Less well recognized is the rogue nature of these activities, and how they often have taken place not only beyond the purview of the public but also the direct control and oversight of government. In the case of Suffield's human testing program, it is hard to say for sure who knew what within the Department of National Defence (DND) at the time, but it is clear that top authorities were not actively informed about the particulars of Suffield's more hazardous research activities or ever read reports describing severe injuries.¹⁴ Most DND officials also

¹³ Brian Balmer, *Secrecy and Science: A Historical Sociology of Biological and Chemical Warfare* (Burlington: Ashgate Publishing, Ltd., 2013), 8.

¹⁴ Jon Bryden, *Deadly Allies: Canada's Secret War, 1937 to 1947* (Toronto: McClelland & Stewart Inc., 1989), 172. Records tied to human physiological CW experiments were treated differently than other classified materials at Suffield. All records, including notes, were kept under lock, distribution was limited, and the reports themselves were not linked to any DND or other federal file numbers, as was customary for nearly all government records at the time. Instead of being included in federal archival depositories, most of these trial reports ended up in an abandoned building at Suffield. Apparently, personnel clearing this building in the 1970s re-discovered the records and had the foresight to recognize their significance and to catalogue them in Suffield's private collections. See, Laforce, "Human Subjects in Chemical Warfare Agent Experiments," 56. For "specific security requirements" for record-keeping, see Dr. R.L. McIntosh, "Secrecy: M.1000 Instructions and Rules, 1941," Vol 29, MG 30-B91, Everitt George Dunne Murray Fonds," Library and Archives Canada, Ottawa, Ontario, Canada (LAC).

appear to have had no problems accepting officially-approved claims about how the experiments were defensive in nature, that there was “NO unnecessary risk involved,” and that the test participants made considerable contributions “to the advancement of scientific warfare at the cost of a negligible degree of discomfort.”¹⁵ In the rare instances when DND personnel did raise questions about the safety of the experiments, authorities at Suffield only became more rigid in their insistence that experiments caused no injuries and were essential to the defence of Canada and other allied nations. Apparently, out of all of Suffield’s restricted boundaries, none was as carefully guarded as the thin divide between what was claimed to take place at the station and what actually happened there. More than anything else, Suffield’s “free and unrestricted” geography made it easier to operate outside of governmental constraints, allowing investigators to deny the inherently hazardous nature of the experiments at Suffield and deliberately sacrifice the health of numerous Canadian soldiers with near absolute impunity.

Despite appearances, this is not necessarily a story about weapons scientists gone astray. In many respects, the subversion of legal and ethical norms, as well as the many other extraordinary conditions at Suffield, was a predictable response to the “great potentialities” of unorthodox weapons of mass destruction.¹⁶ The prospect of chemical and biological warfare presents a difficult strategic problem. Both the threat and offensive potential of these weapon

¹⁵ “Regulations Governing the use of Volunteers,” 1 June 1945, 4354-25-10-1, C-5015, LAC; “Physiological Observers,” 4 July 1944, 4354-25-10-1, C-5015, LAC.

¹⁶ Glen Gay, “2nd Meeting of the Special Weapons B.W. Warfare Research Panel,” 13 May 1947, DRBS 171-80/B1 Vol 1, RG 24, LAC.

technologies needs to be addressed, especially during total war; yet their restricted legal status and sinister reputations have meant that most CBW development activities tend to rarely be carried out in an aboveboard manner. Instead, these weapons technologies tend to gravitate toward the so-called shadow areas of government. Far from being surprising or out of the ordinary, the disruption of normal order, rogue nature of research activities, and practices of secrecy, duplicity, and other extraordinary powers at Suffield were in fact requisite conditions for a CBW testing program that was committed to readying, for immediate use, “both defensive and offensive measures should they be required.”¹⁷

What does stand out, however, is the longevity of these practices, and how extraordinary procedures and activities formed in response to a seemingly temporary wartime crisis have remained in effect and continue to shape contemporary affairs and responses. When, for example, the federal government formally recognized the existence of Suffield’s human testing program in 2004, not only did officials at the DND and Veterans Affairs Canada lack a basic understanding of the program but they also appeared to have had minimal problems accepting officially-approved claims about Suffield’s early research activities. After calling into question soldier-subjects’ statements about the hazardous nature of the experiments, for instance, one spokesperson for the Veterans Affairs Canada Centre for the Injured contended that, according to his

¹⁷ E.G. Murray to J.B. Collip, 17 June 1942, 4354-33-17-1, C-5019, LAC. Quote specifically refers to guidelines for developing biological weapons, but similar principles also guided chemical weapons research.

understanding, “the primary objective of these tests was to find out how to defend against these weapons,” and that he “would be shocked if injury was the known outcome.”¹⁸ While denials such as this have been all too common, they should not necessarily be seen as attempts to continue to conceal and mislead. A more realistic assessment would recognize how early practices of duplicity and secrecy have had trickle down effects to the present. Just as with the soldier-subjects, many DND officials were kept in the dark about the hazardous nature of Suffield’s research activities from the outset, and, even today, they continue to take assurances about defensive nature CBW research and the inherent safety of Suffield’s experiments at face value while not fully recognizing “the many terrible things that have happened there in the past.”¹⁹

Not all defence officials, it should be stressed, have remained in the dark about Suffield’s early research activities. Several employees at Suffield were on DND’s front lines in researching the history of Suffield’s human testing program and recognizing test survivors’ participation. These same Suffield officials, however, have also been some of the program’s biggest defenders. Relying on familiar arguments about the necessity of defending against chemical weapons and the “unique conditions created by a global war,” these officials have insisted that “the experimentation was justified, even in cases where the subjects received significant injury” and that “it would be difficult to blame the researchers that carried out the experiments or the institutions that supported them.” Such

¹⁸ Kara Kinna, “‘The Pain Was Horrific’ – Suffield Survivor,” *The Montreal Gazette*, 18 Jan 2004.

¹⁹ Peter Hays, “Empress Residents Worry about Winds from Suffield Base,” *Medicine Hat News*, 28 Feb 1990.

viewpoints may not represent the official position of the DND, but they have undoubtedly had significant influence on the federal government's formal responses to test survivors' complaints.²⁰ Instead of, for example, offering formal apologies to test survivors or admitting to any kind of wrongdoing, official statements have been limited to honoring soldier-subjects' service and recognizing, as a monument at Ralston, Alberta states, the "unheralded participation by volunteers in chemical warfare agent tests" whose "duty was, by every measure, exceptional."²¹ Double-entendre aside, such limited responses not only fail to address the many critical questions that could possibly be raised about Suffield's controversial CBW research activities, but they also, as evidenced by the continuing characterization of soldier-subjects as volunteers, indulge in the same type of duplicity, concealment, lack of accountability, and unilateral decision-making that made these controversial and frequently criminal experimentation activities possible in the first place.

²⁰ Laforce, "Human Subjects in Chemical Warfare Agent Experiments," v, 55, 51, i. This report, which was written by Suffield's Deputy Director General and is available through a federal archival database, includes a disclaimer noting how its findings do not "necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence."

²¹ Veterans Affairs Canada, National Inventory of Canadian Military Memorials, Memorial 48020-024, Suffield, Alberta, 2004, available at <http://www.veterans.gc.ca/eng/remembrance/memorials/national-inventory-canadian-memorials/details/7057>. These conclusions largely follow the 2004 assessments of ombudsmen André Marin, see André Marin, *Complaints Concerning Chemical Agent Testing during World War II* (Ottawa: Department of National Defence and Canada Forces, 2004), available at www.ombudsman.forces.gc.ca/en/ombudsman-reports-stats-investigations-chem-testing/report.page.

A Lack of Scrutiny

Global crises such as the Second World War may have set limits, but the defence- and security-related developments and land use practices that grow out of these crises have a different set of temporal bounds. In some cases, the exceptional conditions of war need to be maintained indefinitely. This study has investigated how a number of emergency war powers, procedures, and land use practices took hold and were given permanent spatial arrangements. It has also revealed how certain defense and security activities took place outside the purview of civilian government, often at the hands of secret, extralegal, and rogue authorities. Perhaps this study's most revealing finding, however, is not how defense authorities were willing to act outside the law, make false assurances, conceal controversial activities, take heavy-handed measures, conduct hazardous experiments, neglect the public interest, overlook basic human rights, or deny previous land claims and histories of land inhabitation; rather the most remarkable finding may be the widespread acceptance of and lack of scrutiny toward these controversial development activities and assertions of power.

According to author Elaine Scarry, the prospect of a never-ending wartime emergency in the age of weapons of mass destruction has “acted on the people of the world to make us surrender our powers of resistance and our elementary forms of political responsibility.”²² Indeed, in nearly every case highlighted in this study, defense authorities encountered minimal resistance. From local citizens

²² Elaine Scarry, *Thermonuclear Monarchy: Choosing Between Democracy and Doom* (New York: WW Norton & Company, 2014), 318.

and administrators to state, provincial, and federal authorities, few people had trouble accepting the military's expanding presence and powers as a necessary sacrifice for the higher imperatives of defense and security. Even those who stood directly in the way of mid-century military developments largely accepted the various assumptions and prerogatives guiding these developments. Sheep grazers in Utah, for example, may have been "dealt a rank and costly injustice by the U.S. Army's Corps of Engineers," but their opposition to losing their grazing rights "was not one of opposing preparation for National security but trying to stabilize their own business security." The dispossessed settlers of Alberta's Suffield Block suffered similar injustices, but they also did not wish to "interfere with one of the most vitally important projects essential to the winning of the war." For backers and opponents alike, the rapid expansion of military's presence was "of course... something that has to be submitted to."²³

Not only was there a lack opposition during the establishment of a permanent military presence in North America, but the willingness to accept this expansive presence as an inevitable outgrowth, or unavoidable response, to overpowering events and forces has largely persisted to the present day. The forced acquisition of valuable farming and grazing lands in Alberta and Utah was commonly accepted as a necessary response to the urgent demands of war and security. These same demands also justified the use of Canadian soldiers as

²³ Marcellus Palmer to Elbert D. Thomas, 5 May 1950, Folder 2, "Dugway Project (Army-2)," Box 217, *Elbert D. Thomas papers, 1933-1950 (Elbert D. Thomas papers)*, Utah Historical Research Center; Deputy Minister (Army) to Dr. F. Gershaw, 29 June 1944, 4354-26-8, C-5015, LAC; Walter Dansie to Mr. C.F. Moore of Colorado, 19 August 1952, Box 4, Folder 5, *Deseret Live Stock Company Records, 1891-1976, MS 105, Western Americana*, J. Willard Marriot Library, Special Collections Division, University of Utah, Salt Lake City, Utah.

guinea pigs in extremely hazardous chemical warfare field trials. To this day, both of these influential mid-century military developments have largely escaped critical examination, as has one of the biggest unilateral seizures of public lands in American history. The imperatives of war and security undoubtedly make demands and require sacrifices, yet, in the cases highlighted in the study, these sacrifices have often occurred with minimal recognition and without substantive analysis or critique.

With the exceptional conditions of war becoming permanent, normalized, and, in some cases, dominant features of contemporary politics, the need to provide alternative, independent critiques and analyses of war's ubiquitous presence in society becomes more pressing. Historians are in a particularly advantaged position to address bigger questions and apply more sustained attention to what Randolph Bourne, if he were alive today, might refer to as the hidden attitudes and tendencies of permanent war. Controversial defense- and security-related activities may all too regularly supersede governmental legal controls and other conventional forms of oversight and accountability, but this does not mean such activities are beyond reproach or somehow free from the burdens of history.

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