JENNIFER
TERRY

ATTACHMENTS TO WAR

BIOMEDICAL LOGICS AND VIOLENCE
IN TWENTY-FIRST-CENTURY AMERICA

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NEXT WAVE: NEW DIRECTIONS IN WOMEN'S STUDIES

A series edited by Inderpal Grewal, Caren Kaplan, and Robyn Wiegman

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JENNIFER TERRY

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FOR SURINA

who has taught me many truths
about living and loving well

CONTENTS

ABBREVIATIONS

ACEP	Army Center for Enhanced Performance
AFIRM	Armed Forces Institute of Regenerative Medicine
AMA	American Medical Association
AVA	Anthrax Vaccine Adsorbed
AVIP	Anthrax Vaccine Immunization Program
BARDA	Biomedical Advanced Research and Development Authority
BMI	brain-machine interface
BPHS	Basic Package of Health Services
BTWC	Biological and Toxin Weapons Convention
CBRN	chemical, biological, radiological, and nuclear weapons
CDC	Centers for Disease Control and Prevention
COIN	counterinsurgency
CPA	Coalition Provisional Authority
CSH	combat support hospital
DARPA	Defense Advanced Research Projects Agency
DCBI	dismounted complex blast injury
DHS	Department of Homeland Security
DoD	Department of Defense
DWB	Doctors without Borders
ECM	extracellular matrix
EPA	Environmental Protection Agency
EPHS	Essential Package of Hospital Services
FDA	Food and Drug Administration
FET	Female Engagement Teams
HHS	Department of Health and Human Services

HMO	health maintenance organization
IED	improvised explosive device
IMF	International Monetary Fund
IVAW	Iraq Veterans Against the War
MBPI	Michigan Biologic Products Institute
MSF	Médecins sans Frontières (Doctors without Borders)
NATO	North Atlantic Treaty Organization
NBACC	National Biodefense Analysis and Countermeasures Center
NGO	nongovernmental organization
NIH	National Institutes of Health
NPR	National Public Radio
NSF	National Science Foundation
OEF	Operation Enduring Freedom (Afghanistan, October 7, 2001–December 28, 2014)
OIF	Operation Iraqi Freedom (Iraq, March 19, 2003–August 31, 2010)
OND	Operation New Dawn (Iraq, September 1, 2010–December 15, 2011)
PTSD	posttraumatic stress disorder
RIC	Rehabilitation Institute of Chicago
RP	Revolutionizing Prosthetics
SCIF	Sensitive Compartmented Information Facility
TATRC	U.S. Army Telemedicine and Advanced Technology Research Center
TBI	traumatic brain injury
TMT	Transformational Medical Technologies Initiative
USAID	U.S. Agency for International Development
USAMRMC	U.S. Army Medical Research and Materiel Command
VA	Veterans Administration
WHO	World Health Organization
WILPF	Women's International League for Peace and Freedom
WMD	weapons of mass destruction
WSP	Women Strike for Peace

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Introduction

BEING ATTACHED

My father was a soldier in the U.S. Army. He died of brain cancer in a VA hospital on Memorial Day in 1977 at the age of forty-nine. In 1944, in order to enlist at seventeen, he told a recruiter he was eighteen. It was a way out of a rough childhood of poverty and neglect. He was trained in the Signal Corps and served in World War II and the Korean War. After he and my mother married and had my two older brothers and me, he was deployed to Vietnam for two tours of duty, one in 1964–65 and the other in 1970–71. He assumed the duties of supply sergeant and helicopter gunner. He sustained serious head injuries during each tour, first by grenade shrapnel in a nighttime attack that killed eight American soldiers and wounded over a hundred more, and the second by a group of GIs who attacked him on his way back to his barracks after cashing his monthly paycheck, "leaving him for dead," as my mother put it. There might have been drugs involved in this second incident. The story was told to us in a cryptic fashion.

When my father was away, I prayed each night at bedtime to someone called "God" for two things: that my father would not be killed so that he could return home to us and that, when he returned, he would stop drinking so that the fits of rage would end. By twelve I had learned from witnessing the terrible toll war took on my father that among those Americans who most abhor war are the ones who return home from fighting them. Next in line are their loved ones. I also learned that many of the leaders who declare war avoid actually putting their own bodies on the line. In time I came to see my childlike and provincial realizations as woefully myopic. Learning the history of U.S. imperialism, I recognized that I was implicated

in war as a citizen of a superpower responsible for using armed conflict to seize control of resources and exert its influence all over the world.

For many years I considered the question of whether it is possible for Americans to meaningfully and materially oppose war when its entanglements are so diffuse and deeply rooted in the very fabric of life in this country. My personal history as it relates to this central question motivated me to write this book. I started the research for it in the first decade of the twenty-first century, spurred by the two massive war mobilizations undertaken, first in 2002 in Afghanistan and then in 2003 in Iraq, by the administration of President George W. Bush with the support of a majority of members of the U.S. Congress and in coalition with our NATO allies. In the book I focus on the period bracketed by these officially declared wars but also note that the tactics, logics, and tools of domestic policing are increasingly appropriated from military operations and that war, in this sense, is now never-ending and pervasive. An additional twist is that the wars waged in Afghanistan and Iraq were rationalized by our government as necessary and beneficial to the inhabitants of those regions. They would "liberate" ordinary people from tyranny and help "cultivate" free-market capitalism (often used interchangeably with *democracy*) in those places. Though also staged as urgent operations for securing America from "terrorism," a cloying rhetoric of beneficence saturated much of the U.S. pro-war discourse in these early decades of the century. We were promised that the wars would be efficient and rapidly resolved, surgical in their precision. In the words of Bush's vice president, "We will, in fact, be greeted as liberators."[1] Regime change would swiftly be followed by "nation-building." The invasions were fueled by fantasies of technoscientific precision symbolized by a massive arsenal of sophisticated weapons systems and elaborate logistical protocols according to which only the blameful "terrorists" would be killed. Alongside nationalist rhetoric of protecting the United States, perverse claims about care and compassion were part of the ideological mystification aimed at acquiring the support of the American public for these large-scale offensives. It was not always an easy sell, especially after the wars dragged on and the nation-building plans were exposed as corrupt, rife with sectarian antagonisms, and jackpots for war profiteers overcharging taxpayers through their private contracting firms. A central concern of mine in this book is to track how "care" operated in the rhetoric of pro-war officials and, more specifically, to analyze how it tied wars of this sort to biomedical logics in the actual

treatment of (some and not other) wounded bodies as well as in the execution of war itself.

Without a doubt there are organizations and people in the United States who are opposed to war and who question the massive amount of resources that are dedicated to weapons development, policing operations, and overseas military deployments. Others are hawkish proponents of war, seeing in it many opportunities for demonstrating hypermasculine force, acquiring resources, controlling territory, making profits, and exerting political power at home and abroad. Many others remain conveniently unaware of the depth and reach of the nation's commitment to war and militarization, comfortably protected from war's more obvious realities because they are not required to fight, even as they may materially benefit from it. Complex entanglements whose origins can be traced back to the European conquest of the Americas attach us to war not only in visibly apparent ways but in subtle and insidious ways as well. In this book I examine the realm of biomedicine and of biomedical logics as these entangle Americans in war. I have chosen this focus because biomedicine participates in rationalizing our recent wars that are fought not only in the name of national defense but also in the name of an abstraction called "humanity." Technoscientific fantasies of miraculous healing and of "humane" war-fighting entangle violence with dreams of surpassing bodily limitations and of performing antiseptic death. Biopolitics meets necropolitics: laws and policies aimed at maximizing the bodily potential of the population while managing risks are intertwined with laws and policies in which killing or neglecting unto death together make up how "society must be defended."[2]

I use the neologism *biomedicine* to encompass the multiplying branches of modern biological sciences in their convergence with medical research, treatment, and profiteering. *Biomedical logics* are ways of reasoning that manifest in discourses, representations, narratives, and practices animated by the idea of *care*. Biomedical logics, I argue, interweave with neoliberal ideals that promise freedom, democracy, prosperity, and self-improvement while also lending a strange valence to war, one that sees in highly technical violence the hope of rehabilitation, regeneration, security, and the development of humane tactics for waging war. Biomedicine can serve to make excuses for violence, whether these excuses come in the form of knowledge that can be acquired through research on wounds and diseases or in the form of claiming that war can be carried out in efficient targeting in which only the blameful will be violated.

I analyze the dynamics and mediations of several key examples of biomedical projects dealing with war in order to take issue with recent state-sponsored violence carried out overseas and sometimes tested on disempowered communities at home. My argument is that for citizens of the United States to meaningfully oppose war requires gaining an understanding of how our attachments to it are embedded in everyday life and institutionalized in and beyond government in the interwoven industries of media, biotechnology, finance, and higher education.[3] *Attachments to War* provides examples of these entanglements by examining the manifest promises about the future that are evident in our enchantment with biomedicine. The intended audience encompasses readers of any political sensibility, but I especially seek to reach those who are critical of U.S. militarized adventures of the twenty-first century—at home and abroad—but who may benefit from further examination and questioning of the great existential effects of our empire's entanglement with languages and practices associated with care and healing, an entanglement that has too frequently made violence a natural (though tragic) process rather than a political project into which a meaningful intervention can be made.

SCOPE OF THE BOOK

Following a contextualizing chapter on the nexus of war and biomedical logics, I focus in depth on three main areas of biomedical research: diagnosis and treatment of war-generated polytrauma, postinjury bionic prosthetics design, and the cultivation of infectious pathogens rationalized as defense projects. I zero in on developments that occurred between 2002 and 2014, when the United States was officially engaged in combat operations in Afghanistan and Iraq. The book took shape as many of the events I describe were unfolding. We know that despite President Barack Obama's formal announcement in October 2011 ending the war in Iraq and another, made in December 2014, ending the combat mission in Afghanistan, conflict continued in the form of U.S.-led special operations raids, drone strikes, and security-detention operations not only in those regions but in many locations around the world. The nation's surveillance activities proliferated at home and abroad as part of an ever-vigilant anticipation of terrorist attacks. War persisted even as it transmogrified and was mystified by new technologies, covert tactics, and ideologies of security. I realize there is an arbitrary quality to any periodization, but delimiting the chronological

scope was necessary in order to finish the book. Where relevant, I have incorporated historical material that preceded 2002. I examine a selection of products and therapies to treat war-wounded men and women, chiefly stem cell–derived tissue cultivation for polytrauma patients (chapter 2), bionic limbs programmed with artificial intelligence that are designed for amputees (chapter 3), and antibiotic/antiviral agents aimed at engineering immunities in the context of infectious disease and biowarfare (chapter 4). The book could have been much longer, bringing into its frame other examples of how biomedicine, war making, and financial speculation are entangled—for example, in the production of treatments for war-generated psychological distress, as well as the use and abuse of biopsychological tools for enacting torture in interrogations at secret detention sites. I have opted for a selective focus rather than a comprehensive survey. If it succeeds in its aim, *Attachments to War* will provide ideas to further our understanding of how war and biomedicine are bound together and for loosening these bonds to make way for ethical futures.

The book focuses on developments in the U.S. military and security apparatus, its biomedical industry, its media stories, and its citizens' behavior. Each of these operates in transnational circuits.[4] America is a key formation where the convergence of money, military power, and medical science draws experts and investors to perceived opportunities facilitated by certain transnational networks that are involved in one way or another in the mutual provocation between war making and biomedical knowledge production. *Attachments to War* focuses on the war politics of biomedicine—the power-laden nexus entangling war and biomedicine—in the United States, the country that until 2014 spent more on its military than the next biggest countries of the world combined and has the most expensive health care in the world.[5] America, however, is not a sealed-off location; far from it. Developments here are subject to global and transnational dynamics, including media products that travel across borders as well as fluctuations in currency rates and stock exchanges, conflicts over resource extraction, and massive social dislocations caused by armed conflict, environmental disasters, and capital flight. *Attachments to War* zeroes in on the ideologies and practices that account for America's highly militarized character as it relates to an enchantment with biomedicine.

Whose bodies are recognized for their sacrifice when it comes to the knowledge acquired through treating the wounded? By what means are they recognized? Whose wounds signify the debt a nation owes? And whose

do not? In the book's case-study chapters we encounter patients, their families and friends, physicians, therapists, engineers, scientists, military strategists, bureaucrats, lab administrators, motivational speakers, advertisers, and investors who populate the narratives of biomedical promise put forth by major newspapers, business magazines, television news shows, TED Talks, biomedical advertising, and military public relations offices. These persons and bodies interact with the concept of *biomedical salvation* in a variety of different, unequal, and contradictory ways.

No actor in the biomedicine-war nexus is categorically lionized or demonized in this book. Instead I frame the book as an inquiry into the dynamic field of discourses, practices, and institutions that entangle people differently, depending on a variety of factors and their location in relation to the interwoven social technologies of profession, nationality, socioeconomic class, race, and gender. In this dynamic field notions of potency derive from the injuries caused by evolving types of weapons and strategies of force, drawing vitality, morbidity, and mortality into close contact. This is an existential reality, experienced in different ways, and an aporia that I seek to understand.

War and medicine are in a relationship of mutual provocation whereby new forms of wounding and illness generate biomedical knowledge and vice versa. I contend that this relationship of provocation perpetuates and elaborates processes of militarization through which war comes to be tacitly accepted as a necessary condition for human advancement. I engage critically with the work of scholars who have asked how and why modern wars are fought in the name of humanity. I examine the calculated costs and benefits that influence medical decisions about whose bodies should be cared for and whose are considered expendable in recent officially declared wars America launched in coalition with its allies. I draw upon the conceptual work of other scholars and my own close analysis of an array of cultural objects, actors, narratives, institutions, technologies, and processes that make promissory gestures about the future of life. These gestures sell new medical technologies as investment portfolios in various contexts of speculation that are animated by ongoing and anticipated armed conflict.

Acts of wounding provoke the expansion of medical knowledge.[6] Devastating physical trauma caused by improvised explosive devices can be survived now, thanks to advanced blood-clotting products and rapid emergency evacuation procedures. Mangled and destroyed limbs resulting from high-powered detonations offer the occasion for building bionic devices

that rely on artificial intelligence to ambulate the survivor. Deadly and rapidly mutating pathogens developed as weapons provide the impetus for massive research funding to develop "medical countermeasures," which are themselves part of a growing and terrifying arsenal, engineered through recombinant genomic science. A *destroy-and-build* logic is evident in new weapons systems that maim bodies, that are then subject to extreme medical interventions, regeneration therapies, and bodily enhancement. I focus on narratives and representations related to research done by physicians and scientists working at the forefront of the medical biotechnology industry rather than on clinical practice. The industry is highly speculative and financially risky because it often takes many years to bring a device or treatment to the market, and many of the treatments fail in clinical trials. Government contracts awarded to biotechnological and pharmaceutical companies helped to infuse this troubled sector of the economy with bountiful funding. This is why *biomedical war profiteering* is a leitmotif that appears throughout the book.

METHODS

The medical industry and the U.S. military have a long and storied relationship. From smallpox blankets to titanium limbs, their connection is enduring. As Michel Foucault noted, the genius of medicine was to make itself look apolitical, which made it all the more political.[7] Biomedical logics are neither politically neutral nor aligned with any particular political perspective. Instead, I argue, they can be enlisted to serve a range of political agendas. *Attachments to War* is an iteration of some of the specific, and sometimes horrible, ways that war-generated medicine continues to naturalize the notion that biomedicine and war are separate spheres, that the former is apolitical, and that care and violence oppose one another. I argue that biomedical logics are constitutive of the culture of the Global War on Terror, but they are seldom recognized as such. Thus a key method of the book involves taking a look at what is hiding in plain sight.

War is a highly mediated process, especially in the twenty-first century. Many of the hundreds of primary sources I analyze in this book are corporate broadcast and print media material or from offices of the U.S. military that are highly attuned to the significance of appealing to the public for support of the nation's imperial goals. In these materials war is presented through particular narrative conventions and visual representations that

rehearse an enduring claim of Total War societies like ours: war is hell, we are reminded, but it yields important knowledge for the future.

Throughout the book I rely on conceptual approaches and methods drawn from cultural studies and feminist science studies. Cultural studies maps how power and knowledge come together, or rather how power-knowledge materializes in thoughts, ideas, images, identities, products, and relations. Cultural studies foregrounds critical reflection on the production of meaning, assuming culture to be constituted through dynamics of difference rather than being a homogeneous or static entity. Culture is a contested terrain, to paraphrase the field's founder, Stuart Hall.[8] Conflicts over meaning involve social subjects—individual people and other agents of social relations (such as universities, governments, religious congregations, corporations, militaries, families, etc.)—and changing (sometimes unpredictable) systems of signification. These conflicts may be more visible in the context of crisis. In the case of the mediated sources I analyze, the crisis stemmed, in part, from the increasingly unpopular wars in Iraq and Afghanistan waged on what became generally regarded as either insufficient, discrepant, or downright false pretenses. I seek to show that narrative presentations pertaining to these wars are in the grain of other popular entertainments that indeed serve to make the violence of war something we have already incorporated into daily life and bodily practice, but of whose many effects we remain disturbingly unaware.

I attempt to break through some of the disciplinary boundaries that function to maintain control over who gets to talk about war, foreign policy, and military operations. The disciplines of political science, military history, and international relations have claimed special authority over these matters. Very little of the writing in these fields has paid attention to critical scholarship that has emerged from feminist studies, ethnic studies, and disability studies. Through an eclectic theoretical mapping of the central problem of the book and through deliberately eccentric citational practices, I seek to enact and embed a kind of critical intervention in how war is considered in the hegemonic disciplines that have laid claim to being its primary interpreters. I also seek to break the hold that military historians have had on the place of medicine and medical knowledge in the history of modern warfare. Where relevant, I focus on the identity categories pertaining to the stratified power relations of gender, race, class, and sexuality. But the book is less about identity formation and more about interrogating the conditions under which power is generated by epistemological systems

that produce habits of thinking about how war and medicine are generally understood—how these two formations come to be naturalized.

Biomedical science is an object of critical scrutiny in *Attachments to War*. I draw on methods from feminist science studies to look critically at science in context, noting how history, politics, and economics influence scientific practice, from grant writing and laboratory research to the publishing of findings and their application in the world. Ruth Hubbard argues that science is a social enterprise and that for every fact there is a factor—a person or persons responsible for establishing the fact. Scientific laws and the facts of science, she notes, reflect the interests of the university-educated, economically privileged, predominantly white men who have produced them. The ideas, institutional priorities, professional networks, and funding sources that are available to this elite group play central roles in what kind of research is undertaken, who is allowed to undertake it, and what applications it will generate. Feminist science studies further recognizes what Hubbard refers to as "the indispensable unity of subjectivity and objectivity in every act of knowing": that the pretense of pure objectivity serves to disguise ideological presumptions that are embedded in scientific research and allows researchers to remain unaccountable for the partial perspective they inevitably have.[9]

The research and analysis I present aspire to the sort of analytical work that Donna Haraway called for in her critical engagement with the figure of the cyborg and the informatics of domination: the games of war are messy, and yet in the twenty-first century many of us in the United States are players of one sort or another. To intervene effectively and end the seemingly endless conditions of war making, we must take apart the performed vernaculars that support twenty-first-century state-sponsored violence. To paraphrase Haraway's paraphrase of Gayatri Spivak, to think about our attachments to war is something we cannot afford not to do.[10]

I attempt to address the question of who benefits from war by analyzing specific contexts and fields of material-discursive practices that I hope will be productive of ethical interventions—rather than simplistic disengagements—about what war is doing *for* us now. I qualify in more specific terms how the people in this book are situated in relation to the collective pronouns *we* and *us*, noting how discourses and practices of medical salvation often function to alienate and exclude particular persons and bodies while disavowing this alienation with a language of universal human advancement.

War is now the new everyday. It is striking that the term *postwar* in the United States generally refers to the period after 1945 but is seldom used to describe the periods following the U.S. military occupation of Korea in the 1950s, its withdrawal from Vietnam in the early 1970s, the dissolution of the Soviet Union and hence the Cold War in late 1991, or the nation's participation in the Balkan conflicts of the 1990s. Indeed, as Joseph Masco has argued, the modern national security state apparatus, emerging in 1947, was a product of the long Cold War and has morphed into the Global War on Terror. "The War on Terror," he writes, is "the ideological fulfillment of the Cold War state project, creating an institutional commitment to permanent militarization through an ever-expanding universe of threat identification and response."[11] Focusing on the aim of deterring communism led to the massive expansion of the military-industrial-academic apparatus and to the disciplining of citizens in everyday life. In the years leading up to the suicide-hijacking attacks of September 11, 2001, Americans had been rehearsing the destruction of U.S. cities for over three generations in civil defense drills as well as in watching Hollywood blockbuster movies of the 1990s.[12] By 9/11/01 Americans had been habituated to be ever vigilant. Immediately following the attacks on that day, U.S. officials mobilized the affects of fear, terror, and anger to reconfigure the space and time of military action as unlimited.

We now dwell in an ongoing condition of war at home and abroad against a nebulous enemy called "terror" whose agents are "terrorists." War need no longer be announced by an official declaration for the general population to be in a continual state of attachment to war. It is phrased in a political grammar of xenophobic security against a racialized figure of terror and through which emotional attachment to the state of war permeates myriad affective ways of being. So being "at war" is a constant feeling and a continual state of being that is forged by many quotidian activities and, for the purposes of this book, made manifest in material and biomedical technologies of attachment. The United States and war are themselves inextricably attached to each other in the twenty-first century, as are war and biomedicine. There is no way to be unattached, no such thing as postwar society—unless we begin to intervene in this naturalization and begin to think otherwise.

The idea of attachment in medical and psychological discourses is widely regarded as an enduring emotional bond that normal people have with others. British psychoanalysts developed attachment theory during and following World War II based on observations of infants' various responses to being separated from their primary caregivers. Much of their research was conducted on infants, children, and young adults whose families had been torn apart by war. In controlled clinical studies, researchers found that children who experienced parental psychophysical detachment or indifference tended to exhibit anxiety and fear, whereas those who felt supported were secure, confident, and curious to explore their environment and play with others. Children suffering from prolonged separation experienced profound depression and despair. Described by the psychoanalyst John Bowlby as a motivational system, attachment dynamics were evidenced in infants' crying, clinging, or frantically searching for parents during laboratory-controlled separations out of what Bowlby called a survival technique. The infant, being entirely dependent upon the parent for food and care, expressed demands as a safeguard against extinction until the child was old enough to attend to his or her own needs. Bowlby tied the system to evolutionary pressures of natural selection.[13] Attachment theorists attributed these patterns to the child's sense of loss and helplessness and concluded that strong and supportive emotional bonds between parents and children were necessary for healthy human development into adulthood. They noted too that attachments were relational, not inherent qualities of either the child or the parent, but forged in original as well as ongoing interactions. Though such patterns could also be seen in families not directly affected by it, war was among several key conditions of emotional insecurity dating from infancy and haunting the afflicted into adulthood.

I draw upon this psychological theorizing of attachment but broaden its conceptual field of vision to examine the phenomenological, institutional, and material dimensions of attachment when it comes to the complex affective responses individuals and communities have to notions of defense, security, and belonging. The psychoanalytic model of attachment assumes a normative parent-child dyadic structure. While it does not exclude economic and political factors that may obstruct or negatively affect healthy emotional development, attachment theory tends to focus on the interpersonal dynamics that constitute the well-being or distress of individuals. I extend the concept of attachment in order to consider how ideologies, institutions, expert knowledge, politics, and economic factors attach

individuals and a society such as ours to the vast and deep manifestations of militarization that shape our daily realities. These forces and factors paradoxically exploit insecurity as a main motivating condition for authorizing wars. What does it mean for a society to accept that attachment to war is normal? What is offered, promised, or subsumed in this attachment? A complex and contradictory mélange of feelings—many revolving around fear, insecurity, and vengeance but also around hope, caring, and desire for a better future—swirl around in what I refer to as the biomedicine-war nexus. This nexus emerges from a complex set of cultural values and historical developments wherein pervasive and permanent preparedness for war occasions the conditions under which war and biomedicine are bound together in material, affective, ideological, and ethereal ways. War serves biomedicine by producing a steady stream of wounded veterans who become research subjects. National security is imagined as a disease-control surveillance apparatus for detecting deleterious agents, whether persons, pathogens, computer viruses, dangerous attitudes, or toxic assets. In turn, biomedicine serves as a discursive structure and an epistemological tool used by military strategists to draw up battle plans and invade and occupy enemy territory.

Attachments to war manifest in various senses of being and of experiencing life in our thoroughly militarized society. They may manifest as benefits or at least the hope of getting something out of war. Those who stand to profit from it refashion war as a benefit and a necessity to our very lives and bodies. Wounding becomes a boon to the biomedical industry and its shareholders through a political grammar that emphasizes "quality of life" and the "free" pursuit of "health," "longevity," "vitality," "freedom," and other cherished axioms of democracy, all of which are invoked in branding slogans that animate twenty-first-century biomedical war profiteering. Of course war's biomedical and affective benefits are selectively distributed, available to those who can afford them and not to those who are destroyed in war.

Attachments to war manifest in privileging certain types of identity formation and reflect the disciplinary practices that emphasize what it means to be a proper body, a proper citizen, a proper worker, and a proper consumer. Normative "warrior" masculinity, compulsory heterosexuality, nationalist security-motherhood, antiterrorist vigilance, labor flexibility, and willingness to consume the products of militarization—these identification practices divide and categorize who will count as a worthy member

of the body politic in whose name the nation's security is invoked. Alongside the behavioral management of war's attachments are its financial entanglements, which may be profitable for some and may manifest in debt and financial ruin for others.

Attachments to war come in the form of a disparate array of promises. Promises at one scale exist in an uneasy relationship to those at another: military recruitment officers are agents of promise when they describe the benefits offered by the GI Bill to high school students in low-income communities where people of color are the majority of residents. These benefits are based on the condition that recruited people are willing to risk their lives. Promises offered to potential investors about the value of shares in biomedical companies are conditioned at least in part on the risks of injury faced by military enlistees. Chances and calculated risks are taken all the time, but for some this is a gamble that could well lead to severe disability or death. It is important to remember that losing share value is not equivalent to losing one's life or health. Anticipating risks and benefits is all part of the deal. In war, some gain fame and fortune, others an existence of unrelenting pain if they manage to survive.

Attachments are often evidenced in the positive emotional conditions of hope, of experiencing a sense of opportunity and of belonging. War galvanizes patriotic cohesion in some people. For some it promises to exact revenge, as Bush pledged following the attacks of 9/11. War now offers enormous economic advantages for weapons manufacturers and their investors as well as for workers employed in war-supported industries. Young enlistees seeking to learn a skill or to get an education in exchange for military service become attached to war as a condition of these promised benefits. War also gives scientists the impetus and the massive funds to undertake world-changing research. To cite a few historical examples, consider the physicists, engineers, and mathematicians who participated in the Manhattan Project to develop the atomic bomb in the latter years of World War II and into the Cold War. Computational scientists funded to conduct Cold War command-control projects produced the knowledge that gave rise to the Internet. During the years surrounding World War II researchers interested in infectious diseases were recruited to the fight against malaria with unprecedented funding. In these large-scale projects scientists were attached to war through their labor. The public was urged to invest great hope in technoscience as a preeminent source of national strength in the context of rapidly escalating geopolitical tensions arising

from superpower brinksmanship over who would have control of recently decolonized nations and how extractive and diminishing natural resources would be managed.

Medical science was tied to war at least a century earlier. Modern combat, dating from the Napoleonic wars of the early nineteenth century and the U.S. Civil War of 1861–65, is often credited as the necessary condition under which physicians and scientists made great medical advancements in blood-banking procedures, surgical techniques, pain management, triage measures, and prosthetic rehabilitation. As problematic as this narrative is, it helps to account for the practical ways ordinary people become attached to war as beneficiaries of research funded by militaries and aimed at fighting wars.[14] It has been through the research, development, manufacture, and marketing of pharmaceuticals, implements, and treatments devised in the aftermath of combat to treat its damages that we benefit from war as consumers of these products when they reach the medical market, provided that we have the financial resources to pay for them.

Attachments are relational. They can be strong, fragile, unstable, enduring, motivating, demoralizing, profitable, or devastating. War attaches patients and their loved ones to medical institutions and sets the conditions for what is possible in the way of rehabilitation. Attachments may involve pleasure and hope, but they may also manifest in cathexes to pain, trauma, and dynamics of domination.[15] "A relation of cruel optimism," writes Lauren Berlant, "is a double-bind in which your attachment to an object sustains you in life at the same time as that object is actually a threat to your flourishing."[16] This book explores the apparent contradictions that arise when war is fought in the name of humanity and the resulting bodily devastation is enlisted to recuperate war as a tragic but promising condition. I draw from Berlant the important insight that much can be gained by understanding "how we learn to be in relation" to war—that is, how we are attached to it through what it damages as well as what it promises. Attachments that make up the assemblage entangling biomedicine with war are emotional, political, ideological, and human-technological. Such attachments may hold out hope to the amputee while bringing profit to the prosthetic engineer. They may invest suffering with magical transformational power. They may sunder some relationships in the process of building others; money and investment opportunities come before truly sustained care for the suffering, while loved ones of the damaged lose faith. They may reverberate with the dread of imminent and emergent dangers.

They may reveal that attachments are fragile, as when the nearly destroyed war veteran's patriotic spirit gives way to despair and suicide when the promised rehabilitation fails or never even commences; in 2014 alone, 7,403 veterans killed themselves, a rate of about twenty deaths per day.[17] By 2016 veterans composed 8.5 percent of America's adult population but accounted for 18 percent of its suicides.[18]

Importantly and often, attachments of these sorts are experienced with a deep ambivalence whose symptoms fluctuate among patriotic bellicosity, honorific exaltation, emotional paralysis, and disingenuous disavowal. Some people and institutions benefit from their attachments to war, and others do not. To be attached to war does not necessarily mean to be in support of war. These connections may also manifest in latent symptoms of distress and cognitive dissonance. My point is that these connections are not simply indicative of what a subject or group or society wants or expressly desires; they are, as a matter of some consequence, often haunting reverberations caused by what a subject, group, or society disavows, disregards, or denies. They work to isolate certain persons, bodies, and communities who are cast as blameful targets of enmity or as subjects who are unwilling to comply with something called progress. This book looks at how attachments are generated by a complex matrix of the wounding and sickening capacities of war and at how these capacities haunt the social and psychic lives of sufferers and their sympathizers. It also considers how attachments to war authorize forms of professional prestige and generate speculative portfolios that bring profit to investors enabled by the suffering war causes.

BIOMEDICAL SALVATION

A particularly powerful but largely uninterrogated way that Americans are attached to war is through the complex and hopeful belief that biomedicine offers a salve for violence. The common and enduring account of biomedicine's relationship to war, told across the political spectrum, rehearses a truism that war is horrible and yet it is also an occasion, site, or cause for great innovations and advances of medical knowledge and for devising more humane ways to fight wars. Prominent among the authors of these accounts are journalists who mediate the experience of war in a framework of *biomedical salvation*, a central form of attachment among the many and mixed attachments I analyze.

While lamenting war, purveyors of this narrative note that wars generate large numbers of patients, thus offering opportunities for new knowledge to be gained at a faster rate than from peacetime civilian patient populations whose injuries are staggered across longer durations. As one commenter stated following a National Public Radio report on medical advances at Bagram Airfield in Afghanistan, "These advances would have taken many decades to come about in more peaceful circumstances. The high volume of such catastrophic injuries is why we are getting the opportunity for this research."[19] The flexible ideological configuration of biomedical salvation attaches ordinary citizens to war in a tangled web of sadness, remorse, hope, and gratitude. It also ties biomedicine and war to a volatile economy marked by speculative investments that emphasize futures from a vantage point keen to the opportunities unleashed by an urgent sense of uncertainty, danger, and destruction.

Narratives of biomedical salvation imply that wounds are the necessary precondition for knowledge production. They circulate among medical researchers and physicians who are conducting clinical trials for developing new therapies. They often appear in science-related news stories and on television news features that showcase the wonders of biomedical advances to a targeted audience of educated people nearing or already in retirement. Commercials for vitality-enhancing pharmaceutical products, reverse mortgages, and membership in the AARP offer clues about the intended audience: they are older men and women who recall World War II as a noble triumph over fascism and were steeped in the technoscientific dreams of the Cold War–era space race. Science as secular salvation is a concept to which they are accustomed.

The biomedical salvation narratives of the twenty-first century are in tension with a common sentiment that sees the for-profit health care industry and the military in conflict with one another, particularly over what kind of research receives funding and who is served by the expenditures on these two domains. Antiwar groups see spending on defense as taking funds that could be devoted to health care provision, while hawkish groups argue that "entitlement programs" such as Medicare, Medicaid, and the Affordable Care Act (derisively referred to as "Obamacare") should not take precedence over the nation's military defense. Concerned about whether the Affordable Care Act of 2010 would starve the defense budget while feeding another entitlement program, a columnist writing for the pro-business *Forbes* magazine in 2013 warned that Obamacare would grow

so rapidly that federal spending as a share of gross domestic product would increase by more than 40 percent by the year 2085, seriously threatening the nation's defense because it would decrease the amount of money available to spend on armed forces.[20] Biomedical salvation narratives address the conflict between defense spending and entitlement programs through a common media framing that positions biomedical researchers as dedicated to the care of valorized U.S. war-wounded veterans, using the best tools and greatest knowledge available to attend to the suffering of those whose wounds are deemed significant. The knowledge gained by treating these men and women is said to be of value to us all.

A destroy-and-build logic is evident in biomedical salvation narratives and echoes aspects of the U.S.-led military occupations of Afghanistan and Iraq that targeted not only physical infrastructure but also particular bodies for intervention. Creative destruction and the shock doctrine of disaster capitalism infuse this logic.[21] Disaster capitalists take advantage of collective catastrophes. Creative destruction valorizes capitalist innovation as "convulsive," marked by booms and busts. War offers an opportunity to learn things, to come up with new products, to generate profit, or to attract investors with not yet tangible but future life-enhancing things. Wounding and suffering become good for business. Rebuilding is imagined as a chance to radically reshape society and to produce new kinds of citizens who are amenable to free-market capitalism (as entrepreneurs or consumers) and to living in highly militarized occupation zones. It abandons those who are not so amendable.

In the case of biomedical interventions, rehabilitation is akin to rebuilding through its concentration on altering the conditions of future living. In biomedical salvation narratives, war is necessary—dreaded and awful, but necessary—for human advancement. Its destroy-and-build logic exalts the specific nation that goes to war and claims to be an innovator. From at least the last decade of the nineteenth century, when the United States declared war on Spain and extended its imperial reach across the continent and overseas to the east and south, the hegemonic image it has promoted emphasizes industry, commerce, and economic development as expressions of freedom. Bush took the American national brand to a celestial height when he proclaimed, "Americans are a free people, who know that freedom is the right of every person and the future of every nation. The liberty we prize is not America's gift to the world; it is God's gift to humanity. . . . I believe there is an Almighty, and I believe a gift of that Almighty to every

man, woman, and child on the face of the Earth is freedom."[22] Enlisting God placed the American empire in a holy valence.

With Bush's placement in the White House in 2001, born-again Christianity had a prominent and vocal spokesperson. His theological orientation was reflected in the terminology he invoked with some frequency when talking about foreign and domestic policy. It was evident, for example, in his intention to wage a "crusade" against "evil-doers" and in his expression of gratitude toward those who were "willing to make the greatest sacrifice" by serving their country in war.[23] Media stories about severely wounded soldiers and marines commonly borrowed elements of this terminology along with biblical precepts emphasized in born-again evangelical Christianity. According to the born-again interpretation of the New Testament, salvation is achieved by God's grace, through which people are delivered from the bondage of sin and condemnation by the sacrifice of Jesus Christ. Christ's atoning sacrifice guarantees eternal life in Heaven for those who have faith—those who have been saved. Christian redemption is generally synonymous with salvation, but its meaning is extended in a secular definition, given by the Oxford English Dictionary, as "the action of regaining or gaining possession of something in exchange for payment, or clearing a debt." To be redeemed can mean either to have atoned for one's errors or sins or, in reference to finance, to clear a debt. Salvation and redemption signify a finite point of resolution. But under the conditions of permanent and pervasive war, they function as ideological mystifications because there is no end point, no Heaven, no possibility of a final repayment of the debt to those who sacrificed. Salvation is unmoored from a terminal point; nor is it eternal. Instead it is ongoing and potentially permanently in play.

Accounts of salvation that tie war to medicine in American popular discourse are certainly not restricted to born-again Christianity. Secular appropriations of salvation are ideologically flexible enough to appeal to a variety of audiences who want to believe that declaring war is honorable when it is done to advance freedom and democracy and when military mobilizations are cast in a benevolent light.[24] Obama's administration, starting in 2008, offset the born-again rhetoric of the Bush administration that preceded him. Obama's pro-science stance against his detractors who doubted the human causes of global climate change and who opposed funding for research using embryonic stem cells put him at considerable distance from Bush. His unofficial renamings of the Global War on Terror to "countering violent extremism" and "overseas contingency operations,"

together with his rhetorical emphasis on diplomacy and human rights, combined soft and hard power and operated as a strategic principle for authorizing remotely controlled Predator drones as a primary instrument of combat through "targeted assassinations." Salvation narratives transmogrified from their overtly theological quality during the Bush years into a technocratic framing, in which efficiency, precision, and calculated losses came to the fore. Images of returning wounded soldiers all but disappeared from the media, and Obama regularly proclaimed his decision to put "no more boots on the ground." Yet his administration not only increased the number of airborne targeted assassinations but also authorized massive amounts of federal funding for biotechnological research in rehabilitative bionics, regenerative medicine, and biodefense. The funding sutured together public-private partnerships that connected government laboratories to military and veteran administration hospitals, research universities, and biotechnology corporations in a political grammar that combined humane care and forward-looking technoscientific solutions.

Hegemonic accounts of biomedical innovation are subject to modification as presidential administrations change, but even across these differences they continued to resonate with beliefs about salvation. Believers in war-generated biomedicine propped their arguments on a logic of a debt that is owed and that could be repaid but that, under early twenty-first-century finance capitalism, is likely to be projected into a future in which one is urged to speculate in not yet tangible things. Salvation is not a finite or singularly experienced act in this way of thinking about it, but is instead an ongoing process taking place within an assemblage of institutions, disciplinary and market forces, and beliefs. It forms unstable attachments among those planning wars, those fighting wars, those who care for veterans upon their return, those who conduct biomedical research based on veterans' wounds, those who dole out government contracts for research, and those who invest in biomedical stock. Innovations and investments affect people differently depending on contingent conditions such as their access to money and to the cultural resources needed to acquire medical care. Biomedical knowledge and the treatment of wounds caused by war are framed in terms of salvaging the sacrifices made by those who are recognized to bear those wounds, those whose injuries are deemed significant.

Modern war itself is compensated by a notion that war wounds provide the conditions for advancing medical knowledge and aiding humanity. In

this secular reframing, war, like sin, is dreadful but also the catalyst for expiation; its wounding capacities generate knowledge and forms of treatment that their creators claim will benefit humanity. The injured or killed body, when recognized as belonging to a significant person (i.e., a patriot or an innocent, not a terrorist or the enemy), is the worthy sacrificial agent; this agent's suffering or death serves to advance biomedical sciences. Biomedical salvation dramatizes American citizens' attachments to the veteran's wounded body as a symbol of sacrifice for which the nation owes a debt. This narrative appears in the chapters that follow.

BIO-INEQUALITY

Throughout the book I pay attention to the unequal evaluations of life that are made visible through the exploitation of biomedicine to justify invasions, security operations, and large expenditures for novel and highly speculative medical treatments. As we will see, much of what is promised for contending with the damage done by war is treatment whose expense is beyond the reach of most people suffering from the consequence of war. The specter of new therapies, devices, and pharmaceutical products casts into the shadows the vast majority of injuries and suffering caused by war today and thus also obscures the means by which they could be ethically addressed. Psychological trauma, illnesses and disabilities caused by exposure to toxic substances, virulent infectious diseases that are resistant to antibiotics, malnutrition, alcoholism and substance abuse, shattered lives—these are among the terrible results of war that manifest in those who are enlisted to fight the wars and in those whom they are fighting to liberate. They are the haunting reality of the biomedicine-war nexus, where miracles do not apply.

Bodies that suffer war wounds are sorted by a variety of social technologies that mark value in relation to distinctions of nationality, race, socioeconomic class, gender, religion, sexuality, and citizenship status. High schools in working-class neighborhoods host military recruiters. Young recruits signify the potential for increasing human capital, as they are trained for specific tasks in the execution of war. Their bodies are worth as much as is invested in their training and in their ability to carry out tasks. If they are injured, their value as human capital is diminished or terminated.

The U.S. Army gives away video games to teenage boys and young men in working-class communities where other job opportunities are absent or,

at best, limited. It promises immigrants an accelerated path to citizenship for enlisting. It hails men and women who want to go to college but cannot pay the tuition. It targets athletes and sports fans through mass advertising during the Super Bowl and the NBA Finals and in previews of action adventure movies. It sends "grunts" and "cannon fodder"—low-ranking men and women from humble origins—into the line of fire. It offers pay bonuses for those willing and eligible for combat. If they are wounded in action, they are promised care and rehabilitation and monetary compensation, but the delivery falls far short of the promise and the cost to taxpayers is overwhelming.[25]

Material realities offset the benefits promised by the military and by biomedicine, providing evidence of how certain lives are valued over others. The first concerns the biomedical industry's development of high-tech, expensive, and lifelong therapies that are too costly for the vast majority of persons wounded in war—besides U.S. troops, the many whose lands were invaded, their communities destroyed, and their bodies devastated by battle. With the costs of medical insurance and treatment rapidly rising, even basic care is too expensive for many wounded U.S. service members. Bureaucratic inefficiencies in medical record keeping, a shortage of physicians and other medical personnel, and a backlog of compensation claims vastly impede care for many returning veterans.[26] This, coupled with the contraction of social welfare benefits, results in increasing rates of poverty and unemployment among wounded U.S. veterans, particularly among the enlisted ranks, where men and women of color are concentrated.[27]

Bio-inequality—the outcome of procedures that value some lives over others—is partly a product of social determinants of health.[28] These are factors that either promote or endanger an individual or a community's health and vitality. Communities that enjoy better housing, schools, and medical care and higher incomes generally enjoy greater health. Stressful working conditions, decrepit living conditions, poverty, unemployment, violence, lack of access to healthy food, air, and water, lack of educational opportunities, lack of access to medical care, and the ready availability of illicit drugs and alcohol put impoverished communities at risk for higher rates of infant mortality and chronic disease as well as shorter life expectancy. No magic therapy, sensational pharmaceutical, or miracle device can make up for the health-endangering effects of poverty and failing public services and medical infrastructure. Yet many of the returning U.S. veterans from wars fought in Iraq and Afghanistan came from (and go back to)

communities with poor social determinants of health and, while a select few are offered novel therapies, most lack the resources to contend with endemic social factors that endanger their health.

There is a tension here about the status of the veteran: in many ways service members—especially those occupying the lower ranks—are routinely subjected to harm and then neglected by the Veterans Administration's inadequacies. But it could be argued that veterans (at least those who manage to breach the threshold of access to meaningful VA services) are a privileged group. The system to which they have access is periodically under intense scrutiny for political reasons, and therefore seems to be irreparably broken every few years or so, but it is arguably quite functional relative to the paucity of options available to others.

The situation is much worse for wounded Iraqi and Afghan citizens, the vast majority of whom have had little or no access to medical care after the U.S. invasion of their communities. Resource extraction and establishing new horizons for financial speculation were central to the logics and practices of waging war in Afghanistan and Iraq. And in many ways these practices intentionally endangered the lives and livelihoods of those who were being "saved from tyranny." Recall, for example, that the Bush administration launched the Global War on Terror in the name of humanity to rid the world of "evil-doers" and to bring freedom to those living under tyrannical rule in the "Axis of Evil."[29] This declaration resulted in nearly half a million war-generated deaths of Iraqi citizens and a conservative estimate of between 12,500 and 14,700 Afghan civilians from 2001 to 2011. A comprehensive study of war- and occupation-related deaths among soldiers and civilians in Iraq between 2003 and 2011 determined that "beyond expected rates, most mortality increases in Iraq [from previous studies] can be attributed to direct violence, but about a third are attributable to indirect causes (such as from failures of health, sanitation, transportation, communication, and other systems). Approximately a half million deaths in Iraq could be attributable to the war."[30] The figures for war-related deaths in Afghanistan were less rigorously recorded, but an estimate of between 30,400 and 45,600 (including civilians, Afghan military, police, insurgents, aid workers, and journalists) died due to the war there between October 2001 and June 2011.[31]

In addition to these deaths, Bush's declaration manifested in establishing laws friendly to privately held corporations for "rebuilding" Iraq and Afghanistan that undermined the health and nutrition of local populations.

A notable example is the outlawing in 2002 of heirloom seeds in Iraq by L. Paul Bremer, Bush's appointee to head the Coalition Provisional Authority following the fall of Saddam Hussein's regime. The new law governing intellectual property required that Iraqi farmers abandon a practice they had been using for centuries and instead obtain a yearly license to repurchase seeds from an authorized supplier, or face a fine or penalty.[32] Comply or starve: these were the options. Bush declared war in the name of remaking Iraqi society in the mode of free-market capitalism and, if not only for oil, for a long list of natural resources and speculative investment opportunities tangled up in the ever-expanding market for biotechnology, surveillance, and security, at home and abroad. Certain bodies were marked for care, and others, if not killed, were mistreated or abandoned to die. Within a year of the U.S.-led invasion of Iraq, half of the country's 26 million people were unemployed or underemployed; 400,000 of these were soldiers who lost their positions when Bremer abolished the invaded nation's army. During this period the homes of Iraqi citizens were routinely raided by U.S. troops. Many men were arrested and detained indefinitely, subject to harsh interrogation and torture. Within the first six months after the invasion, an estimated 7,900 to 9,800 Iraqi civilians died due to war-related causes. The U.S. military's procedure for compensating civilian deaths was secretive, inconsistent, and shamefully modest, with a discretionary $2,500 "condolence payment" for civilian deaths for which the United States offered "an expression of sympathy" but "without reference to fault."[33] Compensation payments for deaths varied widely but seldom exceeded $5,000. Compensation for children's deaths was generally no greater than for adults, despite the normative calculations of human capital used by the World Bank that estimates the statistical value of life in the United States between $3 million and $5 million. Educated young adults, according to this calculation, are worth more than children who have not yet acquired skills and are worth more than older adults, especially the elderly, who have fewer years of income earning left.[34]

We see in these developments an economization of life in which there is a biopolitical equation: some must die so that others may live. This is an equation that follows a lineage from twentieth-century eugenics movements to modern genocides of that century to development-based population control campaigns and now to macroeconomic cost-benefit calculations of the value of human capital, according to which, as Michelle Murphy has noted, some must die or be abandoned for the sake of the

aggregate population and its improvement.[35] Overt racialization, in these more recent technocratic discourses, is submerged beneath a language of cost-effective investment about who will lead a productive life (i.e., who will enhance the gross domestic product of a nation and contribute to its economy or to its debt repayment to the IMF). The reproductive politics of IMF and World Bank macroeconomic policy in the twenty-first century sort those, on the one hand, who are deemed worthy of education and who promise future productivity from, on the other hand, those who are disposable and whose lives are even preventable. As Murphy writes, "Some must not be born so that future others will live more abundantly, consumptively, productively."[36] Bodies and lives of war-damaged Afghan and Iraqi people do not populate the hegemonic narrative of biomedical salvation. Instead they join the massive surplus population of the twenty-first century of many millions of people who, because of catastrophic displacement caused by imperial ventures to seize resources, can no longer eke out a living. They exist, as Aaron Benanav and John Clegg explain, "only to be managed: segregated into prisons, marginalized in ghettos and camps, disciplined by the police, or annihilated by war."[37]

CHAPTER OUTLINES

The attachments that animate this book are, centrally, those of ordinary American citizens to war, which is itself forged through attachments to biomedicine, understood as both a tangible industry and a set of promising fantasies. These are tied to political ideologies and affective phenomena that, together, create a biomedicine-war nexus that is centered on the notion of care, the focus of chapter 1. The biomedicine-war nexus produces new subdisciplines and novel war-generated diagnoses and rehabilitative innovations, as I detail in chapter 2, drawing the American hero or martyr (troops) into intimacy with teams of biomedical specialists represented as miracle workers in media stories about them. Audiences are positioned through these narratives to mourn the extreme damages done by war and to honor the bodies of wounded martyrs by beholding the experimental genius of rehabilitation and regeneration from the new medically codified diagnosis of *polytrauma*. This is one of several key ways that technoscientific and biomedical promises provide a means through which attachments to war persist. Military physicians classify polytrauma as a "signature injury." As such, in my analysis, the devastating phenomenon indexes a particular

kind of *woundscape* and requires special reading practices to interpret the significance that is attributed to the injury both in biomedical and political terms.[38] The woundscapes of significantly injured patients—American troops—prompt an indebtedness whereby the nation owes twice for the sacrifices made: once for the wound acquired as the warrior served the nation and again for the new knowledge that can be derived from medical treatment of the warrior's suffering. Bodies of those whose injuries do not rise to the level of significance—those who are among the surplus or disposable population—are symptomatically missing from the biomedical salvation tales of polytrauma treatment.

Chapter 3, on bionic innovations, is concerned with the phenomenon of *biomedicalization* as it opens the door for future investments in the biomedicine-war nexus. Biomedicalization is a forward-looking convergence that is enabled by advancements in molecular biology, biotechnology, transplant and regenerative medicine, and genomics.[39] It emphasizes transformations of medical phenomena in interventions aimed not simply at curing or treating the body but at enhancing or augmenting its functions. Medical intervention for the sake of improvement becomes normalized. Think, for instance, of pills to augment erectile function, preemptive mastectomies for preventing cancer, and drugs to enhance cognitive concentration and memory. Think too about how it is now possible to survive complete heart failure, to give birth decades after menopause, to walk without leg bones, and to genetically design life. The promises of military medicine often turn on claims for the potential of war-generated medical treatments to enhance, augment, and transform every body's abilities.

In chapter 3 I trace how the biomedicine-war nexus manufactures knowledge that materializes in biomedical devices that are literally attachments, as in the case of bionic prosthetics—devices to which we attach major emotional, political, and health significance. Paradoxically the bodies of severely wounded veterans of recent wars—those who, under previous conditions, would not have survived—are figured centrally in narratives of the future enhancement and the expanded potential of human bodies. Their injuries afford the inventors of bionic prosthetics opportunities to demonstrate the promise of technoscientific innovations. The carefully crafted performances of bodily augmentation are presented to audiences who, often unwittingly, became further attached to war through what bioengineering promises not only for injured veterans but for everyone. By witnessing what can be done to restore amputees' otherwise lost abilities,

audiences are invited to look forward to a future when bioengineering may enable humanity to go beyond a host of bodily limitations.

Chapter 4 focuses on pathogens used in war and confronts a situation in which the bodies of soldiers are not ultimately exceptional. Instead, in the face of imminent and emergent pathogens, all bodies are conceived as potentially threatened or threatening, and some more threatening than others. Ordinary people become attached to war through a terrified sense of being quietly and covertly attacked at the micro level by new and more virulent mutating germs, viruses, and toxins, whether by intentional acts or accidental exposure. Bodies are in this sense potentially both targets and weapons—victims and vectors—in the apocalyptic framing of ominous doom. War is waged on, through, and with microscopic pathogens. Panic is a marketing tool. Fear is an investment stimulator for biotechnology companies developing products to detect, treat, and contain imminent and predicted biological threats. Counterterror biotechnical strategies are speculative in two main ways: seeing into the future is a central dynamic of the emerging global health apparatus, where threat detection and risk assessment have taken on apocalyptic proportions. Making bets on what products may be most effective in containing and countering emergent pathogenic agents involves financial speculation on not yet existing but absolutely necessary biotechnology. There is no territorial or temporal limit to the new bio-imperialism emanating out of the U.S. state's investment in securing life against biological threats. Life must be secured on a global scale in the name of domestic defense, a planetary project driven by fearful intuitions and end-of-the-world scenarios.

NOTES

INTRODUCTION

1 Richard Cheney, interviewed by Tim Russert on *Meet the Press*, March 27, 2003.

2 Foucault, *Lectures at the Collège de France*, vol. 3; Mbembe, "Necropolitics."

3 Following Rebecca Solnit, I use the term *citizen* here to mean members of a community, not necessarily limited to those holding legal citizenship (*A Paradise Built in Hell*, 2).

4 Grewal, *Transnational America*; Kaplan and Grewal, "Transnational Practices and Interdisciplinary Feminist Scholarship"; Nordstrom, *Shadows of War*.

5 The gap between U.S. defense spending and that of other nations with large militaries widened with the collapse of the Soviet Union in 1991. In 2011 the U.S. budget reached its peak of $720 billion, edging ahead of the combined amount of comparable defense budgets for the next nineteen highest-spending nations, at $718 billion. While by 2014 the United States had decreased its defense budget to $581 billion and the next highest spenders combined rose to $588 billion, financial analysts noted that the United States would remain the leading spender on defense in the world for the "foreseeable future." See Eastman and McGerty, "Analysis."

According to a 2007 Henry J. Kaiser Foundation report, "Snapshots: Health Care Spending in the United States and Selected OECD Countries," per capita health care spending in the United States increased from $356 in 1970 to $6,697 in 2005 to around $7,500 in 2008. In 2008, 16 percent of the gross domestic product of the United States was devoted to health care spending, compared to 11.2 percent in France, the country with the next greatest share of GDP spending on health. The report compared health care spending in the United States to that of fifteen other countries that ranked in the top three-fifths of per capita national income and aggregate national income. In order of the greatest rate of annual per capita spending to the lowest among these countries in 2008: United States ($7,538), Norway ($5,003), Switzerland ($4,627), Canada ($4,079), Netherlands ($4,063), Austria ($3,970), Germany ($3,737), France ($3,696), Belgium ($3,677), Sweden ($3,470), Australia ($3,353), United Kingdom ($3,129), Spain ($2,902), Italy ($2,870), and Japan ($2,729). Reasons for rising costs in the United States included the expense of new imaging technology; new surgical

procedures for replacing faulty organs and joints; new electronic medical records systems and the rise of costly drugs for treating heart disease (the leading cause of death in the United States); the high cost of caring for babies born preterm; the expense of treating long-term chronic illnesses such as HIV/AIDS, diabetes, and renal disease; the rising prices of proprietary pharmaceutical products; and the cost of treatment for an increasing population of substance addicts.

A 2013 report by the Commonwealth Fund (Lorber, "Better Care at Lower Cost") found that the cost of health care per person in the United States annually was $9,200, with an annual total of $2.9 trillion. The average cost for a day in a hospital in the United States was $4,287, while in France it was $853. The price for a normal birth in the United States was $10,000, while in the United Kingdom it was $2,651. A knee replacement in the United States was $25,000, double that of Switzerland. Doctors' visits, drugs, and lab tests were more expensive in the United States than in other developed nations. Despite this, compared to many other developed nations the United States had a higher infant mortality rate, a lower life expectancy, and a greater number of preventable deaths if timely and appropriate treatments were available. The author laid some of the blame for high costs on the fee-for-service arrangement that allows physicians and health management organizations to be paid even if the service (an office visit, test, or treatment) is not effective. Physicians' fear of malpractice may make them inclined to do more tests and procedures. In addition, medical care in the United States is very poorly coordinated between primary physicians and specialists and when moving in and out of hospitals. Sometimes patients with chronic conditions get multiple lab tests that are not needed, or their medications are not adequately coordinated, leading to further problems.

6 Wound ballistics, a field of study that emerged during World War II, is an earlier example of this mutual provocation between war and medicine. According to several of the field's founders, wound ballistics is a study of the mechanics of wounding. It had two main concentrations. First, it studied the factors involved in an injury and the relation between the severity of the wound and the characteristics of the missile or bullet or bomb that caused it (such as its mass, velocity, shape, momentum, and power). The effort was to determine what property of the weapon was most effective in either killing or wounding. Would its fragmentation be most effective? Or its speed? The focus was on the attack. A second aspect of wound ballistics involved the study of the nature of the damage to tissues caused by various aspects of ballistics, including the distance of bullet path, pressure effects of bombs, and tissue stretching caused by a projectile. The close study of a wound and the conditions under which it was sustained would be useful for surgeons in removing dead tissue and debridement necessary for proper recovery. The focus was on healing. "The knowledge of wound ballistics is, therefore, important not only in offense but also in defense," wrote Harvey et al. in "Mechanism of Wounding" (144), based on research they conducted with funding from the Committee on Medical Research, the Office of Scientific Research and Development, and Princeton University between 1943 and 1945.

7 Foucault, *The Birth of the Clinic*.

8 Hall, "Cultural Studies and Its Theoretical Legacies."

9 Hubbard, "Science, Facts, and Feminism," 125.

10 Haraway, "The Promises of Monsters," 295; Haraway, "A Cyborg Manifesto."

11 Masco, *The Theater of Operations*, 37.

12 Masco, *The Theater of Operations*, 73.

13 Both Bowlby and his student and colleague Mary Ainsworth were influenced by Anna Freud and Dorothy Burlingham's wartime research on British children separated from their parents during the Nazi Blitz. Freud and Burlingham noticed that children in residential nurseries exhibited bizarre behavior (sucking their thumbs obsessively, rocking constantly, banging their heads against floors and walls) in order to draw attention to themselves. See Bowlby, "The Nature of the Child's Tie to His Mother"; *Separation Anxiety and Anger*; "Grief and Mourning in Infancy and Early Childhood"; *Attachment and Loss*, vol. 1; and his report to the World Health Organization, *Maternal Care and Mental Health*; Freud and Burlingham, *Infants without Families*.

14 Kaplan, "Precision Targets"; Kaplan et al., "Precision Targets"; Enloe, "How Do They Militarize a Can of Soup?"

15 I am guided in this line of thinking by the work of critical theorists who probe the kinds of affective attachments that tie the personal to the political, taking into consideration especially how the experience of loss generates these ties. The most influential of these for me are Berlant, *Cruel Optimism*; Hartman, *Lose Your Mother*; Love, *Feeling Backward*; Muñoz, *Cruising Utopia*; Sedgwick, *Touching Feeling*; Stewart, *Ordinary Affects*.

16 Berlant, "On Citizenship and Optimism."

17 U.S. Department of Veterans Affairs, Office of Public and Intergovernmental Affairs, "VA Conducts Nation's Largest Analysis of Veteran Suicide."

18 "For Suicidal Veterans, a Frayed Lifeline," *New York Times*, July 16, 2016, accessed July 17, 2016, http://www.nytimes.com/2016/07/17/opinion/sunday/for-suicidal-veterans-a-frayed-lifeline.html?ref=opinion; Leo Shane III and Patricia Klime, "New VA Study Finds 20 Veterans Commit Suicide Each Day," *Military Times*, July 7, 2016, accessed July 17, 2016, http://www.militarytimes.com/story/veterans/2016/07/07/va-suicide-20-daily-research/86788332/.

19 E.H. in comment thread following Lawrence, "At Bagram, War's Tragedy Yields Medical Advances."

20 Conover, "Bullets vs. Band-Aids."

21 On creative destruction, see Schumpeter, *Capitalism, Socialism, and Democracy*, 83. On disaster capitalism, see Klein, *The Shock Doctrine*; Adams, *Markets of Sorrow, Labors of Faith*; Gunewardena and Schuller, *Capitalizing on Catastrophe*.

22 Bush paraphrased these statements on many occasions, but for the first portion of the quote, see Bush, "State of the Union Address"; for the second portion ("I believe there is an Almighty" etc.), see Bush, "Landon Lecture."

23 Bruce Lincoln analyzes Bush's speeches and identifies Christian right-wing phrases and syntax in his discussions of foreign policy in *Holy Terrors*.

24 Nguyen, *The Gift of Freedom*.

25 Disability pay for veterans is an entitlement program, like Medicare and Social Security. A 2007 report issued by the Harvard Kennedy School warned that the budgetary costs of providing compensation benefits and medical care to veterans returning from Iraq and Afghanistan over the course of their lives was estimated to be from $350 billion to $700 billion, depending on the length of deployment, the rate at which they claim disability benefits, and the growth rate of benefits and health care inflation. The figure was based on the 1.4 million U.S. service members who had been deployed to the Global War on Terror between November 2001 and November 2006, of which an estimated 700,000 new patients would enter the VA system. By January 2007, 11 percent of the 24 million living veterans from all wars dating back to World War I were receiving disability benefits. In 2005 the United States paid $23.4 billion in annual disability entitlement pay to veterans from wars preceding the wars in Afghanistan and Iraq. Disability compensation is based on the degree of a veteran's disability on a scale of 0 to 100 percent, with annual benefits ranging from a low of $1,304 per year for a veteran with a 10 percent rating to about $44,000 in annual benefits for those who are completely disabled, though they are also eligible for additional benefits and pensions if severely disabled. An average benefit is $8,890. Veterans receive the compensation benefit for the remainder of their lives once they have been deemed eligible. The average age of service members is twenty-five, so, given a conservatively estimated life expectancy of sixty-five years, the period of compensation could be up to forty years. As of January 2007 the Veterans Benefits Administration had a backlog of 400,000 claims, with an average waiting time of six months to process an original claim and almost two years to process an appeal. See Bilmes, "Soldiers Returning from Iraq and Afghanistan."

26 For an account of the failure of the Department of Veterans Affairs to adequately address U.S. veterans' health care needs following a $15 billion congressional bill, passed in 2014, see David Philipps, "Did Obama's Bill Fix Veterans' Health Care? Still Waiting," *New York Times*, August 5, 2016, accessed August 8, 2016, http://www.nytimes.com/2016/08/06/us/veterans-health-care.html.

27 High rates of unemployment and homelessness among veterans are telling indicators of the disparity between the benefits promised to servicemen and -women and the realities many of them face after leaving the military. Homelessness is particularly acute among African American veterans, who made up only 11 percent of all veterans but accounted for nearly 50 percent of homeless veterans in 2008 (National Alliance to End Homelessness, "Vital Mission," 4). According to the Department of Housing and Urban Development, as of December 2011 approximately 14 percent of all homeless adults were veterans. During a single-night survey in January 2011, more than 67,000 homeless veterans were counted (U.S. Department of Housing and Urban Development, Office of Community Planning and Development, "The 2011 Point-in-Time Estimates of Homelessness"). In 2011 the U.S. Bureau of Labor Statistics reported

that 30.2 percent of veterans between the ages of eighteen and twenty-four were unemployed. The Vocational Rehabilitation and Employment Program of the Veterans Administration provided career counseling and training to over 107,000 veterans with service-related disabilities during 2011 (U.S. Department of Veterans Affairs, "Annual Benefits Report Fiscal Year 2012"). During the twelve months of 2010, over 968,000 veterans between the ages of eighteen and sixty-four were living in poverty (U.S. Department of Commerce, Census Bureau, "Age by Veteran Status by Poverty Status in the Past 12 Months by Disability Status for the Civilian Population 18 Years and Over"). In 2012, 1,000 military families were receiving food stamps. By 2013 the number had grown to 5,000, when the Department of Defense announced that it would no longer award food stamps (Sisk, "DoD: 5,000 Military Families Losing Food Stamps").

28 Farmer, *Infections and Inequalities*; Farmer, *Pathologies of Power*; Abraham, *Mama Might Be Better Off Dead*; Marmot and Wilkinson, *Social Determinants of Health*.

29 Perez-Rivas, "Bush Vows to Rid the World of 'Evil-Doers.'"

30 Hagopian et al., "Mortality in Iraq Associated with the 2003–2011 War and Occupation."

31 Crawford, "Civilian Death and Injury in Afghanistan."

32 Order 81, paragraph 66 (B and C), issued 2002, analyzed in Lea, *Property Rights, Indigenous People and the Developing World*, 268–69.

33 The U.S. military offered discretionary "condolence payments" capped at $2,500 as "expressions of sympathy" but "without reference to fault," as well as "compensation payments" that varied depending on an assessment of claims reviewed by the Department of Defense. A 2007 ACLU study of files acquired through a Freedom of Information Request Act request revealed that, of the 496 files it received, 479 came from Iraq and 17 from Afghanistan. The cases from Iraq ranged from early 2003 to late 2006, with the majority from 2005. The claims from Afghanistan dated mostly from 2006, with one dating back to 2001. Of the 496 files acquired, 198 were denied because the reviewer determined that the incidents arose "from action by an enemy or resulted directly or indirectly from an act of the armed forces of United States in combat" (referred to as "combat exclusion"). About half of the 164 incidents where the United States provided cash "compensation payments" to family members were accompanied by the United States accepting responsibility for the civilian death. The other half received the $2,500 discretionary condolence payment. One case involved an attack with more than a hundred rounds fired on a sleeping family in Iraq that killed the claimant's mother, father, and brother and thirty-two of the family's sheep. The survivor was paid $11,200 and a $2,500 condolence payment. A nine-year-old Iraqi boy was playing outside when a stray bullet killed him; his family was paid $4,000. Source: ACLU, "ACLU Releases Files on Civilian Casualties in Afghanistan and Iraq."

34 See Becker, "Health as Human Capital." Making an argument for investments in education, as these produce more productive people who, he says, are more

likely to be healthy and live longer, Becker calculates that the estimated statistical value of life ranges from $2 million to $9 million for a young person in the United States, with most being between $3 million and $5 million. This is based on an average income of $40,000 a year from 1,900 annual working hours. Adjusting for the other hours during which the individual spends time sleeping or engaging in leisure activities that enhance life and increase the duration of productive life, the adjusted full income is about $220,000 per year. At an annual discount of 5 percent (for the gradual decrease in productive years), the statistical value of a life is about $4.4 million. "This figure," Becker writes, "is not earnings alone but also includes the amount a person is willing to pay to reduce the chances of dying (thus not just lost earning but lost utility that also includes the value of leisure time, and the differences between average and marginal utilities" (385). At $40,000 earnings per year discounted at 5 percent annually, "the present value of the lost earnings from early death is about $1 million, less than a fourth of my back of the envelope estimate of $4.4 million. Therefore, the vast majority of statistical value of life comes not from foregone earnings, but from the loss of leisure time, and differences between average and marginal utilities" (385). Becker is dealing with statistical aggregates, not individual people, but the implications of his calculations are significant: for societies and communities whose educational systems are faltering or destroyed and who have few employment opportunities and even less stress-free time due to massive violent destabilization, the value of a life is calculated at much less than the average for educated members of a stable society with employment opportunities. By these calculations, internally displaced people such as the many Iraqi physicians, despite being educated and employed prior to the U.S. invasion of Iraq, suddenly were worth less with the onset of war.

35 Murphy, "Economization of Life: Calculative Infrastructures of Population and Economy." See also Murphy, "Economization of Life: A Conversation with Leopold Lambert and Michelle Murphy."

36 Murphy, "Economization of Life: A Conversation with Leopold Lambert and Michelle Murphy."

37 Benanav and Clegg, "Misery and Debt."

38 I borrow the trope of scapes from Appadurai, "Disjuncture and Difference in the Global Cultural Economy."

39 Clarke et al., "Biomedicalization."

1 / THE BIOMEDICINE-WAR NEXUS

1 Park, "Morale and the News," 360–61.

2 Bush, *Science, the Endless Frontier*, 17, emphasis added.

3 Eisenhower, "Farewell Address to the Nation," emphasis added.

4 Orr, "The Militarization of Inner Space."

5 Masco, *The Theater of Operations*.