LIFE IN THE AGE OF
DRONE WARFARE

LISA PARKS AND CAREN KAPLAN **EDITORS**

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CONTENTS

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INTRODUCTION

LISA PARKS AND CAREN KAPLAN

SINCE 2009, U.S. news media have had a virtual love affair with the drone. Celebrating the alleged novelty and flexibility of the technology, reporters have pointed to a proliferating array of quirky or surprising drone uses, ranging from pizza delivery to pornography recording, from the maintenance of energy plants to the protection of wildlife, from graffiti writing to traffic monitoring.[1] Drones, we are told, are used in sectors as diverse as real estate, art photography, natural resource development, insurance, sports, meteorology, and activism.[2] They perform tasks that are too risky, remote, or mundane for humans, whether monitoring lava inside a volcano, measuring winds inside a hurricane, or performing safety inspections on aircraft. Toy Predators are sold out because of their popularity. Fears of proliferating drones in domestic airspace have spurred new regulations and legislation, prompting Chicago to become a no-drone zone.[3] Despite such regulations, drones have even fallen on the White House lawn.[4] It is impossible to keep up with all the drone news. So much reporting on drones has appeared that Caren Kaplan refers to it in her chapter in this book as the "drone-o-rama"—an immersion in the sights and sounds of an expanding "military-industrial-media-entertainment network" that now includes views captured by robotic hummingbirds and remote-controlled quadcopters.[5]

In addition to this flood of news features about the playful and pragmatic potentials of drones, the drone-o-rama has included a steady stream of reporting on the more somber topics of drone warfare and targeted killing. Investigative reporter Jane Mayer first broke the story about the Central Intelligence Agency's (CIA) drone war in Pakistan in 2009.[6] Since then, a whirlwind of public commentary has emerged on drone warfare. The United Nations (UN) has conducted special investigations, activists have protested, policy experts have deliberated, news agencies have queried, and researchers have published lengthy reports.[7] The drone obsession has also struck the

U.S. Congress, which now runs an "unmanned systems caucus" made up of fifty members from twenty-nine states (with the co-chairs from border states California and Texas). Since 2009, the caucus's congressional members have garnered close to two million dollars from drone manufacturers such as Northrup Grumman, General Atomics, and Lockheed Martin.[8] Thus, drones are not only envisioned as a pivotal technology in U.S. counterterrorism efforts, but politicians and manufacturers have colluded to ramp up the expansion of the civilian drone sector. In 2014 digital behemoth Google purchased drone manufacturer Titan Aerospace, promising to use drones to bring Internet access to the planet's most remote and underserved regions.

While some news media have played up the friendlier, neoliberal side of the technology, emphasizing its capacity to handle a multitude of tasks and, in the process, make life easier while expanding the global economy,[9] other reports have raised serious questions about the ethics of drone warfare, covered anti-drone demonstrations, or honed in on instances of technological failure. Some drone coverage has even verged on the uncanny. Pointing simultaneously to the intrusiveness and frailty of the drone, several reports, for instance, have featured eagles attacking drones in midair, whether as part of a natural predator hierarchy or as a result of training by military or police units.[10] To be sure, the drone has become a contested object. While drone strikes are routinely reported in most mainstream news outlets, what is often missing from the reportage is an understanding of the material ecologies through which drones are operationalized. These ecologies have been depicted in fictional television series such as *Homeland* and *24*, films such as *Eye in the Sky*, and computer games like *Drone: Shadow Strike* and the *Call of Duty* series, yet the narrative logic of these media often (though not always) works to legitimate or reinforce militaristic drone use, even if providing windows of opportunity to question it.

Life in the Age of Drone Warfare zeroes in on the militaristic histories, uses, cultures, and affects of drone technology. Heeding Derek Gregory's call to move beyond the "technical (or techno-cultural) object" to the wider "matrix of military violence" that such "remote platforms help to activate," this volume brings together scholars and artists who explore the historical, juridical, geopolitical, and cultural dimensions of drone technology and warfare and sets out to deepen and expand the public discussions initiated by investigative reporters, activists, and nongovernmental organizations (NGOs).[11] While 91 percent of the U.S. public is aware of U.S. military drone operations,[12] oppositional voices are often marginalized and sidelined in

public sphere discussions, as evidenced by activists who have infiltrated congressional hearings and protested at manufacturers' gates in efforts to have their voices heard. Sometimes these voices come from within military institutions. Whistleblowers such as Brandon Bryant, who has a chapter in this book, and Michael Haas decided to break the code of silence and speak publicly about their grim experiences as drone sensor operators, and have appeared in news media such as Bryant's 2013 interview with NBC's Richard Engel or in documentaries such as *Drone* (2014), directed by Tonje Hessen Schei. Artivist projects, such as James Bridle's Dronestagram, which links Google imagery to drone target details circulated by the Bureau of Investigative Journalism, or the "Out of Sight, Out of Mind" narrative data visualization project by the Pitch Interactive design studio, offer thought-provoking challenges to U.S. officials and publics who continue to ignore the devastating effects of drone warfare.[13] In an effort to draw further attention to U.S. drone wars, artist Joseph DeLappe's 2014 project, *In Drones We Trust*, asks participants to rubber stamp a tiny image of a Predator drone onto the empty sky on the back of U.S. currency. Describing this crowd-sourced intervention, DeLappe indicates: "It seems appropriate, considering our current use of drones in foreign skies, to symbolically bring them home to fly over our most notable patriotic structures."[14]

Militarized Unmanned Aerial Vehicles

Drones or unmanned aerial vehicles (UAVs) were first developed for military reconnaissance, surveillance, and intelligence during the early twentieth century and were part of a major push toward "airpower" and aerial policing that had colonial roots.[15] By the early twentieth century, aircraft could fly in the sky unmanned and be remotely controlled to gather information about objects or activities on the ground. During World War II, the United States began arming experimental aerial drones with bombs and missiles in efforts to compete with Japanese kamikazes, as discussed in Katherine Chandler's chapter in this book. The use of U.S. drones for surveillance continued during the Vietnam War. In the early 1980s, the Israeli Air Force successfully integrated drones into a full-fledged battle plan, and, as Lisa Hajjar discusses in her chapter, by the 1990s, Israel and the United States were using drones to support military operations and conduct targeted killings in the Occupied Territories and the former Yugoslavia, respectively. These situations proved that drones could be used not only to locate and

monitor "suspects" or "enemies" but also to assassinate them from above. After 9/11, the drone warfare practices tested during the 1990s were redirected to fight a global war on terror, and U.S. use of drones for targeted killings dramatically escalated. As Hugh Gusterson has argued, drones "respatialize war, change its pace, and rework conventional military notions of honor and courage."[16] The respatialization of war has produced what Keith Feldman refers to as "racialization from above," recasting "Orientalist imagined geography" through new scales of relation and division along with transformations in the temporality of "pre-emption and endurance."[17]

Since the 9/11 attacks, the United States has increased its use of drones in two parallel programs, one overtly operated by the military and the other a covert program of the CIA. Ostensibly directed against al-Qaeda operatives in Pakistan and Yemen and Al-Shabaab forces in Somalia, and now increasingly deployed in relation to actions taken against the Islamic State in greater Syria, the U.S. drone program has raised many legal, cultural, and political questions, including the following: What and where is the battlefield? Who is a combatant? Which laws apply?[18] Public discomfort and suspicion of targeted assassinations conducted by remote pilots stationed in air-conditioned rooms on bases thousands of miles away from the zone of conflict have not led to any appreciable change in policy. While proponents of autonomous weaponry characterize it as a "humane" form of warfare, highlighting its alleged efficiency, surgical precision, and minimal casualties, critics insist that drone war is far from humane since it has been waged in an undeclared and illegal fashion, killed or injured thousands of civilians, and traumatized people living in places that become geopolitically designated as "trouble spots." Since 2001, U.S. drone operators have killed and/or injured thousands of suspected "terrorists" and innocent civilians in Afghanistan, Iraq, Pakistan, Yemen, and Somalia, many of whom have never been counted or identified.[19] The explosive force of Hellfire missiles dropped by U.S. drones often incinerates bodies, leaving them unrecognizable. These extrajudicial killings by the United States have drawn staunch criticism from the international community and have catalyzed organizations such as CODE PINK, the Bureau of Investigative Journalism, Global Drones Watch, Ban Weaponized Drones, No Drones Network, Reprieve, and the Campaign to Stop Killer Robots to work with activists and NGOs in South Asia and the Middle East to form an anti-drone movement and seek redress for victims. Increasingly, as accounts from former drone operators like Brandon Bryant

and others suggest, remote warfare using high-resolution digital imaging can result in adverse effects on those who conduct war remotely.

Just as there has been a surge in news media coverage on drone technology and anti-drone activism, so too has there been a burst of scholarly publishing on the topic. When we started working on this project in 2012, there was only one book focused exclusively on military drone use—*Drone Warfare: Killing by Remote Control* by CODE PINK founder Medea Benjamin—and a handful of other books and articles featured discussions of the technology. More recently, the amount of scholarly work on drones has skyrocketed.[20] That scholars from so many fields have gravitated to the drone in droves motivates us to ask why. Multiple possible explanations exist. First, we are living through an era of dramatic technological transformation, of digitization, automation, and robotics, and the drone is both driving and manifesting these processes and as such fits neatly into research on key technological questions. Second, the unprecedented use of drones by the United States for targeted killings in the context of the war on terror has prompted scholars to consider how these circumstances challenge existing theories of sovereignty, warfare, and ethics and whether they violate national and/or international law. Third, the technical infrastructures that support drone operations facilitate the orchestration of war from a distance—as a system of remote control played out at game-like interfaces—and such conditions have provoked scholarly interest in the labor, psychic, and affective dimensions of drone warfare, particularly among drone operators or "remote pilots." Finally, there has been a plethora of scholarship on the optics or visualities and other sensing practices of drone warfare, which ranges from analyses of military drone screens and visions of the world to considerations of "drone phenomenologies" to tactical drone media created by artists/activists who set out to publicize these optics as a way of contesting this military paradigm.[21] In short, the drone has been such an avid object of scholarly focus precisely because it connects to so many different issues, from digitization to sovereignty, from surveillance to geopolitics, from labor to affect. The question is, how long will scholarly focus on the drone persist? What kinds of questions about violence, politics, and targeting are engendered through these debates and conversations? Most importantly, we have to ask whether critical scholarly responses to the rapid rise of the use of unmanned aerial vehicles in specifically designated theaters of war will have any impact on the policies surrounding drone operations, the next generation of the technology, or those impacted by its use.[22]

Dronology: Recent Works on Drone Warfare

While books and articles about drone technology and warfare abound, there are several works that informed this book project in its early stages. As already mentioned, in addition to Jane Mayer's *New Yorker* article, Medea Benjamin's *Drone Warfare: Killing by Remote Control* was the first book to critique the CIA's drone war in Afghanistan and Pakistan, document the explosive growth of the drone industry, and signal the rise of anti-drone activism. Also in the activist vein was Nick Turse and Tom Englehardt's *Terminator Planet: The First History of Drone Warfare, 2001–2050*. In 2012 Shahzad Bashir and Robert D. Crews published *Under the Drones: Modern Lives in the Afghanistan-Pakistan Borderlands*, a work that, despite its title, addresses a very wide array of social, cultural, and political issues in the region beyond the threats drones pose to civilians. Discussions of the technology have surfaced, as well, in other widely read recent works such as P. W. Singer's *Wired for War: The Robotics Revolution and Conflict in the Twenty-First Century*, M. Shane Riza's *Killing without Heart: Limits on Robotic Warfare in an Age of Persistent Conflict*, and Adam Rothstein's *Drone*. In addition, there has been a recent spate of critical scholarship on the politics of verticality, which we deem to be relevant to drone research: for example, the work of Eyal Weizman, Stephen Graham, and Laura Kurgan.[23] Finally, the explosion of scholarship on algorithmic practices and preemption of risk in security cultures is particularly germane to any examination of the political and technological context of drone warfare; here we are thinking specifically of the work of Louise Amoore and Marieke de Goede as well as Jutta Weber.[24]

Derek Gregory and Grégoire Chamayou have published some of the most influential and widely cited critical scholarship on drone technology and warfare. In a series of key articles, Gregory has addressed a range of issues, from the "new visibilities" and "scopic regime" of drone war to its expanding definition of the "civilian" in a "drone geography," from the lethal logistics of the "kill chain" to the screened intimacies of drone operators.[25] The geographies of drone warfare in Gregory's groundbreaking work move from the ground control stations, where sensor operators practice the doctrine of "projecting power without vulnerability," to the variable scales of intimacy and distance as mediated through material relations and technologies, to the transforming battlefield as targeting shifts from an area or structure, to, in many cases of assassination, an individual.[26] There is

probably no other cultural critic at work today who has done more to trace these geographies of military power and the ways in which political violence is enacted, justified, and resisted. Gregory's newest research on drone warfare, which appears in the first chapter of this book, offers a painstaking analysis of the rise of "targeted killing" and its production of "spaces of exception."

With the recent English translation of Grégoire Chamayou's *Théorie du drone*, this French philosopher's work has circulated more widely and generated more comment. Chamayou begins with the assumption that the drone has altered the general conditions of war and undertakes a philosophical, ethical, and genealogical analysis of the technology. His genealogy moves from automatons in the early twentieth century to kamikazes during World War II, from unmanned systems deployed in Israel and Vietnam to the Predators and Reapers currently aloft. For Chamayou, the drone turns humans into prey and war into a "militarized manhunt" that idealizes asymmetry, enabling the hunter-killer to kill without being killed and to see without being seen.[27] Chamayou confronts a range of vital issues—from relations of reciprocity to necro-ethics, from precision to automation—yet, as Ian Shaw has argued, in privileging ethics, the book has other agendas than to engage drone technology as inherent to a "history of U.S. empire and global violence," evacuating key historical instances, such as the Cold War.[28] This kind of metaphysics, Benjamin Noys insists, can ascribe "agency and activity that flatters the drone as object" while eliding "the intricate meshing with human labor that makes drone operations possible."[29] The balance between material analysis and metaphysical theory, between new or misrecognized sources and classic Eurocentric histories, and other antinomies of long standing can be difficult to negotiate. Considered together, recent work on drone warfare advances our understanding of the "full matrix," as Gregory puts it, of the ways in which war is being conducted "everywhere" as well as "somewhere" with significant repercussions for everyday life in an era of shifting battlespaces.[30]

Along these lines, *Life in the Age of Drone Warfare* provides contexts, concepts, and examples that encourage further interrogation and critique of drone warfare and drone-related militarization. What distinguishes this book from other works, however, is a privileging of critical humanities, poststructuralist, and feminist perspectives. *Life in the Age of Drone Warfare* explores how the imagination and usage of military drones has made possible or affected particular kinds of material conditions and embodiments,

whether in Israel/Palestine or the Horn of Africa, the Federally Administered Tribal Areas (FATA) region of Pakistan or the U.S.-Mexico border. To think about life in the age of drone warfare is to recognize the stretch between ground and sky as a field of strategic operations, world histories, and bio-politics. It is to recognize the ways military technologies are entangled with modes of perception and practices of knowledge. And it is to acknowledge the need for sustained critical inquiry around foundational categories such as body and machine, distance and proximity, self and Other, life and death. To think about life in the age of drone warfare, in other words, is to situate this flying apparatus within the frictions and factions of power. That the drone has maneuvered into so many sectors is also suggestive of the capacity of its militarizing tendencies to permeate life conditions. Too often the discussion of drones transpires in broad brushstrokes and top-down modes that often have the effect of endorsing current drone policy and practice rather than questioning the technology's public subsidies, uses, and effects. What is missing from existing scholarly work on drones is a critique of the technology that recognizes its imbrication within cultural imaginaries, bio-politics, difference, and perception.

To expand the critical analysis of drone technology, this book engages with perspectives from fields such as media and communications studies, geography, sociology, art, literary studies, journalism, feminist and queer theory, and subaltern studies, fields that approach the drone as a technology of power as well as a part of everyday life. Some of the questions explored in this book are: How does drone use intensify power asymmetries in the world and where? How do uses of this "unmanned" technology relate to issues of embodiment, subjectivity, and subjectivation? How is everyday life in different parts of the world changing in relation to the use of drones? What does it mean to sense the Earth's surface from the perspective of the drone, and how does that information manifest and circulate? What kinds of political practices and imaginaries are produced by the new forms of spatialization in targeting and the reorganization of lived experience produced by drone warfare? *Life in the Age of Drone Warfare* builds upon and extends the work mentioned above by drawing more focused attention to juridical relations, cultural imaginaries, and biopolitical formations.

Despite decades of feminist research on science, technology, and militarization, only a handful of recently published drone-related articles explicitly engage with feminist epistemologies.[31] Crucially, some of this re-

search builds upon Donna Haraway's critique of science and technology to foreground the gendered dynamics of unmanned systems and the agential capacities of drone interfaces.[32] Most drone research averts feminist perspectives either by ignoring them completely or absorbing their basic arguments and precepts without acknowledgment. This book, in embracing an openly feminist approach, takes as axiomatic that gender/sexuality, race/ethnicity, class, and national identities are constituted intersectionally and transnationally; that humans, animals, and technologies are materially integrated and hybridized; that militarization and violence are embodied in multiple ways; that the rule of law is applied differentially and unevenly within territories and upon bodies; and that postcolonial tensions persist, subalterns speak, and hegemonies are scattered.[33] Feminist epistemologies have guided us not only to shape and coedit this collection but also to spend much of our academic careers conceptualizing, researching, and analyzing the relationships between aerial and satellite technologies, militarization, power, and violence.[34] *Life in the Age of Drone Warfare* addresses readers who are interested in learning about, interrogating, and reflecting on the politics of drone technology and its relation to life worlds on Earth.

Drone Formations

Formulating research practices through multidisciplinary engagements, the contributors to this book draw upon a range of fields, including science and technology studies, poststructuralist and transnational feminisms, postcolonial criticism, critical legal studies, media studies, geography, and art, and analyze aspects of drone technology and warfare in relation to five critical themes. First, contributors explore drones as part of *cultural imaginaries*. Rather than treat the drone as a technical system that can be concealed away in secret CIA campaigns or hidden in the proprietary clean rooms of manufacturers, this book approaches the drone as a technology that draws upon and generates particular ways of perceiving and understanding the world. Drones are not idle machines hovering above; they are loaded with certain assumptions and ideologies. They operationalize fantasies and produce psychological states ranging from fear to fury, vulnerability to vengeance, anxiety to security. Drones should not only be thought of as the high-tech machines of militaries or states; they are also ideas, designs, visions, plans, and strategies that affect civilians on the ground, pilots in the

remote cockpit, and consumers in the marketplace. The contributors to *Life in the Age of Drone Warfare* critically engage a wide spectrum of imaginaries that are deployed through and with unmanned aerial vehicles.

Second, this book approaches drones as technologies of *power* or as *biopolitical* machines that have the potential to alter life in a most material way. Far from being wholly "autonomous" or "unmanned," drones are fusions or hybrids of human labor and technical objects and processes. Their network connections and vertical maneuvers enable the application of power from sky to ground, across patches of earth, within life worlds, and upon bodies. As they carry out or execute particular kinds of tasks for their human operators, they at times go rogue, malfunction, or crash. As such, drones are vital sites for studying how power works through human-technical assemblages. Just as drones have been used to patrol, target, and kill from above, some have been designed from the bottom up, as it were, for grassroots or "artivist" projects. By deploying conceptual art, reverse engineering, and do-it-yourself (DIY) engagements, activists have contested militarized drones through alternative design and visioneering. Art is a crucial technique for demonstrating and analyzing the logics and logistics of militarization, probing the politics of forensic evidence, and exploring the parameters of aesthetics in the age of airpower.

Third, as our contributors consider the cultural imaginaries and biopolitics of drones, they also explore the critical issues of *difference* and *affect*. As drones are used throughout the world for an array of purposes, it is vital to consider whose lives are most shaped by these technologies and how. Chapters throughout the book describe specific drone uses across different (trans)national, regional, or local contexts and analyze the effects of drone operations from diverse social perspectives, from those who build, design, and pilot drones to civilians who live daily beneath their unwavering eye. One of the intentions of the book is to foreground the affective experiences of subaltern and minority subjects whose lives are too often eclipsed in scholarly discussions of drone technology and warfare. These discussions tend to favor the technical, juridical, and geopolitical over the biopolitical and the affective, sidestepping the everyday social realities of ordinary people who live in the vicinity of drone operations. To engage with diverse social experiences, contributors use multiple approaches—from interviews to site visits, from discourse analysis to performance art—and they consider multiple sites, from Israel/Palestine to the U.S.-Mexico border and from Pakistan to Somalia and Yemen.

Fourth, contributors to *Life in the Age of Drone Warfare* approach drones through the registers of the *sensory* and the *perceptual*. In this way, the book builds on prior work on the histories of aerial observation and remote sensing by considering how the drone promises to refine and intensify aerial practices that have evolved over centuries. Contributors consider how this airborne machine generates images of the Earth, what those images are made of, and how they are mobilized to intervene in life on Earth. Engaging critically with the drone's sensing devices, contributors explore how the technology participates in the radiographic episteme, detecting and digitizing phenomena beyond the visible light portion of the electromagnetic spectrum so that it can become part of the knowledge economy. In addition to analyzing the epistemological dimensions of drone imagery, contributors explore how the drone itself has become a spectacle, serving, on the one hand, as a flying fetish that symbolizes the quest for planetary management and remote control, and, on the other, as the latest handheld device that enables civilians to sense, perceive, and privatize the Earth's surface. To approach the drone as a technology of sensing and perception involves considering uses that extend from militarized interventions to civilian experimentation.

Finally, chapters in this book explore the juridical dimensions of drone war and its relation to systems of governance, rationalization, and what has been termed *lawfare*. In the context of the war on terror, national and international laws have been mobilized to authorize acts of war without defining them as such and to legitimate targeted killings. One of the effects of exercising juridical power in this way has been to establish a new class of disenfranchisement—people who are targeted as suspects or who live in the vicinity of or have relations with those targeted suspects. Strategic uses of juridical power have undermined the civil rights and liberties of people around the world, particularly Muslims and people of color, forcefully impeding their mobility, infringing upon their privacy, and detaining them without cause. Drone technology and warfare have been used both to extend juridical power and, at the same time, to avoid it. The preemptive killing of suspects and incineration of bodies by drones has a way of neatly eliminating problems of legal breach or overreach. Now, more than ten years into the U.S. global drone war, the repetitive pattern of extrajudicial killings has had the effect of normalizing and sanctioning this method as part of a new world order, even as other heads of state who commit such atrocities are brought before international war crimes tribunals.

Weaving together the voices of scholars, artists, journalists, and activists, the book features multiple kinds of interventions—from research chapters to artistic provocations, from investigative reporting to personal correspondence—and is organized into three sections: Juridical, Genealogical, and Geopolitical Imaginaries; Perception and Perspective; and Biopolitics, Automation, and Robotics. Throughout the book, the critical themes discussed above surface and interlink contributors' chapters in multiple ways. The first section presents chapters that situate drone technology and warfare within different juridical, historical, and territorial constellations to draw attention to the technology's constitutive relation to concepts such as sovereignty, territory, borders, and verticality. It opens with Derek Gregory's chapter, "Dirty Dancing: Drones and Death in the Borderlands," which provides a comprehensive analysis of the rise of "targeted killing." Gregory argues that for the first time in its history, the CIA has combined covert bombing with a sustained and systematic approach to assassination. This shift in the doctrine of airpower, incorporating both "area" and "precision" attacks from above with new forms of surveillance through "persistent presence" and "pattern of life" analysis, leads to the production of "spaces of exception" in the Federally Administered Tribal Areas in northwestern Pakistan. In this incisive work, Gregory shows how the emergence of new battlefield spaces enables the killing of a range of subjects, from Taliban leaders to grandmothers in their gardens, as multiple powers compete, collide, and collaborate to permit states to assert, enact, and enforce a claim over bodies-in-space.

Lisa Hajjar's chapter, "Lawfare and Armed Conflicts: A Comparative Analysis of Israeli and U.S. Targeted Killing Policies and Legal Challenges against Them," explores U.S. and Israeli legal justifications for targeted killing practices. Hajjar distinguishes the concept of lawfare from what she refers to as "state lawfare." While lawfare describes the ways bodies of law are deployed to challenge specific forms of statecraft within international and domestic courts, *state lawfare*, according to Hajjar, refers to "the practices of officials to reinterpret international humanitarian law (IHL) or human rights laws in ways that deviate from prevailing internationally accepted understandings in order to 'legalize' state practices that would otherwise constitute violations." Hajjar constructs a genealogy of state lawfare to explain how the United States and Israel have defined vague categories such as "unlawful combatants," expressed territorial concerns related to exercises of military force, and legally obfuscated or justified accountability in targeted killing practices. Working through particular legal cases, Hajjar

points to the tenuousness of state lawfare, noting that attempts toward legitimation have persistently been met by resistance to these legal maneuverings and state violence.

Shifting from the historical conjuncture of the war on terror to World War II, Katherine Chandler's chapter, "American Kamikaze: Television-Guided Assault Drones in World War II," provides a historical analysis of the first television-guided assault drone, discussing key projects from 1939 to 1944. Blending critical science and technology studies and archival research, she excavates the sociopolitical frameworks and players that shaped and tested early assault drones. Drawing upon memoirs, military documents, scientific reports, and a test film, Chandler focuses not on the "invention" of the drone but on the co-constitution of "drone" and "human" during this period. She reveals how the drone was positioned in relation to a series of key issues, including human/nonhuman relations, interpretive flexibility, the politics of failure, and geopolitical relations between the United States and Japan. As the U.S. military combined automated flight, television, and targeting in a single machine, it also sought to remove the human pilot from danger and assert U.S. technical superiority, generating a variety of conflicting viewpoints and feelings among the players involved.

Returning to some of the concerns raised by Lisa Hajjar, Andrea Miller's chapter, "(Im)material Terror: Incitement to Violence Discourse as Racializing Technology in the War on Terror," explores the preemptive logic of drone warfare as symptomatic of a more pervasive phenomenon of preemption as a racializing technology in the war on terror, where action in the present is undertaken to contain and mitigate perceived future threats. Specifically, Miller examines the deployment of "incitement to violence" discourse as a mode of statecraft by exploring the 2011 case of Anwar al-Awlaki, the first U.S. citizen explicitly targeted and killed by a drone strike in Yemen, and the 2012 case of Tarek Mehanna, a twenty-nine-year-old Boston pharmacist sentenced to seventeen and a half years in prison for providing material support for terrorism and conspiring to kill in a foreign country. In both cases, disciplinary and lethal force were enacted against al-Awlaki and Mehanna not for actions they actually committed but for actions they were imagined to inspire others to commit in a conditional and indeterminate future. Within preemptive governance, then, incitement to violence discourse functions as a particularly insidious mode of racialization that seeks to criminalize and render actionable the realms of desire, imagination, and inspiration for Muslim and Arab bodies in the war on terror.

Also addressing the current historical conjuncture, Lisa Parks's chapter, "Vertical Mediation and the U.S. Drone War in the Horn of Africa," provides a critical analysis of the material restructuring and effects of U.S. drone operations in this region. Since 2002, the U.S. Joint Special Operations Command (JSOC) and the CIA have orchestrated a covert drone war from Camp Lemonnier in the African country of Djibouti, monitoring and striking alleged al-Qaeda and Al-Shabaab suspects in Yemen and Somalia. As a media scholar, Parks is interested in both the discourses that have been used to expose covert U.S. drone interventions and the ways that drone operations themselves function as technologies of mediation. Drawing upon media such as training manual diagrams, infrared images, Google Earth interfaces, and drone crash scene photos, her chapter explores the drone's mediating work through three registers: the infrastructural, the perceptual, and the forensic. By pointing to a series of ground-to-sky operations that alter or rewrite life worlds on Earth, Parks argues that U.S. military drone operations can be understood as technologies of *vertical mediation*. As a drone flies through the sky, it alters the chemical composition of the air. As it hovers above the Earth, it can change movements on the ground. As it projects announcements through loudspeakers, it can affect thought and behavior. And as it shoots Hellfire missiles, it can turn homes into holes and the living into the dead. Irreducible to the screen's visual display, Parks argues, the drone's mediating work happens extensively and dynamically through the vertical field—through a vast expanse that extends from the Earth's surface, including the geological layers below and built environments upon it, through the domains of the spectrum and the air to the outer limits of orbit.

The book's second section, "Perception and Perspective," provides historical and contemporary accounts of the relationship between aerial drone technology and modes of perception, meanings of "perspective" and the production of worldviews. It opens with Caren Kaplan's chapter, "Drone-o-Rama: Troubling the Temporal and Spatial Logics of Distance Warfare." In this work, Kaplan argues that a "cacophony of multimedia 'noise'" distracts the U.S. public from accountability as the civilian death toll from drone strikes mounts. She urges that instead of splitting news accounts between international and domestic or fetishizing technologies as always already "new," the temporal and spatial logics of distance warfare need to be critically deconstructed in favor of affiliating the subjects of drone attacks across national boundaries and in historical frameworks. She concludes by arguing that any analysis that does not inquire into continuities in policing by autonomous weaponry

across time and space will adhere to the geography of imperialism and international relations that has led to over a century of airpower and war at a distance.

Ricardo Dominguez's chapter, "Dronologies: Or Twice-Told Tales," provides a tactical analysis of drone discourses and events. Using a method he describes as "minor simulation," Dominguez "creates an event that is difficult to understand as either real or not real." Offering four twice-told tales, he first immerses his reader into a future world of thanatologists and zombie drones whose technologies are a thing of the past. Here, the surface of a withered drone is remembered as fleshy and plantlike and the anthropocentric desires of apocalypse fiction are enmeshed with contemporary discourses of technovitalism. Dominguez's second tale probes the relationship between smart matter development and the U.S. military's attempts to harness and weaponize the weather. In Dominguez's third tale, the future is engaged in a battle between fully autonomous swarm systems, where private autonomous aerial corporations rival and evade state and international actors through the deployment of highly sophisticated autonomous systems. In Dominguez's final vignette, the reader is transported to UC San Diego in 2012, where a drone crash has reportedly occurred outside the university library. Part of UC San Diego's Gallery@CALIT2 art gallery's exhibition *Drones at Home*, in this final "minor simulation" the reader encounters an "online statement" by Dominguez's UC Center for Drone Policy and Ethics. Navigating the boundaries between art and science, and science and fiction, Dominguez teases his readers with a tantalizing medley of simulations designed to infiltrate truth claims and mimic the promises of a dronological future.

Thomas Stubblefield's chapter, "In Pursuit of Other Networks: Drone Art and Accelerationist Aesthetics," also explores the emergent field of drone art, critically engaging the work of artists such as James Bridle, Trevor Paglen, Josh Begley, Natalie Jeremijenko, and Kate Rich. For Stubblefield, drone art seeks to counter the decentralized, networked logic of the drone in order to "initiate blockages and intensify existing relations, processes that work within the ecological model of the kill chain so as to amplify its power differentials and, ultimately, produce new distributions." Drawing upon Thacker and Galloway's concept of "the exploit," Stubblefield shows how drone art coopts "the potentiality" of the network's interconnections, disrupts the "nodocentrism" of the networks in which drones are situated, and destabilizes the scopic regimes of drones through accelerationist aesthetics.

Shifting the perspective away from drone art to conditions on the ground, Madiha Tahir's chapter, "The Containment Zone," explores effects of the U.S. drone war in the FATA region of Pakistan. Tahir's account of the FATA contradicts those that rely on Giorgio Agamben's "state of exception" framework, where the Tribal Areas are presented as a lawless region in a state of anachronistic suspension. Instead, she outlines regional governance and U.S. drone warfare as an extension of British colonial administration and policing, where the territory's spatial ordering and customary law create conditions on the ground that are particularly suitable to U.S. drone warfare. Noting that the Tribal Areas are divided into ambiguously defined regions of protected and unprotected areas, Tahir observes, "It is a system that arranges space through the logic of cultural autonomy—the government says it only minimally interferes—but one whose final consequence in times of conflict is not the preservation of custom beyond the reach of governance but containment." She explains how "containment zones" and "filter points" (checkpoints) have turned the Tribal Areas into a security economy premised on the regulation of bodily movement. These sites of physical and discursive encounter—of containment and filtration—she argues, produce asymmetrical power relationships between bodies differently situated in relation to the Tribal Areas and the Pakistani state. Ultimately, Tahir reveals how the time-space compression that characterizes drone warfare and the time-space relations of "governance on the ground" in the Tribal Areas work to mutually constitute and reinforce one another.

In the last chapter in this section, "Stoners, Stones, and Drones: Transnational South Asian Visuality from Above and Below," Anjali Nath challenges the aerial politics most often associated with U.S. drone warfare and embraces the "spatiality of the low and the below." Through an analysis of South Asian diasporic cultural productions, Nath offers a rejoinder to drone critiques that privilege the visuals of verticality by pointing to the everyday, embodied experiences of those subjected to the continued presence and violence of drones. To develop this "politics of below," Nath turns to the video "Soup Boys (Pretty Drones)" by South Asian American rapper Himanshu "Heems" Suri. Circulated via YouTube and other social media, Heems's video deploys a "narcotically inspired unruliness" that "simultaneously emerges from and remaps a visual terrain in which South Asian and Middle Eastern bodies are constructed and killed, and whose lives are framed by the optic perception of drones." Rather than articulate the "discourses of sobriety" typical of documentary cinema, the video offers a productive "discourse of

inebriation," a mode of "intoxicated and insubordinate" diasporic culture in response to a "technoracial visual system of interpellation" that has also led to drone killings of civilians.

The final section of the book features chapters that engage with the sociotechnical dimensions of drones, theorizing their relation to biopolitics, robotics, and automation. It begins with a chapter titled "Taking People Out: Drones, Media/Weapons, and the Coming Humanectomy" by Jeremy Packer and Joshua Reeves. Exploring the relationship between drone technologies and "military media capacities," Packer and Reeves point to a historical tension between expert-based, centralized command, on the one hand, and a decentralized and autonomous network of military agents, on the other. Arguing that the drone exemplifies the decentralization impulse, Packer and Reeves also suggest that it is core to ongoing debates about the future of military technologies and organization. Extending their historical analysis back to World War I, Packer and Reeves hone in on a series of moments in U.S. military history when tension between centralization and decentralization is presented in sharpest relief. Given the increasing consensus among military strategists that "the human has suddenly emerged as an epistemological hindrance," the swarm is now presented as "the ideal technological system for dispensing the fog of war" and "the swarm cloud possesses a continuously refined, emergent collective intelligence that is far beyond the grasp of humans' physiological capacity." The authors conclude that the swarm is symptomatic of the recursive relationship between military and media technologies, where the questions produced through war-making are generative of new systems of communication and mediation that increasingly wish to dispense with the human entirely.

Peter Asaro's chapter, "The Labor of Surveillance and Bureaucratized Killing: New Subjectivities of Military Drone Operators," explores the drone war as a system of "bureaucratized killing" and focuses on the forms of subjectivity and psychological responses it generates. For Asaro, bureaucratized killing is "the particular form of labor that killing takes in the work of drone operators, which is constituted by the kind of bureaucratic labor organization developed within the military to do things like generate lists of bombing targets, in combination with the more 'hands-on' work of deciding when and where to pull the trigger." Asaro reads military studies of the psychological stress of drone operators within a Taylorist framework of scientific labor management studies that seeks to identify the inefficiencies in the labor production of drone operators, and potentially to reconfigure their

work practices to reduce or eliminate these inefficiencies. One of the primary accounts of stress, he finds, involves the relationship between human operators and the technological interfaces with which they must interact for long periods of time and that are frequently subject to malfunctions. Supplementing his analysis of military studies with a reading of the drone operator's testimony in Omer Fast's *5,000 Feet Is the Best*, Asaro points toward the insufficiencies of Taylorist discourses to adequately account for the particular kinds of psychological stresses and cognitive dissonance experienced by drone operators.

Brandon Bryant's "Letter from a Sensor Operator" delves more personally into the labor questions probed by Asaro and takes readers inside the ground control station (GCS) where he worked as a sensor operator for six years. Bryant worked at Nellis, Cannon, and Balad Air Force bases from 2006 to 2011 and famously shared his experiences with the international press in 2012. In this "letter," Bryant offers a candid description of the training he received, imaging technologies he used, and assignments he completed. Always self-reflexive, Bryant explains that it was his job to "provide the best picture possible for our intelligence analysts while being cognitively aware of all the activity going on." Told by his superiors that sensor operation was more of an "art form" than a "science," Bryant felt as if he were the "eyes of the mission" and learned to master transitions between infrared, daylight, and low-light optics. "Letter from a Sensor Operator" also captures the mood and atmospherics of drone operation as Bryant explains that he was often depressed and lonely, sleepless and bored in the midst of his drone work. At the same time, however, he was awed and pained by the aerial views of life and death that he witnessed and explains that he eventually had to "wash off the filth" and find a path out of the ground control station.

Shifting from the personal to the ontological, Jordan Crandall's chapter, "Materialities of the Robotic," considers how increased automation is affecting modes of being, doing, and cognition in contemporary infrastructural ecologies. Moving from the drone's cockpit to the autonomous guided vehicle to the driverless, flying car, Crandall delineates a robotic ontology premised on modes of interoperability, transport, and transmission. Rather than a phenomenon linked to specific technologies, a robotic ontology signals a much broader redefinition of form and being across the battlefield, the factory, and the home. According to Crandall, "The vehicle–operator composite is provisional and fluid, with the body of the driver extending

to the car shell or fuselage and even beyond, retracting when necessary, as the composite that is traffic itself wells up and dilutes." Writing as a conceptual artist and theorist working within this ontology, Crandall explores how elements of the drone are reshaping and becoming part of generalized conditions.

In the book's concluding chapter, "Drone Imaginaries: The Technopolitics of Visuality in Postcolony and Empire," Inderpal Grewal explores how the power and anxiety of empire and the postcolonial state are treated in two fictional texts: George Brant's play *Grounded* and Hari Kunzru's short story "Drone." In *Grounded*, the costs of perpetual war (waged through new modes of technological innovation and alienation) contribute to the psychological breakdown of the main character, a female drone pilot who had formerly flown f-16s in the U.S. Air Force. Grewal argues that all the nodes that contribute to the pilot's psychological distress are also illustrative of an overarching anxiety around the dissolution of the liberal subject and the kinds of assurances and securities associated with liberal subjecthood within the colonialist metropole. In contrast, Kunzru's short story "Drone" provides a dystopian account of a future India where neoliberal "hyperindividualization" renders all bodies differentially precarious. Within this world, drones are ubiquitous; they can be purchased by anyone to surveil anyone and provide commodities and services that can both optimize worker productivity and extract biomaterial from workers' bodies to be reintroduced into the market. Grewal closes by critiquing the advent of drone technopolitics, which imagine biopower and bodies that are not simply "bio" or "bare life" but rather are also technologized bodies, cyborgs, provoking questions about the future meanings of resistance for both liberal empire and the postcolony.

Collectively, these chapters place the drone within different discursive formations and provide alternate ways of thinking about the technology within the current historical conjuncture. The goal of the project overall is to offer new critical languages and technical histories that can be used to assess this emergent paradigm of militarization and warfare. Critiques and histories of the drone need to come from the margins and from below as much as they need to come from above. That life is changing in the age of drone warfare is by now a well-established point; yet, as this book's chapters demonstrate, this process is taking shape in relation to different bodies, territories, and temporalities on Earth. *Life in the Age of Drone Warfare* communicates the ways worlds are being rewritten through contemporary

air-to-ground formations and in doing so responds to and intervenes in the latest round of U.S. global militarization.

Notes

1. Handwerk, "5 Surprising Drone Uses"; Murphy, "15 UK Companies Using Drones"; Michel, "The Age of Drone Vandalism"; "20 Great UAV Applications Areas."
2. Olsen, "Drone Racing Dreams"; G. Weber, "This Is the Year's Best."
3. McNabb, "Chicago Now a No Drone Zone."
4. Jansen, "Small Drone Crashes Near White House"; Buckley, "Chinese Navy Returns Seized Underwater Drones."
5. "The Surveillance Hummingbird"; J. Martin, "Best Quadcopters 2015/16."
6. Mayer, "The Predator War."
7. See, for instance, International Human Rights and Conflict Resolution Clinic (Stanford Law School) and Global Justice Clinic (NYU School of Law), *Living under Drones*; and Breau, Aronsson, and Joyce, "Discussion Paper 2."
8. Replogle, "The Drone Makers."
9. D. Bell, "In Defense of Drones."
10. Atherton, "Australian Eagle Takes Down a Drone"; Atherton, "Trained Police Eagles Attack Drones"; Weisberger, "Drone-Hunting Eagles."
11. Gregory, "Drone Geographies," 7.
12. Miethe et al., "Public Attitudes about Aerial Drone Activities."
13. See James Bridle, "Dronestagram," http://dronestagram.tumblr.com/; see also Pitch Interactive, "Out of Sight, Out of Mind," accessed February 17, 2016, http://www .pitchinteractive.com/work/Drones.html.
14. Joseph DeLappe, *In Drones We Trust* project description, 2014, distributed with rubber stamps to project participants. See also http://indroneswetrust.tumblr.com /post/143846558639/in-drones-we-trust-thrift-depot-reno-nv-5116, accessed February 17, 2016.
15. Gregory, *The Colonial Present*; Satia, "The Defense of Inhumanity"; Gregory, "From a View to a Kill"; Satia, "Drones: A History"; Kaplan, *Aerial Aftermaths*.
16. Gusterson, "Toward an Anthropology of Drones," 196.
17. K. Feldman, "Empire's Verticality," 325.
18. See Sterio, "The United States' Use of Drones," 201; and K. Ryan, "What's Wrong with Drones?," 209.
19. See Naureen Shah et al., "The Civilian Impact of Drones."
20. See, for example, Rothstein, *Drone*; Kaag and Kreps, *Drone Warfare*; Rogers and Hill, *Unmanned*; Riza, *Killing without a Heart*; L. Gardner, *Killing Machine*; Cohn, *Drones and Targeted Killing*; Shaw, *Predator Empire*; and Gusterson, *Drone*.
21. See Wall and Monahan, "Surveillance and Violence from Afar"; Stahl, "What the Drone Saw"; N. Hussain, "The Sound of Terror."
22. When so much drone discourse circulates, its salience and purpose can become diffuse. In such conditions, the public may experience the drone as infoglut or a

passing trend rather than as a changing infrastructure of militarization. For discussion of the way that drone logics have taken shape across different sectors, see Andrejevic, "Becoming Drones."

23. See, for example, Weizman, *The Politics of Verticality*; Graham, *Cities under Siege* and *Vertical*; and Kurgan, *Close Up at a Distance*.

24. Amoore and de Goede, "Transactions after 9/11"; J. Weber, "Keep Adding."

25. Gregory, "From a View to a Kill."

26. Gregory, "Drone Geographies."

27. Chamayou, *Théorie du drone*; see also the English translation, *A Theory of the Drone*.

28. Shaw, "Intervention," 1.

29. Noys, "Drone Metaphysics," 4.

30. Gregory, "Drone Geographies."

31. Suchman and Weber, "Human-Machine Autonomies"; Manjikian, "Becoming Unmanned"; Daggett, "Drone Disorientations"; de Volo, "Unmanned?"; Krasmann, "Targeted Killing and Its Law"; Holmqvist, "Undoing War."

32. Haraway, *Simians, Cyborgs, and Women*; Holmqvist, "Undoing War"; Feigenbaum, "From Cyborg Feminism to Drone Feminism."

33. Grewal and Kaplan, *Scattered Hegemonies*; Moallem, *Between Warrior Brother and Veiled Sister*; Moallem, "The Unintended Consequences of Equality"; Terry, "Killer Entertainments"; Terry, "Significant Injury"; Gilbert, "Money as a 'Weapons System'"; Cowen and Gilbert, *War, Citizenship, and Territory*; Cowen, *The Deadly Life of Logistics*.

34. See Kaplan, "Air Power's Visual Legacy"; Kaplan, "The Balloon Prospect"; Kaplan, Loyer, and Daniels, "Precision Targets"; Kaplan, "Mobility and War"; Kaplan, "Dead Reckoning"; Kaplan, *Aerial Aftermaths*; Parks, *Cultures in Orbit*; Parks, "Digging into Google Earth"; Parks, "Vertical Mediation"; Parks, "Drones, Infrared Imagery, and Body Heat"; Parks, "Drone Media"; Parks, *Coverage*; Parks and Fair, "Africa on Camera"; Parks, "Drones, Vertical Mediation, and the Targeted Class."

35. Packer, "Screens in the Sky," 189.